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Cambodia's New Growth Strategy
An Assessment of Medium and Long-term Growth for Resilient, Inclusive, and Sustainable Development

Background Paper 9

A NEW GROWTH STRATEGY FOR CAMBODIA: ECONOMIC SCENARIOS

Roland Rajah and Ahmed Albayrak

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List of acronyms and abbreviations

BAU	Business As Usual
ETD	Economic Transformation Database
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GGDC	Groningen Growth and Development Centre
GNI	Gross National Income
HIC	High-Income Country
ICOR	Incremental Capital-Output Ratio
ILO	International Labour Organization
IMF	International Monetary Fund
NIS	National Institute of Statistics
PISA	Programme for International Student Assessment
PPP	Purchasing Power Parity
PWT	Penn World Table
RGC	Royal Government of Cambodia
SMEs	Small and Medium Enterprises
STM	Structural Transformation Model
TFP	Total Factor Productivity
UMIC	Upper Middle-Income Country
UN	United Nations
UNU-WIDER	United Nations University World Institute for Development Economics Research

យុទ្ធសាស្ត្រកំណើនថ្មីរបស់ប្រទេសកម្ពុជា៖ សេណារីយ៉ូសេដ្ឋកិច្ច

មុនពេលមានជំងឺរាតត្បាត កម្ពុជាគឺជាប្រទេសមួយក្នុងចំណោមប្រទេសដែលមានសេដ្ឋកិច្ចរីកចម្រើនលឿនបំផុតនៅលើពិភពលោក។ ដោយមើលឃើញពីលទ្ធផលដ៏រឹងមាំនេះ យុទ្ធសាស្ត្រចក្ខុវិស័យឆ្នាំ២០៥០របស់រាជរដ្ឋាភិបាលកម្ពុជា មានគោលបំណងធ្វើឱ្យកម្ពុជាក្លាយជាប្រទេសមានប្រាក់ចំណូលខ្ពស់នៅពាក់កណ្តាលសតវត្សរ៍នេះ។ ការរាតត្បាតនៃជំងឺកូវីដ-១៩ ការឈ្លានពានរបស់ប្រទេសរុស្ស៊ីលើអ៊ុយក្រែន និងបញ្ហាវិស័យអចលនទ្រព្យក្នុងស្រុក បានធ្វើឱ្យប្រទេសកម្ពុជាមានការលំបាកក្នុងការរក្សាអត្រាកំណើនជាប្រវត្តិសាស្ត្រដូចពីមុន។ បញ្ហាប្រឈមបន្ថែមផ្សេងទៀត រួមមានកំណើនសេដ្ឋកិច្ចសកលយឺតជាងមុន ការបែកបាក់ភូមិសាស្ត្រសេដ្ឋកិច្ច ការកើនឡើងស្វ័យកម្ម និងការកើនឡើងនៃផលប៉ះពាល់អាកាសធាតុ។ ដើម្បីឈានទៅដល់ឋានៈជាប្រទេសមានចំណូលខ្ពស់ក្រោមលក្ខខណ្ឌមិនល្អទាំងនេះ ប្រទេសកម្ពុជាចាំបាច់ត្រូវកែលម្អគន្លងកំណើនរបស់ខ្លួន។ នៅក្នុងឯកសារសារតារនេះ យើងយកគំរូពីសេណារីយ៉ូចំនួនបីផ្សេងៗគ្នា។ នៅក្នុងសេណារីយ៉ូតាមដំណើរការធម្មតា ប្រទេសកម្ពុជានឹងជាប់គាំងក្នុងអន្ទាក់នៃប្រទេសដែលមានចំណូលមធ្យម។ ផ្ទុយទៅវិញ សេណារីយ៉ូនៃការពន្លឿនកំណែទម្រង់ នឹងកំណត់គោលដៅលើវិស័យដែលមានសក្តានុពលខ្ពស់ដូចជាកម្មន្តសាលគ្រឿងអេឡិចត្រូនិក និងការកែច្នៃកសិផល ដែលត្រូវបានព្យាករថានឹងផ្តល់កំណើនសេដ្ឋកិច្ចប្រចាំឆ្នាំជាមធ្យម ៦,៤ភាគរយ សម្រាប់រយៈពេលនៅសល់ក្នុងទសវត្សរ៍នេះ។ ទោះជាយ៉ាងណាក៏ដោយ ក្នុងរយៈពេលវែង ត្រូវបានទាមទារឱ្យមានកំណែទម្រង់គ្រប់ជ្រុងជ្រោយបន្ថែមទៀត ដើម្បីកែលម្អអភិបាលកិច្ច និងការគាំទ្រដល់ការអភិវឌ្ឍមនុស្ស។ នៅក្នុងសេណារីយ៉ូកំណែទម្រង់គ្រប់ជ្រុងជ្រោយមួយ ប្រទេសកម្ពុជាអាចរក្សាបាននូវអត្រាកំណើនសេដ្ឋកិច្ចពី ៥-៦ភាគរយក្នុងមួយឆ្នាំក្នុងរយៈពេលជាច្រើនទសវត្សរ៍ខាងមុខ ដោយឈានដល់ឋានៈជាប្រទេសដែលមានចំណូលខ្ពស់នៅប្រហែលឆ្នាំ២០៦០ ឬនៅប្រហែលពាក់កណ្តាលសតវត្សរ៍នេះ។

A New Growth Strategy for Cambodia: Economic Scenarios

Abstract

Cambodia was one of the fastest growing economies in the world prior to the pandemic. Given this strong performance, The Royal Government of Cambodia's Vision 2050 aims for the country to reach high-income country status by mid-century. The COVID-19 pandemic, Russia's invasion of Ukraine, and a troubled domestic real estate sector have made it challenging for Cambodia to sustain historic growth rates. Further challenges on the horizon include slower global economic growth, geoeconomic fragmentation, rising automation, and increasing climate impacts. To reach high-income country status under these adverse conditions, Cambodia needs to overhaul its growth trajectory. In this paper, we model three alternative scenarios. In a business-as-usual scenario, Cambodia would find itself stuck in the middle-income trap. By contrast, an accelerated reform scenario would target high potential sectors such as electronics manufacturing and agro-processing which is projected to deliver annual economic growth averaging 6.4 percent for the rest of this decade. In the long run however, more comprehensive reforms to improve governance and support human development are required. In a comprehensive reform scenario, Cambodia can sustain economic growth rates of 5-6 percent per year over the decades ahead, reaching high-income country status by around 2060 or broadly mid-century.

1. Introduction

Cambodia has achieved rapid economic progress over the past three decades. Economic growth has been among the fastest in the world while basic development outcomes have improved significantly. The Royal Government of Cambodia (RGC) aims to sustain this rapid progress. Vision 2050 aims for Cambodia to reach high-income country (HIC) status by mid-century. This is a challenging task which few countries in history have been able to match. It is made even more challenging given the recent global shocks including the COVID-19 pandemic starting in early 2020 and economic spillovers from Russia's invasion of the Ukraine beginning in 2022, both of which have imposed large economic costs on Cambodia. Looking ahead, the global economic environment has become less favourable while Cambodia also faces internal economic challenges that together imply a difficult immediate growth outlook, most notably related to the end of the real estate boom.

This paper assesses Cambodia's prospects for delivering Vision 2050 based on quantitative modelling and a systematic policy gap analysis. The main conclusion is that returning to rapid growth and a pathway towards reaching HIC status by broadly mid-century is feasible but will require a new strategy. Like the previous East Asian miracle economies, Cambodia's growth strategy must inevitably adjust to continue along the path of rapid development. Conversely, failing to recalibrate would put Cambodia's growth story at risk, potentially seeing it join the ranks of many other countries that have ultimately become mired in the middle-income trap (Kharas and Gill 2020).

The scenario modelling undertaken in this paper suggests that in a business-as-usual (BAU) projection, economic growth would be considerably slower than before the pandemic. Between 2024-2030, the BAU scenario would see economic growth stuck at about 5.4 percent per year, similar to its current pace. This would still place Cambodia as a relatively fast-growing economy by international standards. However, it would be well below the rate of progress desired by Cambodia and its political leadership. Over the longer term the costs of continuing as BAU would be even higher and could see Cambodia stuck in the middle-income trap and possibly never able to reach high-income status.

Cambodia's existing growth strategy – built on political stability, prudent macroeconomic policy, and economic openness – has allowed the country to take advantage of its key competitive advantages in low-cost labour, world class tourism assets, and its geographic position in the dynamic East Asia region. However, these pillars alone are no longer enough. For instance, real wages for low-skilled workers have already risen substantially over the past decade as the pool of cheap labour from the countryside has dried up. This means higher incomes for many workers but has also outpaced improvements in productivity, eroding Cambodia's export competitiveness.

Cambodia needs a new growth strategy. When considering the required growth strategy we draw on the work of Rodrik et al. (2017, 2024) who emphasise several key points regarding growth strategies for developing countries. First, rapid economic growth is almost always primarily generated through structural change, rather than improvements in general policy fundamentals, such as governance. Second, though manufacturing is typically the most important driver of rapid growth through structural change, its power is diminishing due to automation and heavy international competition. Third, increasingly the major source of non-farm employment is traditional services (e.g. trade, hospitality, personal services etc.), therefore boosting productivity in services is a key imperative for both growth and inclusion. Finally, improving core fundamentals, e.g. governance and human capital, remains crucial for sustaining growth over the long run, even if these play a more limited role in generating fast growth in the short-to-medium term.

This paper therefore recommends Cambodia adopt a new growth strategy focused on two streams of policy effort. The first and more immediate policy stream focuses on accelerating Cambodia's medium term economic prospects through prioritised sector policy efforts. This should be targeted at a limited subset of high potential industries (notably electronics, agro-processing, and tourism) together with policies to support small and medium enterprises (SMEs) and the informal sector. Recognising the fact that rapid growth usually relies on achieving strong performance in a few key sectors, while achieving inclusiveness requires economic growth reach the majority of lower income workers in traditional services and the informal sector. If Cambodia can succeed in this regard, economic growth would be considerably faster, averaging 6.4 percent a year over the rest of this decade.

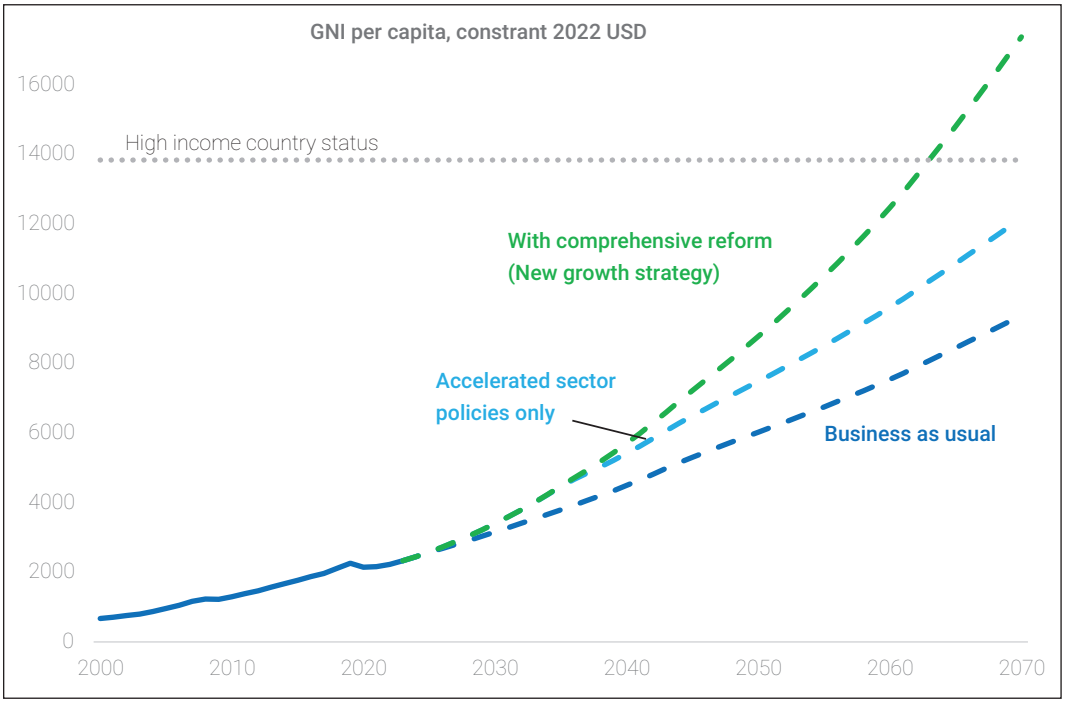
Note that our modelling indicates that returning to the rates of economic growth achieved before the pandemic (7 percent or higher), appears not realistic due to both changes in the external economic environment as well as domestic changes, most notably the end of the real estate boom. From a more theoretical and modelling perspective, economic catchup effects can also be expected to dissipate as income per capita rises. With that in mind, the government should also be careful to avoid setting excessively high growth targets. This would likely damage future growth prospects or risk an eventual crisis, for example due to a return to unsustainable real estate investment, credit growth, and environmental degradation.

The second part of the growth strategy recognises that comprehensive reform is needed to sustain fast growth over the long term and ultimately make the transition to HIC status. The focus here is on human capital development (education and health) and improving institutional quality (or governance) as well as addressing key environmental sustainability and social resilience. Reform in these areas will take time to bear fruit. However, growth will inevitably slow without progress on these key fundamentals. With success in these areas, Cambodia is projected to achieve rapid and broad-based growth sustained

at 5-6 percent in later decades. This would be enough to reach HIC status by the early 2060s. However, preliminary GDP updates by the government indicate that income per capita may be 15 percent higher than current figures suggest. Incorporating this into our projection suggests that high-income status could therefore be reached a few years earlier or enough to claim the objective as achieved by broadly mid-century. Figure 1 and Table 1 below summarise the key results of the growth modelling carried out for this paper.

The rest of this paper is organised as follows. Section 2 first presents a policy gap analysis to assess Cambodia's reform progress and the risks of falling into the middle-income trap. Section 3 discusses the overall approach to modelling taken in this

Figure 1: Scenario development pathways



Source: Authors projections and national accounts statistics

Scenario	Projected economic growth		
	2024-2030	2031-2040	2041-2050
1. Business-as-usual (BAU)	5.4%	4.3%	3.4%
2. Accelerated sector policies only	6.4%	5.1%	3.1%
3. With comprehensive reform	6.4%	6.3%	5.3%

Source: Authors projections and national accounts statistics

paper and introduces the two approaches that are used. Section 4 introduces the neoclassical growth model as the first approach used in this paper. Section 5 does the same for the structural transformation model as our second approach. Section 6 then presents the BAU scenario projection and a comparison with Cambodia's pre-COVID-19 trajectory. Section 7 presents the 'accelerated sector policies only' scenario that could deliver faster growth over the coming decade. Section 8 presents the "comprehensive reform" scenario that will be needed to sustain growth in the 5-6 percent range over the longer term and reach high-income status by around 2060. Section 9 concludes.

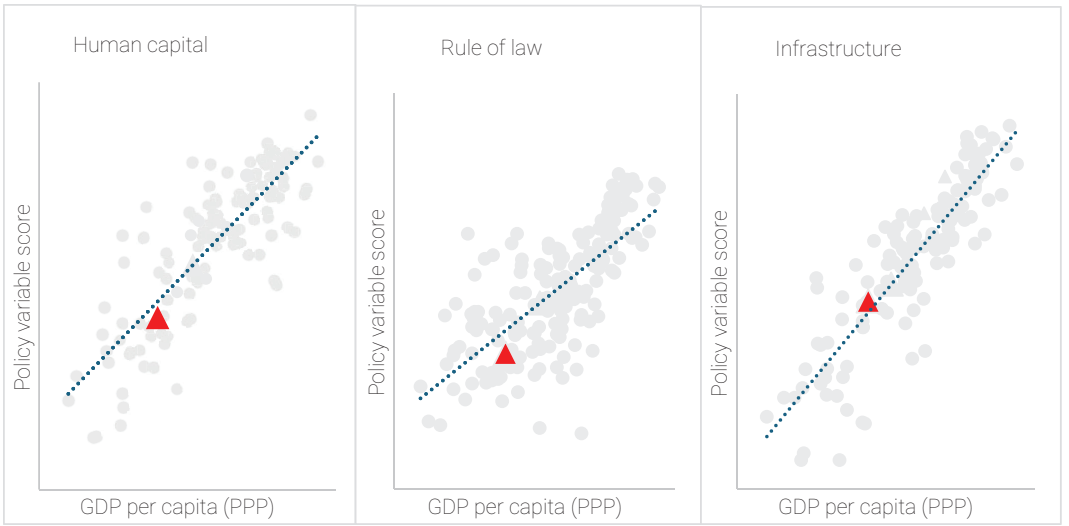
2. Policy gaps and avoiding the middle-income trap

Before we delve into the modelling of Cambodia's future growth prospects, we first review Cambodia's performance in key policy domains important to its future economic growth and the related risks of it falling into the middle-income trap (Kharas and Gill 2020). Whether a specific "trap" exists or not is debatable (Pritchett and Summers 2014). What is clear however is that the reform requirements for sustaining rapid growth get harder to successfully deliver as countries develop, at both a technical and political level, while new growth strategies must be developed and effectively implemented.

To investigate the risk of Cambodia falling into the middle-income trap, we conduct a policy gap analysis to examine Cambodia's performance across key policy and institutional domains widely considered important growth fundamentals. The analysis draws upon commonly used variables measuring key policy domains and compares Cambodia's performance to: 1) countries at a similar level of GDP per capita; 2) whether Cambodia's score is improving; 3) the gap between where Cambodia is today and the norms for high-income countries; and 4) the year that Cambodia would reach these norms given present trends. As an example, Figure 2 illustrates how the analysis was conducted for several key variables – human capital, rule of law, and infrastructure – by comparing Cambodia's position relative to the estimated relationship between policy variable scores and GDP per capita across all countries with available data. The full results of the analysis are presented in Table 2 as a heat map.

The policy gap heat map points to the risk of Cambodia getting stuck in the middle-income trap given its present trajectory. Cambodia does well in terms of several key areas closely linked to manufacturing – such as trade policy (tariffs), infrastructure quality, openness to FDI, political stability, and government effectiveness. This explains Cambodia's strong ability to generate rapid growth to date via structural transformation. However, Cambodia faces challenges in terms of the broader business environment, with worsening logistics performance, regulatory quality, and digital restrictiveness. Hence, the regulatory reform agenda to support Cambodia's

Figure 2: Cambodia's relative performance in three key policy domains



Source: Penn World Table, World Bank, World Economic Forum

manufacturing competitiveness is incomplete and not progressing fast enough in all areas.

In terms of human capital – which affects both manufacturing competitiveness and longer term growth potential – Cambodia is making progress in education quantity as shown by the lower secondary completion rate and human capital index (based on years of schooling for the average worker). However, the gap in education quality is large, while basic health outcomes are improving very slowly. Note that the available data also does not yet reflect the impact of the COVID-19 pandemic, which imposed significant education and health losses.

In terms of deep institutional factors critical to sustaining long term growth – such as rule of law – the picture is less promising. Cambodia underperforms relative to its peers and there is a large gap across all areas relative to HIC norms. Importantly, while Cambodia's scores are improving in some dimensions over time, this is not occurring at the required pace to bridge the gap.

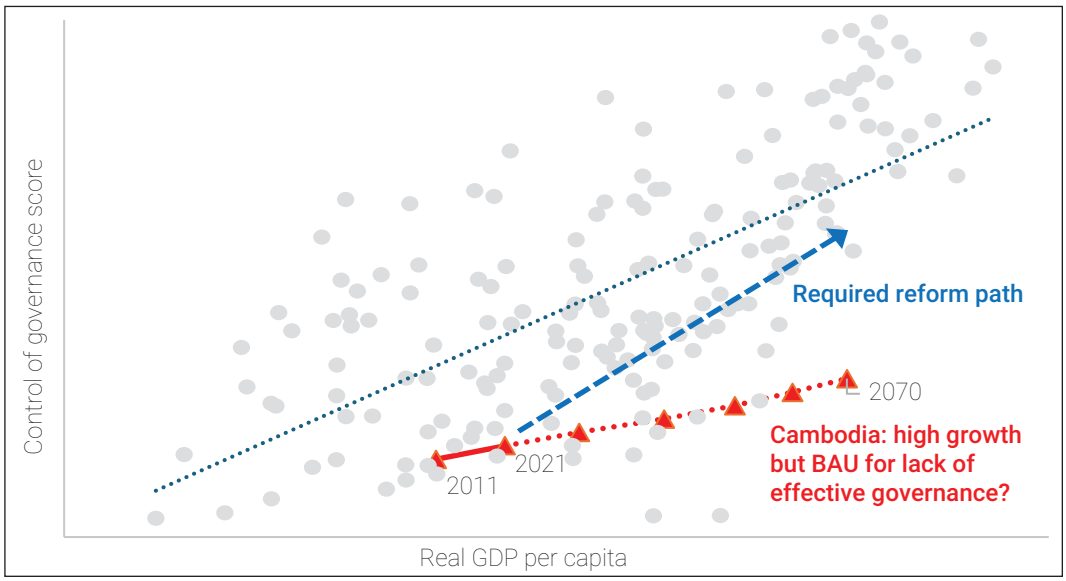
The most significant institutional challenge is enhancing governance and transparency. Cambodia currently ranks among the lowest globally in measures of governance effectiveness, both in general and compared to other lower middle-income countries, with progress remaining slow (Figure 3). Hypothetically, if Cambodia managed to sustain high growth in line with the comprehensive reform scenario but continued with only its current level of governance improvements, it would face significant challenges in maintaining institutional integrity at HIC levels. The only countries with similarly limited governance indicators along this hypothetical growth pathway are resource-rich (e.g. Russia, Iran, Iraq) and/or countries experiencing prolonged difficulties advancing beyond middle-income status (e.g. Mexico,

Table 1: Policy gap analysis – How adequate is Cambodia's pace of reform?

Variable	Relative to peers	Direction of change*	Gap with HIC norm	Expected year to reach HIC norm**
Human Capital Index***	Worse	Improving	-47%	2051
Lower secondary completion rate	Worse	Improving	-34%	2057
PISA	Worse	N/A	-28%	N/A
Maternal mortality rate	Worse	Improving	-285%	2141
Average tariffs	Better	Improving	-3%	2030
FDI restrictiveness	Better	Improving	2%	Already above
Infrastructure quality	Better	Improving	-37%	2031
Logistics Performance Index	Worse	Worsening	-31%	Negative trend
Digital restrictiveness	Worse	Worsening	-97%	Negative trend
Tax revenue % GDP	Better	Improving	-2%	2024
Political stability	Better	Improving	-10%	2048
Government effectiveness	Better	Improving	-21%	2041
Regulatory quality	Better	Worsening	-25%	Negative trend
Rule of law	Worse	Improving	-30%	2091
Control of governance	Worse	Improving	-37%	2197

*Change in level of policy variable score over past decade based on closest available data.
** Assuming continuation in the annual pace of change over past decade.
***Pre-pandemic trend

Figure 3: Control of governance vs GDP per capita



Source: authors, Worldwide Governance Indicators

Paraguay). To achieve its long term economic ambitions, Cambodia will need to accelerate efforts to strengthen its institutional effectiveness and transparency.

The policy gap analysis reveals that Cambodia has outperformed in openness and stability measures that enabled the manufacturing sector to thrive. However, the regulatory reform agenda is incomplete while underperformance on human capital and institutional quality is likely to inhibit sustainable growth in the long run.

3. Modelling approach

It is worth noting the inherent limitations of growth modelling. Despite much work in the academic literature, the precise determinants of economic growth are still not well understood, and it is not possible to say with much certainty what the precise growth effects of specific policies might be (Growth Commission 2008). Even measurable reform has empirically proven a weak explanator of sustained changes in the pace of economic growth (Haussman et al. 2004). Much also depends on changes in technology, the effects of which are impossible to predict. Future shocks are almost inevitable. For instance, experts warn that future pandemics are highly likely (Penn 2021). Most fast-growing economies have experienced financial crises that have set back their progress significantly (Aizenman et al. 2017). Finally, all countries are unique and there are very few countries that have achieved the kind of economic growth Cambodia has in the past and which it hopes to achieve in future. The list is limited to the original East Asian miracle economies (South Korea, Taiwan, Hong Kong, and Singapore) and China and Vietnam more recently. Cambodia is already an outlier and its vision for continued economic success is premised on remaining one.

This paper therefore relies on modelling approaches that capture the broad forces driving economic growth. It aims to establish realistic expectations for future economic growth based on alternative scenarios and a useful framework for determining the overall growth strategy required. Two projection methodologies are employed. First, a standard neoclassical growth accounting model whereby growth is disaggregated and projected based on its proximate sources: the number of workers employed, how skilled they are (education), the availability of public capital (e.g. infrastructure) and private capital (e.g. factories and equipment), and Total Factor Productivity (TFP) which captures all other factors and is often interpreted to reflect market efficiency, technology and innovation, and institutional quality. The second model is a more sophisticated structural transformation model involving a series of estimated regressions determining employment and productivity in each sector of the economy (e.g. agriculture, manufacturing, mining, construction, etc.). These are then brought together into a single economy-wide model.

Future growth is projected using both models under several scenarios, including

a 'BAU' scenario, an 'accelerated sector policies only' scenario to capture the key strategy required to realise faster growth, and a 'comprehensive reform' scenario capturing the additional reforms required to sustain rapid longer term growth and ultimately the achievement of HIC status. The average of the two model projections are used for all scenarios allowing our projections to capture the insights of each model while avoiding overreliance on a single projection framework. Since both models focus on estimating underlying trends growth potential, we use short-run growth forecasts by the IMF for 2023-2025 to reflect short-run cyclical factors before switching to our model forecasts from 2026 onwards.

Both models capture the idea of 'conditional convergence' – that poorer countries tend to grow faster than richer ones, as there are more opportunities to catchup to the global frontier (Barro 2012). Conversely, as countries develop, growth typically slows. The advantage of the neoclassical model is that it is a very widely used approach with clear theoretical foundations and several key policy variables directly incorporated into the model (education, public and private investment). The key limitation is that the most important factor is usually growth in TFP, which as a residual is difficult to interpret and forecast. Of note, in fast-growing economies, structural change (the shifting of workers from less to more productive sectors) is usually a major driver of both growth in TFP and private capital accumulation. However structural change is not explicitly modelled in the neoclassical framework. This is where the structural transformation model is useful in addition to its ability to provide a more sector specific explanation of growth. The main disadvantage of the model is that it is difficult to directly incorporate specific policy variables into the framework given the aforementioned issues in the literature in credibly estimating causal effects.

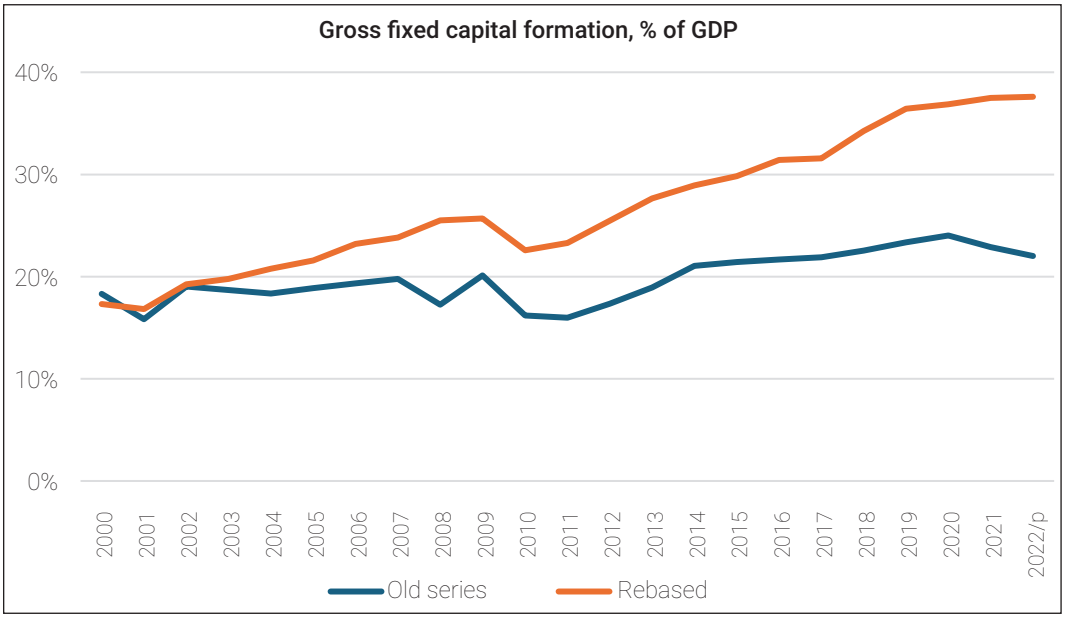
A general word on data. We use the recently released rebased national accounts data as provided by the Cambodian National Institute of Statistics (NIS). According to the rebased data, Cambodia's economic growth has been higher than previously estimated. Economic growth is estimated to have averaged 8.1 percent from 2000 to 2019, compared to 7.6 percent using the older GDP series. The latter already implied that Cambodia had been one of the fastest growing economies in the world, prior to COVID-19. The rebased GDP series suggests that Cambodia's economic performance is estimated to be about one third higher than previously thought. Overall, the rebased data imply that Cambodia has been progressing much faster towards, and is much closer to realising its long term development vision than previous numbers suggested.

The rebased data also carries implications important to the modelling exercises undertaken in this paper. First, and most obviously, the significant differences between the rebased and old GDP series mean that any modelling undertaken to project future growth using either data series will produce different results and policy implications. Hence, the rebased GDP data not only affects our understanding of Cambodia's past performance and current level of income but also our projections of future growth. Second, the rebased data

is not yet reflected in key international databases which the models used in this paper draw upon. Adjustments have therefore been made by the authors to integrate Cambodia's rebased data with these international datasets. Third, the rebased investment data is much higher than previously reported as a share of GDP and the ratio has also been rising rapidly over the past decade, compared to a flatter trajectory under the older GDP series (Figure 4). This has important implications particularly for the neoclassical growth model. In this, the rate of investment is a key input variable and creates an important point of differentiation from previous studies of Cambodia's potential growth, such as that completed by the World Bank in 2019 when inadequate investment (and national savings) was identified as the key policy issue.

Finally, it is worth noting that the government is currently completing work for a further GDP rebasing exercise. This is expected to increase GDP and GDP per capita by 15 percent compared to the current series. We do not incorporate this into our modelling exercise as we do not have the complete updated national accounts data. However, we incorporate GDP and GNI per capita being 15 percent higher than current estimates when considering the implications for Cambodia's ability to reach HIC status by mid-century.

Figure 4: Investment has been revised much higher



Source: National Institute of Statistics

4. Neoclassical growth model

The first approach uses a neoclassical growth accounting framework first conceptualised by Solow (1956) and Swan (1956). In the traditional neoclassical growth accounting framework, there is only labour, physical capital and TFP (Solow 1956). In this version, we disaggregate physical capital into public and private capital and also augment labour with human capital. The approach is similar to that in Rajah and Leng (2022) and Devadas and Penning (2018).

The neoclassical growth accounting framework is given by the equations below.

$$Y_t = A_t \cdot (K_t^{public})^{\varphi} \cdot (K_t^{private})^{1-\varphi-\beta} \cdot (h_t \cdot L_t)^{\beta} \quad (1)$$

$$g_Y = g_A + \varphi \cdot g_{K\_public} + (1-\varphi-\beta) \cdot g_{K\_private} + \beta \cdot g_h + \beta \cdot g_L \quad (2)$$

Where: *Y* the real output is decomposed to capital (K), human capital per worker (*h*) and the number of workers (*L*) and total factor productivity (*A*); measured as the residual of economic growth denoting unexplained factors such as technology and institutional quality. β and φ are the elasticities of output to labour and public capital respectively. β is set at 0.6 while φ is set at 0.14 following Devadas and Penning (2018). The elasticity of output to private capital is taken as 1-φ-β, reflecting the standard assumption of constant returns to scale. *g* refers to the growth rate of respective variables.

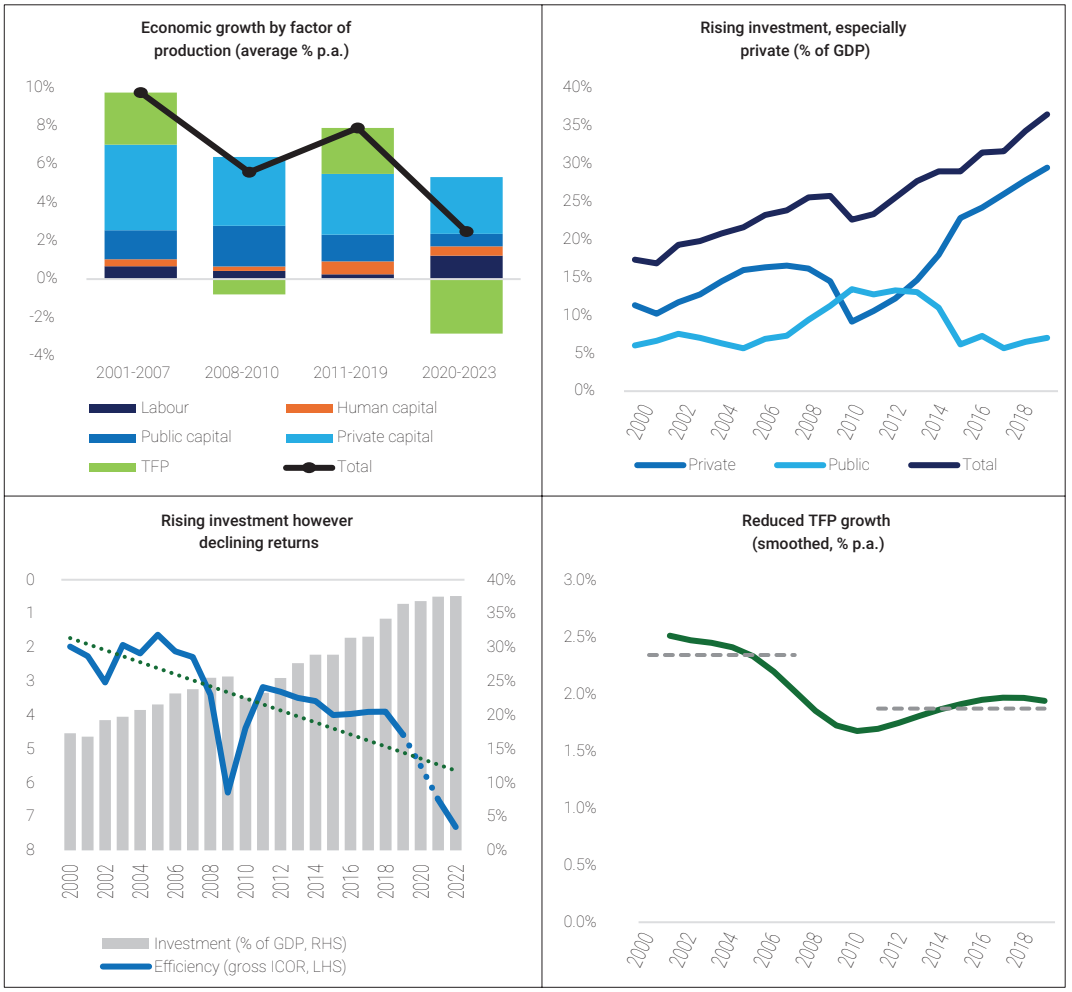
To obtain the data required in these equations, we consult several sources. We obtained the historical output and investment rates from NIS. For public and private capital stock we begin with the IMF capital stock database. However given the substantial changes in Cambodia's national accounts data with the recent rebasing, we recalculate the public and private capital stock numbers utilising the latest data based on the same methodology as the IMF. For human capital and the number of workers, we use the Penn World Tables (PWT) and United Nations Population Division respectively.

Using the neoclassical growth framework, we can break down Cambodia's stellar historical growth performance into its proximate sources (Figure 5, top left panel). The most notable aspect of Cambodia's growth story is the large contribution from physical capital, most notably private investment but with public investment also playing a very sizeable role. Over 2000-2019, physical capital accounted for about two thirds of total economic growth, with private capital contributing almost two thirds to economic growth. Moreover, the pace of investment has been rising rapidly, going from 17 percent of GDP at the turn of the century to 23 percent of GDP by 2010 and reaching 38 percent of GDP in 2022 (Figure 5, top right panel). At this level, Cambodia's investment rate is now one of the highest in the world. It also presents a dramatically different picture to that using the old national accounts data, which had investment peaking at 24 percent of GDP in 2020.

Despite a rapidly rising investment rate, it is notable that there was no commensurate rise in the pace of economic growth. This is captured by the deterioration in the incremental capital output ratio (ICOR).

The ICOR measures how much additional capital is required to generate an additional unit of output and is usually interpreted as measure of efficiency or the economic return of investment at the macroeconomic level. A rising ICOR implies less efficient investment in that more and more capital is required to generate an additional unit of output. In Cambodia's case, the ICOR has risen quite sharply, indicating declining investment efficiency (Figure 5, bottom left panel). Partially related to this has been a slowdown in TFP growth (bottom right panel), though at about 2 percent per year before the pandemic it remained at a decent level by international comparison. A plausible interpretation of declining investment efficiency and TFP growth is that rising investment has been increasingly channelled into less productive areas, notably real estate. It is also, however, likely a reflection of convergence effects and the declining ability to realise easy catch-up gains in capital deepening and TFP, for instance through structural change.

Figure 5: Cambodia's growth story using the neoclassical framework



5. Structural transformation model

The second modelling exercise draws on more recent literature (Rajah and Albayrak forthcoming; Zhu et al. 2019; Sasaki et al. 2021). The approach estimates a series of individual regression models for employment and labour productivity for all sectors of the economy – i.e. agriculture, manufacturing, mining, utilities, construction, trade services, transport services, financial services real estate services, business services, government services and other services. We use an extended version of the GGDC/UNU-WIDER Economic Transformation Database for labour productivity and employment for 12 sectors. We use data for 51 countries that were considered developing countries during the period from 1970 to 2018. See Appendix I for a full list of countries and sector definitions. For Cambodia, we use the rebased sector output shares from NIS and sector employment numbers from ILO. The approach involves estimating a series of individual regressions for the employment share for 11 economic sectors contained in the GGDC database. Agriculture is treated as the residual sector of employment reflecting the idea of Lewis (1954) of surplus traditional agricultural workers. We also estimate regressions for the growth of labour productivity for all 12 sectors.

The utility of the overall model lies in capturing within a single integrated model several key facts well established in the literature on structural transformation and economic growth in developing countries. The first is that of conditional convergence, whereby countries and sectors with lower productivity levels exhibit faster growth, catching up over time to richer ones after adjusting for country-specific factors (Barro 2016; Rodrik 2012; Dieppe and Matsuoka 2021). Second, is the evolving relationship between manufacturing employment and development as documented by Rodrik (2015), Felipe (2014), and Kruse et al. (2022), among others. Specifically, the share of manufacturing in total employment tends to rise with higher levels of GDP per capita before declining as the economy matures and labour costs rise, following a hump-shaped pattern. Critically however, there is also evidence of 'premature de-industrialisation, whereby employment de-industrialisation now sets in at lower levels of development compared to earlier decades, generally thought to reflect technological changes (automation) and China's role in crowding out other countries in manufacturing. The final key stylised fact is of rising 'servicification' of the economy (Nayyar et al. 2021; Rodrik et al. 2017; Baldwin 2019; Buera and Kaboski 2012), reflecting the movement of workers from agriculture into traditional services, the rising value-added role of services as inputs within global value chains, and advances in information communication technology which have made trading services across borders increasingly possible.

We begin by estimating labour productivity growth within each sector using a fixed effects model with robust standard errors. The key aspect in line with the literature being that labour productivity in each

sector is expected to exhibit 'conditional convergence' – whereby countries with lower sector labour productivity exhibit faster growth after controlling for other relevant factors. The regression is given by the following equation:

$$\hat{Y}_{ijt} = \alpha_i + \beta^i lny_{ijt} + Y_j D_{ij} + \varphi_t D_{it} + \varepsilon_{ijt} \quad (3)$$

Where $\hat{Y}_{ijt}$ is the annual labour productivity growth rate in sector *i*, country *j* and year *t*. lny_{ijt} is the natural log of the labour productivity level in 2015 PPP terms[1], D_{ij} is a set of country fixed effects, D_{it} is a set of time fixed effects, α_i is the constant term and ε_{ijt} is the error term. The coefficient β^i represents the convergence rate in sector *i* and is expected to have a negative sign, indicating that countries with lower productivity levels will exhibit faster growth. The inclusion of country fixed effects provides a simple and standard method of controlling all other country specific factors, including geography and institutions.

We also estimate the relationship between sectoral employment shares and GDP per capita whilst controlling for population with the following fixed effects model with robust standard errors using the same methodology as Rodrik (2015). The key aspect being that sector employment shares follow a non-linear (quadratic) relationship with the level of GDP per capita, which can be interpreted as capturing how sectoral employment shares generally evolve in line with the economic development process. The regression is given by the following equation:

$$empshare_{ijt} = \alpha_i + \beta_1 lnydp_{jt} + \beta_2 (lnydp_{jt})^2 + \beta_3 lnpop_{jt} + \beta_4 (lnpop_{jt})^2 + Y_{ij} D_{ij} + \varphi_t D_t + \varepsilon_{ijt} \quad (4)$$

Where $empshare_{ijt}$ is the employment share of the sector *i,* in country *j* and year *t*. $lngdp_{jt}$ is the natural log of the GDP per capita of country *j* in year *t* in 2015 PPP terms, $lnpop_{jt}$ is the population of country *j* in year *t, D_{ij}* is a set of country fixed effects, D_{it} is a set of time fixed effects, α_i is the constant term and ε_{ijt} is the error term.

Econometric results for both sets of equations are contained in the appendix. Similar to other studies in the literature, all coefficients are found to be highly statistically significant with the expected signs. Bringing these individual models together and combining this with demographic projections (for total and working age population) from the United Nations Population Division allows us to construct an integrated economy-wide model with employment and output growth in all sectors. The time effects in Equation 4 follow a consistent linear trend so we extrapolate these for future years. In Equation 3, we found no trends in the time effects, so we do not make any adjustments. To more finely calibrate the model, we include 5-year average error terms in all individual regression equations.

1 We used PPP conversion factors from the World Bank.

6. Scenario 1: Business-as-usual (BAU)

The need for a new growth strategy reflects a confluence of internal and external factors. Internally, economic growth before the pandemic was overly reliant on an unsustainable real estate boom that has come to an end while saddling domestic firms with high debts and banks with poor assets. Economic growth has also been driven by unsustainable land expansion and an overly narrow export base while exhibiting little industrial upgrading and slowing productivity growth. Recent economic shocks have left the government with less fiscal space due to lower revenues and higher debt. Meanwhile, the international environment is considerably more difficult than before amid weak global economic growth, rising protectionism and geoeconomic fragmentation, accelerating automation, and increasing climate impacts. Cambodia's expected graduation from LDC status will also reduce the country's access to markets and foreign assistance. Learning losses due to school closures during the pandemic will weigh on future workforce productivity. In the longer term, an ageing population will create a rising source of fiscal pressure. Environmental limits (e.g. forest loss, soil erosion, unsustainable land expansion) and accelerating climate change are also increasingly weighing on agricultural productivity while substantial new investments are required for mitigation and adaptation. This translates into reduced future growth prospects under a BAU scenario using both modelling approaches in this study.

Within the neoclassical framework, private investment will be weaker due to the end of the real estate boom, elevated corporate debt, and with banks facing high non-performing loans. Public investment in infrastructure is also expected to be lower due to tighter fiscal conditions and fewer projects funded by external development partners. The need to invest in adaptation is also increasing investment costs. Overall, total investment is projected to return to its long run average during 2000-2019 of 25 percent of GDP, considerably lower than the recent peak of 38 percent of GDP seen in 2022. Human capital improvement is assumed to follow its 2000-2019 average while TFP growth slows gradually in line with its smoothed long term trend, from 2 percent per year in 2019 to 1.1 percent by 2050. The main cause of slower growth in the neoclassical framework is sharply reduced contributions from future capital accumulation due to both lower public and private investment rates and diminishing returns after decades of high investment.

The structural transformation model largely produces a baseline projection without requiring any further assumptions. The end of the real estate boom alone is expected to reduce future growth compared to the pre-pandemic pace by 1.2 percentage points. Meanwhile, the share of manufacturing in total employment has been stagnant at about 16 percent for some time and is projected to remain at this level over the coming decade before gradually declining as Cambodia's economy matures and labour costs rise. A key problem however is that there has been relatively little productivity growth within manufacturing. Industrial upgrading has been occurring but is proceeding slowly. Concurrently, non-farm employment creation has been dominated

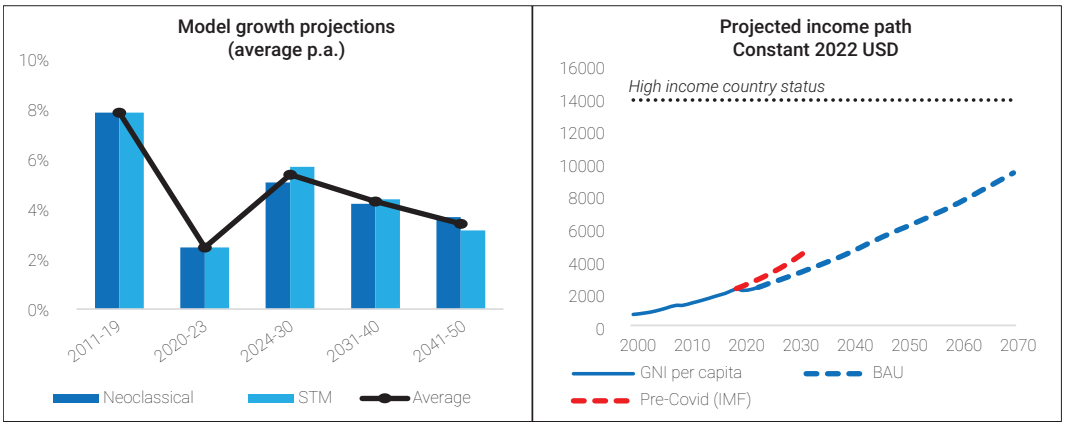
by construction and traditional services (e.g. trade and hospitality). Increases in the former have come to an end while growth in the latter is projected to continue but with weak productivity benefits. Overall, the key insight from a structural transformation perspective is that employment in Cambodia is no longer rapidly industrialising and is instead increasingly dominated by services with weak labour productivity performance.

We take the average of the two models as our baseline projection, Figure 6 presents the results. Growth is projected to remain robust by international standards but slow, setting back Cambodia's path to HIC status into the horizon[2]. Overall, the baseline scenario sees economic growth averaging about 5.4 percent over the rest of this decade, falling to 4.3 percent in the 2030s and 3.4 percent in the 2040s. This is well below the 7 percent per annum growth the Cambodian government hopes to return to in the medium term. Even allowing GNI per capita to be revised by 15 percent higher than current figures would still render HIC status out of reach.

This baseline projection is much below Cambodia's pre-COVID-19 trajectory and reflects a combination of the costs of recent global shocks and the country's more constrained growth outlook in the aftermath. As of 2023, the costs of recent global shocks have already set income per capita in Cambodia back by about 19 percent compared to the pre-COVID-19 trend. Figure 3 (right panel) shows Cambodia's pre-COVID-19 trajectory. It is based on a medium-term growth forecast released by the IMF in October 2019 of almost 7 percent per year while incorporating the subsequent increase in the level of Cambodia's GDP with the recent rebasing exercise. Note however that, given the unsustainable real estate boom prior to the pandemic, earlier pre-pandemic growth forecasts were arguably overly optimistic in the absence of stronger reform and the arrival of new growth drivers.

2 To assess progress towards the HIC guidelines – set by the World Bank based on Gross National Income (GNI) per capita measured in nominal USD terms each year – we follow the approach used in World Bank (2019) by treating all variables in real terms, assuming a constant KHR-USD exchange rate, and assuming GNI grows in line with GDP.

Figure 6: BAU projections (Scenario 1)



7. Scenario 2: Accelerated sector policies only

Ambitious policy efforts are required if Cambodia is to do better in meeting its development vision. In this section we construct a scenario for accelerated growth based on the previously discussed idea that rapid economic growth in the medium term typically comes from faster structural transformation based on a few key sectors, usually manufacturing. In addition, achieving more inclusive economic growth will require traditional sectors to also play a role, given this is where the bulk of non-farm employment is likely to lie.

The central finding of the modelling under this scenario is that considerably faster growth of above 6 percent a year is possible in the medium term. This is below the government's current hopes for returning to 7 percent growth in the medium term. It should be viewed as providing a more realistic medium term growth ambition for Cambodia given it is based on Cambodia meeting assumptions that, while within reach, are nonetheless quite optimistic.

Achieving faster medium-term growth will depend on activating a new phase of structural transformation. This can most feasibly be done through a renewed expansion in manufacturing via the diversification into promising new subindustries. Analysis conducted in other background papers connected to this study suggests that agro-processing and electronics are the most promising manufacturing subindustries that would not only allow Cambodia to move into higher value-added activities but ones that are feasible based on current capabilities and competitive advantages (i.e. in labour-intensive basic manufacturing) while also providing a basis for future industrial upgrading over the longer term (for instance into machinery and automobiles). This is broadly the path followed by other successful Asian economies that Cambodia is seeking to emulate, including the original East Asian miracles and more recently Vietnam and China. When it comes to traditional services, Cambodia can also leverage its already established tourism industry to generate stronger productivity growth.

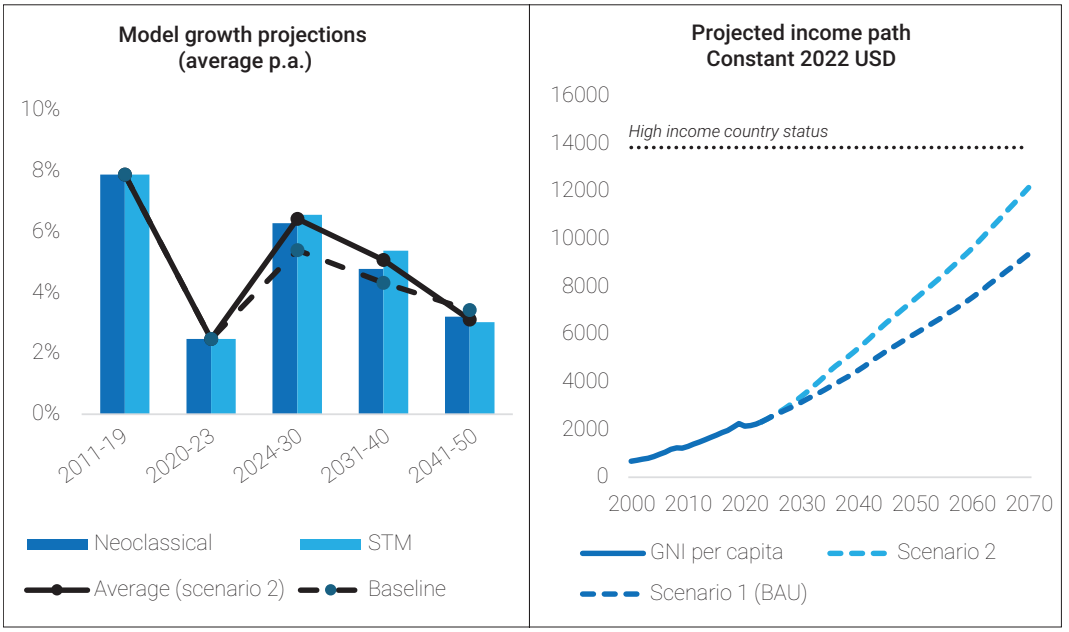
To construct the accelerated sector policies only scenario, we start with the structural transformation model. For manufacturing, we assume Cambodia can match the recent success of countries such as Vietnam and China when these countries were at a similar stage of development to Cambodia today. This would mean lifting manufacturing from about 16 percent of total employment at present to around 20 percent and boosting labour productivity within the manufacturing sector (which also captures industrial upgrading within manufacturing) by one standard deviation within our sample of 51 countries. For traditional services, we similarly assume a one standard deviation improvement in labour productivity growth but do not adjust the share of employment since this is likely to be more constrained by demand. The above adjustments are integrated into the structural transformation model over the period 2025-2035, with key variables

thereafter evolving over time based on the standard calibration of the model (e.g. with manufacturing employment remaining permanently elevated but declining over time in line with the standard model prediction).

We complement the scenario results of the structural transformation model with an analogous projection utilising the neoclassical model. This involves adopting more optimistic assumptions for several key policy variables until 2035 before reverting to similar assumptions as in the BAU scenario thereafter. First, we assume investment remains elevated at about 38 percent of GDP until 2035, thereafter reverting to the 2000-2019 average of 25 percent of GDP in line with the BAU scenario. Second, accelerated structural transformation is assumed to allow TFP growth to be sustained at 2 percent per year, its average pace during 2000-2019, defying standard convergence assumptions until 2035 before reverting to the BAU pace.

Figure 7 presents the scenario results, with economic growth accelerating to 6.4 percent a year on average between 2024-2030 before declining to 5.1 percent in the 2030s and 3.1 percent in the 2040s. With this, Cambodia would reach HIC status by 2077. If GNI per capita is revised higher by 15 percent, the country could reach HIC status by 2070.

Figure 7: Accelerated sector policies only projections (Scenario 2)



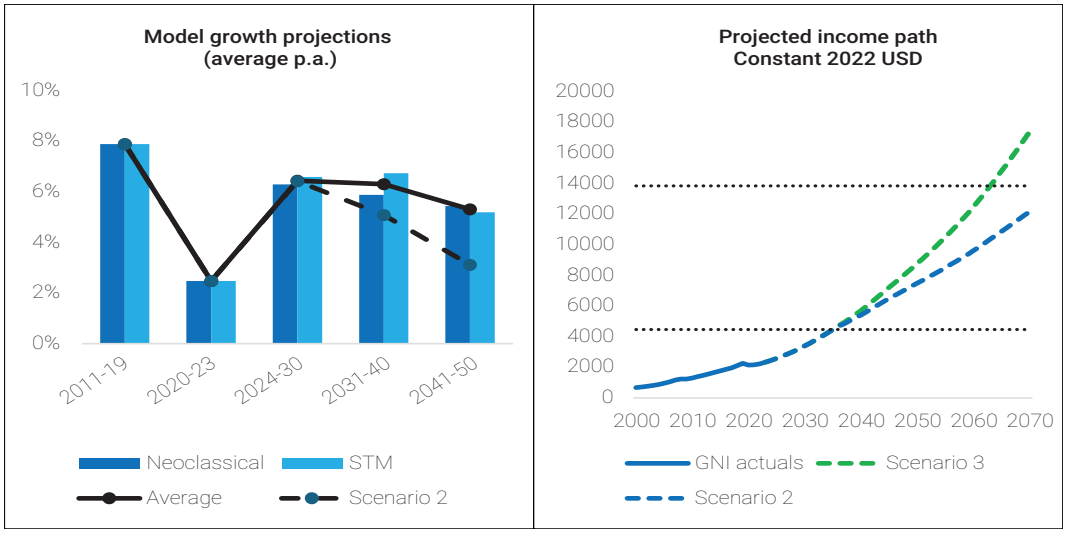
8. Scenario 3: Comprehensive reform

In the final scenario we create a projection whereby Cambodia is not only able to achieve the above in the medium-term via accelerated sector policies but is also able to address key longer term reform priorities to sustain rapid growth beyond 2035. These in particular relate to improving human capita (health and education) as well as institutional reform, as per the policy gap analysis presented in Section 2.

We operationalise this in our two models as follows. Within the neoclassical framework, investment is assumed to remain sustained at the high level of 38 percent of GDP going forward. Human capital improvement is assumed to gradually improve, from the current long term average increase of 0.8 percent per year to 1.2 percent per year from 2035 onwards, reflecting success with education reform. Finally, TFP growth is assumed to remain at 2 percent per year. Within the structural transformation framework, the model incorporates the assumptions until 2035 using the accelerated sector policies only scenario while adding a gradual improvement in sector labour productivity across all sectors, except where this would see Cambodia outperform any other country in our sample, in which case a smaller adjustment is made. In other words, we assume Cambodia undertakes reforms that would enable it to be amongst the best performing countries in our sample in terms of sector labour productivity across all sectors.

Figure 8 presents the scenario results, with economic growth accelerating to 6.4 percent a year on average between 2024-2030 similar to Scenario 2 but thereafter being sustained at 6.3 percent in the 2030s and 5.3 percent in the 2040s rather than decelerating sharply as per the other scenario. With this, Cambodia would reach high-income status by 2063. If GNI per capita is revised 15 percent higher, HIC status would be 2059.

Figure 8: Comprehensive reform projections (Scenario 3)



9. Conclusion

This paper has sought to model and assess Cambodia's prospects for fulfilling its Vision 2050 ambition to reach high-income status over the coming decades. The main conclusion is that reaching high-income status by 2050 is no longer feasible however realistically it can be achieved by around 2060. This would be enough for Cambodia to be able to claim reaching high-income status by broadly mid-century. This would see Cambodia remain amongst the most successful economic development stories in world history. Like the previous East Asian miracle economies, Cambodia's growth strategy will however need to adjust. Conversely, failing to recalibrate would put Cambodia's growth story at risk, potentially seeing it join the ranks of many other countries that have ultimately become mired in the middle-income trap.

This paper recommends that Cambodia adopt a two-pronged growth strategy focused on accelerated sector policy efforts aimed at achieving faster economic growth of above 6 percent over the medium term, compared to just over 5 percent growth projected in the BAU scenario. Sustaining growth in the longer term and achieving high-income status will however require this to be complemented by a more comprehensive reform strategy, aimed particularly at improving human capital and institutional quality. With this, Cambodia could feasibly sustain economic growth in the 5-6 percent range over the coming decades, ultimately reaching high-income by around 2060.

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Appendix I

Region	Countries
Developing Asia (14)	Bangladesh, Cambodia, China, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Viet Nam
Advanced Asia (6)	Hong Kong (China), Israel, Japan, Korea (Rep. of), Singapore, Chinese Taipei
Latin America (9)	Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Peru
Middle East and North Africa (4)	Egypt, Morocco, Tunisia, Turkey
Sub-Saharan Africa (18)	Botswana, Burkina Faso, Cameroon, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Uganda, Zambia

ISIC Rev. 4 code	Economic Transformation Database sector name	ISIC Rev. 4 description
A	Agriculture	Agriculture, forestry, fishing
B	Mining	Mining and quarrying
C	Manufacturing	Manufacturing
D+E	Utilities	Electricity, gas, steam and air conditioning supply; Water supply; sewerage, waste management and remediation activities
F	Construction	Construction
G+I	Trade services	Wholesale and retail trade; repair of motor vehicles and motorcycles; Accommodation and food service activities
J	Transport services	Transportation and storage
J+M+N	Business services	Information and communication; Professional, scientific and technical activities; Administrative and support service activities
K	Financial services	Financial and insurance activities
L	Real Estate	Real estate activities
O+P+Q	Government services	Public administration and defence; compulsory social security; Education; Human health and social work activities
R+S+T+U	Other services	Arts, entertainment and recreation; Other service activities; Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use; Activities of extraterritorial organizations and bodies

Appendix II: Econometric results

Labour productivity convergence results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Agriculture	Mining	Manufac-turing	Utilities	Construc-tion	Trade services	Transport services	Business services	Financial services	Real Estate services	Government services	Other services
convergence rate	-0.0768***	-0.0860**	-0.0199***	-0.0624***	-0.0821***	-0.0433***	-0.0279***	-0.0164*	-0.0278**	-0.0238*	-0.0309*	-0.0354*
	(0.00881)	(0.0322)	(0.00406)	(0.0138)	(0.0219)	(0.0112)	(0.00555)	(0.00710)	(0.00874)	(0.0105)	(0.0123)	(0.0156)
_cons	0.282***	0.518*	0.121***	0.218***	0.336***	0.163***	0.114***	0.0667	0.140**	0.140*	0.129**	0.0883
	(0.0331)	(0.212)	(0.0254)	(0.0447)	(0.0883)	(0.0487)	(0.0249)	(0.0376)	(0.0516)	(0.0616)	(0.0485)	(0.0473)
N	2180	2178	2180	2175	2180	2180	2180	2180	2180	2012	2180	2180
R-sq	0.109	0.079	0.159	0.068	0.100	0.067	0.129	0.175	0.118	0.107	0.081	0.091
adj. R-sq	0.067	0.036	0.119	0.024	0.057	0.023	0.088	0.136	0.076	0.062	0.038	0.048

* p<0.05
**p<0.01
***p<0.001”

Employment shares

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Agriculture	Manufac-turing	Construc-tion	Trade services	Business services	Financial services	Government Services	Other services	Mining	Real estate services	Utilities	Transport services
lngdp	-0.179***	0.308***	0.0158**	0.0912***	-0.114***	-0.0547***	-0.0501***	-0.0386**	0.0187***	-0.0312***	0.00453***	0.0302***
	(0.0327)	(0.0214)	(0.00535)	(0.0141)	(0.00468)	(0.00394)	(0.0128)	(0.0120)	(0.00247)	(0.00247)	(0.00134)	(0.00310)
lngdp2	0.00629**	-0.0170***	0.000596	-0.00510***	0.00700***	0.00357***	0.00317***	0.00220**	-0.000919***	0.00202***	-0.000209**	-0.00158***
	(0.00203)	(0.00134)	(0.000321)	(0.000897)	(0.000291)	(0.000244)	(0.000788)	(0.000724)	(0.000151)	(0.000150)	(0.0000793)	(0.000188)
lnpop	0.119*	0.0740***	-0.0862***	0.0412*	0.0540***	0.0213***	-0.0190	-0.131***	-0.0262***	-0.000192	-0.00235	-0.0440***
	(0.0561)	(0.0213)	(0.0152)	(0.0189)	(0.00874)	(0.00309)	(0.0295)	(0.0219)	(0.00643)	(0.00152)	(0.00338)	(0.00481)
lnpop2	-0.00644***	-0.000663	0.00371***	-0.00119*	-0.00260***	-0.000720***	0.000231	0.00497***	0.00105***	-0.0000727	0.000313**	0.00142***
	(0.00163)	(0.000725)	(0.000475)	(0.000569)	(0.000288)	(0.0000923)	(0.000832)	(0.000725)	(0.000174)	(0.0000496)	(0.000119)	(0.000159)
_cons	1.187*	-2.268***	0.249	-0.626***	0.326***	0.0420	0.627*	1.070***	0.0556	0.138***	-0.0563	0.255***
	(0.554)	(0.202)	(0.131)	(0.188)	(0.0769)	(0.0336)	(0.300)	(0.199)	(0.0689)	(0.0175)	(0.0288)	(0.0451)
N	2231	2231	2231	2231	2231	2231	2231	2231	2231	2231	2231	2231
R-sq	0.971	0.833	0.879	0.904	0.931	0.889	0.934	0.903	0.773	0.837	0.776	0.921
adj. R-sq	0.969	0.825	0.874	0.900	0.928	0.884	0.931	0.899	0.762	0.830	0.765	0.917

* p<0.05
**p<0.01
***p<0.001

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