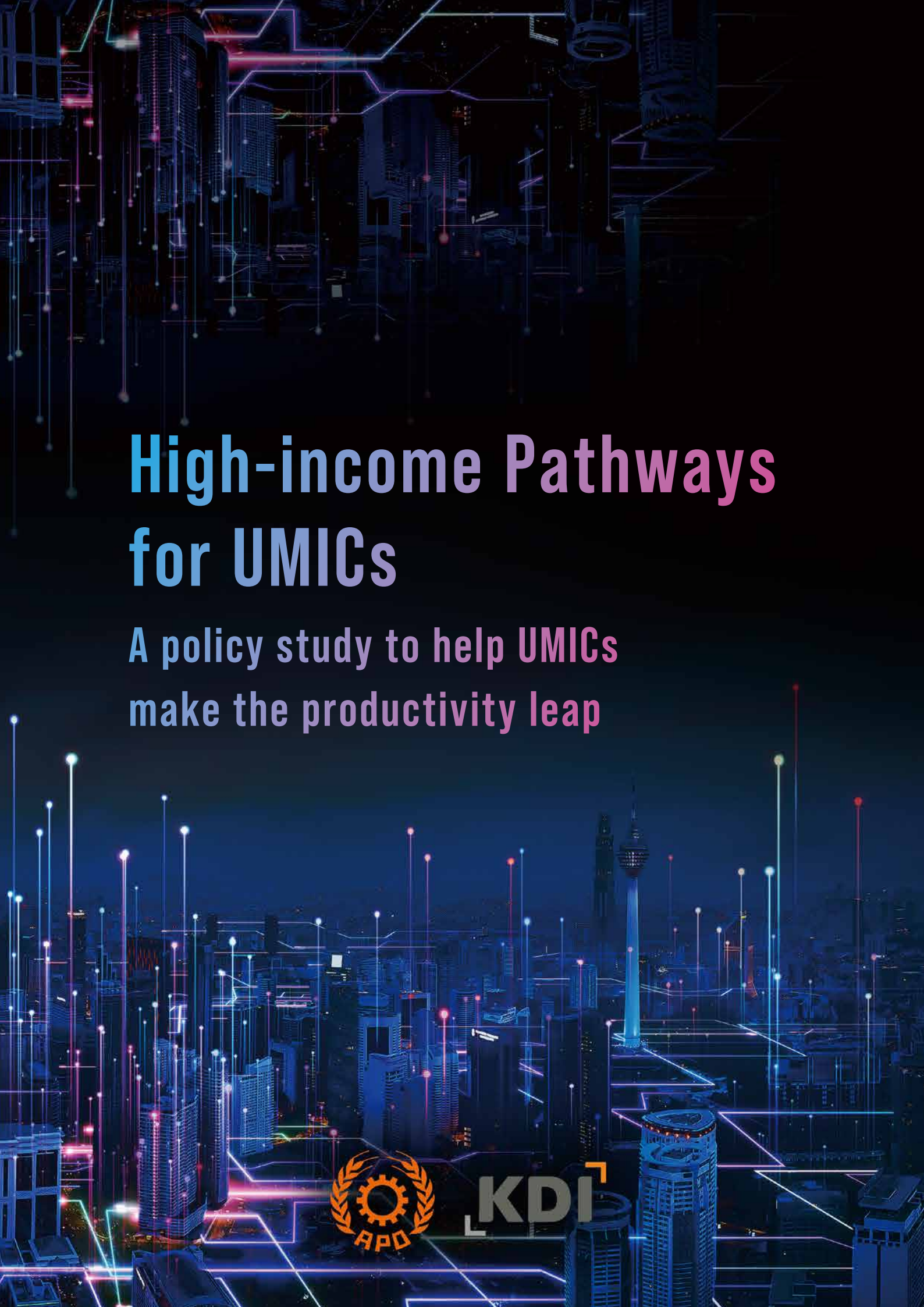

High-income Pathways for UMICs

A policy study to help UMICs make the productivity leap

APO

KDI

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HIGH-INCOME PATHWAYS FOR UMICs

A POLICY STUDY TO HELP UMICS MAKE THE PRODUCTIVITY LEAP

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High-income Pathways for UMICs
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Designed by BM Next

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FOREWORD

The aspiration to join the high-income economy rank while minimizing the risk of falling into the middle-income trap necessitates that APO upper middle-income countries (UMICs) embark on new, transformative development paths. Despite their high potential, many UMICs have yet to take off. Additionally, the COVID-19 pandemic made the transformation of economic structures and enhancement of productive capacities more urgent for UMICs than ever.

To support APO UMICs in increasing growth rates and narrowing income gaps with high-income peers, in 2022 the APO in partnership with the Korea Development Institute (KDI), a renowned research institute and think tank in the Asia-Pacific, initiated a policy study. The study examined bottlenecks and prospects of UMICs for developing more diversified economic structures and identifying new sources of productivity growth. Five APO UMICs, Fiji, I.R. Iran, Malaysia, Thailand, and Turkiye, were included in the analysis. While acknowledging the potential of these UMICs, the study pinpoints several critical issues for the group. Relatively insufficient human resources quality, reliance on traditional industrial structures, and stagnant industrial transformation efforts have led to the increased risk of premature deindustrialization in these countries. Key recommendations are made in this publication to enhance industrial upgrading and FDI spillover effects on technological progress.

The APO thanks the research team from the Center for International Development, KDI, for its cooperation and commitment to the study. It is expected that this volume will contribute to enabling UMICs to leapfrog toward the high-income economy rank and rebound from the impact of the COVID-19 pandemic.

Secretary-General
Asian Productivity Organization, Tokyo

EXECUTIVE SUMMARY

This study has evaluated the economic performances of five upper-middle-income countries (UMICs) in the APO, namely, Fiji, IR Iran, Malaysia, Thailand, and Turkiye; and derived several policy implications to help these countries progress toward becoming high-income countries. For this purpose, this study performed comparative growth analyses and comparative indicator analyses of the five APO UMICs, in comparison with two high-income countries (HICs) in the APO, namely, the Republic of Korea (ROK) and the Republic of China (ROC).

The comparative growth analysis has demonstrated that productivity growth is the most important factor for increasing per capita GDP in all countries. Growth accounting has shown that capital accumulation is more important than total factor productivity (TFP) growth in high-growth years to enhance productivity. The differences in the rates of increase in capital stock per labor resulted in significant growth gaps between UMICs and HICs. Consistency of growth was the distinctive characteristic of HIC members while UMIC members experienced large fluctuations in the growth of TFP and capital accumulation.

Both UMIC and HIC members have experienced deindustrialization with decreases in the employment share of manufacturing after the 1990s. However, the value-added share of manufacturing among UMICs decreased while it increased for the HICs. The UMICs found the share of medium-high-tech manufacturing decreasing as they advanced from the lower-middle-income group to the upper-middle-income group. This indicates that the UMICs lost industrial competitiveness as their incomes rose, which resulted in deindustrialization in terms of both employment and value added. This implies that APO UMICs have been experiencing premature deindustrialization.

If we define the middle-income trap as a long duration of middle-income country status, UMICs may be regarded to be in the middle-income trap. The duration for which the ROK and the ROC remained middle-income countries was 26 years shorter than has been the case with APO UMICs. However, we cannot find any distinctive feature in slowdown of growth after APO UMICs transitioned upward from their earlier status of lower-middle-income countries (LMICs).

Based on comparative indicator analyses, we found weaknesses in the fundamentals of economic growth, which are challenges that each APO UMIC must tackle to become an HIC. Compared with other APO UMICs, Fiji's economic growth is slower, and its industrial transformation has been stagnant. As a result, Fiji is lowest in per capita GDP among APO UMICs. Also, Fiji is a low-investing country by global comparison and unique in its geographical characteristic as a remote island country in the Pacific ocean. Thus, Fiji should invest more in infrastructure and improve its human capital, particularly in the health sector. Considering Fiji's relatively low-income level and distinct geography, Fiji may need to seek alternative means of industrial transformation by finding new high-value-added sectors other than manufacturing.

The major challenge for IR Iran is macroeconomic instability, which may have originated from political instability. For IR Iran to join the HIC group, it is critical to accelerate its growth through further industrial upgrading. For this, IR Iran needs to invest more in education. Fundamentally, the improvement of governance and institutional quality is critical.

Among APO UMICs, Malaysia is best positioned in terms of growth performance and fundamentals of economic growth. This was to be expected, since Malaysia has the highest per capita GDP among APO UMICs. The challenge for Malaysia is to reduce its gap with other countries at similar income levels in the fundamentals of economic growth, such as health, education, governance, and institutional quality. While other APO UMICs suffer from macroeconomic instability and backward industrial structures, Malaysia is in a better position to become an HIC. However, there is a downside risk of premature deindustrialization as Malaysia loses industrial competitiveness because of stagnant technological progress in its manufacturing industries. It is utmost important for the future growth of Malaysia to implement a suitable industrial policy to catch up with other industrialized countries. For this, it is important to set up good governance and improve the quality of its institutions.

Thailand needs further industrialization compared with other countries because it still has a large pool of unproductive labor in rural areas. It has established significant manufacturing industries through foreign direct investments (FDIs) but recently the FDI inflow has been stagnant. Even though Thailand's large employment share of agriculture is a weakness, this may also imply an upside potential because Thailand can accelerate growth through relocation of workers from rural to urban areas. This will require more investment in infrastructure and human capital, and improvement in governance and institutional quality, the failures of which may limit FDI inflows to the country.

Turkiye is similar to Malaysia in that it faces the risk of premature deindustrialization as it loses industrial competitiveness in manufacturing. Unlike Malaysia, Turkiye should first overcome the challenges of macroeconomic instability, such as high inflation and unemployment. As in the case of Malaysia, Turkiye should invest more in health. Turkiye also needs to improve its governance and institutional quality.

The process of policymaking is not independent from the social norms that are deeply rooted in the cultural and historical contexts. Thus, it is necessary for political leaderships to find their own styles of governance and institutions that fit the local social norms and cultural contexts. Fortunately, most APO UMICs rank high in government effectiveness. In addition, due to the progress in ICT and increasing international travel, sharing of information and knowledge is increasing imitation across countries in every corner of society, including political and economic systems. The globalization in the last 30 years has accelerated this trend.

Thus, even though it is not desirable for APO UMICs to implement industrial policies as APO HICs did in the 1970s, the UMICs could imitate the policy frameworks of HICs based on the principle of effective policymaking. That is, even though the UMICs ought to introduce different policy measures suited to their respective institutional settings, the policymaking could reflect the successful elements observed in HICs' policies. First, prior to policy actions to achieve the intended goals set by governments, it is critical to establish the right economic environment to enable people, and businesses, to rationally engage in the market process. Second, for most of the UMICs, particularly Malaysia and Turkiye, industrial upgrading is necessary to avoid premature industrialization, which may trap them in the MIC status. As the HICs did, these countries should pay more attention to the demand side rather than the supply side of industrial policymaking. Third, the critical factor of a successful policy does not lie with 'what to do' but with 'how to do' it (i.e., the implementation part). Before undertaking ambitious projects, it is critical to evaluate the effectiveness of policy implementation. Fourth, the policymakers should consider the incentive mechanism to make the behavior of stakeholders consistent with the policy goals.

INTRODUCTION

After the global financial crisis in 2008, most developed countries had concerns about deflation. The economy stagnated despite expansionary monetary policies. To make matters worse, most countries were impacted by the outbreak of the COVID-19 pandemic. This major macroeconomic shock induced advanced countries to pursue bold macroeconomic policies to expand aggregate demand through a large increase in government spending and large-scale monetary expansion. However, as the effects of the COVID-19 pandemic became significantly mitigated in 2022, the policy stance changed drastically from expansionary to contractionary.

Such a sharp reversal of macroeconomic policies in advanced countries, particularly in the USA, deepened macroeconomic imbalances in emerging countries. The impact of this sharp contractionary turn in policy was accelerated by unexpectedly high inflation, because of supply shortages in the wake of damages to supply chains caused by the pandemic and by reduced investment during the period. High inflation and tightening policies are expected to lead to a global economic recession and a financial crisis in some developing countries that have global liquidity shortages.

This rapid shift in macroeconomic policy in developed countries is regarded as portending a foreign exchange and debt crisis in some developing countries. Sri Lanka, Pakistan, and Bangladesh have already requested the IMF to provide relief funds. In addition, the rapidly rising prices of raw materials is bad news for resource-starved developing countries, though it is good news for some resource-rich developing countries. The ongoing macroeconomic crisis, which originated from the COVID-19 pandemic, appears to be leading to another economic crisis in developing countries, as experienced in the 1980s.

This study evaluates the economic performance of five upper-middle-income APO countries (APO UMICs), including Fiji, IR Iran, Malaysia, Thailand, and Turkiye; and investigates the major challenges and policy directions for them to join the (HIC) group. APO UMICs should ultimately achieve continuous improvement in productivity through transformation of economic and industrial structures, and investments in physical, human, and institutional infrastructure. This study utilizes the comparative economic growth framework to compare the UMICs and their high-income APO peers, namely the ROK and the ROC, and identifies relevant policy issues based on the experience of the two HICs. These two APO HICs started out as LMICs, progressed to the status of UMICs, and ranked up to the HIC level. Thus, a comparative growth analysis of UMIC and HIC member countries can provide useful lessons.

In this study, we compare economic growth of the five selected UMICs with growth of the ROK and the ROC. The APO's HIC group includes Japan, Singapore, and Hong Kong in addition to the ROK and the ROC, but Singapore and Hong Kong have special characteristics as city states, while Japan is a country that became an HIC before 1970 and has an economy that is too advanced to be a source of lessons appropriate to current UMICs. In addition, the ROK and the ROC have economic scales comparable with the five UMICs and have a common history of starting from a low-income county base and developing into an HIC. Thus, in this study, we chose to compare the five UMICs with the cases of the ROK and the ROC.

In particular, Malaysia, Turkiye, IR Iran, and Thailand have been actively pursuing industrialization as seen in the ROK and the ROC. In addition, a rapid change in the global value chain is expected, due to the political conflict between the USA and PR China. In this context, if UMICs are able to present attractions for foreign investors who are searching for substitutes to replace Chinese factories, it may generate key opportunities.

The next chapter compares the overall economic growth and structural transformation in APO UMICs and HICs. In addition, we will discuss whether there is a peril of these countries falling into the middle-income trap. We will examine whether premature deindustrialization is occurring in these UMICs. While the chapter presents a comparative growth analysis, the subsequent chapter examines structural and policy variables to find the bottlenecks of economic growth or challenges for future growth in each individual country. To this end, we examine selected variables available from international database in the fields of macroeconomic management, industrial structural change, health and human resources, system and government, and environment. An international comparison of these variables will indicate critical factors for enabling UMICs to advance into the group of HICs.

The final chapter discusses the implications. The critical factors for future growth identified in the preceding chapter can provide insights into the direction of policies or prioritizations that individual UMICs need to adopt to become HICs. The risk factors can be changed into success factors depending on the efforts of each country. Finally, we discuss what can be learned from the experiences of APO HICs for policymaking.

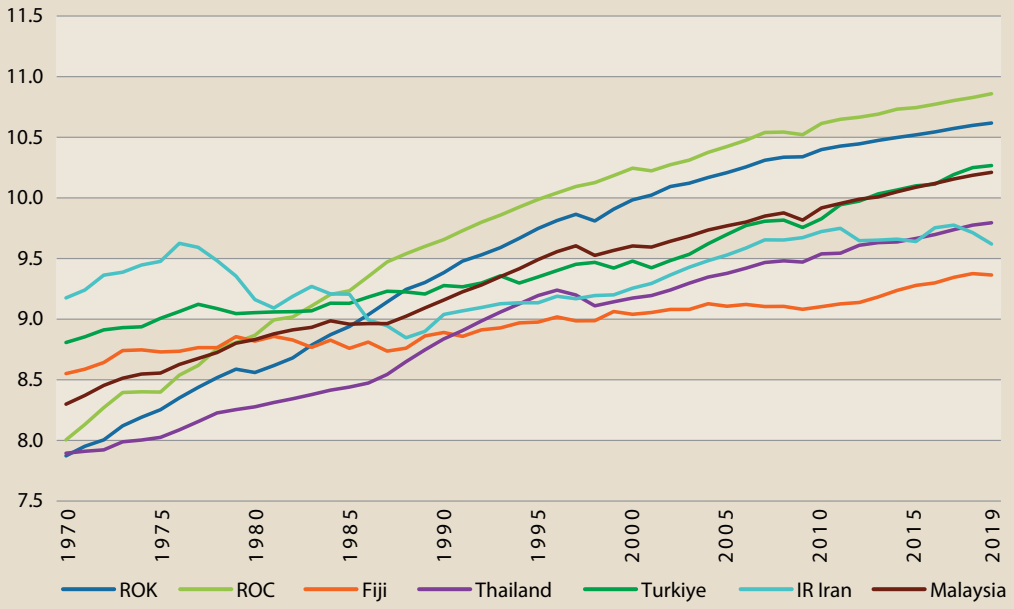
COMPARATIVE GROWTH AND STRUCTURAL TRANSFORMATION OF UMICs

Economic Growth of UMICs and HICs

In 1970, the GDPs per capita of the ROK and the ROC were lower than those of the other five UMICs being considered for this report. Figure 1 shows their GDP per capita growth rates for the period 1970–2019. The ROK and the ROC overtook the current five UMICs in the 1980s and advanced to HIC status in the 1990s. The ROK suffered from the Asian financial crisis in 1997 but recovered quickly. The ROC has achieved stable growth without experiencing a crisis. Figure 1 shows the steadiness of economic growth in these two countries. The economic growths of these two APO HICs have not only been higher than those of the UMICs, but also more stable. After the Asian financial crisis, Thailand took a relatively long time to overcome it, unlike the ROK. IR Iran, which is highly dependent on oil production and has experienced political turmoil, showed large fluctuations in its economic growth rate. Fiji has remained at a very low rate of economic growth compared with other countries. Malaysia and Turkiye continued to show relatively high growth rates compared with other UMIC member countries, but their growth rates fluctuated more than those of the ROK and the ROC.

FIGURE 1

PER CAPITA GDP GROWTHS OF APO UMICs AND HICs.



Source: APO Productivity Database.
Note: GDP is at constant prices, using 2017 PPP, reference year 2019.

To examine the factors responsible for the difference in growth between the UMICs and the HICs, GDP per capita is decomposed in Equation 1 as the product of GDP per hour worked, average working hours, and employment rate (the ratio of total employment to population). Taking the logarithm and differentiating Equation 1, we can decompose the growth of GDP per capita into the growth of labor productivity in terms of hours worked, average working hours, and employment rate.

$$\frac{Y}{Pop} = \frac{Y}{H} * \frac{H}{L} * \frac{L}{Pop} \quad (1)$$

where Y, H, L, and Pop are GDP, total hours worked, total employment, and population, respectively.

Table 1 shows the decomposition of the per capita GDP growth rate and Table 2 shows the relative contribution of each factor to per capita GDP growth. The ROK and the ROC showed high growths until the late 1990s, though the growth rates slowed down as the income levels increased. The high growths of these countries were mainly driven by the increase in labor productivity. In addition, the increase in their employment rates due to demographic transitions and increasing female labor force participation significantly contributed to the growth in per capita GDP. Table 2 shows that the increasing employment rate contributed as much as 20% of the per capita GDP growth.

In contrast, the growth rate of Fiji's per capita GDP has been continuously lower than other countries with a low growth rate of labor productivity. In comparison with stable growths of the ROK and the ROC, IR Iran's growth rate has experienced large fluctuations as oil prices have fluctuated over time. In the cases of Malaysia, Thailand, and Turkiye, increases in labor productivity have contributed significantly to per capita GDP growth, but the growth rates have been lower than those of the ROK and the ROC. Table 1 and 2 show that the long-term differences in labor productivity growth and the steadiness of growth are the key factors behind the growth gap between UMICs and HICs.

TABLE 1

DECOMPOSITION OF PER CAPITA GDP GROWTH RATE.

Country		1970–79	1980–89	1990–97	1998–2008	2009–19
Fiji	Per capita GDP	3.39	0.48	1.36	1.18	2.82
	GDP per working hour	2.08	–0.04	–0.41	0.99	1.57
	Average working hours	0.18	–0.44	0.21	–0.07	0.39
	Employment rate	1.13	0.96	1.56	0.26	0.87
IR Iran	Per capita GDP	1.99	–2.92	1.85	4.58	–0.52
	GDP per working hour	2.36	–1.77	0.96	4.07	–0.22
	Average working hours	0.02	0.11	–0.14	–0.19	–0.48
	Employment rate	–0.39	–1.25	1.03	0.71	0.17
Malaysia	Per capita GDP	5.59	2.91	6.39	3.51	3.93
	GDP per working hour	4.79	2.42	5.44	3.48	2.41
	Average working hours	0.03	0.01	0.06	–0.04	–0.27
	Employment rate	0.77	0.47	0.89	0.08	1.80

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Country		1970–79	1980–89	1990–97	1998–2008	2009–19
Thailand	Per capita GDP	4.00	5.22	5.17	3.72	3.24
	GDP per working hour	2.89	3.68	5.21	4.07	4.65
	Average working hours	0.72	0.02	–0.53	–0.79	–0.76
	Employment rate	0.39	1.51	0.50	0.43	–0.65
Turkiye	Per capita GDP	2.65	1.70	2.50	3.47	5.12
	GDP per working hour	2.10	1.24	3.85	3.15	4.63
	Average working hours	0.12	0.14	–0.60	0.62	–0.96
	Employment rate	0.43	0.32	–0.76	–0.30	1.44
ROK	Per capita GDP	7.95	8.25	6.87	5.26	2.78
	GDP per working hour	6.02	6.61	6.26	5.02	3.23
	Average working hours	0.00	0.13	–0.65	–0.87	–1.27
	Employment rate	1.94	1.51	1.25	1.11	0.82
ROC	Per capita GDP	8.93	8.15	6.24	4.17	3.39
	GDP per working hour	7.13	7.30	6.32	4.21	2.30
	Average working hours	0.17	–0.40	–0.58	–0.56	0.19
	Employment rate	1.63	1.26	0.50	0.52	0.89

Source: Authors' calculations based on APO Productivity Database.
Note: The figures show the growth rates in percentages.

TABLE 2

RELATIVE CONTRIBUTION TO PER CAPITA GDP GROWTH BY FACTOR.

Country		1970–79	1980–89	1990–97	1998–2008	2009–19
Fiji	GDP per working hour	61.3	–8.6	–30.3	84.0	55.5
	Average working hours	5.4	–91.2	15.7	–5.9	13.8
	Employment rate	33.3	199.8	114.6	21.9	30.7
IR Iran	GDP per working hour	118.5	60.7	51.7	88.7	41.4
	Average working hours	0.9	–3.7	–7.5	–4.2	90.7
	Employment rate	–19.3	43.0	55.8	15.5	–32.1
Malaysia	GDP per working hour	85.6	83.4	85.1	99.1	61.3
	Average working hours	0.6	0.3	1.0	–1.3	–7.0
	Employment rate	13.8	16.3	13.9	2.1	45.7
Thailand	GDP per working hour	72.3	70.6	100.7	109.7	143.2
	Average working hours	18.0	0.4	–10.3	–21.2	–23.3
	Employment rate	9.7	29.0	9.6	11.5	–19.9

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Country		1970–79	1980–89	1990–97	1998–2008	2009–19
Turkiye	GDP per working hour	79.1	72.8	154.1	90.6	90.6
	Average working hours	4.6	8.2	–23.8	17.9	–18.8
	Employment rate	16.3	19.0	–30.2	–8.5	28.2
ROK	GDP per working hour	75.7	80.2	91.2	95.4	116.1
	Average working hours	0.0	1.6	–9.4	–16.5	–45.6
	Employment rate	24.3	18.3	18.2	21.1	29.5
ROC	GDP per working hour	79.9	89.5	101.3	100.9	68.1
	Average working hours	1.9	–4.9	–9.4	–13.4	5.8
	Employment rate	18.2	15.4	8.0	12.4	26.2

Source: Authors' calculations based on APO Productivity Database.
Note: The figures show each factor's relative contribution to per capita GDP growth in terms of percentage.

Another noticeable finding is that the overall growth rate of employment was lower among UMICs than in the ROK and the ROC. Table 3 compares the growth rates of employment rates and population. The ROK's employment rate continues to increase at a much higher rate than its population growth rate. The ROC's employment rate increased as much as its population growth rate. However, in UMICs such as IR Iran, Malaysia, Thailand, and Turkiye, the employment growth rates were relatively low despite their high population growth rates. In IR Iran and Turkiye, in particular, employment rates have been declining for decades and the employment growth has been continuously outpaced by the population growth.

The comparison of per capita GDP growth and underlying factors shows that increases in labor productivity are overwhelmingly important to long-term growth in most countries. In addition, it was confirmed that an increase in the employment rate also plays an important role in increasing per capita GDP growth. The employment rate is the number of employees in the total population, which is determined in the long run by changes in the labor force participation rate and the economically active age group's population. In periods of high economic growth, demographic transitions can yield a demographic bonus. The steady and high growth of employment in HICs indicates the importance of continuous job creation in these countries. APO UMICs have not been aggressive in creating jobs. As a result, these countries have not been able to realize the demographic bonus.

TABLE 3

COMPARISON OF EMPLOYMENT AND POPULATION GROWTH RATES OF UMICs AND HICs.

(in %)

Country		1970–79	1980–89	1990–97	1998–2008	2009–19
Fiji	Employment	1.13	0.96	1.56	0.26	0.87
	Population	1.96	1.60	0.85	0.66	0.42
IR Iran	Employment	–0.39	–1.25	1.03	0.71	0.17
	Population	2.91	3.66	1.44	1.53	1.31

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Country		1970–79	1980–89	1990–97	1998–2008	2009–19
Malaysia	Employment	0.77	0.47	0.89	0.08	1.80
	Population	2.41	2.68	2.64	2.11	1.49
Thailand	Employment	0.39	1.51	0.50	0.43	–0.65
	Population	2.70	2.01	0.99	1.00	0.40
Turkiye	Employment	0.43	0.32	–0.76	–0.30	1.44
	Population	2.30	2.36	1.87	0.88	1.36
ROK	Employment	1.94	1.51	1.25	1.11	0.82
	Population	1.69	1.19	0.99	0.58	0.48
ROC	Employment	1.63	1.26	0.50	0.52	0.89
	Population	1.92	1.34	0.91	0.49	0.21

Source: Authors' calculations based on APO Productivity Database.

Sources of Labor Productivity Growth in UMICs and HICs

Comparison of per capita GDP growth shows that differences in labor productivity growth and job creation distinguished the long-term growths of UMICs and HICs. What caused this difference in labor productivity growth? According to the growth accounting proposed by Solow [1], GDP growth can be decomposed into an increase in factors of production such as capital and labor, and an increase in TFP as follows:

$$\frac{\Delta Y}{Y} = \alpha\frac{\Delta K}{K} + (1-\alpha)\frac{\Delta L}{L} + \frac{\Delta A}{A}$$

where Y, K, L, and A refer to output, capital, labor, and TFP, respectively, and α is the elasticity of the production of capital, which can be measured as the income share of capital. Thus, labor productivity growth can be decomposed into growth due to capital accumulation (increase in capital stock per labor input) and TFP growth, as given in Equation 2.

$$\left(\frac{\Delta Y}{Y} - \frac{\Delta L}{L}\right) = \alpha\left(\frac{\Delta K}{K} - \frac{\Delta L}{L}\right) + \frac{\Delta A}{A} \qquad (2)$$

Here, TFP is measured as a residual of labor productivity growth after subtracting the growth rate of labor productivity from the growth attributable to the increase in capital stock per labor. Therefore, when labor productivity grows less than the expected growth from capital accumulation, the TFP growth rate becomes negative. In the short term, a negative TFP growth can be observed frequently because labor productivity is highly sensitive to business cycles. However, a negative TFP growth in a long term, for periods as long as a decade, implies that there has been a considerable turmoil in the economy, which may have disrupted the stable path of economic growth.

Table 4 shows the sources of labor productivity growth based on Equation 2. The growth in capital per labor and TFP were important for the labor productivity growth in the ROK and the ROC. Capital accumulation has been most important in the ROK, although the contribution of capital

accumulation has been decreasing lately. It also contributed significantly to labor productivity growth in the ROC. In comparison, the contribution of capital accumulation to labor productivity growth in UMICs has been relatively low, especially in Fiji and IR Iran. TFP growth has also been important in the ROK and the ROC. The contribution of TFP growth has been most important in the ROC in particular. Although TFP growth contributed less than capital accumulation in the case of the ROK, both countries experienced continuously positive TFP growths over the stated periods. However, TFP growth rates in UMICs were relatively lower and showed large fluctuations with negative growths in some decades. In Fiji, TFP growth contributed little to labor productivity growth. In IR Iran, TFP has been a negative contributor for decades. Malaysia, Thailand, and Turkiye also had low contributions of TFP growth to productivity growth, with negative TFP growths for decades.

TABLE 4

SOURCES OF LABOR PRODUCTIVITY GROWTH IN APO UMICs AND HICs.

Country		1970–79	1980–89	1990–97	1998–2008	2009–19
Fiji	Labor productivity	2.08	–0.04	–0.41	0.99	1.57
	Capital per labor	2.07	1.23	1.06	0.86	–0.21
	TFP	0.00	–1.27	–1.47	0.13	1.78
IR Iran	Labor productivity	2.36	–1.77	0.96	4.07	–0.22
	Capital per labor	3.36	0.18	–0.72	1.27	1.60
	TFP	–0.99	–1.95	1.68	2.79	–1.82
Malaysia	Labor productivity	4.79	2.42	5.44	3.48	2.41
	Capital per labor	2.80	3.19	5.63	1.44	1.38
	TFP	1.99	–0.77	–0.19	2.04	1.04
Thailand	Labor productivity	2.89	3.68	5.21	4.07	4.65
	Capital per labor	2.13	3.29	6.97	2.20	3.44
	TFP	0.77	0.39	–1.76	1.87	1.21
Turkiye	Labor productivity	2.10	1.24	3.85	3.15	4.63
	Capital per labor	3.63	1.16	3.64	3.50	2.84
	TFP	–1.53	0.08	0.21	–0.35	1.79
ROK	Labor productivity	6.02	6.61	6.26	5.02	3.23
	Capital per labor	3.87	4.39	4.46	3.18	2.17
	TFP	2.15	2.23	1.80	1.84	1.06
ROC	Labor productivity	7.13	7.30	6.32	4.21	2.30
	Capital per labor	3.51	2.99	3.63	2.52	0.66
	TFP	3.62	4.30	2.70	1.68	1.64

Source: Labor Productivity Index and TFP Index from APO Productivity Database.
Note: The data refer to the growth rate of labor productivity, growth rate due to growth of capital per labor, and TFP growth.

Table 4 suggests that UMICs need to increase capital accumulation and maintain stable TFP growth to follow the path of HICs. High-income peers such as the ROK and the ROC experienced a crisis in the late 1990s, which happened after the debate on the sustainability of growth with a high rate of capital accumulation. Krugman [2] doubted the sustainability of economic growth because it appeared to be highly dependent on capital accumulation. He argued that Asia's high-growth countries, under the framework of the traditional growth model based on diminishing return on investment, would reach the limits of growth if they did not increase their TFP. On sources of growth of now-HIC countries in east Asia, studies such as those by Young [3] and Kim and Lau [4] also pointed out the necessity for structural transformation by shifting from accumulation-based economic growth to efficiency-based growth.

In retrospect, this skeptical view regarding Asia's growth potential turned out to be biased because it was based on a contrast between the sources of growth in high-growing Asian countries and those of mature advanced countries that had already transformed into efficiency-based growth with a large contribution of TFP growth. As Table 4 shows, the absolute level of TFP growth in the ROK and the ROC is not low, though it is overshadowed by large contributions of high capital accumulation. Continuous high capital accumulation over a long period of time is not possible if the return on investment is unsustainably low and the financing of investment is not well managed. In other words, high capital accumulation in the long run is closely related with stable TFP growth, though they are separated in growth accounting. The growth of APO UMICs could not sustain high capital accumulation in the long run because they frequently experienced negative TFPs. In this sense, the ROC achieved the highest success without suffering from an economic crisis. The ROK experienced a crisis in 1997 but had the resilience to recover quickly.

The Asian crisis in the late 1990s did not affect the long-term progress of Asian HICs, which recovered quickly and proceeded into the advanced-countries club. Now, we may consider that the seemingly excessive capital accumulation in Asian HICs may actually have been necessary for these countries to leap over the threshold to become HICs. This view is aligned with the argument by Murphy *et al* [5] and Matsuyama [6] on the necessity of a big push. In other words, for countries to become HICs, a high rate of investment is necessary to realize industrialization, economies of scale, and modernization of infrastructure.

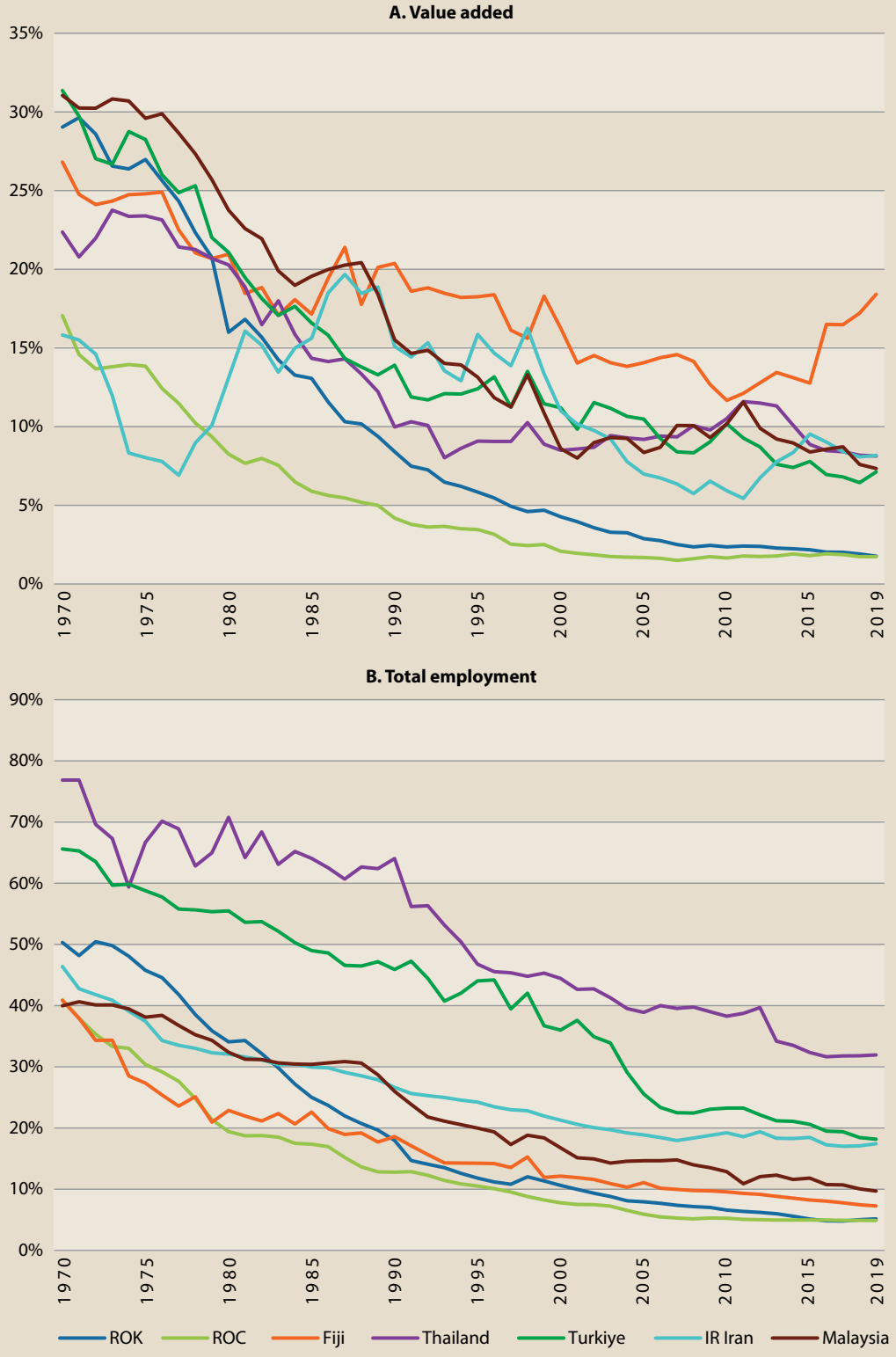
Structural Changes in UMICs and HICs

Figure 2 shows the trends for agriculture's share in value added and employment. The declining share of agriculture is typical of the process of economic development. Declining employment shares have been observed in most countries in the last 100 years. In the ROK, the ROC, and Malaysia, the employment share of agriculture has decreased to less than 10%, while the share in Thailand is still at around 30%, which is the largest among the countries discussed in this study.

The trends in the value-added share of agriculture are not similar. In IR Iran, the value-added share of agriculture increased from the 1970s to the 1980s. This may be due to the political turmoil and the subsequent severe economic downturn in IR Iran. The share also increased in Fiji after 2010. In Thailand, the value-added share of agriculture has not decreased any further since the mid-1990s. While the declining trends in both value added and employment have been consistent without much fluctuation in the ROK and the ROC, there have been bumpy fluctuations in the UMICs. This may be related to the large fluctuations in economic growth in these countries. It is interesting that, in Fiji, the share of employment in agriculture has been decreasing since the 2010s while the share of added value has been increasing.

FIGURE 2

TRENDS IN AGRICULTURE'S SHARES.



Source: APO Productivity Database.
Note: Shares are calculated using GDP by industry at current prices and employment.

Figure 3 shows the share of manufacturing in added value and employment. In the ROK and the ROC, the shares of value added in manufacturing decreased from the mid-1980s to the mid-1990s. However, they have been gradually increasing since the late 1990s. In Malaysia, the value-added share of manufacturing continuously increased from the 1970s but has been declining since the global financial crisis in 2008. Thailand has recently shown a similar pattern. In Turkiye too, this share decreased significantly in the late 1990s. The recent patterns of decrease in the value-added shares of manufacturing in these three countries form a contrast to the increasing shares in the ROK and the ROC. In IR Iran and Fiji, the value-added shares are gradually increasing, but remain relatively low compared with other countries.

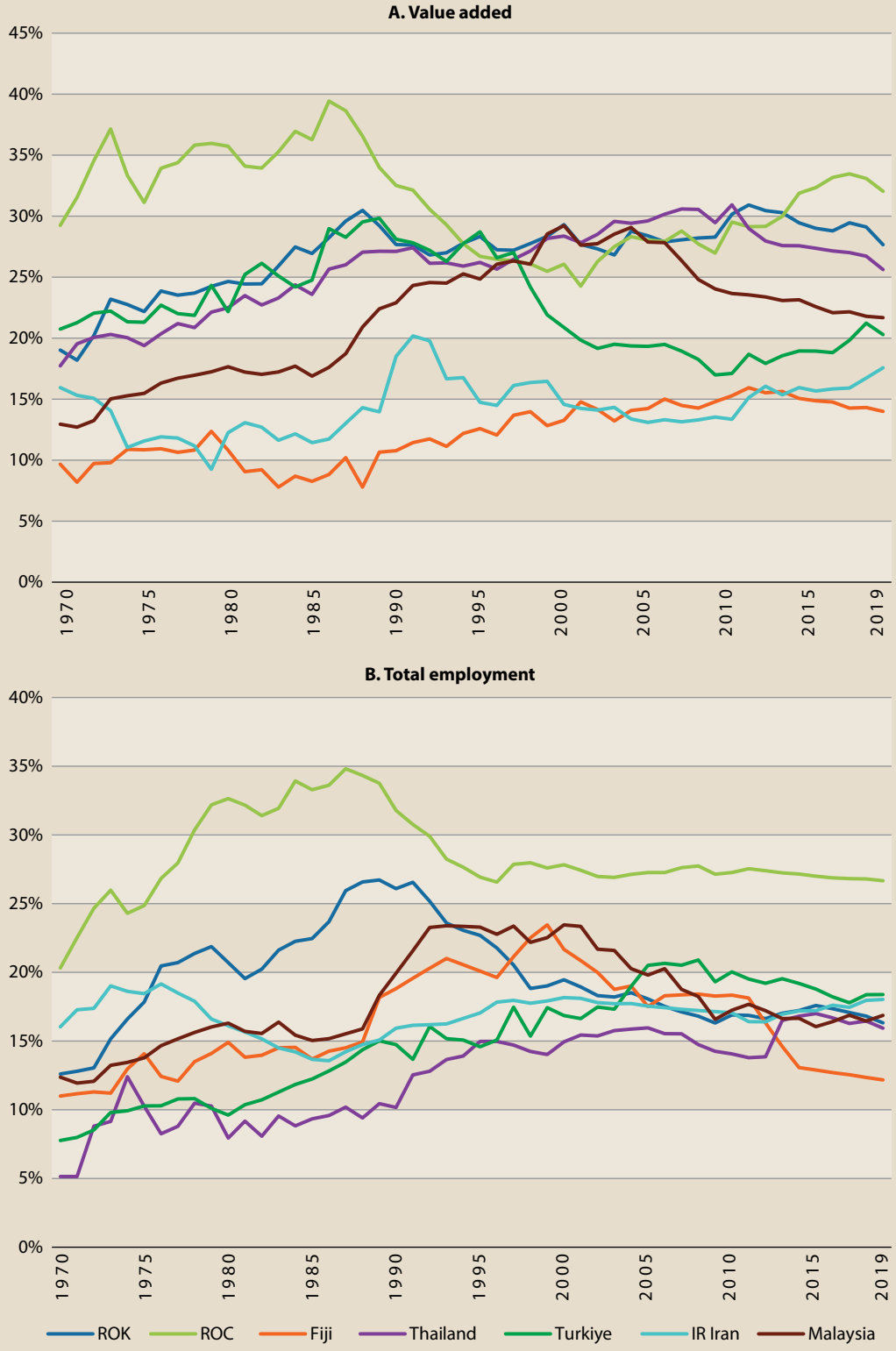
Overall, the trends in the employment share of manufacturing indicate that deindustrialization reached a peak around 1990 and declined afterwards. In the ROK and the ROC, the employment shares of manufacturing have been continuously decreasing since the mid-1980s. That their value-added shares are increasing rather than decreasing, implies that the manufacturing industries of these two countries have been upgraded to higher productive sectors. This may be related to the active overseas relocation of labor-intensive industries in both countries since the late 1980s. As shown in Figure 2 in Appendix, the outward FDI of these two countries began to increase around the 1980s and has continued to increase till present. In terms of employment, in Malaysia, Fiji, and IR Iran, the employment shares of manufacturing have been gradually decreasing since 2000. In Turkiye, the share has been decreasing since the global financial crisis. On the other hand, in Thailand, it continues to increase, which contrasts with the decreasing share of manufacturing in other countries. In Fiji too, the share of employment in manufacturing is decreasing.

These trends imply that labor productivity of manufacturing in the ROK and the ROC is increasing as the manufacturing sector in these countries has become sophisticated with advanced technology. However, among UMICs, both the value added and employment shares of manufacturing are decreasing, which may indicate the contraction of their manufacturing sectors, as a result of premature deindustrialization in these countries. Thailand has not shown a contraction of manufacturing as in other UMICs. It is interesting that the manufacturing sector in Thailand shows a low employment share and a high valued added share. This implies that manufacturing in Thailand is relatively labor-saving compared with other UMICs.

In general, in the process of economic development, de-agriculturalization contributes to labor productivity growth by relocating low-productive labor from agriculture to high-productive sectors such as manufacturing. Overall, this tends to reduce the gap in labor productivity across industries. Figure 4 shows the relative productivity gap in various sectors. As expected, the labor productivity of agriculture is low in most countries except Fiji. The numbers for the ROK and the ROC show that the labor productivity of manufacturing has been rising continuously even though the employment share of manufacturing has been decreasing. In the ROK, the gap between manufacturing and other industries increased strongly in recent years. The ROC also shows a similar pattern to that of the ROK. In Malaysia and Thailand, the gap between manufacturing and other sectors has widened as was the case with the ROK and the ROC in the 2000s. In Turkiye, on the other hand, the gap between manufacturing and other industries has been steadily narrowing since the 1970s. Finally, compared with other countries, Thailand has the largest gap between manufacturing and other sectors.

FIGURE 3

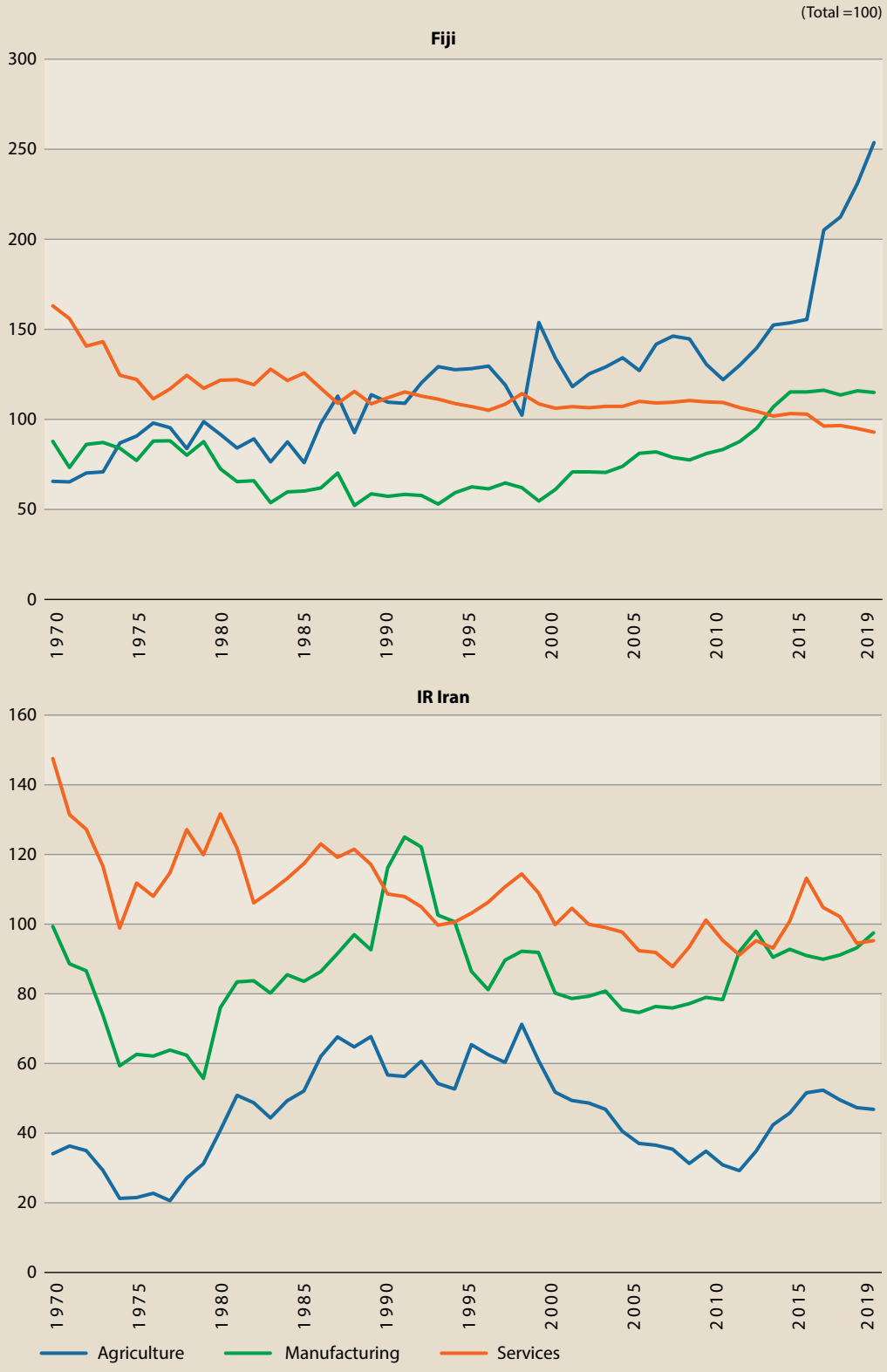
TRENDS IN MANUFACTURING SHARES.



Source: APO Productivity Database.
Note: Shares are calculated using GDP by industry at current prices and employment.

FIGURE 4A

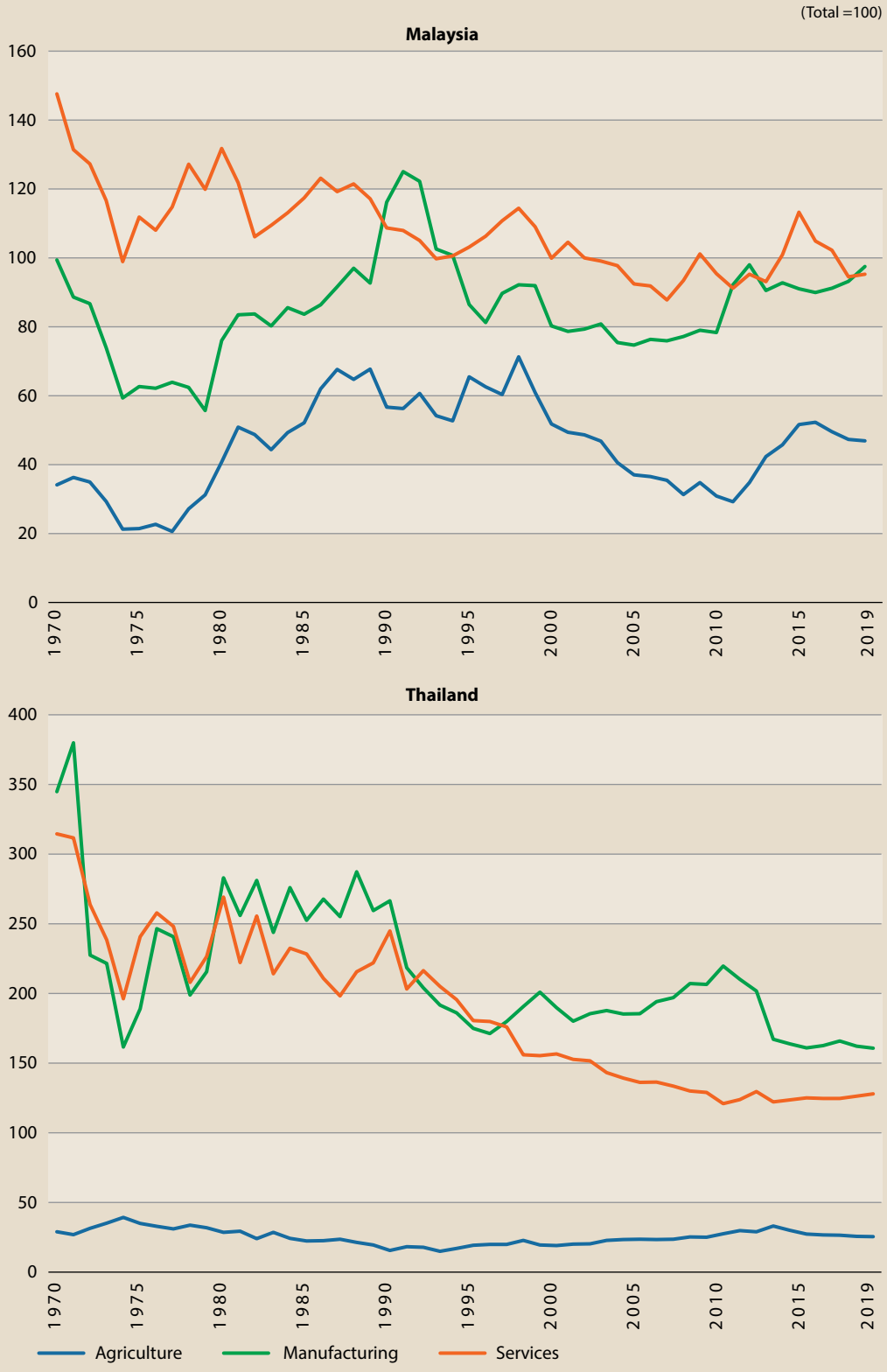
TRENDS IN RELATIVE LABOR PRODUCTIVITY BY INDUSTRY.



Source: APO Productivity Database.
Note: Labor productivity is calculated as GDP by industry at current prices, divided by employment in each industry.

FIGURE 4B

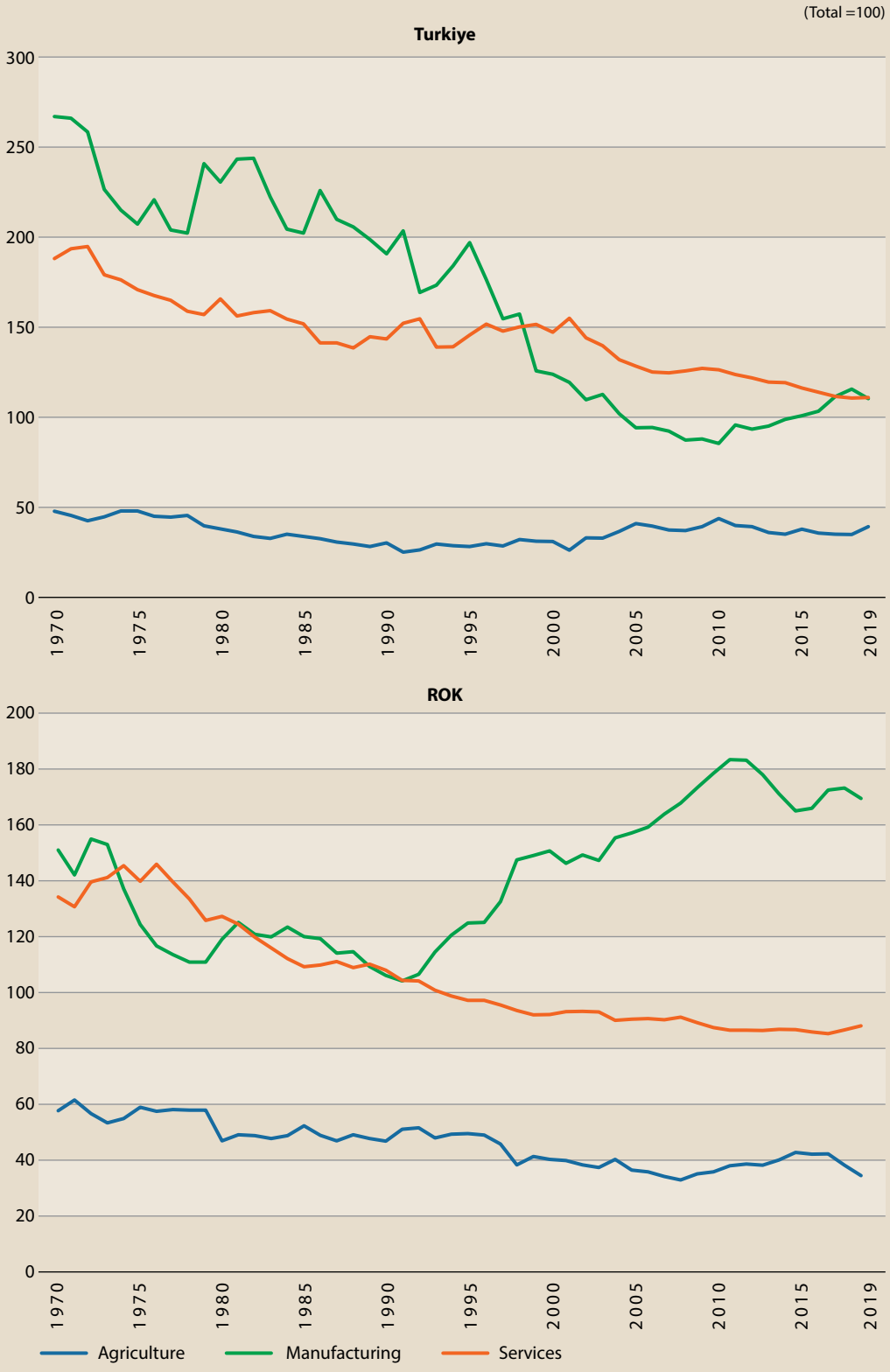
TRENDS IN RELATIVE LABOR PRODUCTIVITY BY INDUSTRY.



Source: APO Productivity Database.
Note: Labor productivity is calculated as GDP by industry at current prices, divided by employment in each industry.

FIGURE 4C

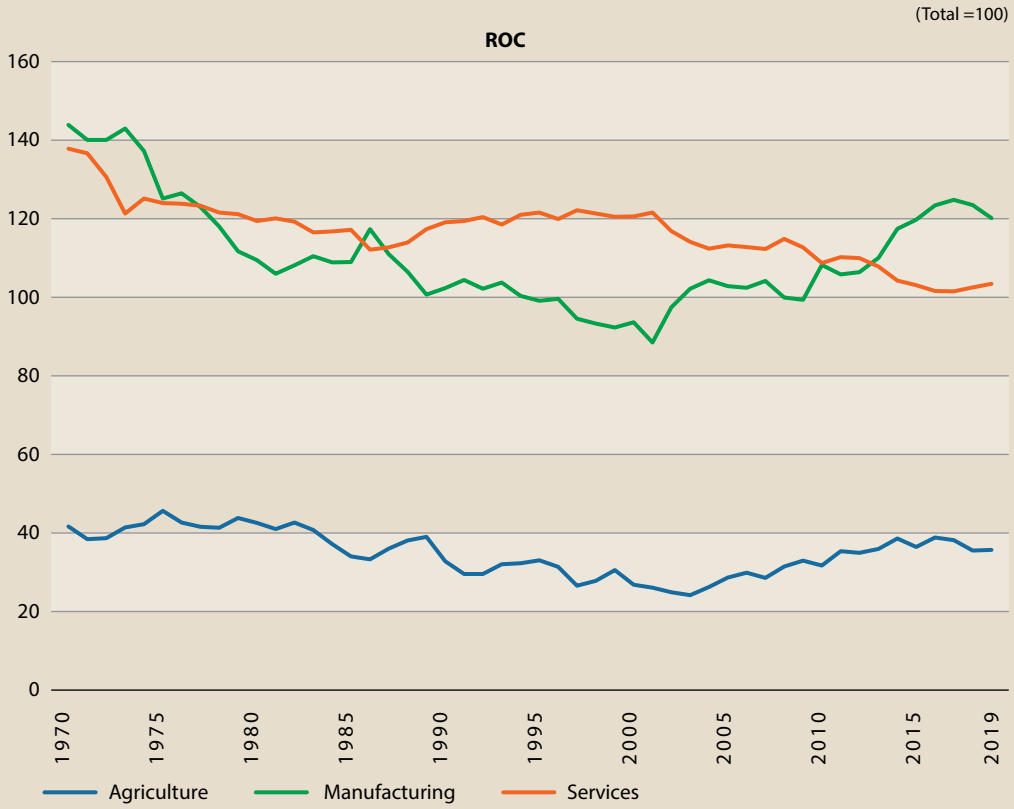
TRENDS IN RELATIVE LABOR PRODUCTIVITY BY INDUSTRY.



Source: APO Productivity Database.
Note: Labor productivity is calculated as GDP by industry at current prices, divided by employment in each industry.

FIGURE 4D

TRENDS IN RELATIVE LABOR PRODUCTIVITY BY INDUSTRY.



Source: APO Productivity Database.
Note: Labor productivity is calculated as GDP by industry at current prices, divided by employment in each industry.

How did these changes in the sectoral composition of labor and sectoral labor productivity growth contribute to overall labor productivity growth? To understand the contribution of structural change to labor productivity growth, we can decompose the change in labor productivity as shown in Equation 3.

$$\Delta P = \sum_{i=1}^{n}(P_i^T - P_i^o)(s_i^o + s_i^T)/2 + \sum_{i=1}^{n}(s_i^T - s_i^o)(P_i^o + P_i^T)/2 \qquad (3)$$

Here, P_i^T and P_i^0 are the labor productivities of sector i in years T and 0, respectively; and s_i^T and s_i^0 are the employments of sector i, in years T and 0, respectively. Equation 3 decomposes the increase in labor productivity growth due to the growth of individual sector's labor productivity (within effect) and labor reallocation from relatively low- to high-productivity sectors (reallocation effect). The resource reallocation effect is positive when labor moves to relatively higher productivity sectors.

Tables 5 and 6 show the decomposition of labor productivity growth into the 'within effect' and the 'reallocation effect.' The individual sectoral productivity growth (within effect) accounts for most of the labor productivity growth. The ROK and the ROC surpassed UMICs significantly in terms of the within effect. In addition, in their high-growth years from 1970 to 1989, the ROK and the ROC had a significant reallocation effect on labor productivity growth. The relative contribution of the reallocation effect was as much as 28.1% of the labor productivity growth. In addition, the reallocation effect continued to be positive over time. However, some UMIC members had negative reallocation

effects in some periods. Particularly, Malaysia, which achieved a relatively high within effect, showed a negative effect from labor reallocation for several decades. Thailand and Turkiye had relatively large contributions of the structural change, with continuous positive reallocation effects.

TABLE 5

DECOMPOSITION OF LABOR PRODUCTIVITY.

Country	1970–89		1990–2008		2009–19	
	Within effect	Reallocation effect	Within effect	Reallocation effect	Within effect	Reallocation effect
Fiji	0.5	0.0	0.7	–0.3	1.6	–0.5
IR Iran	–2.7	0.9	2.4	–0.3	–0.7	0.5
Malaysia	7.8	–3.0	4.2	–0.3	1.7	0.2
Thailand	1.9	2.4	1.7	2.7	3.4	1.1
Turkiye	0.1	1.8	1.7	2.1	2.5	0.5
ROK	7.1	2.8	6.2	0.2	2.2	0.0
ROC	7.5	1.1	5.2	0.6	2.7	0.0

Notes: Labor productivity is calculated as GDP at constant prices (using 2017 PPPs, with reference year 2019) divided by employment, based on data from APO Productivity Database. The numbers show growth rates of labor productivity due to each effect.

TABLE 6

RELATIVE CONTRIBUTIONS OF STRUCTURAL CHANGE TO LABOR PRODUCTIVITY GROWTH.

Country	1970–89		1990–2008		2009–19	
	Within effect	Reallocation effect	Within effect	Reallocation effect	Within effect	Reallocation effect
Fiji	95.6	4.4	195.4	–95.4	139.9	–39.9
IR Iran	151.2	–51.2	113.5	–13.5	334.1	–234.1
Malaysia	162.8	–62.8	106.4	–6.4	90.9	9.1
Thailand	44.6	55.4	38.1	61.9	74.9	25.1
Turkiye	5.3	94.7	44.8	55.2	82.2	17.8
ROK	71.9	28.1	96.5	3.5	101.5	–1.5
ROC	87.4	12.6	90.1	9.9	99.6	0.4

Notes: Labor productivity is calculated as GDP at constant prices (using 2017 PPPs, with reference year 2019) divided by employment, using data from APO Productivity database. The numbers indicate relative contributions of each effect to the increase in overall labor productivity during the period, in percentage terms.

Are UMICs Experiencing the Middle-income Trap?

A comparison of UMICs and HICs indicates that UMICs should increase labor productivity growth and accelerate structural change to become HICs. However, the patterns of economic growth in HICs in their high-growth periods are somewhat different from those of the UMICs. Is it possible that the five UMICs are caught in the middle-income trap? The "middle-income trap" was first defined by Gill and Kharas [7] as a state in which growth stagnates and loses competitiveness in a middle-income country, which is positioned between a low-income country that has an advantage in low-wage labor-intensive industries and a high-income country that has an advantage in

technology-intensive industries. Other studies [8, 9, 10, 11, 12] followed to investigate the possibility of middle-income traps in some UMICs.

Gill and Kharas [7] reported that this phenomenon is found in Latin American and Middle Eastern countries. Research on this issue began by describing the phenomenon of middle-income countries with stagnant growth. The subsequent studies, which quantitatively defined the context based on the income level, the time spent in middle-income countries, and other indicators, have been well surveyed by Pruchnik and Zowczak [13]. Most studies have attempted to define the income range in which the middle-income trap occurs and identify countries that are unable to escape from this income range. For example, Spence [14] identified a per capita income range of USD5,000–10,000 as the possible range of middle-income trap. Eichengreen *et al* [10] showed that the growth rate stagnates when income exceeds USD16,700 in countries with more than USD10,000 in 2005 constant international prices. However, Im and Rosenblat [12] argued that growth stagnation can occur in any income bracket. They argued that it is a common phenomenon that economic growth rate declines when income increases, and thus it is difficult to empirically define a middle-income trap and find quantitative evidence thereof.

Although the middle-income trap does not have more robust logical support than the well-known concept of a poverty trap, it is meaningful to draw attention to factors and policy prescriptions for countries that face new challenges as middle-income countries. Based on case studies and policy consultation experience, Ohno [15] referred to the middle-income trap as a glass-ceiling between MICs and HICs. In order for a middle-income country to become an advanced country, it is necessary to continuously increase labor productivity by maintaining industrial competitiveness in response to rising wages. Ohno [15] descriptively demonstrated that ASEAN countries, including Thailand and Malaysia, fell into the middle-income trap, and were unable to move on to the second stage after the first stage of development of the manufacturing industry. Woo [16] argued that Malaysia fell into the middle-income trap, citing problems with Malaysia's NEP policy, education, and research system, and the backwardness of governance and other institutions.

Here, we will investigate economic growths of the five selected UMICs to find whether there is a risk that they are falling into the middle-income trap. Felipe *et al* [8] estimated an income range that closely fitted the World Bank's income classification. They estimated the years when the countries were promoted to a higher income group in the period before 1987, a period for which the World Bank's income classification was not available. According to their study, the thresholds of low-income, low-middle-income, high-middle-income, and high-income were USD2,000, USD7250, and USD11,750, respectively, of GDP per capita in 1990 PPP dollars. Following the criterion of Felipe *et al* [7], we may deduce the year when APO member countries advanced to the higher income group as shown in Table 7.

TABLE 7

DURATIONS OF COUNTRIES IN LMIC AND UMIC INCOME GROUPS.

Country	Year when the country became LMIC	Year when the country became UMIC	Year when the country became HIC	No. of years as LMIC	No. of years as UMIC (as of 2022)
Fiji	1968	2012	not yet	44	10
IR Iran	1958*	2009	not yet	51	13

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Country	Year when the country became LMIC	Year when the country became UMIC	Year when the country became HIC	No. of years as LMIC	No. of years as UMIC (as of 2022)
Malaysia	1969	1992	not yet	23	30
Thailand	1976	2010	not yet	34	12
Turkiye	1955	1997	not yet	42	25
ROK	1969	1988	1995	19	7
ROC	1967	1986	1993	19	7

Notes: The classification is based on the thresholds of Felipe *et al* [8] in 1990 international prices. Data from Felipe *et al* [8] are used if available. If not, the authors have identified the turning years, based on GNI per capita in 1990 international prices. The per capita GDP is obtained from PWT version 10. IR Iran reached the threshold for classification as an HIC for a brief period in 2010.

According to Table 7, the ROK and the ROC became LMIC countries in 1969 and 1967, respectively; remained in the LMIC category for 19 years and in the UMIC category for seven years; and finally became HICs in 1995 and 1993, respectively. The ROK and the ROC stayed in the status of middle-income countries for a very short period compared with the five UMICs under consideration. Notably, 44 years passed before Fiji became an UMIC in 2012, while Turkiye remained an LMIC for 42 years. Malaysia advanced from LMIC to UMIC relatively quickly, in 23 years, compared with other UMICs. However, more than 30 years have now passed since Malaysia became an UMIC.

Considering that the middle-income trap is a phenomenon in which industrial competitiveness is gradually lost and growth becomes stagnant at the level of a middle-income country, it is significant to see if the ROK and the ROC experienced stagnation in per capita GDP growth when they upgraded from the status of LMIC to UMIC. Table 8 shows the growth rate of per capita GDP when each country was in a different income group. In the cases of the ROK and the ROC, the growth rates decreased slightly when they shifted from LMIC to UMIC. Also, after the advancement into HIC, their growth rates decreased by large margins. For the UMICs under consideration, when they were at the middle-income level, their growth rates were lower than those of the ROK and the ROC. With the exception of Fiji, the growth rates of most APO UMICs decreased slightly after becoming UMIC but the rates did not appear to have significantly decreased. Overall, the low growth rates of UMICs have kept them at the level of middle-income countries for a long time. Thus, these countries are at the risk of falling into the middle-income trap if we define the middle-income trap as staying in the middle-income country status for a long duration. However, it is difficult to distinguish between UMICs and LMICs in terms of the risk of falling into the middle-income trap based on per capita economic growth.

TABLE 8

COUNTRIES' GROWTH RATES OF GDP PER CAPITA IN EACH INCOME GROUP.

Country	LMIC	UMIC	HIC
Fiji	1.40	3.22	–
IR Iran	1.27	–0.52	–
Malaysia	4.47	3.44	–

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Country	LMIC	UMIC	HIC
Thailand	4.27	2.85	–
Turkiye	2.39	3.70	–
ROK	7.62	7.19	3.62
ROC	8.43	7.23	3.85

Source: APO Productivity Database.
Note: The numbers show per capita GDP growth in percentages, based on GDP at constant prices, using 2017 PPPs, with the reference year set as 2019.

As seen earlier, growths of the ROK and the ROC have been consistent with the continuous growth of labor productivity. They realized high growth of labor productivity in the manufacturing sector and steadily increased the share of manufacturing employment until they become HICs. To compare these two HICs and other UMICs in terms of productivity growth, we calculated the labor productivity growth of the agriculture and manufacturing sectors in Tables 9 and 10. The ROK and the ROC maintained high labor productivity growth in agriculture even though there was a sharp decrease in the employment share of agriculture. The growth rate of agricultural productivity in the ROK and the ROC is very high compared with those of other UMICs. In the case of Malaysia, agricultural productivity has remained stagnant during the UMIC period.

TABLE 9

GROWTH RATES OF LABOR PRODUCTIVITY IN AGRICULTURE BY INCOME GROUP.

Country	LMIC	UMIC	HIC
Fiji	2.40	4.66	–
IR Iran	3.93	2.64	–
Malaysia	4.45	1.89	–
Thailand	2.52	3.60	–
Turkiye	0.86	4.38	–
ROK	5.52	6.57	3.35
ROC	3.68	5.76	2.04

Source: APO Productivity Database.
Note: The per capita GDP growths are in percentages, based on GDP by industry at constant prices, using 2017 PPPs, with the reference year set as 2019.

In Table 10, the gap in labor productivity growth between HICs and UMICs can be seen more clearly. In the case of the ROK, the growth rate of labor productivity in the manufacturing sector accelerated even after the ROK's transition to UMIC. In fact, in both countries that became HICs, the growth rate continued to be more than 5%. Among UMICs, Malaysia continued to show a relatively high growth of 4% per year. Thailand and IR Iran showed a significant decline after they became UMICs.

TABLE 10

GROWTH RATES OF LABOR PRODUCTIVITY IN MANUFACTURING BY INCOME GROUP.

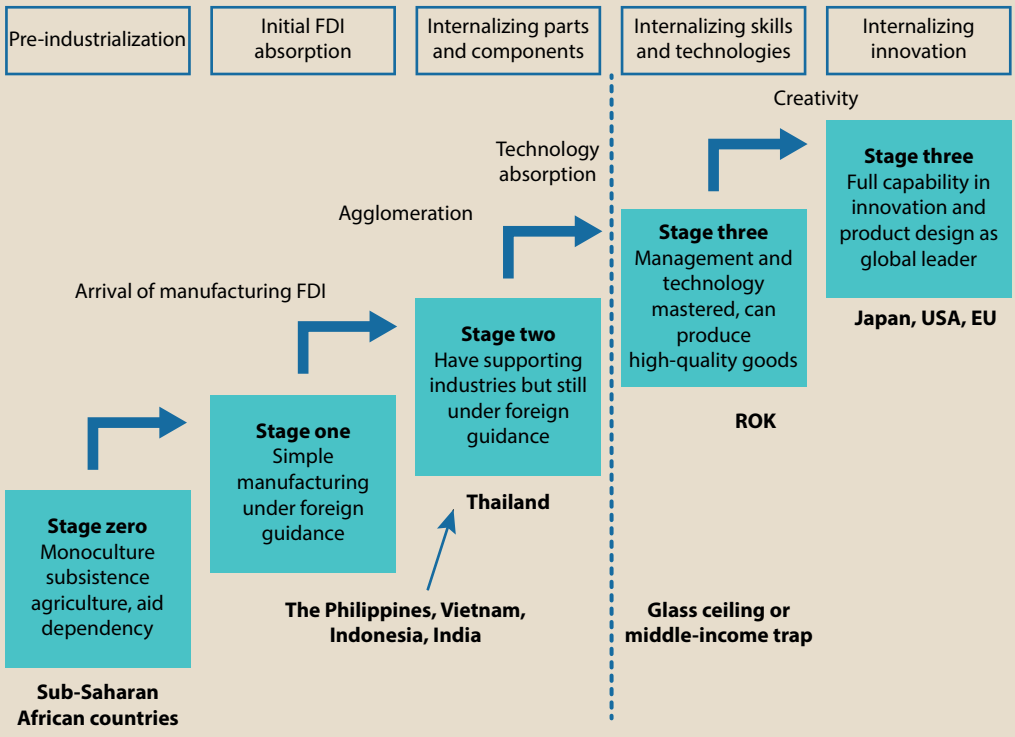
Country	LMIC	UMIC	HIC
Fiji	–0.13	5.75	–
IR Iran	4.47	–2.42	–
Malaysia	4.41	4.01	–
Thailand	3.09	0.41	–
Turkiye	0.84	2.55	–
ROK	6.74	8.78	5.51
ROC	5.67	5.25	5.41

Source: APO Productivity Database.
Note: The numbers are per capita GDP growths in percentages, based on GDP by industry at constant prices, using 2017 PPPs, with the reference year set as 2019.

Summarizing the above discussion on the middle-income trap, we can conclude that the ROK and the ROC passed the threshold to become HICs in a relatively short period because they sustained high labor productivity growth. Notably, the high growth of labor productivity in manufacturing and the increasing share of employment in manufacturing were the key factors that enabled these countries to avoid the middle-income trap. We should also note that the two countries realized high growths in agricultural labor productivity as well.

FIGURE 5

STAGES OF CATCHUP TOWARD INDUSTRIALIZATION.



Source: Ohno [15].

Ohno [15] argued that the middle-income trap is attributable to glass ceiling on middle-income countries that passed through the stage of producing low-tech products by receiving FDIs and developing medium-low-tech production bases under foreign guidance, but failed to advance their own management and technologies to progress toward middle- and high-tech levels. To seek empirical evidence supporting this argument, Table 11 calculates the value-added shares of sectors at different technological levels.

TABLE 11

CHANGES IN VALUE-ADDED SHARES IN MANUFACTURING BY LEVELS OF TECHNOLOGY.

Country	LMIC				UMIC				HMIC			
	Low	Medium low	Medium high	High	Low	Medium low	Medium high	High	Low	Medium low	Medium high	High
Fiji	–0.11	0.17	–0.06	0.00	0.15	–0.12	–0.03	0.00	–	–	–	–
IR Iran	–1.28	0.96	0.32	0.01	0.56	0.12	–0.61	–0.07	–	–	–	–
Malaysia	–0.88	–0.33	1.17	0.04	–0.28	0.36	–0.04	–0.04	–	–	–	–
Thailand	–1.28	0.96	0.32	0.01	0.56	0.12	–0.61	–0.07	–	–	–	–
Turkiye	–0.51	0.16	0.34	0.01	–0.41	0.14	0.27	0.00	–	–	–	–
ROK	–0.91	–0.11	0.97	0.04	–0.93	–0.07	1.04	–0.03	–0.54	0.01	0.58	0.01
ROC	0.09	–0.13	0.10	0.00	–2.08	0.89	1.19	0.00	–0.66	–0.53	1.19	0.00

Source: Authors' calculations based on the UNIDO Database.

Notes: (1) The numbers are average annual percentage of changes in the shares of value added when a country is in a given income group. The technology level of industries is based on the OECD technology intensity definition at the two-digit level of the International Standard Industrial Classification (ISIC) Revision 3.
(2) Due to varying data availability, annual growth rates are calculated based on different time periods as follows: For LMICs, the periods are Fiji (1968–2011); IR Iran (1963–2008); Malaysia (1968–91); Thailand (1976–2009); Turkiye (1963–96); the ROK (1976–87); and the ROC (1973–85). For UMICs, the periods ae Fiji (2012–20); IR Iran (2009–18); Malaysia (1992–20); Thailand (2010–18); Turkiye (1997–2020); the ROK (1988–94); and the ROC (1986–92). For HICs, the periods are the ROK (1995–2020) and the ROC (1993–2020).

TABLE 12

CHANGES IN EMPLOYMENT SHARE OF MANUFACTURING BY LEVELS OF TECHNOLOGY.

Country	LMIC				UMIC				HMIC			
	Low	Medium low	Medium high	High	Low	Medium low	Medium high	High	Low	Medium low	Medium high	High
Fiji	0.07	0.03	–0.09	0.00	–0.22	0.24	–0.01	0.00	–	–	–	–
IR Iran	–0.90	0.47	0.41	0.02	0.25	0.15	–0.28	0.00	–	–	–	–
Malaysia	–0.75	–0.39	1.09	0.06	–0.25	0.35	–0.04	–0.06	–	–	–	–
Thailand	–0.53	0.07	0.46	0.01	–0.64	0.44	0.33	–0.13	–	–	–	–
Turkiye	–0.29	0.03	0.24	0.02	–0.06	–0.06	0.18	0.00	–	–	–	–
ROK	–0.98	0.06	0.86	0.06	–0.74	–0.27	1.03	–0.01	–0.72	0.22	0.57	0.04
ROC	–0.56	0.43	0.13	0.00	–1.69	0.78	0.91	0.00	–0.56	–0.05	0.61	0.00

Source: Authors' calculations based on the UNIDO Database.

Notes: (1) The figures are average annual percentage of changes in employment when a country is in a given income group. The technology level of industries is based on the OECD technology intensity definition at the two-digit level of the ISIC Revision 3.
(2) Due to varying data availability, annual growth rates are calculated based on different time periods as follows: For LMICs, the periods are Fiji (1968–2011); IR Iran (1963–2008); Malaysia (1968–91); Thailand (1976–2009); Turkiye (1963–96); the ROK (1976–87); and the ROC (1973–85). For UMICs; the periods ae Fiji (2012–20); IR Iran (2009–18); Malaysia (1992–2020); Thailand (2010–18); Turkiye (1997–2020); the ROK (1988–94); and the ROC (1986–92). For HICs; the periods are the ROK (1995–2020) and the ROC (1993–2020).

As evident from Table 11, during their years as LMICs, most countries decreased their shares of low-tech products and increased medium-low or medium-high-tech products. However, there were differences between UMICs and HICs (after they advanced from the UMIC group). The HICs realized significant increases in medium-high-tech production while the UMICs experienced a decreasing share in medium-high-tech production, except for Turkiye. A similar pattern is observed in Table 12, which shows the compositional change in employment of manufacturing at varying technology levels. The continuous technological upgrading in HICs forms a contrast with stagnation in UMICs while they remain in the UMIC group. When UMICs were in the LMIC group, they increased production in the medium-low and medium-high-tech industries. However, the share of medium-high-tech decreased as they proceeded to join the UMIC group. This may be due to rising Chinese dominance in manufacturing, which may have decreased the market share of UMICs across the globe. This hypothesis is roughly supported by Table 13, which shows the compositional changes in exports. The export share of medium-high-tech increased when the UMICs were in the LMIC group. However, the increase of medium-high-tech stagnated in most countries after these countries became UMICs. Since the classification of industry by technological intensity is based on the two-digit level of International Standard Industrial Classification (ISIC), it implies that as the countries became UMICs, the advancement to a higher level in medium-high-tech production slowed down while competitiveness was lost at the lower level in medium-tech production. Particularly, Malaysia shows the contrasting trends in shares of medium-high-tech before and after it became an UMIC.

TABLE 13

CHANGES IN THE COMPOSITION OF EXPORTS BY LEVELS OF TECHNOLOGY.

	LMIC				UMIC				HMIC			
Country	Low	Medium low	Medium high	High	Low	Medium low	Medium high	High	Low	Medium low	Medium high	High
Fiji	–0.98	0.91	0.09	–0.03	1.30	–2.03	0.56	0.18	–	–	–	–
IR Iran	–0.29	0.20	0.04	0.04	0.01	0.00	0.01	–0.02	–	–	–	–
Malaysia	–1.06	–2.52	2.52	1.06	0.03	0.41	–0.18	–0.27	–	–	–	–
Thailand	–1.45	0.15	0.84	0.46	0.03	–0.30	0.21	0.07	–	–	–	–
Turkiye	0.23	–0.61	0.60	–0.23	–1.07	0.29	0.59	0.18	–	–	–	–
ROK	–1.65	–0.01	1.33	0.34	–2.28	0.61	1.39	0.29	–0.64	0.44	–0.06	0.26

Source: Authors' calculations based on the UN Comtrade Database.

Notes: (1) The numbers are average annual changes in export shares when a country is in a given income group. The technology level of industries is based on the OECD technology intensity definition at the two-digit level of the ISIC Revision 3.
(2) Due to varying data availability, annual growth rates are calculated based on different time periods as follows: For LMICs, the periods are Fiji (1968–2011); IR Iran (1963–2008); Malaysia (1968–91); Thailand (1976–2009); Turkiye (1963–96); and ROK (1976–87). For UMICs, the periods ae Fiji (2012–20); IR Iran (2009–18); Malaysia (1992–2020); Thailand (2010–18); Turkiye (1997–2020); and ROK (1988–94). For HICs, the period is ROK (1995–2020). ROC is not reported because its data is not available in the UN Comtrade Data.

In conclusion, the UMIC members stayed in the middle-income group for a long time due to the low labor productivity growth rate, but there was no clear labor productivity stagnation as they shifted from the lower- to the upper-middle-income country group. This suggests that it is not possible to single out a problem of the middle-income trap accruing to the upper-middle-income level distinguished from the lower-middle-income level. However, the long duration of staying at the middle-income level indicates that UMICs may be in a middle-income trap. The clear culprit for this is low productivity growth. Thus, these countries should find a way out to increase their growth rates, particularly in sectors that may lead overall economic growth. In the cases of the ROK and the ROC,

the rapid increase in labor productivity in the manufacturing sector was accompanied by the productivity increase of other sectors, including agriculture. As the economy develops to a high-income level with structural transformation, it must undergo deagriculturalization and deindustrialization. Therefore, it is important to continuously increase labor productivity in agriculture as well as in manufacturing to ensure that employment mobility does not hinder overall growth.

Is Premature Deindustrialization Found in UMICs?

Most developed countries experience a decrease in the share of manufacturing as they progress into the mature stage of development. The issue of deindustrialization has been discussed since the 1970s [17, 18, 19]. It has been blamed for the growth slowdown because the manufacturing share decreases even if it was the sector with rapidly increasing productivity. Deindustrialization in developed countries has coincided with the rising export competitiveness of newly industrialized countries that export manufactures to developed countries. Since the 2000s, developing countries have shown a phenomenon of deindustrialization at an income level much lower than those of developed countries when these countries experienced decreases in the share of manufacturing. This led to the argument regarding premature deindustrialization.

Rodrik [20] has suggested that there is empirical evidence of premature deindustrialization by showing that the inverted U-shaped relationship between income, employment, and value-added share of manufacturing shifted downwards. In other words, some developing countries experienced deindustrialization at a lower income level with a lower share of manufacturing compared with the deindustrialization observed in developed countries. Rodrik argued that these countries were running out of opportunities sooner than their predecessors. ASEAN countries and Latin American countries were pointed out as examples of such countries. In contrast, in high-income countries, the share of employment in manufacturing fell but the share of value added did not. Meanwhile, in developing countries, both decreased together. This was attributed to the progress in globalization and labor-saving technologies. Similarly, Chaudhur [21], Kim and Sumner [22], and Castillo and Neto [23] pointed out that deindustrialization was taking place in India, Southeast Asia, and Latin American countries. The reasons for the contraction of the domestic manufacturing industry in these countries were trade liberalization and labor-saving technological progress.

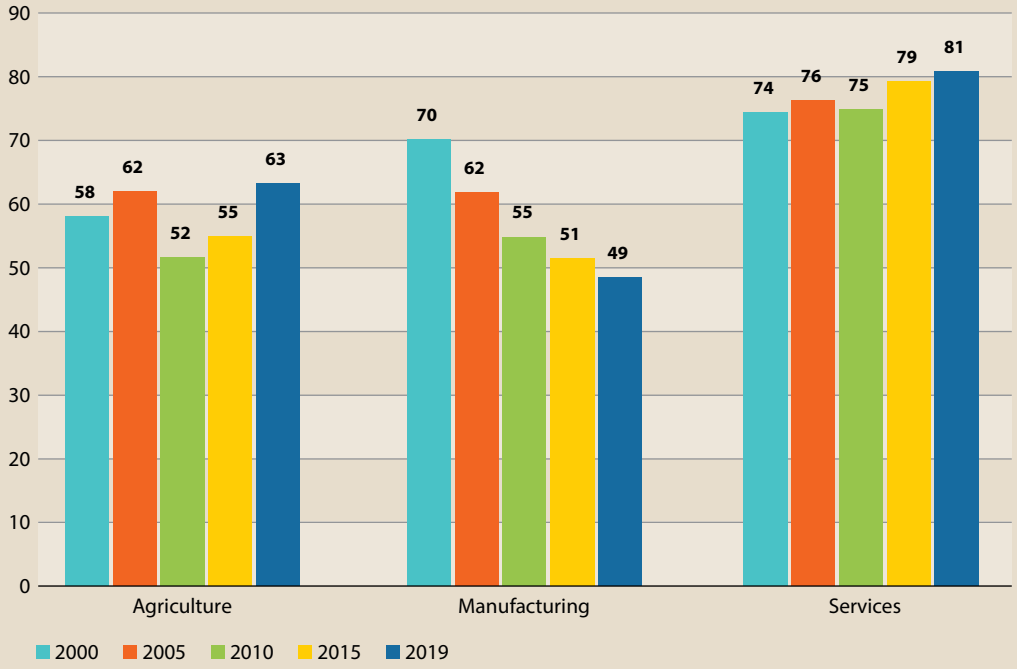
As discussed earlier, the ROK and the ROC experienced deindustrialization in terms of employment but not in terms of value added. However, the share in value added has decreased in the UMICs, which experienced decreasing shares in employment. Thus, among UMICs, particularly Malaysia, Turkiye, and IR Iran show a simultaneous decline in both value added and employment shares. Figure 4 shows a clear trend of deindustrialization in Malaysia and Turkiye since 2000 in terms of the value-added share of manufacturing. This contrasts with the fact that the value-added shares of manufacturing in the ROK and the ROC have not decreased even though employment shares have declined. Unlike Fiji or Thailand, where the proportion of agriculture is high; and IR Iran, where the main industry is mining; manufacturing in Malaysia and Turkiye is considered to be a leading sector for economic growth. Thus, deindustrialization at the current stage of development could be a critical problem for their future growth.

In contrast, the manufacturing industry is rapidly advancing in the ROK and the ROC. These countries relocated manufacturing to other countries with low wages after the 1980s as shown in Figure 2 in Appendix. Also, as pointed out by Bernard *et al* [24], the manufacturing industries in these countries have been transformed into core technology production and manufacturing-related services.

Figure 6 shows the labor productivity of UMICs by industry, relative to the ROK and the ROC. Since the 2000s, the productivity gaps in manufacturing between the two groups have shown a continuously widening pattern, unlike those in agriculture and services. As seen earlier, while HIC members increased their shares of medium-high and high-tech production in manufacturing, UMIC members experienced falling shares. The outward FDIs of the ROK and the ROC continued to rise through the relocation of labor-intensive production abroad and shifting of domestic production to higher-tech areas. However, Malaysia and Turkiye experienced a stagnation on the technology ladder. As Figure 2, Appendix, shows, Malaysia was active in outward FDI as in the cases of the ROK and the ROC in the 1980s. However, the outward FDI of Malaysia has decreased sharply in recent years. This implies that globalization in the past two decades may have pushed many developing countries into fierce competition with PR China and caused a contraction in manufacturing in these countries as they lost industrial competitiveness.

FIGURE 6

SECTORAL LABOR PRODUCTIVITY OF UMICs RELATIVE TO HICs.



Source: Authors' calculations based on APO Productivity Database.
Notes: The numbers show the sectoral labor productivity based on GDP by industry at constant prices per worker, using the 2017 PPP, divided by hours worked. The labor productivity of each group is calculated as the ratio of the sum of value added of the group's countries to the sum of employees. The relative labor productivity is the ratio of relative productivity of UMICs to that of HICs.

Table 14 shows the labor productivity levels of UMIC members compared with the HIC members. Compared with HICs, Fiji has a higher level of labor productivity and a relatively high productivity growth rate in agriculture. However, both its productivity level and growth rate of the manufacturing and service sectors are lower than those of the HICs. In particular, productivity in the service industry has hardly increased in Fiji. IR Iran is superior in services in terms of productivity growth and the level of productivity. Malaysia has higher agricultural productivity. Turkiye has a higher labor productivity level in the service sector than the HICs. Overall, the critical difference between UMICs and HICs lies in the productivity of manufacturing. As shown in Figure 6 and Table 14,

while the productivity gap between UMICs and HICs has narrowed in agriculture and services over the past 20 years, the productivity gap in manufacturing has widened.

TABLE 14

COMPARISON OF SECTORAL LABOR PRODUCTIVITY BETWEEN THE SELECTED UMICs AND HICs.

Country		Labor productivity (2000)	Labor productivity (2019)	Growth rate (%)
Fiji	Agriculture	238	213	2.3
	Manufacturing	31	24	3.2
	Service	44	35	0.3
IR Iran	Agriculture	96	90	2.5
	Manufacturing	58	36	2.0
	Service	70	80	2.3
Malaysia	Agriculture	164	158	2.7
	Manufacturing	76	59	3.2
	Service	58	68	2.4
Thailand	Agriculture	29	29	2.9
	Manufacturing	64	44	2.6
	Service	51	60	2.4
Turkiye	Agriculture	75	93	4.0
	Manufacturing	88	60	2.5
	service	126	113	1.0
ROK	Agriculture	–	–	3.6
	Manufacturing	–	–	4.2
	Service	–	–	1.9
ROC	Agriculture	–	–	1.5
	Manufacturing	–	–	5.4
	Service	–	–	1.3

Source: Authors' calculations based on APO Productivity Database.
Note: The numbers show labor productivity by sector in UMICs relative to the average for HICs.

As shown in Figure 3, both APO UMICs and HICs experienced deindustrialization in the sense that the employment shares of manufacturing decreased. However, HIC members showed deindustrialization as they advanced to the status of HICs and entered the stage of post-industrialization as in the case of other advanced countries such as Japan. In these countries, manufacturing employment stagnated but structural change in manufacturing overcame the challenges of rising wages through expansion of the global production network.

The deindustrialization of HIC members occurred as they followed a typical pattern seen in earlier developed countries and adjusted the manufacturing production following the trend of globalization. However, the deindustrialization of UMIC members showed declining value-added shares as well as employment shares, which indicates the contraction of manufacturing. Thus, manufacturing

productivity fell short of productivity growth in other sectors. In terms of FDI, Malaysia exhibits a pattern that differs from those of HIC members. The outward FDI in the ROK and the ROC continued to increase as their domestic manufacturing industries advanced within the global value chain (GVC). However, Malaysia has recently seen a rapid decrease in outward FDI. According to the composition of exports by technological intensity, Malaysia has shown a decrease in medium-high-tech industries, which implies that it is losing its manufacturing competitiveness in the global market.

In sum, the deindustrialization in UMICs seems premature and not favorable for future growth as the manufacturing sector is the engine of industrial transformation and productivity enhancement. As the industrial structure shows, some UMICs such as Thailand need to achieve further industrialization by mobilizing low productive labor in agriculture into higher productive industries.

Findings from Comparative Economic Growth Analysis

We can summarize the findings from our comparative growth analysis in this chapter as follows. First, productivity growth is the most important factor for increasing per capita GDP for all countries (Table 1). Second, the higher growth of employment compared with population growth contributed to the growth of per capita GDP in HIC member countries. This implies that job creation is also important for high economic growth (Table 3). Third, the growth accounting shows that capital accumulation was more important than TFP growth in the high growth years of HIC members. The difference in the rate of increase in capital stock per labor resulted in a significant growth gap between UMICs and HICs (Table 4). Fourth, consistent growth was the distinctive characteristic of HIC members while UMIC members had large fluctuations in TFP growth and capital accumulation. Particularly, many UMICs experienced negative growth in TPF for some decades, which implies that these countries were shocked by macroeconomic disruptions during the period (Table 4).

Fifth, most countries showed decreasing employment and value-added shares in agriculture. However, the value-added shares of agriculture in some UMICs did not steadily decrease as was the case with HICs (Figure 2). Sixth, both UMICs and HICs experienced decreases in the employment share of manufacturing after the 1990s. However, the value-added share of manufacturing decreased along with the employment share in UMICs while value share has instead been rising even with decreasing employment share among HIC members (Figure 3). As a result, the productivity gap between manufacturing and other sectors has been rising in HIC members after they showed deindustrialization in terms of employment share.

Seventh, during high-growth years, structural changes contributed to productivity growth in HIC members. Among UMIC members, only Thailand and Turkiye had continuous positive effects from the reallocation of labor among sectors. Malaysia had a negative contribution from structural change even though it realized relatively high sectoral productivity growth (Table 5). Eighth, if we define the middle-income trap as the long duration of middle-income country status, we find that most UMICs could be regarded as being in the middle-income trap. The duration of period in which the ROK and the ROC remained middle-income countries was 26 years shorter than those of UMICs. However, we cannot find any distinctive feature in the slowdown of growth or productivity after they advanced from LMICs to UMICs, although growth declined in some UMIC members (Table 8). The ROK and the ROC seem peculiar in having had very short durations as UMICs, as short as seven years, with superb productivity growth. Ninth, the industrial structure in terms of technological intensity shows that the ROK and the ROC increased both the value-added

and employment shares of medium-high-technology industries in manufacturing after they became UMICs. However, the shares of medium-high-technology industries decreased in the current UMIC members (see Table 11).

Tenth, deindustrialization in APO HIC members followed the path of advanced countries because the value-added shares of manufacturing did not fall much, even though the employment shares of manufacturing decreased. However, APO UMIC members experienced declines in their shares of manufacturing in value added as well as employment. Thus, there seems to be premature deindustrialization in APO UMIC members.

From the findings discussed above, we can derive several interesting issues for future growths of individual UMIC members as follows. First, based on the observation of rising labor productivity in agriculture relative to other industries, it needs to be investigated whether Fiji can boost growth by focusing on agriculture as an engine of growth. Second, for Thailand, which has a wide productivity gap between manufacturing and other industries and a relatively large employment share of agriculture, bottlenecks of industrialization that deter labor reallocation from agriculture should be investigated. Third, Malaysia is distinguished by the negative effect of labor reallocation even though it has realized a relative high growth in sectoral productivity. The technology upgrading of manufacturing in Malaysia appears to have remained stagnant since it became an UMIC. Perhaps Malaysia faces a glass ceiling in industrial upgrading under fierce competition from abroad. Fourth, IR Iran has showed large fluctuations in economic growth, which have often interrupted its steady economic growth. As an oil-producing country, bumpy growth corresponding to changes in oil prices is to be expected. It may be a great challenge for IR Iran to avoid these macroeconomic disruptions. Fifth, for the growth of Malaysia, Turkiye, and IR Iran, which have shown deindustrialization with decreasing value added and employment share of manufacturing, we need to identify the factors that make them different from the ROK and the ROC.

CHALLENGES FOR ECONOMIC GROWTH IN APO UMICs

Defining Challenges for Economic Growth

In the previous chapter, we compared the sources of growth and the trends in industrial and trade structures of APO UMICs and HICs. Although the patterns of economic growth and structural changes vary from country to country, productivity growth was found to be the most significant factor that led to the differences in GDP per capita between UMICs and HICs.

The differences in capital accumulation, productivity growth, and structural change may be direct or proximate causes that determine the differences in growth performance. The differences in proximate causes originate from various historical, cultural, legal, and institutional factors, which are referred to as the fundamentals of growth since they determine the incentive structures and thus the behavior of people in the economy. Future growth will be determined by how each country makes its fundamentals favorable to economic growth.

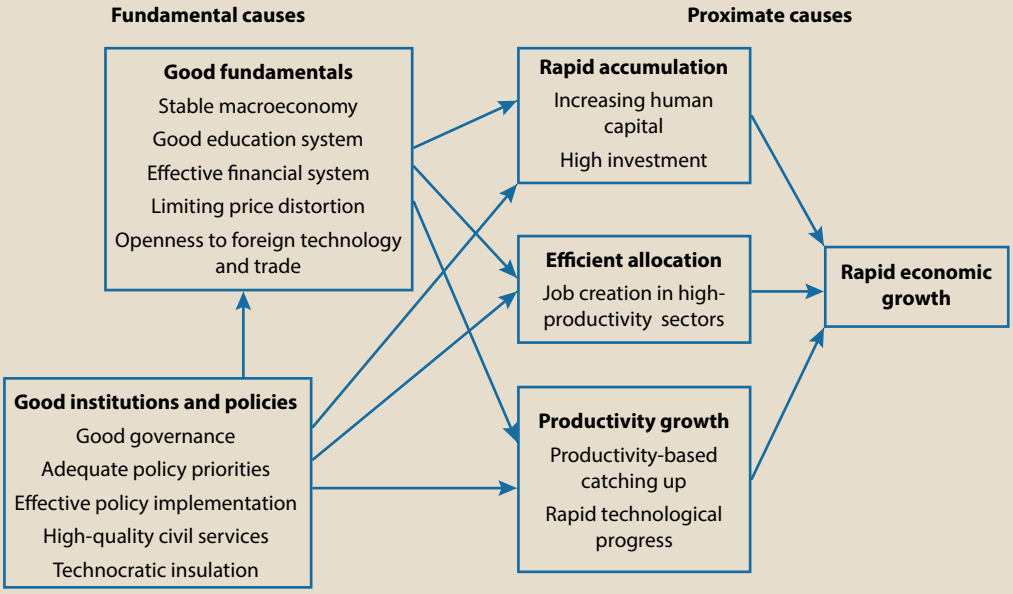
Figure 7 lists the proximate and fundamental causes of economic growth. Economic growth is directly determined by the rapid accumulation of human and physical capital, efficient allocation of resources resulting from a rapid creation of jobs in high-productivity sectors, and technological progress. These proximate causes commove with economic growth and thus institutional economists such as D. North argue that these are results of economic growth rather than causes. However, as the comparative growth analysis in the last chapter provides a useful diagnosis of growth performance in various perspectives, understanding the relationship between proximate causes and economic growth is not meaningless.

The deeper causes of economic growth are behaviors of people, determined by the intention of economic behavior or the incentives and purposes of economic activities. Thus, they could be described as fundamental causes of economic growth or economic development. Although numerous factors can potentially be considered as fundamental, we can list some important factors such as a stable macro economy that increases the predictability of the economy; a good education system that nurtures the talents needed for economic growth; an effective financial system that distributes limited funds to the more productive areas; functioning of the market without price distortions; and openness to trade and advanced technologies, among others.

These fundamentals reflect the history of economic development, culture, demographics, and politics that are also affected slowly by economic development. However, the changes in fundamental causes take a drastic turn when the economy experiences an economic crisis or a regime change that induces an unprecedented political revolution or policy reform. When fundamentals undergo a great shift, the governance system that introduces reformative institutions and policies plays a significant role by determining the direction of change in the fundamentals of economic development. They continuously influence the accumulation and allocation of sources of growth and productivity enhancement in the economy. Strong institutions and policies come from good governance, adequate priority setting of policies, and effective policy implementation, which are made possible by high-quality civil services, which are independent of political influence.

FIGURE 7

PROXIMATE AND FUNDAMENTAL CAUSES OF RAPID ECONOMIC GROWTH.



Source: Description of economic growth by authors.

As shown in Figure 7, economic growth requires an accumulation of tangible and intangible factors of production, efficient allocation and productivity growth. Changes in these proximate causes are determined by fundamental causes such as good fundamentals of economic development and good institutions and policies, which in turn help maintain good fundamentals. However, causation is not one-way but two-way, with a feedback process; as economic growth, in return, brings about steady changes in the fundamental causes as time goes by. Furthermore, in the feedback process, the sources of production undergo qualitative changes and thus ensure the continuity of growth.

Therefore, the challenges for economic growth lie in improving factors that fundamentally cause economic growth through accumulation and allocation. The challenges should be overcome by establishing adequate institutions and implementing effective policies to foster fundamental causes favorable to economic growth. The challenges for economic growth equally apply to all countries, including the advanced ones. Unlike advanced countries where the economic system is well-functioning and challenges can be defined as specific problems of correcting market failures, in developing countries the challenges cannot be clearly defined as specific problems or constraints. It is generally reasonable to assume that the development constraints in most developing countries consist of various factors in all areas of the economy, including the market system itself and problematic governance. In general, low income; lack of demand due to low income; lack of physical and human capital investment due to low savings; lack of technology; lack of competent entrepreneurs (and consequently the lack of competent companies); and the lack of various institutions that make the market system work effectively are universally observed phenomena in developing countries.

Therefore, it may not be appropriate to single out the factors that can solve all problems of economic stagnation in developing countries. However, it is necessary to determine the critical challenges of

each country to prioritize policy actions. Toward this end, this chapter seeks to identify the challenges of each country by finding the most backward areas in the fundamental causes of economic growth, based on cross-country comparisons. For this, we will select indicators related to fundamental causes and quantitatively measure the relative backwardness of a country by comparing the indicators across countries.

Comparison of Indicators related to Fundamentals of Economic Growth

To identify the challenges for future economic growth, we selected various development indicators related to the fundamentals of economic development, institutions, and policies. Most indicators were obtained from international databases such as the World Development Indicators collated by the World Bank using various sources. Comparing key indicators provides comparative and quantitative evaluations of the relative strengths and vulnerabilities of each country. This enables us to determine which areas of fundamentals of economic growth should be tackled by each country. Because of limited availability, it is not possible to cover all the relevant issues discussed above. However, the comparison of indicators narrows down the areas on which each country should focus.

We have classified the challenges for future growth into several areas of fundamentals of economic development, such as macroeconomic management, trade and openness, human capital, infrastructure, industrial and trade structure, governance and institution, environment, etc.

First, for macroeconomic management, unemployment rate and inflation rate were selected as indicators of macroeconomic stability; and central government debt and foreign debt were selected as indicators of macroeconomic soundness. Unemployment is a key measure to monitor whether or not a country is on track to achieve inclusive and sustainable economic growth, full and productive employment, and decent work for all. External debt affects a country's creditworthiness and shapes the perceptions of investors. Debt service balances against a country's ability to acquire foreign currency through goods, services, primary income, and remittances from workers. In addition, since high capital accumulation is possible under a stable macro economy, the savings and investment rates were selected as additional indicators for macroeconomic management. We also chose the real interest rate and the total tax and contribution rates, which affect personal and public savings rates. Tax policy may reflect concerns about distributive effects, economic efficiency, and the practical issues of managing the tax system. In addition, taxes affect incentives and, therefore, economic actors' behaviors and economic competitiveness. If the current account deteriorates, the macro economy may become unstable, and for this reason, the current account was selected for this study.

Second, to evaluate the openness of each country, we selected the trade-to-GDP ratio, FDI inflows, and international tourism receipts. As an internationally traded service, inbound tourism has become one of the world's major categories of trade. In many developing countries, it is one of the main sources of foreign exchange income and a major component of exports, creating much-needed employment and development opportunities. International tourism receipts indicate the degree of specialization of tourism in a country's export structure and the relative ability of tourism to generate foreign revenue. A higher indicator means the economy is more open and the trade with other countries is more active.

Third, human capital is the most important factor for economic growth. To measure this, we selected several indicators related with health and education. For health, we selected life expectancy at birth, along with the infant mortality rate. Mortality indicators (life expectancy at birth or survival to a

certain age) are important indicators of a country's health status. Because data on the incidence and prevalence of diseases are often unavailable, mortality rates are used to identify vulnerable populations, and they are one of the most frequently used indicators for comparing socioeconomic development across countries. For education, we selected school enrollment rates in secondary and tertiary education, average years of total schooling, and the adult literacy rate. The literacy rate is an outcome indicator for evaluating academic ability and can be used as a surrogate tool to check the effectiveness of the education system. High literacy rates indicate the ability of the education system to provide opportunities for large number of people to acquire literacy skills and cumulative achievements of education, though they do not necessarily guarantee the quality of education, lead to better intellectual growth, or serve as the basis for socioeconomic development.

Fourth, we selected indicators related to the infrastructure of the economy. These included the percentage of the population having access to electricity and internet. Energy is needed to create the conditions for economic growth. It is impossible to run factories, operate shops, grow crops, and deliver goods to consumers without using some form of energy. Indeed, access to electricity is of particular importance to human development because it is indispensable for certain basic activities, such as lighting, refrigeration, and running of appliances; and cannot be easily replaced by other forms of energy. Individual access to electricity is one of the clearest and most undistorted indicators of a country's energy prosperity or poverty. The digital-and-information revolution has changed the way the world learns, communicates, does business, and treats illnesses. New information and communications technologies (ICTs) offer vast opportunities for progress in all walks of life in all countries, e.g., opportunities for economic growth, improved health, better service delivery, learning through distance education, and social and cultural advances. In addition, we selected the ratio of rural population to examine the degree of urbanization. A low level of urbanization implies a low level of infrastructure because urbanization requires huge infrastructural investments.

Fifth, to examine the industrial capability of countries, we selected indicators that show structural transformation. Here, we selected the valued-added and employment shares of industries. According to the history of development in advanced countries, industrial capability enhances along with industrialization. We may assume that the lower the share of first industries such as agriculture and the higher the share of industries such as manufacturing, the stronger the industrial capability of the country. We also selected some indicators to observe the trade structure, which also shows the industrial power of countries. We selected the shares of ores and metals exports among merchandise exports and also the share of manufactured goods in exports, as this indicates industrial competitiveness. We assumed that the higher the share of ores and metals exports and the lower the share of manufacturing exports, the weaker the industrial strength of the country.

Sixth, we selected several indicators that show the governance and quality of institutions of a country. These indicators included the following: the corruption perceptions index, control of corruption, voice and accountability, regulatory quality, political stability and absence of violence or terrorism, rule of law, and government's effectiveness. The corruption perceptions index measures how corrupt each country's public sector is perceived to be, according to experts and business people. Control of corruption captures the perception of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as a 'capture' of the state by elite and private interests. Voice and accountability are indicators of the perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Corruption is considered as the enemy of economic development, which distorts the flow of resources of

production in the economy, thereby resulting in inefficient resource allocation. Furthermore, corruption distorts the behavior of the people by replacing productive activity with divertive rent-seeking activity. Control of corruption, and voice and accountability, deters corruptive behaviors. Regulatory quality captures the perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector's development. Inefficient regulation limits the functioning of the market and tends to create corruption. Political stability and the absence of violence/terrorism measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. Rule of law captures the perceptions of the extent to which agents have confidence in and abide by the rules of the society, particularly the quality of contract enforcement, property rights, the police, and the courts, and the likelihood of crime and violence. Without political stability, nonviolent environment, and rule of law, rationality of economic activity cannot be ensured. Government effectiveness captures the perceptions of the quality of public services; the quality of the civil service and the degree of its independence from political pressures; the quality of policy formulation and implementation; and the credibility of the government's commitment to such policies. Government effectiveness is particularly important for implementing successful policy actions.

Seventh, we examined the environment. The environment has become the most important factor for sustainable development. We selected carbon dioxide damage and air pollution as relevant indicators. Exposure to air pollution not only affects the health of people all over the world, but also carries huge economic costs and impedes development, especially in low- and middle-income countries and for vulnerable segments of the population, such as children and the elderly.

Eighth, we selected agricultural land and total natural resources rents as indicators of natural resource abundance. Agricultural land data contains a wide range of information on variables that are significant for understanding the structure of a country's agricultural sector, making economic plans and policies for food security, and deriving environmental indicators. These include indicators related to investment in agriculture and data on gross crop area and net crop area, which are useful for policy formulation and monitoring. Accounting for the contribution of natural resources to economic output is critical to building an analytic framework for sustainable development. In some countries, income from natural resources, particularly fossil fuels and minerals, constitutes a significant portion of GDP, and most of this income comes in the form of economic rents.

Finally, we also looked at the Gini coefficient to track income equality, and the ratio of female-to-male labor force participation rates to examine gender equality. Income equality ensures political stability and decreases social conflicts. Gender equality enhances the status of women who play an important role in health and education. In many low-income countries, women often work on farms or in other family enterprises without pay, and others work in or near their homes, mixing work and family activities during the day. In many high-income economies, women have been increasingly acquiring higher education that has led to better-compensated, longer-term careers rather than lower-skilled, shorter-term jobs.

Table 1 in Appendix provides the list of indicators selected for international comparison and the data sources for these indicators. We have also noted the signs for each indicator. The indicators with plus signs imply that the higher the indicators, the more favorable the factors related with the indicators are to economic growth. The signs of some indicators may not be definitely decided, as their favorability to economic growth may be uncertain. For instance, an excessively high investment rate may not be sustainable and thus may invite macroeconomic instability. However,

usually, when there is a higher investment rate, accumulation is higher and thus it is good for economic growth. Thus, if we exclude some extreme cases, our assumptions regarding the ordering of countries in the areas related with the indicators, based on their favorability to economic development, would be reasonable.

Table 15 shows the indicators for UMIC and HIC members. The numbers in the table are the averages of each indicator available for the period 2016–21. The reasons why we used the average values are as follows: First, because the years 2020 and 2021 were abnormal years affected by COVD-19, it may be necessary to remove idiosyncrasies due to the pandemic. Second, since different indicators are missing for 2021 for various countries without any regularity, we used the average of indicators that are available between 2016 and 2021.

First, we compared the indicators related with macroeconomic management. If we compare the unemployment rate and inflation rate, the macro economies of IR Iran and Turkiye are quite unstable. As a result, the real interest rate of IR Iran is very high even with a high inflation rate, which implies that financial access for businesses in IR Iran is difficult. In terms of government debt, Malaysia and Thailand have burdens of public debt relatively larger than those of the ROK and the ROC, but the level of public debt is not high enough to be concerning for economic growth. The external debts in Turkiye and Thailand are relatively large. The tax rate, which is the tax burden to businesses, is high among UMIC members compared with HIC members. As for savings and investment, most advanced countries have maintained a percentage higher than the mid-20s. Based on the data, Fiji needs to save and invest more. It has a relatively large current account deficit, which implies that it has a shortage in savings and foreign exchange according to the two gap models of economic development.

Second, we compared the indicators related to trade and openness. In terms of net FDI flow, most of APO UMIC member countries except IR Iran, which is under international sanctions, invited more FDI than the ROK and the ROC relative to their GDP sizes. Fiji has a large inflow of FDI which improves its balance of payment under a large current account deficit. Fiji also depends to a high degree on tourism for its foreign exchange revenue. This implies that Fiji should manage a stable environment to ensure a continuous inflow of FDI and tourists. The relatively large net FDI and tourist revenue could be important sources of economic growth for Fiji. However, this also indicates the possible vulnerability of Fiji to external shocks such as the COVID-19 pandemic or diplomatic relationships with countries such as PR China, which has been a large investor in recent years. Most APO members open trade actively.

Third, we looked at the indicators of human capital in health and education. As expected, life expectancy is longer than 70 years for most APO UMICs except Fiji, which has a life expectancy of 67 years. This indicates that Fiji should pay attention to health issues. Also, its infant mortality rate is very high. Secondary school enrollment rates in most APO members are close to 100. Tertiary school enrollment rates in the ROK and the ROC are over 80%, which is higher than in some advanced countries. Turkiye's tertiary school enrollment rate is as high as those in the two HICs, while other APO UMI members have lower rates of around 50%. Comparison of average schooling years shows a pattern similar to that for the tertiary school enrollment rate. Interestingly, the average schooling years in Turkiye is the lowest among peer groups while the school enrollment rate is high, which implies that Turkiye has been increasing its school enrollment rate quickly. There are no significant differences in adult literacy rates. In sum, considering the levels of enrollment rates and schooling years, APO UMICs are not laggards.

Fourth, if we look at the rural population ratio, Fiji and Thailand are not as urbanized as other countries. This implies that these two countries may have room to speed up economic growth through structural change. Most people in APO member countries have access to electricity. However, in terms of internet access, APO UMICs need more investment in ICT to catch up with APO HICs. Malaysia is better positioned than other APO UMICs in term of internet access.

Fifth, as mentioned in the previous chapter, Thailand has a larger pool of workers in agriculture relative to other countries even though its value-added share of agriculture is not much different from those of other APO UMICs. Fiji is lowest in employment and value-added share of manufacturing. Thus, Fiji should achieve further industrialization by increasing production and employment in the industrial sectors such as manufacturing.

Sixth, the share of manufactured exports is lower in Fiji and IR Iran than in other countries. This reflects the uniqueness of these two countries in terms of geography and natural resource abundance, respectively. It also suggests that these two countries should develop sectors that increase employment and value-added activities based on the advantages of their uniqueness. For IR Iran, this would mean developing downstream sectors from their upstream production of oil and gas. Fiji should find sectors for intensifying capital and technology, which would increase the employment and value-added rates of primary industries, such as processing industries based on agriculture and fishery.

Seventh, in terms of expenditure on research and development (R&D), there is a large gap between APO UMICs and HICs. The R&D-to-GDP ratios of HICs are more than 3% and 4% in the ROC and the ROK, respectively, while those in UMICs are a little more than 1%. This indicates that APO UMICs should increase their investments in R&D and thus upgrade their industrial structure toward higher technology.

Eighth, compared with HICs, IR Iran, Thailand, and Turkiye need to improve their governance and institutional quality, which are critical to establishing effective laws and policies favorable to economic growth. Malaysia has better governance and institutional quality than other countries. Particularly, social recognition regarding the problem of corruption (indicated by the Corruption Perception index) and the control of corruption are crucially important for economic development. Government's effectiveness is critical for achieving strong results through policymaking. Even when the government knows what it should do to overcome the challenges and set up policy measures, without governmental effectiveness, it cannot implement its policies as planned, resulting in poor outcomes. Sometimes, government intervention worsens the situation by distorting market transactions.

Finally, the environment is important for sustainable economic development, as emphasized by the UN under Sustainable Development Goals (SDGs). Fiji and Malaysia have relatively better environments than other countries, which may be due to the geographic environment and low population density. In term of natural resource abundance, IR Iran and Malaysia have strengths as expected. In term of income equality, Fiji and Thailand are better placed than other APO UMI countries. As expected, gender equality is poor in IR Iran and Turkiye because of religious and cultural reasons. Thailand is relatively advanced in gender equality in terms of high female labor force participation.

In sum, the APO UMICs face challenges in many areas such as macroeconomic stability, human capital, infrastructure, industrial and trade structure, and particularly, governance and institutional quality. As aforementioned, APO UMICs need to continue industrialization by creating more jobs in higher value added and technology sectors. This will reduce income and gender inequalities. Such

progress is also important for utilizing natural resources more efficiently and developing forward-linked industries. To respond to these challenges, the most difficult and highest priority mission for each country is to build a strong governance system and improve the quality of institutions.

TABLE 15

INDICATORS OF FUNDAMENTALS OF ECONOMIC GROWTH IN SELECTED APO MEMBER COUNTRIES.

Category	Indicators	Fiji	IR Iran	Malaysia	Thailand	Turkiye	ROK	ROC
Macroeconomic management	Unemployment rate (%)	4.56	11.90	3.75	0.92	12.12	3.72	3.82
	Inflation rate (%)	1.77	20.76	1.47	0.50	13.72	1.30	0.97
	Real interest rate (%)	4.79	7.86	2.55	2.64		2.02	1.60
	Government debt (% of GDP)			53.52	42.07	33.13	39.91	33.15
	External debt (% of GNI)	27.95	1.90		36.88	55.96		30.01
	Tax rate (% of profit)	32.35	44.70	39.28	29.33	40.90	33.13	
	Saving rate (% of GDP)	20.84		26.18	30.20	26.95	36.16	36.79
	Investment rate (% of GDP)	17.02	23.39	22.99	23.17	28.31	30.70	23.14
	Current account balance	–9.46		3.11	5.78	–2.76	4.80	13.02
Trade and openness	FDI (net, % of GDP)	6.94	0.72	2.69	1.03	1.37	0.75	1.06
	International tourism, receipts (% of total exports)	44.39		7.73	16.14	13.37	2.99	3.66
	Trade (% of GDP)	91.55	47.97	126.77	114.41	60.27	75.74	116.85
Human capital	Life expectancy (years)	67.35	76.47	75.99	76.90	77.42	82.84	80.78
	Mortality rate, under five years (per 1,000 live births)	26.18	13.90	8.40	9.46	10.76	3.20	3.93
	School enrollment, secondary (% gross)	94.16	87.52	83.67	116.41	104.33	98.80	98.64
	School enrollment, tertiary (% gross)	53.49	63.83	44.25	49.29	114.13	95.67	86.01
	Average years of total schooling (age 15+ years)	9.96	8.88	10.44	7.99	7.05	12.05	12.36
	Literacy rate, youth total (% of people aged 15–24 years)		98.10	97.13	98.14	99.76	99.95	
Infrastructure	Rural population (% of total population)	43.51	24.87	23.70	49.69	24.63	18.54	21.48
	Access to electricity (% of population)	98.33	99.98	99.97	99.89	100.00	100.00	100.00
	Individuals using the Internet (% of population)	61.37	69.87	82.77	60.34	69.14	95.32	84.26

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Category	Indicators	Fiji	IR Iran	Malaysia	Thailand	Turkiye	ROK	ROC
Industrial transformation	Agriculture, forestry, and fishing, value added (% of GDP)	12.04	11.50	8.27	8.41	6.11	1.80	1.82
	Industry (including construction) value added (% of GDP)	16.36	35.21	37.54	34.49	28.82	33.47	37.42
	Employment in agriculture (% of total employment)	18.29	17.66	10.89	31.55	18.86	5.00	4.87
	Employment in industry (% of total employment)	14.19	31.84	27.33	23.05	26.33	25.06	35.65
Trade structure	Ores and metals exports (% of merchandise exports)	1.35	3.06	4.03	1.55	4.02	2.23	
	Manufactures exports (% of merchandise exports)	20.54	20.87	69.43	73.74	77.38	88.74	
Science and technology	Research and development expenditure (% of GDP)		0.86	1.23	1.01	1.01	4.45	3.24
Governance and institutional quality	Corruption Perceptions Index	55.00	27.17	49.17	35.83	39.83	57.67	64.17
	Voice and accountability	0.03	–1.39	–0.21	–0.92	–0.79	0.78	1.03
	Regulatory quality	–0.02	–1.39	0.65	0.04	0.03	1.09	1.38
	Political Stability and absence of violence/ terrorism	0.75	–1.35	0.15	–0.69	–1.45	0.49	0.83
	Rule of law	0.18	–0.77	0.51	0.07	–0.36	1.17	1.18
	Control of corruption	0.61	–0.96	0.18	–0.44	–0.29	0.62	1.04
	Government effectiveness	0.48	–0.54	0.97	0.28	–0.02	1.25	1.41
Environment	Carbon dioxide damage (% of GNI)	1.49	8.12	2.77	2.16	2.03	1.49	
	PM2.5 air pollution (micrograms per cubic meter)	10.95	38.91	15.89	26.26	44.40	25.07	16.73
Resources	Agricultural land (% of land area)	17.15	28.74	26.09	44.65	49.26	16.99	21.85
	Total natural resources rents (% of GDP)	1.23	23.37	6.25	1.69	0.41	0.05	
Income equality	Gini index	30.70	40.93	42.10	35.94	41.78	31.40	34.00
Gender equality	Ratio of female to male labor force participation rate (%)	50.24	23.13	66.12	78.24	46.19	72.47	76.15

Note: The sources of indicators are presented in Table 1 in Appendix. The numbers are averages of indicators between 2016 and 2021. When there is data missing for certain years between 2016 and 2021, the average of data from available years has been used.

In Table 15, we compared the indicators among APO UMICs and HICs. In Table 16, we have compared the indicators of APO UMICs globally by looking at the rankings of each country in the world. We ranked each country in the order of the favorability of the indicated fundamentals of economic development as mentioned earlier. Then, we have considered the indicated fundamentals of economic growth as the weakness of a country if it is ranked below half of the sample countries for which indicators are available. In Table 16, we colored the cell grey if the indicated area was evaluated as a weakness.

Fiji has weakness in its accumulation of physical capital, which is strained by its current account deficit. Fiji needs to improve health, as indicated by life expectancy and infant mortality statistics. Fiji also needs to investigate whether it can advance to the HIC group without changing its current industrial structure. Considering that it is a remote island country in the Pacific, Fiji may need to find an alternative path to economic development by enhancing its productivity in agriculture and fishery. Compared with other APO UMICs, Fiji has relatively better governance and institutions. The only inferior elements are voice and responsibility. Fiji's natural resources are relatively scarce. For gender equality, it is necessary to encourage the participation of its female population in economic activities.

IR Iran has a weakness in the stability of its macro economy as it has higher unemployment and inflation rates than other countries. Since IR Iran is under international sanctions, it does not have much external debt. However, its tax burden is relatively high. IR Iran can be ranked relatively high in human capital and infrastructure. It also has a significant industrial sector. The most critical weakness of IR Iran is governance and institutional quality. Compared with other APO UMICs, IR Iran lags in all the indicators related with governance and institutional quality.

Malaysia is ranked high in most fundamentals of economic growth. Its macro economy is stable with low rates of unemployment and inflation. The rate of accumulation in physical and human capital is relatively high. Except for voice and accountability, its governance and institutional quality is ranked relatively high globally.

Thailand has a stable macroeconomic environment with relatively high global rankings in most indicators of macroeconomic management. It also has high investments in physical and human capital. However, it needs to deepen industrialization through the creation of more jobs in industries that can absorb its large pool of unproductive labor in rural areas. Further industrialization can reduce income inequality and decrease rural poverty. The data implies that Thailand needs to implement a more active industrial policy, but before that, it should improve its governance and institutional quality through control of corruption and ensure political stability to invite more FDI inflows.

Turkiye shows a weakness in macroeconomic management with high unemployment and inflation rates. Also, its external balance is not prudent because it has a relatively large external debt and current account deficit. On the other hand, Turkiye's physical and human capital investment is not small when compared globally, and it has also achieved significant industrialization compared with other countries. In terms of governance and institutional quality, Turkiye has weaknesses in voice and accountability and political stability. Although the government is effective, the corruption perception is relatively high.

TABLE 16

RELATIVE WEAKNESSES IN FUNDAMENTALS OF ECONOMIC GROWTH BASED ON GLOBAL RANKINGS OF APO UMICs.

Category	Indicators	Fiji	IR Iran	Malaysia	Thailand	Turkiye	No. of obs.
Macroeconomic management	Unemployment rate (%)	62	149	41	5	151	188
	Inflation rate (%)	78	178	63	19	172	185
	Real interest rate (%)	65	101	35	37		135
	Government debt (% of GDP)			35	24	15	70
	External debt (% of GNI)	28	1		48	80	122
	Tax rate (% of profit)	61	128	107	45	114	189
	Saving rate (% of GDP)	85		55	32	52	165
	Investment rate (% of GDP)	145	75	81	77	31	172
	Current account balance	157		38	24	102	189
Trade and openness	FDI (net, % of GDP)	28	165	97	149	138	195
	International tourism, receipts (% of total exports)	24		92	61	71	169
	Trade (% of GDP)	71	160	31	43	129	190
Human capital	Life expectancy (years)	154	76	81	66	61	202
	Mortality rate, under–5 (per 1,000 live births)	122	81	61	66	71	194
	School enrollment, secondary (% gross)	79	98	104	17	41	158
	School enrollment, tertiary (% gross)	60	44	74	69	3	157
	Average years of total schooling (age 15+ years)	53	68	46	83	100	145
	Literacy rate, youth total (% of people aged 15–24 years)		57	61	56	12	112
Infrastructure	Rural population (% of total population)	114	63	60	137	61	205
	Access to electricity (% of population)	136	90	92	107	1	217
	Individuals using the internet (% of population)	108	81	47	112	84	208
Industrial transformation	Agriculture, forestry, and fishing, value added (% of GDP)	134	132	113	115	97	198
	Industry (including construction) value added (% of GDP)	158	32	26	33	59	199
	Employment in agriculture (% of total employment)	98	96	75	132	99	188
	Employment in industry (% of total employment)	147	11	25	59	32	188

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Category	Indicators	Fiji	IR Iran	Malaysia	Thailand	Turkiye	No. of obs.
Trade structure	Ores and metals exports (% of merchandise exports)	48	91	104	55	103	170
	Manufactures exports (% of merchandise exports)	111	109	45	35	27	171
Science and technology	Research and development expenditure (% of GDP)		44	32	39	38	112
Governance and institutional quality	Corruption Perceptions Index	50	145	60	107	88	181
	Voice and accountability	104	181	124	156	150	204
	Regulatory quality	97	189	53	90	91	204
	Political stability and absence of violence/terrorism	57	185	96	160	188	206
	Rule of law	83	155	61	90	120	204
	Control of corruption	54	170	76	122	108	204
	Government effectiveness	63	133	39	72	95	204
Environment	Carbon dioxide damage (% of GNI)	109	191	156	136	132	191
	PM2.5 air pollution (micrograms per cubic meter)	27	155	59	125	166	195
Resources	Agricultural land (% of land area)	165	135	138	79	59	210
	Total natural resources rents (% of GDP)	106	9	50	94	138	185
Income equality	Gini Index	28	89	103	63	93	118
Gender equality	Ratio of female to male labor force participation rate (%)	164	185	133	87	167	188

Notes: The sources of indicators are presented in Table 1 in Appendix. The numbers are the rankings of each country when we order the country by an indicator based on the favorability of indicated fundaments to economic growth. The cells are colored grey when a country is ranked below half of the sample countries for which data are available.

In Table 16, we evaluated the fundamentals of each country based on the global rankings of each country. Since the global ranking is the position of APO UMICs when compared globally, including low-income countries, it may be necessary to evaluate the weaknesses relative to a country's income level. As mentioned before, generally, advanced high-income countries tend to have higher rankings in most fundamentals of economic growth. Therefore, to determine the challenges at the current stage of development, Table 17 shows the strength or weakness of each area relative to the income level of a country. We have computed the index by dividing the ranking in per capita GNI by the ranking in each indicator. If the index in the table is less than 1, the country has a weakness in the area considering its income level. Table 17 shows the areas of the fundamentals of economic growth that a country should improve to catch up with other countries at a similar income level.

Table 17 indicates that Fiji's weaknesses remain similar to those identified in Table 16. However, in education, Fiji is better than other countries at a similar income level. Although Fiji's industrial

structure is evaluated as backward with much room to improve the share of industries, considering the country's income level, the low share of employment may not be considered a critical weakness. As seen in Table 16, Table 17 also shows that Fiji has better governance and institutional quality compared with other countries. The table indicates that the weaknesses of IR Iran are similar to those seen in Table 16, namely in the areas of macroeconomic management and governance and institutional quality. In addition, considering its income level, IR Iran needs to invest in education to increase its school enrollment and literacy rates. Unlike IR Iran, Malaysia is quite differently evaluated in Table 17. In terms of global comparison, Malaysia is superior in most fundamentals of economic growth. However, Malaysia has some backward areas considering its relatively high-income level compared with other APO UMICs. Malaysia has relative weaknesses in health and education. In addition, Malaysia needs to improve its governance and institutional quality. Thailand exhibits weaknesses in its industrial structure as seen in Table 16. Additionally, Table 17 indicates the weakness of Thailand in education, with relatively low levels of schooling and literacy. Since it has a large share of rural population and relatively low access to electricity and internet, Thailand should invest more to catch up with other countries at a similar income level. Also, the governance and institutional quality should be enhanced. As in Table 16, Turkiye has weaknesses in macroeconomic management, with high unemployment and inflation rates and external imbalance. Table 17 shows that Turkiye has weaknesses in human capital as measured by life expectancy and the infant mortality rate. Although Turkiye is well industrialized when compared globally, it still has a relatively large labor percentage in agriculture compared with other countries at similar income level. As demonstrated in Table 17, Turkiye should improve its governance and institutional quality to catch up with other countries at a similar stage of development.

TABLE 17

RELATIVE WEAKNESSES IN FUNDAMENTALS OF ECONOMIC GROWTH BASED ON RELATIVE RANKINGS OF UMICs *.

Category	Indicators	Fiji	IR Iran	Malaysia	Thailand	Turkiye
Macroeconomic management	Unemployment rate (%)	1.69	0.55	1.35	15.12	0.36
	Inflation rate (%)	1.32	0.46	0.86	3.91	0.31
	Real interest rate (%)	1.16	0.59	1.13	1.47	
	Government debt (% of GDP)			0.59	1.17	1.35
	External debt (% of GNI)	2.43	53.45		1.02	0.44
	Tax rate (% of profit)	1.72	0.64	0.52	1.69	0.48
	Saving rate (% of GDP)	1.08		0.88	2.07	0.92
	Investment rate (% of GDP)	0.66	1.00	0.62	0.90	1.60
	Current account balance	0.67		1.46	3.17	0.53
Trade and openness	FDI (net, % of GDP)	3.88	0.52	0.59	0.53	0.41
	International tourism, receipts (% of total exports)	3.92		0.54	1.11	0.69
	Trade (% of GDP)	1.49	0.52	1.80	1.78	0.43

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Category	Indicators	Fiji	IR Iran	Malaysia	Thailand	Turkiye
Human capital	Life expectancy (years)	0.73	1.16	0.73	1.23	0.96
	Mortality rate, under 5 years (per 1,000 live births)	0.89	1.05	0.93	1.18	0.79
	School enrollment, secondary (% gross)	1.11	0.71	0.45	3.74	1.11
	School enrollment, tertiary (% gross)	1.46	1.56	0.62	0.91	15.11
	Average years of total schooling (age 15+ years)	1.60	0.69	0.91	0.77	0.50
	Literacy rate, youth total (% of people aged 15–24 years)	–	0.86	0.54	0.80	2.69
Infrastructure	Rural population (% of total population)	1.00	1.43	1.00	0.60	0.97
	Access to electricity (% of population)	0.89	1.06	0.69	0.82	62.64
	Individuals using the Internet (% of population)	1.07	1.13	1.30	0.75	0.71
Industrial transformation	Agriculture, forestry, and fishing, value added (% of GDP)	0.82	0.66	0.51	0.69	0.59
	Industry (including construction), value added (% of GDP)	0.70	2.72	2.25	2.42	0.97
	Employment in agriculture (% of total employment)	1.07	0.86	0.74	0.57	0.55
	Employment in industry (% of total employment)	0.71	7.49	2.21	1.28	1.70
Trade structure	Ores and metals exports (% of merchandise exports)	1.97	0.82	0.48	1.24	0.48
	Manufactures exports (% of merchandise exports)	0.86	0.69	1.12	1.96	1.83
Science and technology	Research and development expenditure (% of GDP)	–	1.12	1.03	1.15	0.85
Governance and institutional quality	Corruption Perceptions Index	2.02	0.55	0.89	0.68	0.59
	Voice and accountability	1.09	0.49	0.48	0.53	0.39
	Regulatory quality	1.17	0.47	1.13	0.91	0.65
	Political stability and absence of violence/terrorism	2.01	0.49	0.63	0.52	0.32
	Rule of law	1.37	0.58	0.98	0.91	0.49
	Control of corruption	2.10	0.53	0.79	0.67	0.55
	Government effectiveness	1.80	0.67	1.54	1.14	0.62
Environment	Carbon dioxide damage (% of GNI)	0.98	0.44	0.36	0.56	0.42
	PM2.5 air pollution (micrograms per cubic meter)	4.02	0.55	0.97	0.63	0.34

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Category	Indicators	Fiji	IR Iran	Malaysia	Thailand	Turkiye
Resources	Agricultural land (% of land area)	0.71	0.68	0.45	1.07	1.03
	Total natural resources rents (% of GDP)	0.97	9.01	1.09	0.79	0.39
Income equality	Gini Index	2.35	0.58	0.36	0.75	0.37
Gender equality	Ratio of female to male labor force participation rate (%)	0.64	0.45	0.42	0.87	0.32

* The relative rankings in indicated fundamentals are relative to the income levels of APO UMICs under consideration.
Notes: The sources of indicators are presented in Table 1 in Appendix. The numbers are the rankings of each country in each indicator divided by the ranking of income level. When the number is less than 1, we consider the indicated fundamental as a weakness of the country relative to its income level. The cells are colored grey for the indicators evaluated as weaknesses.

Impact of COVID–19 and its Implications

Finally, we compared growth performances across countries to analyze the vulnerability and resilience of each country in response to the COVID-19 pandemic. Since health is one of the most important elements in human capital, the COVID-19 pandemic may have had a severe impact on economic growth since 2020. It may be too early to evaluate the impact of the COVD-19 pandemic since the global economy is still suffering due to its impact.

When COVID-19 spread rapidly across the globe in the first half of 2020, governments all over the world tried to restrain the spread of the virus through lockdowns, quarantines, and border controls. As a result, the pandemic nearly shut down human activity in the early period of its breakout and these constraints have remained until recently. The containment measures against COVID-19 decreased aggregate demand, first by limiting the mobility of people and later by reducing incomes, increasing uncertainty, and weakening consumption and investment. The measures also shocked the supply side of the economy by decreasing the number of workers and suspending the production of goods and services as the cases of infection and the number of workers under quarantine increased. To make matters worse, as COVID-19 became a global pandemic, the global supply chain was disrupted through stringent border control and delayed transportation of raw materials and goods.

The impact of this global pandemic varied across countries, depending on the severity of incidence, stringency of containment measures, and speed of recovery. Compared with advanced countries in Europe and North America, the numbers of cases and deaths were relatively small in Asian countries in 2020. However, as the demand in importing countries shrunk, the exporting industries in Asia had to reduce production and employment. Even though the global economy has recovered gradually, albeit unevenly, it will take a long time to achieve the full range of recovery.

As the world gradually recovers from disruptions in the trade and global production network and the shock in demand and supply caused by the containment measures against COVID-19, a level of inflation unprecedented in the last 30 years has changed the direction of macroeconomic policies. To buffer the unprecedented impacts on economic activity caused by stringent measures such as lockdowns, governments all over the world have adopted drastically expansionary monetary and fiscal policies. These expansionary policies have increased the aggregate demand as societies have recovered from the pandemic. However, the disruption to the production network has not recovered as quickly as the demand levels. In addition, the breakout of war between Ukraine and Russia has decreased the supply of energy and staples. The ongoing conflict between the USA and PR China has also affected

the flow of trade and the prices of raw materials. The rising demand and stagnation of supply have boosted prices to high levels unobserved in many years. Governments in most advanced countries, especially as a result of the pandemic, had changed the directions of their macroeconomic policies from expansionary to contractionary. All this will have a strong impact on the global economy. As a result, APO UMICs will experience an uncertain future in the macroeconomic environment and may be forced to change their positions in the global trade and production network.

Here, we will compare growth performances during the period of the COVID-19 pandemic, from 2019 to 2021, to examine vulnerabilities to COVID-19 and the subsequent macroeconomic shock. Table 18 shows the GDP growth rates. In 2020, when COVID-19 spread globally and many advanced countries shut down, Fiji and Thailand, which are heavily dependent on tourism, were hit hard by a sharp drop in tourist inflows due to restrictions on cross-border travel. However, other countries did not experience significant declines in growth due to the pandemic. When we compare before and after the breakout of COVID-19, GDP growth rates were lower in 2019 than in 2020 and 2021. GDP growth had declined particularly sharply in Fiji in 2019 because of its unstable political environment (after the election in 2018), which reduced business confidence and exacerbated uncertainty in the political system. At the same time, the Fiji government was forced to implement fiscal consolidation due to disappointing revenue collections and undisciplined expenditures in earlier years. The banking sector was also constrained by a lack of liquidity. The growth rate of IR Iran also turned positive in 2020 following negative growth in 2019. In 2018, the USA had withdrawn from the IR Iran nuclear deal. The USA reinstated sanctions in November 2018 and expanded them in 2019 to cover IR Iran's financial sector. Interestingly, the growth rate of Turkiye had risen from 2019 to 2021 because the government had introduced a drastic expansionary policy.

TABLE 18

ECONOMIC GROWTH DURING COVID-19 IN APO MEMBER COUNTRIES.

Country	2019	2020	2021
Fiji	–18.63	–5.25	–
IR Iran	–2.55	5.64	–
Malaysia	0.74	–0.31	4.86
Thailand	–2.26	–2.38	2.29
Turkiye	4.54	5.30	8.71
ROK	1.50	2.16	3.00
ROC	2.74	8.62	3.49

Note: Growth rate of real GDP is given in terms of percentage, based on data obtained from National Accounts.

With the introduction of restrictions on cross-border travel and delays in the transportation of goods, COVID-19 disrupted trade flow across countries, beginning in the initial days of the outbreak. In addition, the tensions between the USA and PR China also exercised a downward pressure on trade. Thus, the stagnation of exports may have had negative effects on the economy, particularly for industrialized Asian countries that rely on exports as an important engine of growth. Table 19 indicates that export growth between 2019 and 2021 was affected by the impact of COVID-19 on exports. Export growth rates show a pattern similar to economic growth rates. Fiji and IR Iran had severely negative growth of exports in 2019 because of political instability. However, IR Iran's exports growth was high in 2020 even with COVID-19. Fiji continued to experience negative

exports growth, and gradually exhibited an ascending sign of growth. Thailand is the only country that experienced a sharp decline in exports growth in 2020. Other countries did not show any signs of stagnation in exports. Rather, the export growth was negative in those countries in 2019 because of the global recession. Although there was a serious concern regarding trades and exports during the initial period of COVID-19, the impact of the pandemic did not have a significant downside impact on APO member countries as expected in the initial period of the pandemic. This is because, first, Asian countries did not experience a surge in cases and deaths in 2020; and second, vaccinations and herd immunity with increasing contagion among people lessened the severity of the pandemic and shortened the periods of lockdowns or stringent restraints on economic activities.

TABLE 19

EXPORTS GROWTH DURING COVID-19 IN APO MEMBER COUNTRIES.

Country	2019	2020	2021
Fiji	–21.43	–7.61	–0.05
IR Iran	–40.41	20.76	–
Malaysia	1.11	16.71	20.10
Thailand	–6.55	–11.89	23.40
Turkiye	–4.29	15.69	18.52
ROK	–1.88	11.74	16.92
ROC	–7.23	20.23	17.27

Note: Growth rates of exports are in percentages, based on data obtained from National Accounts.

The trend of net exports reported in Table 20 tells a similar story. Even though the trade flow was disrupted by COVID-19, net exports for most APO member countries increased in 2020 because the impact of the pandemic was less strong in Asia than major Western countries. Fiji and Turkiye continued to have trade deficits persisting from the pre-COVID years and should be monitored for possible crisis from chronic trade deficits and accumulating external debts. In sum, as other economies hit hard by the COVID-19 pandemic experienced the disruption of production, industrialized Asian countries increased exports and achieved trade surpluses, which lessened the impact of the pandemic on the economy.

TABLE 20

NET EXPORTS DURING COVID-19 IN APO MEMBER COUNTRIES.

Country	2019	2020	2021
Fiji	–1,753	–903	–1,273
IR Iran	23,890	8,159	22,668
Malaysia	33,195	44,272	61,187
Thailand	10,009	25,479	5,123
Turkiye	–29,509	–49,880	–46,204
ROK	8,891	44,865	29,306
ROC	43,506	58,978	64,885

Note: Net export in million USD is the amount of exports minus imports, based on data obtained from National Accounts.

As a result, the national currencies in most APO countries appreciated in 2020. According to Table 21, most APO members, with the exception of Turkiye, maintained an external balance with only mild fluctuations in their exchange rates. Turkish lira depreciated as much as 22% in 2020 and fell deeper with a 60% depreciation in 2021. The initial policy response to the pandemic and the subsequent sharp growth rebound in Turkiye set the country apart from its peers. With rapid monetary and credit expansion and large liquidity support, Turkiye had strong economic growth in 2020. However, these policies aggravated economic and financial vulnerabilities. Higher inflation, increased dollarization, and a large shift in the current account position increased pressure on the lira and gave rise to heavy foreign exchange sales, which, in turn, led to steep reserve declines from already-low levels.

TABLE 21

DEPRECIATION RATES OF NATIONAL CURRENCIES DURING COVID-19 IN APO MEMBER COUNTRIES.

Country	2019	2020	2021
Fiji	4.57	–10.15	6.29
IR Iran	–	–	–
Malaysia	–0.95	–1.01	3.70
Thailand	–4.72	–1.21	10.24
Turkiye	9.95	22.29	60.34
ROK	6.87	–6.32	7.46
ROC	–2.63	–6.89	–1.25

Note: The exchange rates of national currencies to USD were obtained from IFS of IMF. The exchange rate data for IR Iran was not available.

Table 22 shows that the inflation rate in CPI distinguishes Turkiye from other countries. The inflation rate in Turkiye was much higher than those of other APO countries, at a two-digit level, even before the COVID-19 pandemic. This indicates that Turkiye has pre-existing macroeconomic instability. The excessive monetary expansion aggravated the problem of price instability and depreciated the lira. As a result, the Turkish economy has shown strong growths in GDP and exports, but high inflation and sharp depreciation of lira portended an economic crisis. In 2021, most APO countries showed rising inflation rates, which increased sharply in 2022, indicating the need for stringent macroeconomic policies.

TABLE 22

INFLATION RATES DURING COVID-19 IN APO MEMBER COUNTRIES.

Country	2019	2020	2021
Fiji	–1.91	–1.33	2.64
IR Iran	23.36	37.99	30.66
Malaysia	1.56	–0.25	2.27
Thailand	1.05	–0.34	3.18
Turkiye	11.47	13.95	39.67
ROK	1.21	0.94	3.55
ROC	1.85	–0.19	2.79

Note: Inflation rate of CPI is in percentage.

The human and economic tolls of the COVID-19 pandemic have been severe. Thousands of lives have been tragically lost and many livelihoods compromised. However, from a macroeconomic point of view, the direct impact of the pandemic on economic growth and trade was not as large as initially expected. Two APO HICs experienced increases in the growth rates of their GDPs and net exports. This was because both the countries succeeded in controlling the contagion in early stages of the COVID-19 pandemic. As a result, the economic shutdown was not severe. In the case of Thailand, where the tourism industry is an important source of revenue, the impact of the pandemic was significant, but it is gradually recovering from the impact. Overall, the effect of the COVID-19 pandemic on the macroeconomies of these countries was relatively mild. COVID-19 cannot be blamed for the recent stagnation of Fiji and IR Iran because the recession in these countries had started before the pandemic, caused by political instability. Turkiye may be the only country where COVID-19 had a significantly negative impact on the economy by aggravating its pre-existing vulnerability of macroeconomic instability caused by excessive monetary expansion and deteriorating external balance.

The prevention of diseases and adequate responses to outbreak of pandemics are important for ensuring that a pandemic does not disrupt economic activities in an extreme manner. As we discussed, macroeconomic management, with adequate responses to demand-and-supply shocks, and a stable money supply along with a balanced fiscal position may have a long-lasting impact on the path of economic growth in the aftermath of COVID-19. Particularly, as global liquidity is constrained with the change in the macroeconomic policy stance of the USA, stable and prudential macroeconomic management has become a critical issue for future growth.

POLICY IMPLICATIONS FOR APO UMICs

Downside Risks and Upside Potential: What to Do

Here, we summarize the findings based on our cross-country comparison of growth performances and indicators related to the fundamentals of economic growth. First, when we compared growth performances across APO UMICs and HICs, we were able to identify some success factors of APO HICs. The two HICs were able to advance from the middle-income group to the high-income group in less than 30 years through steady and high productivity growth. This steady high growth was achieved because the TFP growth was consistent, unlike the case with APO UMICs. Fundamentally, this was possible because the HICs maintained a stable macro economy with relatively stable prices and low unemployment. In addition, the success was possible because these countries actively created jobs in higher productivity sectors. Particularly, continuous advancement in manufacturing exports allowed high growth of productivity. To achieve this, the governments searched for promising sectors and promoted targeted industries actively. Thus, their structural transformation, which increased the share of higher productivity sectors, remained consistent and steady over the last 60 years.

For APO UMICs to become high-income countries, they should accelerate economic growth through increases in productivity. They should reduce the ups and downs of economic growth by ensuring high investments in physical and human capital and steady TFP growth. In addition, they should create more jobs in high-value-adding industries such as high-tech manufacturing and knowledge-intensive services. To achieve these goals, APO UMICs should overcome their challenges and reduce their gaps in the fundamentals of economic growth.

We summarized the challenges of each APO UMIC in Table 23. The challenges indicate the downside risks for each country. On the other hand, the challenges also imply the upside potentials because overcoming challenges may lead APO UMICs on the path to joining the group of HICs. The comparative indicator analysis demonstrates what APO UMICs should do to convert the downside risks into upside potentials.

Compared with other APO UMICs, Fiji's economic growth has been slow, and its industrial transformation has been stagnant. As a result, Fiji is lowest in per capita GDP among APO UMICs. Fiji is a low investing country by global comparison and unique in its geographical characteristic as a remote island country in the Pacific ocean. Thus, Fiji should invest more in infrastructure and improve its human capital, particularly in health. Considering its relatively low-income level and distinct geography, Fiji may need to find an alternative means of industrial transformation by pursuing new high-value-added sectors other than manufacturing. Despite recent political instability, Fiji has upside potential due to its relatively superior governance system, institutional quality, and income equality.

The major challenge for IR Iran is macroeconomic instability, which may have originated from political instability. IR Iran achieved notable industrial transformation to acquire significant industries other than oil and industry. For IR Iran to join the HIC group, it is critical to accelerate its growth through further industrial upgrading. For this, IR Iran needs to invest more in education. Fundamentally, improvement in governance and institutional quality is critical.

Among APO UMICs, Malaysia is best positioned considering its growth performance and fundamentals of economic growth. This was to be expected since Malaysia has the highest per capita GDP among APO UMICs. The challenge for Malaysia is to reduce the gap with other countries at a similar income level in the fundamentals of economic growth such as health, education, governance, and institutional quality. While other APO UMICs suffer from macroeconomic instability and backward industrial structure, Malaysia is in a better position to become a high-income country. However, there is a downside risk of premature deindustrialization as Malaysia loses industrial competitiveness because of stagnancy in the technological upgrading of its manufacturing industries. Among APO UMICs, it is most important for Malaysia to implement a suitable industrial policy to catch up with other industrialized countries such as the ROK and the ROC. For this, it is fundamentally important to set up stronger governance and improve the quality of institutions.

Thailand faces a more severe problem of industrial structure compared with other countries because it still has a large pool of unproductive labor in rural areas. In terms of urbanization and industrialization, Thailand seems most lagging among APO UMICs with the exception of Fiji. Thailand has established significant manufacturing industries through FDI but recently the FDI inflow has been stagnant. Even though Thailand's large employment share of agriculture is a weakness, it may imply an upside potential since it can accelerate growth through relocation of workers from rural to urban areas. This will require more investment in infrastructure and human capital and improvement in governance and institutional quality, the failure of which may limit FDI inflows to the country.

Turkiye is similar to Malaysia in that it faces the risk of premature deindustrialization as it loses industrial competitiveness in manufacturing. Unlike Malaysia, however, Turkiye should first overcome the challenge of macroeconomic instability such as high inflation and unemployment. As in the case of Malaysia, Turkiye should invest more in health. Turkiye also needs to improve governance and institutional quality.

TABLE 23

CHALLENGES FOR APO UMICs.

Country	Comparative growth analysis	Comparative indicator analysis	
		Global comparison	Relative to income level
Fiji	Stagnant industrial transformation and low growth	Low accumulation, geography, and poor natural resources	
IR Iran	Unstable macroeconomy under fluctuating oil prices	Macroeconomic instability, and governance and institutional quality	Macroeconomic instability, governance and institutional quality, and low school enrollment and literacy rate
Malaysia	Stagnant technological upgrading in manufacturing		Low life expectancy and high infant mortality, low school enrollment and literacy rate, and governance and institutional quality

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Country	Comparative growth analysis	Comparative indicator analysis	
		Global comparison	Relative to income level
Thailand	Too many low productive workers in agriculture	Large pool of unproductive labor in rural areas, lack of infrastructure, and governance and institutional quality	Large pool of unproductive labor in rural areas, lack of infrastructure, governance and institutional quality, and low school enrollment and literacy rate
Turkiye	Declining share of manufacturing in the economy	Macroeconomic instability	Macroeconomic instability, low life expectancy and high infant mortality, and governance and institutional quality

Note: This is author's summary of cross-country comparisons.

It is impossible to determine specific policies for individual APO UMICs based on comparative growth analysis and comparison of selected indicators on the fundamentals of economic growth. However, as we summarized in Table 23, each country has different challenges and should develop appropriate policy measures to overcome the challenges. The table merely shows the areas APO UMICs should prioritize to catch up with HICs. Because each country has a unique history with a different cultural and political background, it is not possible in this study to suggest specific policies. In addition, the fundamentals of economic growth do not change in the short term and require a long period of national efforts by political leaders and policymakers. Economic development of a nation changes its path through complex feedback loops and ongoing political and economic events. Thus, some say that timing and luck may have decisive effects on the path of development.

Next, we will discuss the directions or approaches that APO UMICs should take in developing policies to overcome challenges, based on the experiences of APO HICs. For this, we will first examine the success factors of policymaking in APO HICs, based on the existing literature.

Policy Implications from the Experiences of APO HICs

In the beginning of this section, we listed the success factors that made it possible for APO HICs to join the high-income-countries group. They achieved fast growth through high rates of investment in physical and human capital and industrial transformation by upgrading technological contents toward higher productivity activities. The governments of the ROK and the ROC were very active in policymaking to promote exports and nurture promising industries using various fiscal and financial measures. During the 1970s, economic development of the ROK followed a typical state-led development model, with concrete investment plans and industrial targets. Thus, when we discuss the policies needed for high economic growth, the industrial policies of the ROK and the ROC could be considered as model policies that currently developing countries may adopt. Today, most countries introduce policy measures to promote exports and induce FDI.

However, it is misleading to consider active intervention of government to promote exports and industrial transformation as the essence of fast economic growth. To understand this, it is helpful to review the debate on the role of the government in the economic development of APO HICs. In

the early 1980s, when the economic development of the ROK and the ROC attracted attention for their high growth through exports promotion, economists such as Balassa [25] argued that their successful growth performance was possible because these countries opened their economies to increase trade through outward-oriented policies, which contrasted with the inward-oriented policies seen in Latin America. An outward-oriented policy is thought to be market friendly. In addition, these countries were thought to be different because they maintained relatively stable macroeconomies and small government debts in comparison. Because the ROK sought to rationalize overinvested industries in the 1980s, scholars argued that the country could achieve continuous growth despite the interventionistic government policies.

In the late 1980s, economists paid more attention to the role of government as east Asian countries including Japan, the ROK, and the ROC demonstrated their industrial prowess by increasing global market shares in manufacturing exports. Notably, the large conglomerates in Japan and the ROK proved their industrial competitiveness in high-tech industries. The large conglomerates in Asian countries grew with support from active policies. Economists emphasized roles of governments in industrial development. The governments intentionally allocated financial resources to selected companies in strategic industries, which distorted the resource allocation of the market with policy measures. Particularly, the industrial competitiveness of the ROK could not be built without active industrial policy intervention. Both explanations regarding the economic growth of APO HICs reflect the reality that economic development is a complex process where various factors interact with each other. Even the policy of the government has changed from time to time in response to ongoing events and challenges.

In the 1990s, economists tended to accept that the two explanations, pro-market and pro-government, are not exclusive from each other, and adopted an ecclesiastic view. According to the World Bank [26], the success factor lies with the complementarity between policy and the market. It is undeniable that the governments of east Asian countries made interventionistic measures to promote economic growth. Their policy measures in export promotion and industrial promotion were very interventionistic and sometimes distorted financial markets severely with many side effects. However, such policies were successful because they enforced the market or complemented the functioning of the market. The World bank [26] argued that these policies were market based because policy measures promoting exports supported those companies that could increase their shares in the global market. As the market picks up the winner through competition, the policy picks up the winners based on their performance in the market. Rodrik [28] also found that the policies of APO HICs cannot be explained as a one-sided argument, as the policy stances of these two countries satisfied half of the elements in the list of the 'Washington Consensus,' the policy prescription suggested as desirable by liberalist market-oriented policymakers.

TABLE 24

THE 'WASHINGTON CONSENSUS' AND EAST ASIA.

	Elements of the Washington Consensus	ROK	ROC
1.	Fiscal discipline	Yes, generally	Yes
2.	Redirection of public expenditure priorities towards health, education, and infrastructure	Yes	Yes

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	Elements of the Washington Consensus	ROK	ROC
3.	Tax reforms, including the broadening of the tax base and cutting marginal tax rates	Yes, generally	Yes
4.	Unified and competitive exchange rates	Yes except for limited time periods	Yes
5.	Secure property rights	Limited in the early 1960s	Yes
6.	Deregulation	Limited	Limited
7.	Trade liberalization	Limited until 1980s	Limited until 1980s
8.	Privatization	No. The government established many public enterprises during 1950s and 1960s	No. The government established many public enterprises during 1950s and 1960s
9.	Elimination of barriers to direct foreign investment (DFI)	DFI heavily restricted	DFI subject to government control
10.	Financial liberalization	Limited until 1980s	Limited until 1980s

Source: Rodrik [27].

Thus, Rodrik [28] argued that there is no one-size-fits-all policy for economic growth. Instead of focusing on the policy outcomes, getting the policy process right is critical for successful outcomes. Therefore, since we know what should be done from cross-country analysis, it is important to know how to make and implement policies in APO HICs.

First, prior to policy actions to achieve the intended goals set by the government, it is critical to establish the right economic environment to enable people in the countries, including businesses, to rationally engage in the market process. As evident from Table 24, the ROK and the ROC had fiscal discipline; achieved efficient mobilization of public expenditure toward health, education, and infrastructure; and implemented tax reform and normalized their exchange rates. The fiscal discipline and normalization of exchange rates form the basis of a stable macroeconomy and the investments in human capital and infrastructure are prerequisite for economic growth. As we discussed before, the steadiness of economic growth in APO HICs was critical for continuous growth, which is an important lesson for IR Iran and Turkiye.

Second, for most APO UMICs, particularly Malaysia and Turkiye, industrial upgrading is necessary to avoid premature industrialization, which may trap them in the status of a middle-income country. Instead of learning what kind of interventionistic policy measures were introduced in the ROK and the ROC and paying attention to the supply side of industrial production, the success of APO HICs lies in the basic orientation of industrial policy toward the demand side. The success factor of export-oriented policy is that the orientation of policy makes policymakers attentive to demand. Most failures in policymaking come from the mindset of suppliers disregarding the situation of demand.

Third, as Rodrik [28] underscored, the critical element of a successful policy does not lie in the question of 'what to do' but in 'how to do.' Before establishing ambitious plans and following policy measures to achieve them, it is critical to evaluate the policy capacity or effectiveness of policy implementation. It is well known that east Asian governments recruited their high-level

public officials through public examinations perceived as fair competitions. The design of implementing this system was considered at the same time policy plans were made. It is well known that the leadership in the ROK established the Economic Planning Board (EPB) and conferred on it the role of a control tower. In addition, the decision making in the policy process was insulated from political influence. When a policy is interventionistic, it is all the more critical to have independent public officials with titles and power corresponding to their accountability. As discussed previously, most APO UMICs except IR Iran ranked relatively high on the government effectiveness index. If these countries make more efforts to reduce the corruption that arises from political influences on policymaking, there is upside potential to implement the right policies to overcome challenges.

Fourth, according to the World Bank [26], the policy-orientation in the ROK and the ROC was to enhance the functioning of the market, which means that policymakers supported the private sector instead of replacing it. As many developing countries promoted industrialization through state-owned enterprises, these two countries tried to find the right private sector to support to achieve their goals. Therefore, these policymakers always considered the incentive mechanism of a policy to direct the behavior of stakeholders in a manner consistent with the goals of the policy.

Applicability of Experiences of APO HICs to APO UMICs

So far, we have discussed what to do and how to implement the actions for APO UMICs to become high-income countries. However, it is not easy to undertake policy actions even when we clearly know what to do and how to do it. The reason is that the process of policymaking is not independent of the social norms that are deeply rooted in cultural and historical contexts. In addition, politics affects the policymaking process decisively. Thus, it is necessary for political leaderships to find their own styles of governance and institutions that fit social norms and cultural contexts. Fortunately, most APO UMICs have ranked high in government effectiveness. In addition, due to the progress in ICT and increasing international travel, accelerated sharing of information and knowledge is increasing imitation across countries in every corner of society, including political and economic systems. The globalization of the last 30 years has accelerated this trend.

Therefore, it may not make sense to study the specific policy measures of APO HICs and apply them to current APO UMICs because the specific policies are rooted in the existing institutions of a country and the outcome of the policy is determined by the response of the economy to the policy actions. In this sense, it is not desirable for APO UMICs to implement industrial policies as APO HICs did in the 1970s. The ROK's industrial policy was possible under the political and bureaucratic system of the ROK at that time. Its export promotion was helped by the rapidly increasing exports market within a favorable global economic environment, which may not hold relevant now as trade conflict is increasing. However, as argued by Evans [29], through captive reverse engineering, APO UMICs could imitate the policy framework of APO HICs based on the principle of effective policymaking as mentioned before. That is, even though APO UMICs must establish different policy measures under different institutional settings, their policies could reflect the success elements of policymaking as observed in the past experiences of APO HICs.

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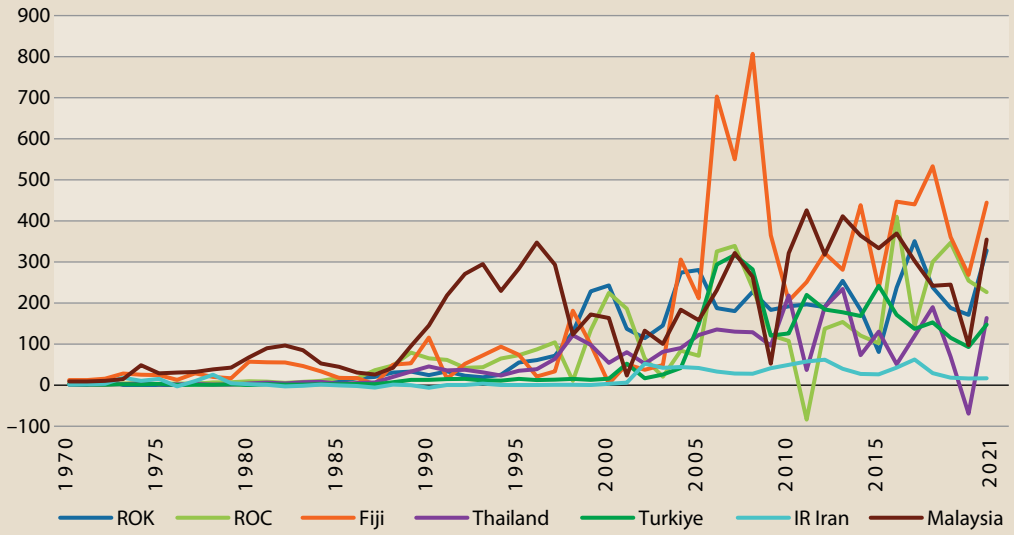
APPENDIX

FIGURE A1

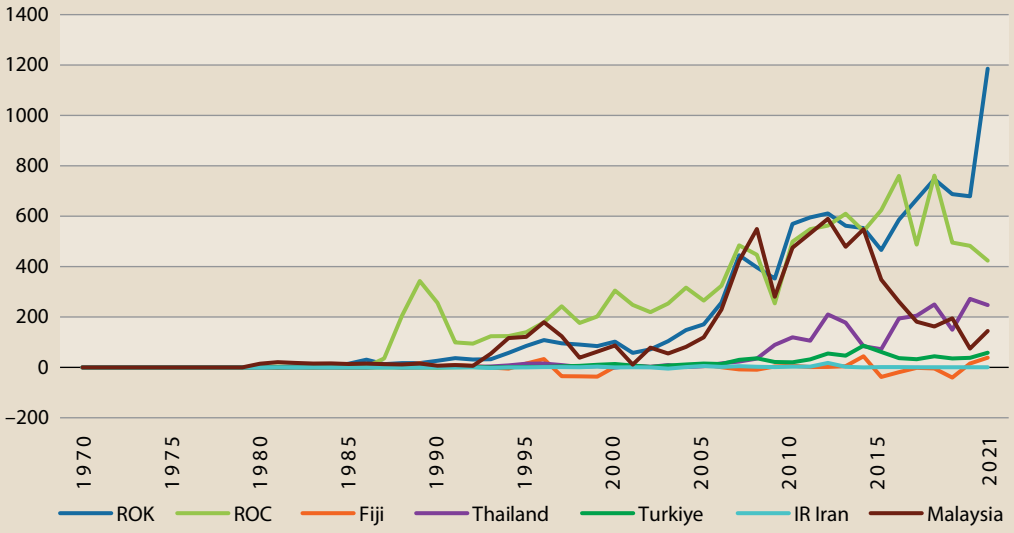
INWARD FDI RELATIVE TO GDP



Note: USD at current prices in millions.
Source: UNCTAD Database.

FIGURE A2

OUTWARD FDI RELATIVE TO GDP



Note: USD at current prices, in millions.
Source: UNCTAD Database.

TABLE A1

INDICATORS OF FUNDAMENTALS OF ECONOMIC GROWTH.

Category	Indicators	Sources	Signs
Macroeconomic management	Unemployment, total (% of total labor force)	ILO, ILOSTAT	(–)
	Inflation, consumer prices (annual %)	IMF, IFS	(–)
	Real interest rate (%)	IMF, IFS	(–)
	Central government debt, total (% of GDP)	IMF, IFS	(–)
	External debt stocks (% of GNI)	World Bank, International Debt Statistics.	(–)
	Total tax and contribution rate (% of profit)	World Bank, Doing business	(–)
	Gross savings (% of GDP)	World Bank, National accounts DB	(+)
	Gross fixed capital formation (% of GDP)	World Bank, National accounts DB	(+)
	Current account balance (% of GDP)	IMF, Balance of Payments Statistics	(+)
Trade and openness	Foreign direct investment, net inflows (% of GDP)	IMF, IFS	(+)
	International tourism, receipts (% of total exports)	World Tourism Organization	(+)
	Trade (% of GDP)	World Bank, National accounts DB	(+)
Human capital	Life expectancy at birth, total (years)	UN	(+)
	Mortality rate, under 5 years (per 1,000 live births)	UN	(–)
	School enrollment, secondary (% gross)	UNESCO	(+)
	School enrollment, tertiary (% gross)	UNESCO	(+)
	Barro-Lee: Average years of total schooling, age 15+ years, total	http://www.barrolee.com/	(+)
	Literacy rate, youth total (% of people aged 15–24 years)	UNESCO	(+)
Infrastructure	Rural population (% of total population)	UN	(–)
	Access to electricity (% of population)	IEA	(+)
	Individuals using the Internet (% of population)	ITU	(+)
Industrial transformation	Agriculture, forestry, and fishing, value added (% of GDP)	World Bank, National accounts DB	(–)
	Industry (including construction), value added (% of GDP)	World Bank, National accounts DB	(+)
	Employment in agriculture (% of total employment)	ILO, ILOSTAT	(–)
	Employment in industry (% of total employment)	ILO, ILOSTAT	(+)
Trade structure	Ores and metals exports (% of merchandise exports)	UN, Comtrade DB	(–)
	Manufactures exports (% of merchandise exports)	UN, Comtrade DB	(+)
Science and technology	Research and development expenditure (% of GDP)	UNESCO	(+)

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Category	Indicators	Sources	Signs
Governance and institutional quality	Corruption Perceptions index	Transparency International	(+)
	Voice and accountability	World Bank, World Governance Indicators	(+)
	Regulatory quality	World Bank, World Governance Indicators	(+)
	Political stability and absence of violence/terrorism	World Bank, World Governance Indicators	(+)
	Rule of law	World Bank, World Governance Indicators	(+)
	Control of corruption	World Bank, World Governance Indicators	(+)
	Government effectiveness	World Bank, World Governance Indicators	(+)
Environment	Adjusted savings: carbon dioxide damage (% of GNI)	World Bank	(–)
	PM2.5 air pollution (micrograms per cubic meter)	Global Burden of Disease Study(2017)	(–)
Resources	Agricultural land (% of land area)	Food and Agriculture Organization	(+)
	Total natural resources rents (% of GDP)	World Bank	(+)
Income equality	Gini Index	World Bank	(–)
Gender equality	Ratio of female to male labor force participation rate (%)	ILO, ILOSTAT	(+)

Note: The sign of the indicator refers to the typical correlation of the indicator and economic development. (+) means that a higher indicator implies more favorable fundamentals related to economic growth.

LIST OF TABLES

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