

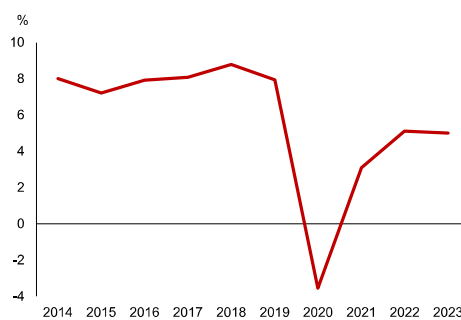
Annex 2. Assessing the Scarring Effect of COVID-19 on Cambodia's Potential Growth⁸⁶

The COVID-19 pandemic has left an indelible mark on economies worldwide, and Cambodia is no exception. The disruptions caused by lockdowns, reduced foreign investment, and interruptions in global supply chains have hindered the country's economic momentum and potential growth. This Selected Issue aims to gauge the impact of the scarring effects of the COVID-19 pandemic on Cambodia's growth potential via key factors including labor, human capital stock, physical capital stock, and total factor productivity (TFP). The estimates suggest that the scarring effects have reduced Cambodia's potential growth by about 2 percentage points during the pandemic period, driven by lower growth in physical capital stock, a larger drop in TFP, and slower growth in human capital compared with the pre-pandemic period.

Introduction

1. The Cambodian economy was hit severely by the COVID-19 pandemic during 2020-2021, before it began a slow recovery starting in 2022. The outbreak of the COVID-19 pandemic caused the economy to contract by 3.6 percent in 2020, with a fall in exports and tourism due to restrictions in international travel. Domestic economic activities were further dampened in 2021 and derailed the slight recovery that was starting to be seen following the downturn in 2020. Although the economy showed robust recovery in 2022 and 2023, growing at 5.1 percent and 5 percent in the two years respectively, the rate of growth was still slower than the pre-pandemic growth of 8 percent during 2011–2019 (Figure A2.1). The slow post-pandemic economic recovery partly reflects lower potential growth due to the scarring effects of the COVID-19 pandemic. Against this backdrop, this study seeks to estimate how the scarring effects of the COVID-19 pandemic have affected production factors and potential growth in Cambodia. Furthermore, this study discusses the implications of scarring effects on long-term growth potential.

Figure A2.1. Cambodia: Real GDP Growth



Source: National Institute of Statistics (NIS) via Ministry of Economic and Finance (MEF) (2024)

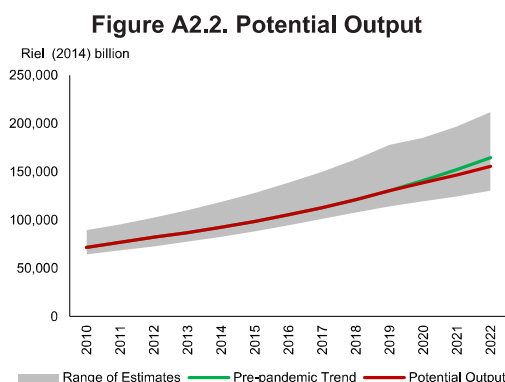
COVID-19 Scarring Effects on Cambodia's Growth Potential

2. Our estimation results, using an augmented production function approach, suggest that the pandemic has lowered Cambodia's potential growth, likely due to scarring effects. To estimate potential output, this study employs an augmented Cobb-Douglas production function approach, which enables us to estimate and decompose the scarring effects into production factors, such as labor, human capital, physical capital, and total factor productivity (TFP). For details on the methodology and data sources, see Box A2.1.⁸⁷ Our results show that the estimated potential output in 2020-2022 (actual scenario) fell below the

⁸⁶ Prepared by Heung Chun (Andrew) Tsang, Senior Economist; Chunyu Yang, Economist, and Sopheawatthey San, Associate

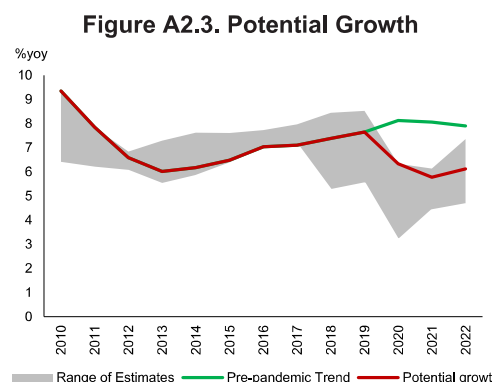
⁸⁷ The methodology is the same as that for estimating potential growth used in Choi *et al.* (2021).

pre-pandemic trend (a counterfactual scenario) (Figure A2.2). The range of potential growth estimates,⁸⁸ defined as the growth rate of potential output, obtained from alternative data sources, fell to 4.1–6.6 percent (average for 2020–22) from 7.6–8.4 percent (average for 2017–19). This is lower than the growth rate than if the potential output had followed the pre-pandemic trend (Figure A2.3). Our baseline model shows that Cambodia’s potential growth rate declined from 7.4 percent in 2017–19 to 6.1 percent in 2020–22, falling short of the pre-crisis trend trajectory of 8 percent. Lower potential growth in 2020–22 could be explained by scarring effects, which are estimated by the differences in potential growth between the actual outcome and the pre-pandemic trend under the counterfactual scenario.



Source: PWT; NIS; UNDP; Barrett *et al.* (2021); AMRO staff calculations

Note: Range of estimates is the distribution of different estimates for the actual scenario using various data sources and coefficients (labor income share and capital income share) in estimating the production function (see Box A2.1).



Source: PWT; NIS; UNDP; Barrett *et al.* (2021); AMRO staff calculations

Note: Range of estimates is the distribution of different estimates for the actual scenario using various data sources and coefficients (labor income share and capital income share) in estimating the production function (see Box A2.1). Potential growth is defined as the growth in potential output.

Assessing Key Drivers of Potential Growth

3. Aggregate employment in Cambodia was largely stable during the COVID-19 pandemic, although there were movement of labor across sectors. Employment and the labor force grew rapidly in 2020 (Figure A2.4), partly due to more migrant workers returning to Cambodia. Meanwhile, although employment in some sectors such as tourism, garment, manufacturing, and construction was heavily affected by contracting global demand and pandemic-related restrictions, workers quickly shifted to other sectors such as delivery and logistics, agriculture, and wholesale and retail trade (Sivchuong *et al.*, 2021). Despite some further restrictions being imposed in 2021 (which were gradually relaxed starting in 2022), employment continued to grow, but at a slower pace, reflecting positive economic growth in 2021 and 2022 (Figure A2.4). Although stable employment growth did not affect potential growth, the movement of workers to other sectors, compounded by deteriorating health conditions and shorter working hours, temporarily lowered labor productivity during the pandemic. These aspects are captured in the TFP component, as discussed below.

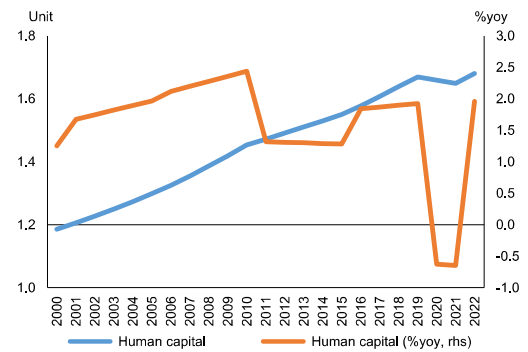
⁸⁸ The range of estimates is the distribution of different estimates for the actual scenario using various data sources for physical capital stock, potential TFP growth, and coefficients (labor income share and capital income share) in estimating the production function. Specifically, (i) physical capital stock could use the series in Penn World Tables (PWT) or could be constructed by applying the perpetual inventory method (PIM). The latter is used in this study as it is more consistent with historical data of investment and FDI data. (ii) For estimating potential TFP growth, there are several alternative methods, namely the annual growth of potential TFP series, the average growth of potential TFP for fixed five-year periods, and the rolling five-year average growth of potential TFP. The rolling five-year average is used to reduce fluctuations due to the noise of the series. (iii) The labor income share could be directly estimated by regression of the logarithm of the augmented Cobb-Douglas production function with different sources of physical capital stock or assuming the share according to the previous studies. As discussed above, the PIM physical capital stock series is used. Meanwhile, the regression estimate is used as it reflects results for the updated sample and the value is consistent with the previous study. See Box A2.1 for details on different data sources and coefficients.

Figure A2.4. Growth of Employment and Labor Force



Source: PWT; NIS; AMRO staff calculations

Figure A2.5. Human Capital Stock Estimates



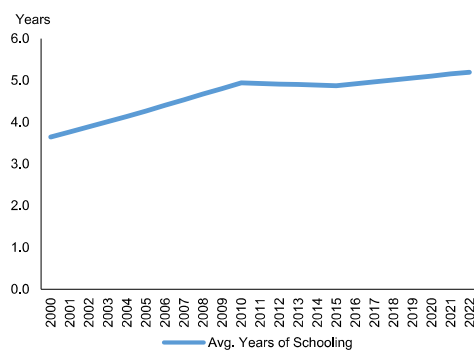
Source: PWT; NIS; UNDP; Barrett *et al.* (2021); AMRO staff calculations

4. As a proxy for labor quality, human capital—measured by the combination of education attainment and its returns—was lower during the pandemic than prior, mainly due to the closure of physical classes. Human capital refers to the quality of labor that makes people more productive, which could be enhanced by improvements in health and education that accumulate labor skills, knowledge, and experience over their lifetime (World Bank Group, 2023). Our estimation suggests that Cambodia’s human capital stock ceased to accumulate during 2020–2022, mainly due to a decrease in the return to education (Figure A2.5).

- Education attainment, proxied by the average years of schooling, was not affected by the pandemic (Figure A2.6). Cambodia was able to sustain a high enrollment rate even through the pandemic, as virtual learning took place (UNICEF, 2021).
- However, virtual learning during the pandemic lowered the returns to education (Figure A2.7), as the efficiency of remote or virtual learning was considerably low given inadequate infrastructure including poor internet connectivity, financial problems, and poor television or radio coverage, particularly in rural areas (UNICEF, 2021; World Bank Group, 2021). These factors impacted different types of households differently (Nai, 2022).

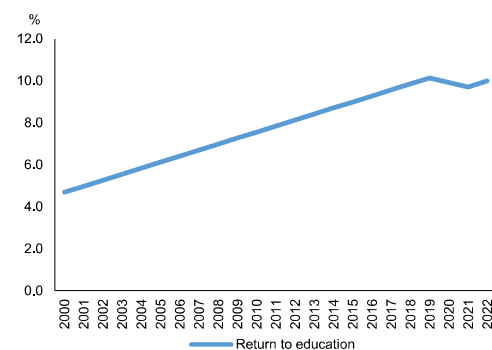
On the other hand, given the health impacts of COVID-19, more pandemic-related restrictions, such as COVID tests and social distancing reduced working hours and likely lowered productivity, despite the government’s improved public health policy such as vaccination program that continued after the pandemic. However, given that health cannot be quantified, the net impact of change in public health conditions is included in the TFP.

Figure A2.6. Average Year of Schooling



Source: PWT; NIS; UNDP; Barrett *et al.* (2021); AMRO staff calculations

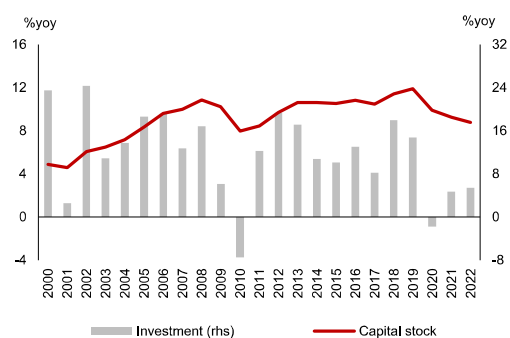
Figure A2.7. Return to Education



Source: PWT; NIS; UNDP; Barrett *et al.* (2021); AMRO staff calculations

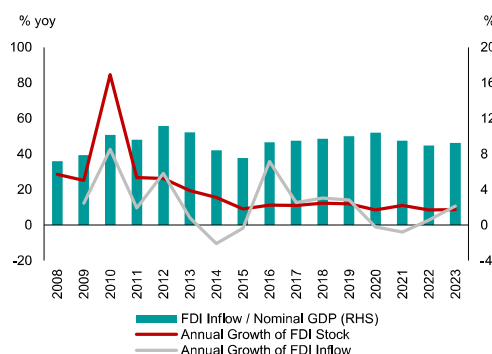
5. The creation of physical capital stock slowed during the pandemic, reflecting a drop in investment starting in 2020, has only slowly recovered over the past two years (Figure A2.8). Investment sentiment worsened following the COVID-19 pandemic. Firms experienced losses during the pandemic could lead to the impairment of firms’ balance sheets, which finally affected the firms’ financial health and investment incentive. This could be confirmed by a study in AMRO (2024) that the share of financially stressed borrowers,⁸⁹ mainly due to the losses, in Cambodia’s non-financial corporates (NFC) increased significantly from around 10 percent of the firms in the sample of the study to over 50 percent during the pandemic period from 2020 to 2022. Moreover, companies may have developed a “scarring of beliefs”, which influenced them to factor the pandemic into future investment decisions, thereby dampening their long-term investment propensity (Grömling, 2021). The growth of FDI stocks—a prominent source of financing for Cambodia’s growth over the past decades—slowed to 8.6 percent in 2020 and has stayed below 10 percent in the past two years, down from pre-pandemic growth rates of over 10 percent (Figure A2.9). Additionally, global supply chain disruptions have affected the availability of essential materials and equipment, hampering both ongoing and new investments. For instance, construction of the new Siem Reap-Angkor International Airport has faced delays due to logistics and supply chain issues stemming from the COVID-19 pandemic (Phanet, 2022).

Figure A2.8. Investment and Capital Growth



Source: PWT; NIS; AMRO staff calculations

Figure A2.9. FDI Growth



Source: NBC; AMRO staff calculations

6. Our estimates and event study suggest that TFP declined further during the COVID-19 pandemic, compared to the pre-pandemic trend (Figure A2.10), driven by a combination of transitory and structural factors. According to the production function approach, TFP is represented by the change in potential growth that cannot be explained by other factors of production. In this context, our event study, based on local news media and related literature as summarized in Box A2.2, allows us to attribute some parts of the scarring effects of the pandemic—reflected in lower TFP—to several transitory factors, including a temporary drop in productivity, the under-utilization of resources, and loss of economic efficiency. Moreover, in the longer term, COVID-19 has reinforced the impact of structural issues on TFP:

- **Temporary drop in productivity:** As discussed, the aggregate employment level remained stable during COVID-19, with some migrant workers returning to Cambodia and some workers temporarily shifting to alternative jobs in agriculture, and wholesale and retail trade (Sivchuong *et al.*, 2021). However, the skill mismatch for the newly increased employment could temporarily lower the average labor productivity (Bandyopadhyay *et al.*, 2019). Nevertheless, the government’s skill training policy has mitigated the scarring effects on productivity. Moreover, during the pandemic, weak investment could have affected

⁸⁹ AMRO (2024) defines firms with interest coverage ratios (ICRs) lower than 1.25 and/or debt service ratios (DSRs) lower than 1.0 as financially stressed borrowers.

productivity through slower technology adoption (Barrett *et al.*, 2021). The weak investment could be the result of the impaired balance sheets of firms that lowered the availability of working capital for investment. In the survey of establishments (firms) affected by COVID-19, lack of working capital for investment was flagged as one of the most important issues (9.1 percent), following the decline in revenue, increase in expenditure, and decline in market demand (Figure A2.11). Among establishments affected by COVID-19, the lack of working capital was the most prominent problem among wholesale and retail trade establishments (by industry), and small establishments (10 persons engaged or below, by size) (Figure A2.12 shows).

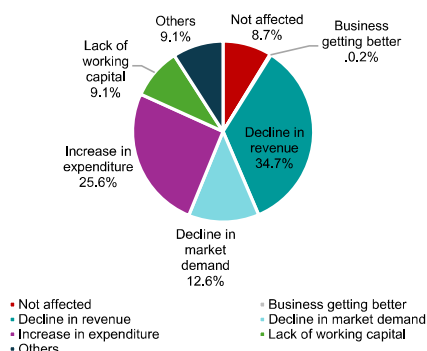
- **Temporary under-utilization of resources:** Lockdowns or other pandemic-related restrictions caused the under-utilization of human and physical resources. For instance, garment workers had to work reduced hours due to lockdowns or a fall in external demand, while factories had to retain their workforce. Similarly, the under-utilization of infrastructure such as roads and airports, as well as high vacancy rates in the retail and office building segments, also led to lower TFP.
- **Temporary efficiency loss during COVID:** The misallocation of resources could have caused efficiency loss. During the pandemic, firms had to divert resources to healthcare and remote work management, instead of allocating them to direct production of final output as they would have done in normal circumstances (Fernald and Li, 2022). Social distancing and limits on transportation also affected the speed of technology adoption. However, the government's improvement in health policy has largely reduced the misallocation of physical resources. Additionally, disruptions in global value chains lowered TFP due to the absence of key intermediates (Acemoglu and Tahbaz-Salehi, 2024).
- **COVID-19 reinforced the impact of structural issues:** A prolonged period of low investment can permanently reduce productivity, and these effects can persist even if a strong recovery is witnessed after the crisis (Cerra *et al.*, 2021). Productivity could also be permanently affected by the loss of firm-specific knowhow because of bankruptcies and their spillovers (Bernstein *et al.*, 2019).

Figure A2.10. TFP Estimates



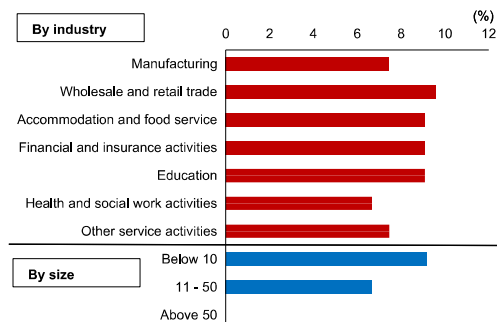
Source: PWT; NIS; UNDP; Barrett *et al.* (2021); AMRO staff calculations

Figure A2.11. Share of Establishments Affected by COVID-19 (by Effect)



Source: NIS

Figure A2.12. Share of Establishments Affected by Lack of Working Capital (by Industry and Size)



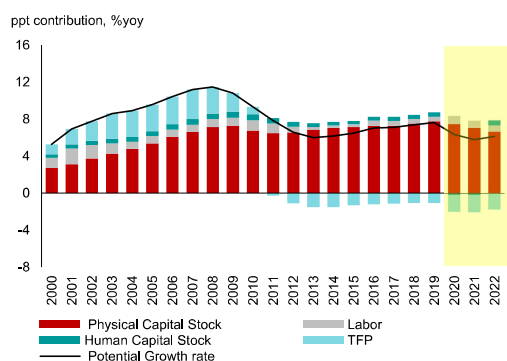
Source: NIS

Note: Only industries faced with a lack of working capital are shown. The industry classification is based on Section of International Standard Industrial Classification (ISIC) Rev.4. The size of establishments is based on the number of persons engaged.

Tracking the Sources of COVID-19 Scarring Effects

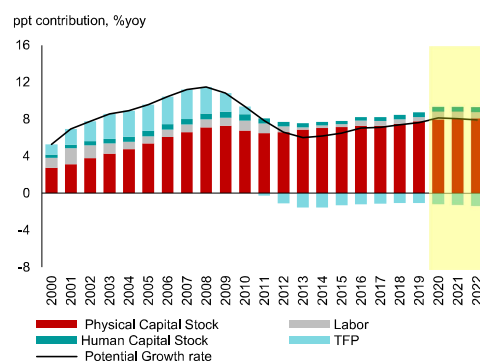
7. Our analysis suggests that the scarring effects of the COVID-19 pandemic are mainly reflected in lower growth in physical capital, TFP, and human capital. Following Jackson and Lu (2023), we seek to measure the scarring effects by comparing the differences in potential growth between the actual scenario (Figure A2.13) and the counterfactual scenario assuming the pre-pandemic trend (Figure A2.14). Therefore, the drop in potential growth could be further decomposed into the contributions of different factors of production (see Box A2.1 for the details of the methodology). Our decomposition analysis, as summarized in Figure A2.15, indicates that the scarring effects of the COVID-19 pandemic have reduced Cambodia’s potential growth by 1.95 percentage points (average for 2020–2022), mainly due to the lower growth in physical capital stock (0.95 percentage points), a larger drop in TFP (0.53 percentage points)—presumably due to temporary productivity drop, under-utilization, and efficiency loss—and slower growth in human capital (0.47 percentage points) due to lower returns to education during the pandemic.

Figure A2.13. Potential Growth with Scarring Effects (Actual Scenario)



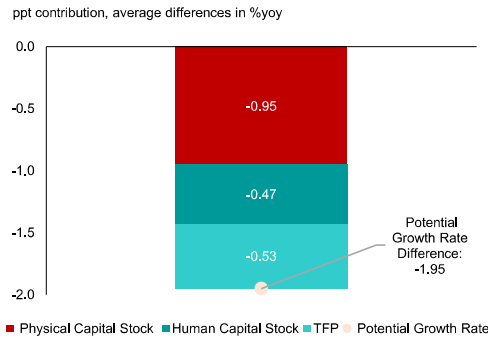
Source: PWT; NIS; UNDP; Barrett *et al.* (2021); AMRO staff calculations
Note: The shaded area represents the pandemic period: 2020–2022.

Figure A2.14. Potential Growth Without Scarring Effects (Counterfactual: Pre-pandemic Trend)



Source: PWT; NIS; UNDP; Barrett *et al.* (2021); AMRO staff calculations
Note: The shaded area represents the pandemic period: 2020–2022.

Figure A2.15. Contribution to Scarring Effects (Average for 2020–2022)



Source: PWT; NIS; UNDP; Barrett *et al.* (2021); AMRO staff calculations

Implications for Long-term Growth

8. The empirical results of this study identify the sources of scarring effects, providing suggestions on measures to improve long-term potential growth. Cambodia's lower potential growth since the COVID-19 pandemic could lead to lower growth in the longer term if the scarring effects are prolonged. Our analysis suggests that lower potential growth in Cambodia could be caused by the temporary drop in factors of production. Nevertheless, to reduce the impact of scarring effects on the long-term growth potential, the economy should upgrade and build up its human and physical capital. To this end, the timely implementation of the government policies could limit the scarring effects on potential growth, as well as actual growth. The government has taken some steps to reduce the scarring effects of the COVID-19 pandemic, but in the medium to long term, more policies to promote growth in physical capital, human capital, and TFP are required. Specifically, the government should look to boost potential growth by strategically attracting FDI and increasing public infrastructure investment while ensuring spending efficiency; expand existing Technical and Vocational Education and Training (TVET) centers; and continue with structural reforms such as enhancing economic diversification, continuing with regulatory framework reforms, fostering a competitive business environment, and promoting digitalization and innovation.

Box A2.1. Estimation of Potential Growth and Scarring Effects

Estimate the potential output and potential growth

This study applies growth accounting by assuming the augmented Cobb-Douglas production function and uses HP-filtered factors of production to estimate the potential output and potential growth (growth of potential output).

In this study, the augmented Cobb-Douglas production function is used, as human capital is separately added to the conventional Cobb-Douglas production function, which only includes labor, physical capital, and total factor productivity.

$$Y_t = A_t K_t^{1-\alpha} (L_t H_t)^\alpha$$

$$H_t = \exp(\varphi_t S_t)$$

where

Y_t represents GDP in year t ;

A_t , the total factor productivity (TFP);

K_t , the physical capital stock;

L_t , the labor component;

H_t , the human capital per worker;

α , the income share of labor;

$(1 - \alpha)$, the income share of capital;

φ_t , the return to education; and

S_t , average years of schooling.

Remarks:

- i. H_t is defined as a function of average years of schooling in year t (S_t), and the return to education (φ_t);
- ii. The augmented Cobb-Douglas production function applies the Cobb-Douglas function's standard assumption with constant income shares over time for labor (with human capital, α) and capital ($1 - \alpha$).

The potential level of employment, human capital stock, physical capital stock, and TFP are inserted into the above augmented Cobb-Douglas production function to estimate potential output and growth. The potential levels of these factors of production are derived by applying the one-sided Hodrick–Prescott (HP) filter on the original series. For potential TFP growth, the rolling five-year average growth of potential TFP is used.

Finally, potential GDP growth, defined as the growth of potential output, is estimated as potential TFP growth plus the weighted sum of the growth in potential employment, potential human capital stock, and potential physical capital stock.

Estimating scarring effects

Following Jackson and Lu (2023), scarring effects are defined as the differences in potential growth between the counterfactual scenario of potential output in the COVID-19 pandemic assuming the pre-pandemic trend:

$$Y_{pre,t} = A_{pre,t} K_{pre,t}^{1-\alpha} (L_{pre,t} H_{pre,t})^\alpha$$

and the actual outcome of potential output in the COVID-19 pandemic:

$$Y_{c,t} = A_{c,t} K_{c,t}^{1-\alpha} (L_{c,t} H_{c,t})^\alpha$$

Take the log-difference of the above equations, the sources of scarring effects (differences in potential growth) can be further decomposed by the output deviation based on the estimated production function under two scenarios.

$$\Delta y_t = \Delta a_t + (1 - \alpha)\Delta k_t + \alpha\Delta l_t + \alpha\Delta h_t$$

Data sources

1. Employment: Until 2019, Penn World Tables (PWT) 9.1 database; from 2020, NIS' official data, applying official data of 2020 growth to extend PWT data

2. Human capital stock:

- a. Years of schooling: Until 2015, using 5-year data from the updated database of Barro and Lee's (2013), with applying interpolation for annual data; after 2015, using 2022 United Nations Development Programme (UNDP) data and 2015 Barro and Lee data to interpolate the figures in between.
- b. Return to education: Until 2019, Psacharopoulos and Patrinos (2004, 2018), applied linear interpolation and extrapolation for 1994 (assuming half of Vietnam's figure) and 2007 figures. From 2020, dated back to 1.5 years before, i.e., End 2020 figure = 2019 Mar figure, End 2021 figure = 2018 Jun figure, End 2022 figure = 2019 Jun figure.

The calculation for the figures from 2020 is based on previous estimates in the literature. In general, the school closure shock reducing learning by half of the year would cause 1.55 years of education to lag (on average) (Kaffenberger, 2021). Also, according to the World Bank's estimate, 1.5 learning-adjusted years of schooling (combining quantity and quality of education) was lost in Cambodia during the pandemic (World Bank Group, 2021).

3. Physical capital stock: The data used in this study is constructed by applying the perpetual inventory method (PIM), using the 1987 capital stock figures in PWT as the initial capital stock, gross fixed capital formation in the official National Account data, and depreciation data in PWT.

- Alternatively, PWT capital stock data could be used, but the derived investment figures are much higher than gross fixed capital formation in the official National Account data and FDI figures.

4. Labor income share: The labor income share (α) is estimated by regression of the logarithm of the augmented Cobb-Douglas production function with dummy variables for 1993, Global Financial Crisis

(2009–2012), and COVID-19 pandemic (2020–2022), using the data from 1987–2022. α is estimated as 0.28 for using PIM physical capital stock.

- Alternatively, α is estimated as 0.36 for using PWT physical capital stock;
- α can be assumed as 0.42, using the 2011–2021 average of the International Labour Organization (ILO) estimates for Cambodia, ILO report on the Cambodia Labor Force Survey (CLSF) 2022;
- Or α can be assumed as 0.3, as suggested by authorities.

5. TFP: Derived as the difference between observed real GDP and the weighted sum of employment, human capital, and physical capital (which is known as Solow residual). Potential TFP is derived by applying the one-sided HP filter until 2020 while assuming a drop of 1.5 percent in 2021 and a drop of 0.5 percent in 2022 to be consistent with the economic recovery. The rolling five-year average growth of potential TFP is used to estimate potential TFP growth.

- Alternatively, to estimate potential TFP growth, the annual growth of potential TFP series could also be used.
- The average growth of potential TFP for fixed five-year periods could also be used.

In Figures A2.2 and A2.3, the range of estimates is the distribution of different estimates using various data sources and coefficients (labor income share and capital income share) stated above in estimating the production function.

Box A2.2. Selected Local News and Literature on the Impact of COVID-19 on TFP

News and literature related to employment

ADB estimates show that out of the 390,000–570,000 workers who lost their jobs, approximately 230,000–345,000 could eventually be counted as unemployed, raising the unemployment rate from 0.7 percent in 2019 to 3.2–4.4 percent in 2020. Additionally, 18,000–25,000 workers, or 5 percent, dropped out of the labor force altogether, while 35 percent shifted to other sectors, mainly agriculture, but also wholesale and retail trade and other sectors. (Sivchuong, L., Pov, M., Reasey, L., & Channeary, U., 2021. [Rapid assessment of emerging needs for workers and skills in times of the COVID-19 crisis](#). National Employment Agency, Phnom Penh, Cambodia)

According to Labor Force Survey 2019, about 88 percent of Cambodia’s workforce is engaged in informal employment. Although this is declining, this put further pressure on the labor market condition. (National Institute of Statistics, 2019. [Report on the Cambodia Labour Force Survey 2019](#), National Institute of Statistics, Ministry of Planning)

In all, 140,000–200,000 workers shifted to sectors such as delivery and logistics, agriculture, wholesale, and retail trade. (ADB, 2020. [Employment and Poverty Impact Assessment: Cambodia](#))

Employment (growth) dropped starting in late 2020, as the market could not fully absorb all workers due to the first community outbreak in November 2020 and the subsequent outbreak in February 2021, which required stricter lockdowns, curfews, and the suspension of most-contact businesses. (Khmer Times, 2021. [Community outbreak of February 20 continues its march in Cambodia to yet another province and 39 new infections, bringing total to 652 and the national tally to 1163](#) & Phnom Penh Post, 2021. [Phnom Penh placed in two-week lockdown](#))

News and literature related to returned migrant workers

The estimated 90,000 returned migrant workers are unlikely to be able to find jobs in what was already a challenging job market in Cambodia, as major sectors, including tourism and garments, are significantly affected by the pandemic and related economic factors. It is unlikely both sectors will be able to absorb returning migrant workers. (ILO, August 2020. [COVID-19: Impact on Cambodian migrant workers](#))

According to the ASEAN Migrant Outlook report on July 2022, an estimated 260,000 Cambodian migrant workers lost their jobs in the wake of the pandemic and returned to the country from various parts of the world, mostly from Thailand, as of December 2021. The return migration to Cambodia was the second highest in the region after the Philippines. (ASEAN Secretariat, July 2022. [ASEAN Migration Outlook](#))

Among the reasons for the respondents’ return to Cambodia, the fear of COVID-19 ranked first with 51.7 percent, followed by personal/family reasons (47 percent), loss of job/closure of workplace (27.8 percent) and end of the legal working permit (7.1 percent). The reasons were similar between men and women sub-groups. (UNFPA, 2020. [Rapid Assessment on Social and Health Impact of COVID-19 Among Returning Migrant Workers in Cambodia](#))

News and literature related to human capital loss

Human capital refers to the quality of labor, which could be enhanced by the improvement in health, as well as the accumulation of skills, knowledge, and experience over their lifetime. Not just of intrinsic value, these attributes also make people more productive. (World Bank Group, 2023. [Collapse and Recovery: How the COVID-19 Pandemic Eroded Human Capital and What to Do about It](#))

The human capital index for Cambodia stood at 0.49 in 2020, indicating that a child born in Cambodia would be only 49 percent as productive as an adult given full access to health and education. (Azevedo, J. P., Hasan, A. and Goldemberg, D., 2022. [Learning losses from COVID-19 school closures in Cambodia: Simulation results](#), World Bank Group, Washington, DC)

Cambodia was able to sustain a high enrollment rate amid the pandemic. The gross enrollment rate was over 100 percent while the net enrollment rate was over 90 percent at public schools, thanks to the government’s efforts to mitigate the impact of the pandemic, including the launch of remote learning programs across multiple channels. However, the efficiency of remote learning is considerably low given challenges such as poor internet connectivity, financial problems, lack of awareness of television, and poor television or radio coverage, especially for students in rural areas. Of students who engaged in distance learning, 37 percent spent only 30 minutes to 1 hour learning per week, followed by 26 percent reporting they spent 1 to 3 hours per week, indicating that students did not learn as much as they should have. (United Nations Children’s Fund (UNICEF), March 2021. [Cambodia COVID-19 Joint Education Needs Assessment](#), pp. 60–63)

<p>Under the intermediate scenario that schools will not close again and all students except those who dropped out because of income shocks will return, today's cohort of students in Cambodia is expected to attain 1.5 fewer learning-adjusted years of schooling than the baseline of 6.8 years in the pre-pandemic and expected to lose USD738 (PPP) in annual earnings compared to the baseline of USD6,077 (PPP).</p> <p>Remark: Learning-adjusted years of schooling (LAYS) capture both quantity and quality of education. It measures the number of years of schooling a child can expect to obtain by age 18, adjusted by a country's average student achievement. (World Bank Group, 2021. Cambodia Economic Update Dec 2021 - Living With COVID, p.56)</p>
<p>As the desire to invest in human capital increases with income, a decline in income levels can hinder the accumulation of human capital, particularly affecting the most disadvantaged individuals. (Bardhan, P., and Udry, C., 1999. "Development Microeconomics," Oxford: Oxford University Press)</p>
<p>Even though the magnitude of employment loss for Cambodia is relatively low compared to other countries in the region, the reduction in household income was more significant. (World Bank Group, 2020. Household Surveys in East Asia and Pacific)</p>
<p>Loss of income could result in households not being able to send their children to school, leading to a higher number of dropouts. The dropout rate for both primary school and secondary school increased to 7.2 percent and 16.6 percent respectively in academic year 2021-2022 from 4.4 percent and 15.8 percent respectively in 2018-2019. (Ministry of Education, Youth and Sport, April 2023. The Education, Youth and Sport Performance in the Academic Year 2021-2022)</p>
<p>A survey by the World Bank reported that 65.4 percent of households in Cambodia indicated reduced family food consumption as a way to cope with the income shock associated with COVID-19; and a WFP survey similarly revealed that about half of the school-age and youth parents experience difficulties in accessing medical services, thus disrupting the development of human capital in Cambodia. (World Food Program (WFP), 2022. Rebuilding human capital amidst the pandemic: The impacts of COVID-19 on school-aged children and youth in Cambodia & World Bank Group, 2022. The Socioeconomic Impacts of COVID-19 on Households in Cambodia: Results from a High-Frequency Phone Survey of Households Round 7)</p>
<p>In general, the shock reducing learning by 1/2 year would cause 1.55 years of education to lag (on average), although it could catch up later. (Kaffenberger, M., 2021. Modelling the long-run learning impact of the Covid-19 learning shock: Actions to (more than) mitigate loss, International Journal of Educational Development, 81, 102326.</p>
<p>Experts say student learning outcomes have been significantly hurt by prolonged school closures during the COVID-19 pandemic. Most notably, the lack of traditional schooling during the pandemic has reduced access to education for certain groups of children, especially those living in remote areas and coming from poor families. (Nai, N., 2022. "With students back in class, experts note lasting impact of school closures," Cambodian Journalists Alliance Association)</p>
<p>News and literature related to lower labor income</p>
<p>In August 2020, a telephone survey of 1,054 migrant returnee households revealed that two-thirds of returning migrant worker households suffered a severe drop in income. Their median income was only USD150 a month, and more than half were in debt. As much as one-third of the returnees reported no income at all; although over 65 percent received some kind of support: 20 percent received cash support, 9 percent received food assistance, and 10 percent received healthcare services. (UNFPA, 2020, Rapid Assessment on Social and Health Impact of COVID-19 Among Returning Migrant Workers in Cambodia)</p>
<p>According to the government, hundreds of thousands of Cambodian workers lost their jobs as a direct result of the pandemic in this initial period (Feb – Jun 2020), while those who remained in employment were hard-hit by reduced and unpaid wages. Hospitality and service workers were most affected by income losses, experiencing a 56.4 percent decline between January and April 2020. They were followed by construction workers (a 36.8 percent decline) and garment workers (a 29.8 percent decline). (Ford, M. and Ward, K., 2021, COVID-19 in Southeast Asia: Implications for workers and unions, Journal of Industrial Relations, 63(3), pp.432–450)</p>
<p>A nationwide COVID-19 economic impact study has found that salaries across Cambodia decreased by around 30 percent in just four months (between January and April this year) with entertainment and sex workers reporting an 85 percent decline in income. (White, H., 2020. Grim findings on wages after COVID-19 struck, Khmer Times)</p>
<p>News and literature related to productivity, under-utilization, and efficiency</p>
<p>Up to 130 factories asked the country's Labor Ministry for permission to suspend operations entirely or partly. With about 750,000 workers, the garment industry is the biggest employer in the country. Around 100,000 Cambodian workers lost their jobs at the outset of the pandemic, either permanently or temporarily. This number was expected to increase in the weeks and months to come. (Khmer Times, 2020. Coronavirus brings trouble to Cambodia's garment industry)</p>
<p>Close to 51,000 jobs disappeared from the once thriving tourism sector as 2,838 tourism-related businesses in Cambodia shut down or temporarily closed due to the COVID-19 crisis as of September 2020, according to the Ministry of Tourism. (Khmer Times, 2020. 51,000 tourism-based jobs in Cambodia vapourised because of COVID-19 pandemic)</p>
<p>Low productivity and low-wage sectors such as agriculture and wholesale and retail trade in Cambodia could have an overall net gain in employment in 2020 compared to the baseline, as a result of absorbing displaced workers from other sectors, and those returning to rural areas, including migrant workers returning from Thailand or other effected countries. (Sivchuong, L., Pov, M., Reasey, L., & Channeary, U., 2021. Rapid assessment of emerging needs for workers and skills in times of the COVID-19 crisis, National Employment Agency, Phnom Penh, Cambodia)</p>

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