The Invisible Toll of COVID-19 on Learning

JUNE 2023
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Preface

The Indonesia Economic Prospects (IEP) is a bi-annual World Bank report that assesses recent macroeconomic developments, outlook, and risks, as well as specific development challenges for the Indonesian economy. In doing so, the IEP aims to inform the public policy debate and is geared towards a wide audience, including the general public, the government, the private sector, civil society organizations, and other domestic and international stakeholders.

The IEP is a product of the World Bank Jakarta office and receives strategic guidance from an editorial board chaired by Satu Kahkonen, Country Director for Indonesia and Timor-Leste. The report is prepared by the Macroeconomics, Trade and Investment (MTI) Global Practice team, under the guidance of Lars Christian Moller (Practice Manager) and Habib Rab (Lead Economist). The report is co-led by Wael Mansour (Senior Economist), Indira Maulani Hapsari (Senior Economist) and Shinsaku Nomura (Senior Economist).

Deviana Djalil provided administrative support and coordinated the organization of the report launch event. The dissemination is organized by Gb Surya Ningnagara and Maul亚蒂 N. Slamet under the guidance of Lestari Boediono Qureshi. The report was designed and typeset by Arsianti.

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Part B was prepared by Shinsaku Nomura (report lead), Delbert Lim, and Anna Hata. Part B benefitted from the comments from Cristian Aedo, Achim Daniel Schmillen, Harry Patrinos, Koen Martijn Geven, Tobias Pfutze, Ezequiel Molina, and Jack Philip Baldwin. Rythia Afkar and Seo Yeon Hong provided contributions to the survey design, and Elisabeth Yunita Ekasari and Sylvia Njotomihardjo provided administrative support to the Part B.

This report is available for download in English and Indonesian via: www.worldbank.org/iep

Previous report editions:

- December 2022: Trade for Growth and Economic Transformation
- June 2022: Financial Deepening for Stronger Growth and Sustainable Recovery
- December 2021: A Green Horizon: Toward a High Growth and Low Carbon Economy

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Abbreviations

AEs  Advanced Economies
AKMI  Asesmen Kompetensi Madrasah
Indonesia/ Indonesian Madrasah Competency Assessment
AN  Asesmen Nasional/ National Assessment
ARA  Assessing Reserve Adequacy
BI  Bank Indonesia
BOS  Bantuan Operasional Sekolah
BPS  Badan Pusat Statistik
CDS  Credit Default Swaps
CPI  Consumer Price Index
EAP  East Asia Pacific
ECED  Early childhood education and development
EM  Emerging Market
EMBI  Market Bond Index
EMDEs  Market and Developing Economies
EMIS  Education Management Information System
FDI  Foreign Direct Investment
FDIC  Deposit Insurance Corporation
FSOL  Financial Sector Omnibus Law
GBV  Gender Based Violence
GDP  Gross Domestic Product
GNI  Gross National Income
GoI  Government of Indonesia
HIC  High-Income Country
IDR  Indonesian Rupiah
IFLS  Indonesia Family Life Survey
IMF  International Monetary Fund
INOVAISI  Innovation for Indonesia’s School Children
JCOL  Omnibus Law on Job Creation
LAR  Loan at Risk
LAYS  Learning-adjusted years of schooling
LFP  Force Participation Labor
LIC  Low Income Country
LMICs  Lower Middle-Income Country
MoECRT  Ministry of Education, Culture, Research and Technology
MoF  Ministry of Finance
MoH  Ministry of Health
MoHA  Ministry of Home Affairs
MoRA  Ministry of Religious Affairs
MSMEs  Micro, Small and Medium Enterprises
NEET  Not in Education Employment or Training
NER  Net Enrolment Rate
NPL  Non-Performing Loan
OECD  Organization for Economic Cooperation and Development
OJK  Otoritas Jasa Keuangan/ Financial Services Authority
PISA  Programme for International Student Assessment
PMT  Proxy Means Test
PPDB  Penerimaan Peserta Didik Baru/ New Student Acceptance
PPP  Purchasing Power Parity
ROA  Return on Assets
REER  Real effective exchange rate
RPP  Rancangan Rencana Pembelajaran/ Lesson Plan
SAKERNAS  Survei Angkatan Kerja Nasional
SBN  Surat Berharga Negara
SDI  Service Delivery Indicator
SOEs  State-Owned Enterprises
SUSENAS  Indonesia Socioeconomic Survey
SVB  Valley Bank
THL  Tax Harmonization Law
US$  United States Dollar
VAT  Value Added Tax
WDI  World Development Indicators
WEO  World Economic Outlook
Yoy  Year-on-year
YTD  Year-to-Date
Executive summary
I. Economic Update

Growth strengthened to 5.3 percent in 2022, the highest in the last decade and stronger than the region’s median. Growth came on the back of positive terms-of-trade led by commodity related exports and a recovery in private consumption. This momentum continued in 2023 with private consumption and exports supporting 5 percent growth in the first quarter (Q1-23). Nevertheless, there are signs that domestic demand is starting to moderate. This includes a softening in imports and investment growth, a deceleration in private sector credit growth, as well as a slowdown in core inflation since the beginning of the year.

Headline inflation declined, reaching 4 percent yoy in May 2023. This is the lowest inflation recorded since it peaked in September 2022 when global inflationary pressures mounted following Russia’s invasion of Ukraine. The slowing pace of inflation is attributed to a combination of external and domestic policy-related factors. This includes the decline in global oil prices, improved harvest, government intervention at sub-regional level to ease supply bottlenecks notably for food and rice, and the appreciation of the Rupiah which lowered the cost of imports. Nevertheless, inflation became more broad-based, partly reflecting a pick-up in demand for most goods and services as headline and core inflation are converging.

The widening current account surplus in early 2023 is linked primarily to weakening imports of goods instead of rising exports. The latter have decelerated as prices of major export commodities like coal, palm oil, and other metals dropped, while manufacturing exports’ contribution remains limited. External financing pressures have also eased. Foreign Direct Investment (FDI) has been a steady source of external financing in the past three years and has outperformed the more volatile and shorter-term portfolio and debt flows. External buffers remain strong and have supported the appreciation of the Rupiah since the start of 2023. Furthermore, Indonesia is becoming more resilient to external shocks. This is primarily due to declining debt held by non-residents, an improvement in investors perception of Indonesian assets, and a more stable exchange rate compared to peers.

With a fiscal deficit of 2.4 percent of GDP in 2022, the GoI had returned to its fiscal rule mandate one year earlier than targeted. This was possible due to a strong revenue performance that was buoyed by a mix of high commodity prices, rising domestic demand, and tax reforms. Moreover, spending was contained through rolling back COVID-19 programs, partial removal of energy subsidies, and under-execution of public investment. The fiscal outcome is persistent so far in 2023 with the surplus reaching 0.6 percent of GDP in Q1-23, up from 0.1 percent of GDP in Q1-22. In line with fiscal consolidation, public debt has gradually declined and now stands at 39.2 percent in March 2023. It remains though above its pre-pandemic level in 2019. With ample liquidity in domestic markets and BI halting budgetary financing, the public debt composition is changing. By Q1-23, domestic debt accounted for 72.1 percent of total public debt with commercial banks increasing their sovereign lending.
BI raised its policy rate by a cumulative of 225 basis points last year but has held it at 5.75 percent since January 2023. Inflation is steadily easing, and inflation expectations are now anchored and expected to drop below BI target in the second half of 2023. Moreover, despite the narrowest interest rate spread recorded between US Fed rate and Bank Indonesia’s policy rate, portfolio flows have turned positive, giving a boost to the Rupiah. Decelerating inflation provides BI with more space for accommodative monetary policy to counter rising borrowing costs and support growth. BI has been actively using a series of policy measures to navigate external market pressures amidst synchronous global shocks. This includes using a combination of foreign currency interventions to stabilize the currency, policy interest rate, and exchange rate flexibility.

GDP growth is projected to moderate to 4.9 percent in 2023 and stay broadly flat at 5 percent in the medium term. Growth will be supported by private consumption as inflationary pressures subside. The current account balance is projected to retain a small surplus (0.02 percent of GDP) in 2023 before turning into a deficit of 1.0 percent of GDP in 2025. This follows a deceleration in exports growth as prices of palm oil and coal soften and as global demand weakens further. Imports will also moderate in line with moderating domestic demand and investment in 2023. However, positive interest rate differentials with the US and a stable macro framework are projected to continue to support portfolio inflows. As a result, official reserves are expected to remain adequate to finance 6 months of imports. The fiscal deficit is also projected to remain below 3 percent of GDP in line with the reinstated fiscal rule. This will be achieved through commodity windfalls, continuous reforms to boost domestic revenues, and prudent public spending policies.

Potential growth is declining due to reduced labor input, weak human capital formation and slowing productivity growth. Investment and to a lesser extent labor input have been key growth drivers prior to the pandemic, but all growth drivers have now moderated, particularly total factor productivity (TFP). Investment contributed to about 60 percent growth in 2003-2019 with private contributions far outweighing public. This is far higher than the contribution of capital to growth in other Lower Middle-Income Countries (LMICs). However, TFP growth slowed by nearly half in the 2010’s period relative to the 2000’s. Declining TFP and human capital are in line with lower labor productivity growth, as gains from reallocation of resources across sectors seem to be fading. The slowdown in sectoral reallocation of labor partly reflects lower absorption of labor by the services and industry sectors and decrease in productivity growth in services.

Indonesia has combined macroeconomic stability with reforms to promote competitiveness over the past three years. This includes flagship reforms like the Financial Sector and Job Creation Omnibus Laws. Building on these, the next stage is to identify specific constraints within policy areas (e.g., finance, procurement, land, business regulations, trade) or within sectors that prohibit market contestability. Indonesia could achieve its goal of becoming a High-Income Country by 2045 if it can sustain its performance in growth of GNI per capita from the last 10 years. Growth over the last decade, however, has been driven by commodity cycles as well as improved governance, infrastructure, and macro stability accumulation. Going forward, the drivers of growth will need to turn to market friendly policies and institutions that allocate resources to the most productive firms and industries.
II. Pathways to Learning Recovery and a more Productive Future for Indonesia’s Children

The pandemic led to the collapse of the human capital accumulation process, affecting the human capital development of children and youth, particularly in terms of learning. Learning crises already existed around the world prior to the onslaught of COVID-19, and the crisis deepened during the pandemic. Learning losses caused by COVID-19 often exacerbated existing inequalities within countries which could negatively affect students’ future earnings and the country’s future productivity.

The pandemic resulted in the mandatory closure of educational institutions (either fully or partially) from March 2020, for a total of approximately 644 days, or about 21 months, a relatively long period among Lower Middle-Income Countries and in Southeast Asia. The GoI introduced an Emergency Curriculum and implemented remote-based learning, however service delivery was a challenge. Since the nationwide re-opening of educational institutions in January 2022, the GoI has emphasized learning recovery, reinforced through a series of medium-term educational reforms.

At the national level, the Grade 4 students in Indonesia in 2023 lost 11.2 months equivalent of math skills and 10.8 months equivalent of language skills in comparison with Grade 4 students in 2019. Students from poor households were hit harder with losing 18.1 and 27.2 months of learning in math and language, which led to widened inequity in learning outcomes. School opening hours, household access to the internet, and experience of sickness or the death of somebody close also seem to be correlated with lower performance and/or larger learning losses.

Using the Indonesia Family Life Survey (IFLS) 2014, which showed lower earnings among workers with lower competencies in math, the estimated lifetime loss of earnings will be 30.9 percent among men and 39.2 percent among women of what it would have been without the pandemic. Government remedy actions can mitigate those losses going forward.

Deliberate commitment and actions are needed because learning losses are somewhat ‘invisible’ to many stakeholders, and many are tempted to go back to business-as-usual rather than confront the challenges. Specifically, actions should entail increasing learning time, teaching at the right level for students, and tracking students’ performance, as well as addressing inequality in learning by offering targeted support to disadvantaged or underperforming students.
A. Economic Update
A. Economic Update

1. Recent Economic Developments

Commodity windfalls and private consumption have sustained Indonesia’s growth despite a difficult global environment, but signs of normalizing domestic demand are emerging.

Aggressive monetary policy tightening in many economies to curb inflation, as well as banking failures in the US and Europe, are expected to constrain lending activities in the short-term (World Bank, 2023a). Furthermore, the ongoing war in Ukraine and increased geopolitical fragmentation have exacerbated global uncertainty and present major risks to international trade and investment flows. While the risks of global stagflation have now abated,¹ global demand continues to be soft.

The EAP region is set to grow at a much faster pace than the global economy in 2023. This is in large part driven by China’s full reopening and departure from pandemic-era restrictions, along with robust recovery of private consumption and export demand from major EAP countries. Commodity prices, while still elevated, have eased since January, relieving pressure on food and energy importers in the region. However, recent high-frequency indicators such as retail sales and goods exports point to a slowing growth momentum (World Bank, 2023d).

Growth strengthened in 2022, the highest in the last decade. GDP grew by 5.3 percent yoy, stronger than the region’s median growth rate, thanks to a positive terms-of-trade shock led by commodity related exports and a recovery in private consumption. This momentum continued in 2023 with private consumption and exports supporting a 5 percent growth in the first quarter of 2023 (Q1-23) (Figure A.1). Nevertheless, there are signs that domestic demand is starting to moderate (Figure A.2). These include a notable weakening in both import and investment growth, a deceleration in private sector credit growth, as well as a slowdown in core inflation since the beginning of the year.

The economy has been growing at 5 percent yoy for five consecutive quarters. While this is a robust outcome given levels of global uncertainty, it remains below the growth levels of 6-8 percent needed to reach high-income status as outlined in Indonesia Vision 2045.² Periods of high growth in the country have been accompanied by a significant contribution from investment both domestic and foreign. This was the case during the 2000s commodity boom periods³ when investments soared, peaking at 17 percent growth in 2004, which helped raise potential growth. Investment growth has lately decelerated and reached a two-year low of only 2.1 percent in Q1-23 yoy. In conjunction, potential GDP growth has also been trending downwards, (Figure A.3).

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¹ Stagflation was highlighted as a major risk in global projections a year ago in the World Bank’s global economic prospects June 2022 (World Bank, 2022a).
² Indonesia 2045: Berdaulat, Maju, Adil dan Makmur, an Executive Summary (2019).
³ Indonesia has undergone five periods of commodity boom since 2000: (i) Q4 2003 – Q1 2004, (ii) Q3 2006 – Q1 2008, (iii) Q1 2015 – Q4 2016, (iv) Q3 2019 – Q1 2020, and most recently (v) Q2 2021 – Q1 2022. An episode of commodity boom corresponds to a quarter when prices of commodities (coal and CPO as Indonesia’s major export commodities) exceeding one standard deviation from the average price changes.
Over the last decade, trade, hospitality, and manufacturing sectors have been the biggest drivers of real GDP growth (Figure A.4). In 2022, transport and communication contributed the most at 1.2 percentage point (pp) of the 5.0 percent growth rate. This was followed by trade and hospitality at 1.1 pp, and manufacturing at 1.0 pp. Both trade and hospitality, as well as manufacturing employ a larger number of lower-skilled labor compared to other sectors. These trends followed into Q1-23. They are aligned with the consumption boom that is largely attributed to improving mobility and tourism activities in 2023. Indonesia has hosted several international events in 2022 and 2023. It also welcomed a larger number of tourists following the end of COVID-19 travel restrictions, especially from China.

From the supply side, services continue to drive growth, aligned with recovering private consumption.

Figure A.1: Growth is mainly supported by private consumption and exports (percent yoy; percentage points contribution to growth)

Figure A.2: Leading indicators point to easing investment (3mma index, Jan 2022=100)

Figure A.3: Potential GDP growth is declining due to weakening labor input and productivity growth (growth, percent yoy)

Figure A.4: Services contributing the most to growth (percent yoy, percentage points contribution to growth)

Source: BPS; World Bank staff calculations

Source: CEIC; World Bank staff calculations.

Source: CEIC; World Bank staff calculations.

Source: BPS; World Bank staff calculations

Note: Non-mining industry comprises Manufacturing, Utilities, and Construction. Services with high skilled labor concentration comprises Information and Communication, Financial, Real Estate, Business, Public Administration, Education, Other services, Human Health and Social Work. Services with low skilled labor concentration comprises Trade, Transportation and Hospitality sector.
In line with peers, headline inflation edged down, reaching 4 percent yoy in May 2023. This is the lowest inflation recorded since it peaked in September 2022 when global inflationary pressures mounted following Russia’s invasion of Ukraine (Figure A.5). This brings inflation back down to Bank Indonesia’s inflation target range (2-4 percent) for the first time since June 2022 and sooner than anticipated by most observers.

There has been a significant change in the distribution of price increases across the CPI components (Figure A.6). In January 2022, prices across 60 percent of the CPI basket rose between 0-2 percent while the rest increased between 2-4 percent. However, in May 2023, prices across 88 percent of the basket rose between 0-4 percent, and 12 percent of it rose 12-14 percent. This is reflective of second round effects from rising commodity prices in 2022.

These can be grouped in four areas: i) the decline in global oil prices that have impacted energy as well as transport prices, ii) improved harvest and decline in cooking oil prices, iii) government intervention at sub-regional level to ease supply bottlenecks notably for food and rice, and iv) the appreciation of the Rupiah which lowered the cost of imports. Those factors have outweighed the seasonal effects from Ramadan, which puts pressure on prices given heightened demand for food and consumer goods. Meanwhile, core inflation continued to edge down since the start of the year and has recorded 2.8 percent yoy. Such trend reflects a potential softening of domestic demand.

Source: CEIC, World Bank staff calculations.
Notes: The average selected peers consist of 6 countries comprising Brazil, China, Malaysia, Philippines, India and Thailand.

Source: BPS, CEIC, World Bank staff calculations.
Note: Price distribution is calculated as the changes of CPI components across sectors using its weight.
Labor markets have recovered from COVID-19 but not equally across different groups, with new trends emerging, including a rising gig economy and older age workers.

Female LFP rose substantially. While more jobs have been added due to solid growth, the rise in female LFP could partly be driven by falling household income that pushed women to enter the labor force. The latest data on real wages indicates that while they had not returned on average to pre-pandemic norms, they have increased nevertheless for all sectors except agriculture, finance, electricity, gas and water supply. Moreover, the share of unpaid workers rose by 1.6 pp compared to before the pandemic. Workers are still facing difficulties in finding jobs with unemployment remaining above pre-pandemic levels. It continues to deteriorate also for some groups. Among youth and elder workers, unemployment rates rose from 18.6 percent (0.7 for elder) to 20.6 percent (2.9 for elder) between 2019 and 2022. Furthermore, even after three years since the pandemic hit, two-thirds of workers are having to work less hours than before.⁵

This is potentially due to the significant reduction in the share of employment in agriculture already underway prior to the pandemic. Indeed, the size of the workforce in the agriculture sector had shrunk from 40.7% in 1997 to 28.6% in 2022. As a result, less workers were able to turn to agriculture to cushion the impact of the COVID-19 crisis. Three years after the Asian Financial Crisis started in 1997, shares of workers in the agriculture sector increased by 4.6 pp to 45.3% in 2000, while shares of workers in both manufacturing and services declined (Figure A.7). On the other hand, the distribution of workers across sectors remained unchanged three years after the COVID-19 crisis began. Unlike previous episodes of economic shocks, which led to firm closures and worker dismissals, COVID-19 was perceived as temporary health induced shock that led firms to pursue reduced hours instead of closures as a main coping mechanism.

Unlike other crises, the pandemic did not change the structure of the labor market.

More people are getting back into the workforce, but employment is not recovering equally across different groups and many workers are still on reduced hours.

![Figure A.7: Sector composition during the Asian financial crisis and COVID Crisis](image-url)

Source: Sakernas (1997 and 2000 data are using the yearly, 2019 and 2022 are using August round)

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⁴Source: Sakernas, February 2023 based on BPS Press Release in May 2023. For the remaining of labor section, labor market comparisons were made using August rounds of Sakernas to avoid any effects from seasonality.

⁵3.48 out of 4.15 million workers experienced reduced hours. Source: Sakernas, August 2022.
Although workers remained in their sectors, reduced hours led to underemployment and workers turning to informal jobs to make up for income loss. Between August 2019 and 2022, the share of self-employed workers rose by 1.8 pp while the share of permanent workers fell by 3.0 pp. The recovery from the pandemic was also paralleled by the development of the digital economy and a significant growth in both internet connectivity and use of smartphones including in rural areas. This has accelerated an already growing gig economy. Six to seven percent of informal workers in Indonesia are full-time gig workers. Around 63 percent are providing location-based services, mainly in urban areas. Furthermore, the age composition of the labor market also slightly changed with more older age workers entering the labor market between 2019 and 2022. The share of elder workers in the labor force increased by 2.5 pp to 13.5 percent while shares of workers in other age groups dropped.

Informal or gig workers tend not to be covered by existing social protection systems. The rising number of gig or informal jobs calls for a rethink of worker protection particularly if digital labor platforms provoke a race to the bottom regarding working conditions. The increased entry of elder workers into the labor force could already be an indicator of both the falling incomes of this population and their inability to access social protection schemes. Moreover, elder workers are less likely to find a job and once unemployed are more likely to leave the labor force discouraged. Thus, an inclusive system where informal and older workers can be protected through access to social insurance schemes and other relevant worker protection is important.

Indonesia’s trade growth is moderating and remains dominated by raw minerals, namely coal, while manufacturing exports’ contribution remains limited.

Although global supply chain disruptions have abated and global shipping conditions have returned to pre-pandemic levels, subdued global demand and the decline in commodity prices have been weighing significantly on Indonesia’s exports. The growth of goods exports has been persistently slowing since Q3-21. Export of goods reached US$19.3 billion in April 2023, a contraction of 29 percent yoy, and a significant drop from the all-time high of US$28 billion in August 2022 (Figure A.8). Global commodity prices have edged down over the past six months after record-high levels for many commodities last year. As a result, the contribution of commodity prices to export growth narrowed (Figure A.9). Meanwhile, imports have also dropped amidst moderating domestic demand to reach US$15.4 billion in April 2023, a contraction of 22 percent yoy.

Exports of coal were boosted by an all-time high global coal consumption in 2022 explained by strong demand in Europe (seeking alternatives to Russian natural gas), India (to meet its increasing power needs), and China (to fill shortfalls from hydropower caused by record-breaking droughts). As a result, Indonesia’s coal exports increased from US$33 billion in 2021 to a staggering US$55 billion in 2022. China, the largest importer of Indonesian coal, followed by India and Japan, have been driving the increase of coal and overall Indonesian exports. At the beginning of 2023, Indonesia’s minerals exports growth started to soften as global commodity prices dropped (Figure A.10) although remain significant, boosted by China’s post-pandemic recovery.
While manufacturing of base metals such as iron and steel accounted for approximately one-third of export growth, exports of non-commodity-based manufactures such as clothing or plastics had a negative contribution to export growth. This reflects weakening global demand for non-energy related goods as global inflationary pressures persist. Such impact can be partially mitigated through reforms to boost the competitiveness of non-commodity industries (World Bank, 2022b).

Services trade has traditionally accounted for a relatively small share of Indonesia’s total trade flows, adding up to only 7.3 percent of total exports and 15.9 percent of total imports in 2022. Growth rates of services trade have been on the rise, serving as a counterbalance to moderating goods trade growth since Q2-21 (Figure A.11). In Q1-23, services exports grew by a stark 91.5 percent yoy, compared to only 0.8 percent for goods exports. A widening services trade deficit underscores the need for policies to improve Indonesia’s services trade competitiveness.
Global financing pressures are offset by Indonesia’s declining financing needs and more stable financing sources.

While the current account surplus has widened on a yoy basis, from 0.2 percent of GDP in Q1-22 to 0.9 percent in Q1-23, the quarterly trend seems to be moderating since the start of the year (Figure A.12). The widening surplus is linked primarily to weakening imports of goods instead of rising exports. The latter have been decelerating as prices of major export commodities like coal, palm oil, and other metals dropped. This has also been accompanied by a widening of the primary account deficit, compared to Q1 last year, as repatriation of company dividends increased notably in the mining sector.

External financing remains adequate at US$ 3.6 billion in Q1-23 (1.1 percent of GDP) thanks to the current account surplus. Moreover, investor confidence in Indonesian assets remained strong, resulting in portfolio inflows of 1.3 percent of GDP over the same period. This reversed the 2022 trend and was realized despite tightening global financial conditions and outflows in many EMDEs. The bulk of external financing came from FDI and other private investments including currency, loans, trade credits, and advances (Figure A.13). FDI has been a steady source of external financing in the past 3 years and has outperformed the more volatile and shorter-term portfolio and debt flows.

Indonesia’s external position remains in surplus despite easing commodity prices, and thanks to moderating domestic demand.

External financing pressures have eased since the beginning of the year given declining financing needs and stable financing sources.

External buffers remain strong with rising Net Foreign Assets of Bank Indonesia (BI).

Indonesia is more resilient to external shocks as foreign exchange reserves have increased, external debt has been falling, and investor perceptions of risk and the currency have been stable

BI’s foreign currency reserves went from US$ 137.2 billion in 2022 to US$ 139.3 billion in May, covering 6 months of imports and short-term debt. Using the Assessment of Reserve Adequacy methodology of the IMF, BI reserves remain adequate. They are sufficient to absorb near-term external shocks with enough cover for short-term debts and other liabilities (Figure A.14). Reserves to ARA metrics ratio were slightly below that of peer countries.
The Rupiah appreciated by 4.6 percent ytd against the USD, while long-term bond yields declined by 61 bps over the same period. The currency has become less sensitive to capital flows movement. Rupiah’s volatility is relatively low compared to peer countries (Figure A.15). Indonesia’s real effective exchange rate (REER) also appreciated 6.4 percent for the ytd.

Indonesia’s external debt stock continues to drop, reaching 28.4 percent of GDP by March 2023 (Figure A.16). Both public and private sector external debt have fallen, an indication of ample liquidity in domestic markets following the commodity boom. Indonesian private companies are now turning more to domestic markets to finance their operational needs, reducing as such currency risk. The GoI has also shifted its borrowing away from external to domestic sovereign bonds (SBN). It reduced the risks from exchange rate and global financial market volatility. Furthermore, external borrowing maturities have been extended. Short-term external borrowing (both private and public) is at its lowest levels, reducing as such the impact from capital flows volatility.

Global uncertainty from Russia’s war on Ukraine, advanced economy monetary tightening cycle, and prospects of China’s outlook have all escalated EMDEs’ credit risk premiums in the second half of 2022, though it moderated since the beginning of this year (Figure A.17). This is also the case for Indonesia where the medium-term (5-years) credit default swaps (CDS) have declined but remain above pre-pandemic levels and higher than peers in the region.

Strong external buffers have enabled BI to stabilize the Rupiah in 2022.

External debt vulnerabilities have declined.

Indonesia’s sovereign debt credit premium has been edging downward but it remains slightly higher than peers.

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6 ARA metric is a methodology developed by the IMF to measure a country’s potential foreign exchange liquidity in adverse circumstances against which reserves could be held as a precautionary buffer (IMF, 2016).
2. The Policy Stance

The fiscal stance has normalized reflecting faster fiscal consolidation, anchored by a broad-based rise in revenues and prudent public spending both recurrent and capital.

Revenues rose by 31 percent in 2022. This was largely led by i) higher commodity prices with related revenues\(^7\) up by 63 percent; ii) a recovery in domestic demand boosting income tax, VAT, and excises; and iii) reforms from the Tax Harmonization Law (THL) including a voluntary disclosure program, a tax on the digital economy, and a VAT rate hike that was effective in April 2022\(^8\) (Figure A.19). On the other hand, expenditure growth moderated to 10 percent as the GoI rolled back pandemic-related stimulus measures. Expenditures were largely driven by energy subsidies, which reached 2.8 percent of GDP in 2022 (Figure A.20). This forced GoI to hike subsidized fuel prices by an average of 30 percent in September 2022 and use part of the savings to compensate the most vulnerable.\(^9\) Interest payments also rose to 2 percent of GDP following the expanding public debt stock during COVID-19 as well as the rising borrowing costs given monetary policy tightening. Meanwhile capital expenditure under executed and declined by 0.3 percent in 2022.

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\(^7\) In particular, natural resources non-tax revenue including oil and gas and mining grew at 80 percent in 2022.

\(^8\) The Ministry of Finance estimated the impact of tax reform implementation in 2022 around 0.6 percent of GDP.

\(^9\) See the World Bank (2022b) for more details on the energy subsidies.
In 2023, fiscal outcomes in the first quarter recorded a sizeable surplus driven also by commodity windfalls and contained expenditure growth.

Public debt gradually declined, in line with fiscal consolidation, and its composition changed.

Budget financing conditions remain favorable for Indonesia despite uncertainty and external volatility, but financing costs are expected to climb.

The GoI recorded a fiscal surplus of 0.6 percent of GDP in Q1-23, up significantly from 0.1 percent of GDP in Q1-22. Revenues maintained a strong performance so far (up 27 percent yoy), supported by rising domestic VAT and progress in tax returns filing/reporting. On the other hand, expenditure grew by a moderate 6 percent due to interest payment, reflecting a continued rise in borrowing costs, as well as a pickup in spending on goods and services in various programs. Capital expenditure also recovered and was up 25 percent. However, its contribution to total expenditure growth remains modest. Meanwhile, social expenditure and subnational transfers contracted due to delays in determining the terms of earmarked general allocation funds.

Public debt dropped from its peak of 40.7 percent of GDP in 2021 to 39.5 percent in 2022, and now stands at 39.1 percent in March 2023. It remains though above its pre-pandemic level in 2019 (Figure A.21). With ample liquidity in the domestic markets and BI halting budgetary financing in 2023, the public debt composition is changing. By the end of Q1-23, domestic debt accounted for 72.1 percent of total public debt (up from 70.8 percent in 2022) with commercial banks increasing their sovereign lending. Banks now hold 29.9 percent of domestic government debt while the public holds 35.2 percent. Such composition change reduces public debt risks associated to exchange rate volatility. However, the implications of rising borrowing from domestic banks on crowding-out private sector credit will need to be monitored.

Indonesia’s sovereign bonds remain attractive to investors. This is evidenced by the relatively high bid-to-cover ratios of government bonds, which suggests that demand for GoI bonds remains strong. Additionally, the interest rate on Indonesia’s 10-year Rupiah bond has trended downwards and is below the Emerging Market Bond Index (EMBI) average. However, the EMBI has recently increased due to rising global uncertainty and volatility. Taking advantage of the 2022 burden-sharing policy with BI and anticipating market volatility and uncertainty in 2023, the GoI accumulated a financing surplus of nearly IDR 120 trillion (0.6 percent of GDP). This surplus coupled with favorable fiscal performance resulted in ample budgetary liquidity in 2023.

Figure A.18: Faster fiscal consolidation supported by strong revenue performance (revenue, expenditure, fiscal balance, % of GDP)

Figure A.19: Commodity windfalls, domestic demand and reforms supported a strong revenue performance so far (contribution to annual nominal growth, percent)

Note: * 2023 are projections
Source: Ministry of Finance and WB staff calculations

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10 This includes higher disbursement for programs in education (BOS program for MoRA), defense (maintenance for defense equipment), health (health equipment and services including for police), and infrastructure (housing assistance and road maintenance).
Easing inflation and resilient capital flows have led Bank Indonesia to ease its pace of monetary tightening

BI raised its policy rate by a cumulative 225 basis points last year. Since January 2023, however, BI has held its policy rate at 5.75 percent. Inflationary pressures are steadily easing, and inflation expectations are now anchored and expected to drop below BI target in the second half of 2023. Moreover, despite the narrowest interest rate spread recorded between US Fed rate and Indonesia, portfolio flows have stabilized and turned positive, giving a boost to the Rupiah.

With inflation trending downwards and BI maintaining its policy rate unchanged, the real interest rate is gradually picking up. By April 2023, it reached an estimated 1.72 percent (Figure A.22). The real interest rate is expected to gradually edge up though by the end of the year if inflation remains within BI’s desirable target range of 3±1 percent. As a result, this would raise borrowing costs further and impact economic activity especially through private sector credit. This could be an important consideration for BI to help calibrate its monetary policy stance going forward.

In 2022, BI used foreign currency reserves more prominently to stabilize the Rupiah when it came under pressure from tightening external markets. This policy protected households’ purchasing power amidst rising cost-push inflation. Such intervention seemed more prominent compared to other EMDEs, although the reserve drainage was also less acute (Figure A.23). BI has also used interest rate prominently as a policy instrument to maintain the attractiveness of Indonesian assets to foreign investors and attract portfolio flows. However, in the beginning of 2023, it allowed for more exchange rate movement in response to external market pressures and built buffers through foreign exchange reserves.
BI also utilizes non-monetary instruments to boost domestic consumption and manage liquidity.

BI recently implemented macroprudential policies to encourage banks to disburse credits to priority and green sectors. It has also introduced new regulations related to credit card usage aimed at improving transactions efficiency and boosting credit. Meanwhile, BI performed twist operations\(^\text{II}\) to stabilize the currency, and raised the reserve requirement ratio in June and September last year. As a result, M2 growth further decelerated to 5.5 percent yoy in April from 8.4 percent yoy in end-2022. Net claims on the central government also declined by 25.3 percent yoy in April as BI stopped its monetary financing scheme from 2022. Furthermore, the central bank – through the Central and Regional Inflation Control Team (*Tim Pengendalian Inflasi Pusat dan Daerah*) – has worked closely with regional governments to strengthen food supply and distribution systems within the regions to help manage inflation.

**Figure A.22:** Overall, policy rate differential with the US Federal Reserve has been narrowing despite recent pickup

*Figure A.23:* BI has used a mix of policy responses to navigate external shocks, which have eased in early 2023

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**Bank asset quality remains generally high, and bank capital and provisioning levels adequate to withstand potential adverse shocks.**

The system-wide non-performing loan (NPL) ratio has not changed much since mid-2020 and stands at 2.5 percent as of March 2023 (Figure A.24). The average loan at risk (LAR) ratio\(^\text{II}\) for the top banks has been on a downward trend for some time and stood at 14.4 percent as of December 2022. The capital adequacy ratio remains stable at 24.6 percent as of March 2023, well above the regulatory minimum of 8 percent. Provisioning levels relative to NPLs stood at 214 percent in January 2023 compared to 198 percent a year ago.

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\(\text{II}\) Twist operation is where BI selling short-term SBN and purchasing long-term SBN in the secondary market to increase the attractiveness of SBN yields.

\(\text{II}\) Based on BI definition, LAR calculation includes restructured loans in collectability (performing loans), restructured & non-restructured special mention loans, and NPL.
This is because NPL data could reflect the deterioration in asset quality only with a lag. In anticipation of potential deterioration of credit quality due to the end of credit restructuring on March 31, 2023, banks were encouraged to increase the coverage of the allowance for impairment losses for restructured loans. This is especially the case for current quality loans and special mention loans, which could become NPLs.

As of February 2023, return on assets (ROA) and interest margin to gross income were at 2.8 percent and 4.7 percent respectively. This is higher than the 2.3 percent ROA and 4.5 percent interest margin to gross income a year ago and edging closer to pre-pandemic levels. Meanwhile, return on equity (ROE) recorded 13.3 percent as of December 2022, lower than pre-pandemic levels of 14.6 percent. Profitability of Indonesian banks has traditionally been higher than EAP regional peers, due to market structure, weaker competition, and the dominance of state-owned banks.

Support from the banking system to the real economy continues to show strength despite monetary tightening. Credit growth has been positive for almost two years and grew by 9.9 percent yoy as of March 2023, broadly at par with pre-pandemic average. Survey data also points to stable household demand for credit (Figure A.25). As of January 2023, lending to Micro, Small and Medium Enterprises (MSMEs) stood at IDR 1,358 trillion (6.4 percent of GDP), accounting for 21 percent of all bank lending. This is an increase from the low baseline of 18 percent seen during the pandemic period. Such improvement is supported by BI’s regulatory requirement on credit allocation to MSMEs. At 37 percent of GDP, overall private sector credit in Indonesia remains below EAP average (171 percent of GDP). This signals room for financial sector deepening through structural reforms. Financial inclusion is one area of reform (see Box A.1), the implementation of the recently approved Financial Sector Omnibus Law is another.

**BOX A.1**

**Financial Inclusion in Indonesia**

With over 98 million adults (almost 50 percent) without access to a transaction account, Indonesia has one of the largest unbanked populations in the world. This means limited scope for households and firms to invest in their future and to protect themselves from unexpected shocks.

The access to and usage of transaction accounts has remained stagnant since 2017. Transaction accounts play a critical role in enabling the use of other financial services, such as credit, insurance, and investment. As per the Global Findex 2021, only 52 percent of Indonesian adults have access to a transaction account, which is a 3 percent increase from 2017. However, this significantly lags EAP and lower-middle-income country averages, which are 81 percent and 62 percent, respectively. The use of digital payments, at 37 percent, is only half of the regional average of 76 percent.

Credit to the private sector, particularly to MSMEs, stands out as a related and critical financial inclusion constraint. As of January 2023, lending to MSMEs stands at IDR 1,329 trillion and accounts for only 21 percent of all bank lending, even though 98 percent of all firms in Indonesia are MSMEs. In the latest round of the World Bank Business Pulse Surveys (October 2022) 54 percent of MSMEs reported difficulty in accessing finance when they needed it. Credit constraints are amplified for female borrowers, who are more likely to lack collateral to secure loans, and for populations outside of Java.

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13 World Bank’s World Development Indicators (WDI).
Fintech, the application of digital technology to financial services, provides new opportunities to advance financial inclusion, both for households and firms. Most notably, it serves as a medium for democratizing access to financial services and reaching underserved clients, who may lack formal credit histories, high-value assets, or access to bank branches. At the same time, if not closely regulated, digital financial services (DFS) can pose new risks for both households and firms, including over-indebtedness, predatory lending, and cyber-security. Establishing a regulatory environment that promotes the responsible expansion of DFS is therefore a key priority in increasing access and usage of financial services in Indonesia.

The number of fintech players in Indonesia increased six-fold over the last decade, rising from 51 active players in 2011 to 334 in 2022. While the first wave of fintech growth was dominated by the payment segment, the ecosystem is now a more diverse landscape driven by lending (30 million active borrower accounts), payments (60 million active users), and wealth management (9 million retail investors). The expansion of fintech is introducing new dynamics in the financial sector, with emerging players such as P2P lenders and digital banks both competing and collaborating with incumbent players such as commercial banks.

Opportunities lie on the horizon to increase adoption of DFS and advance financial inclusion in Indonesia. For instance, digitalizing large-volume recurrent payments streams such as social assistance transfers, can both transition the unbanked toward accounts and reduce costs. Instilling public trust can also play a meaningful role. A new Bank Indonesia initiative on central bank digital currency (Digital Rupiah), for example, can help enhance consumer confidence in new financial technologies. Finally, scaling digital financial literacy, to help households understand both the benefits and pitfalls of new technologies, can drive demand, and increase safe usage.

After almost two years of preparation, the FSOL was approved by the Parliament on December 15, 2022, and ratified by the President on January 12, 2023. The law integrates 17 institutional and sectoral laws for the financial sector, paving the way for financial deepening, while strengthening financial efficiency and resilience. By doing so, the law has paved the way for some of the key structural reforms in the financial sector (See Box A.2). Going forward, it is crucial to focus on the timely implementation of the FSOL. This will require the issuance of several implementing regulations at both GOI and institution-specific levels. Additionally, it is important to move forward with the ongoing amendment process of the Bankruptcy Law, which was not part of the FSOL, to ensure that creditors’ interests are adequately protected.

Instability in advanced economies’ (AEs) banking system have caused widespread concerns of broader contagion and spillover across the global financial system and more incidences of bank runs. EMDEs were primarily affected by the change in risk sentiment manifesting itself in exchange rate depreciation and capital outflows, which could aggravate if new adverse developments were to occur.

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14 Kumar et al (2023)
15 Those structural reforms were outlined in detail in World Bank (2022a)
16 Those turbulences started with the failure of Silicon Valley Bank (SVB) in the United States in March 2023 and subsequent takeover by the US Federal Deposit Insurance Corporation (FDIC) and Credit Suisse’s acquisition by UBS orchestrated by the Swiss central bank and financial regulators.
The FSOL has achieved significant milestones in critical areas such as institutional architecture and financial stability, long-term finance, sustainable finance, financial innovation and consumer protection, and access to MSME finance.

**Institutional architecture and financial stability.** Greater effectiveness of supervision and regulation by expanding the role of the Deposit Insurance Agency (Lembaga Penjamin Simpanan LPS) in the resolution of banks and insurance companies; strengthening the Financial Services Authority’s (Otoritas Jasa Keuangan OJK) powers on early interventions and inspections, as well as on undertaking consolidated and conglomerate supervision of financial conglomerates; establishing BI as the authority in charge of macroprudential policy; leveling the playing field for legal protection of all supervisors.

**Long-term finance.** Legal foundations for collective investment products, trust-like structures, close-out netting in financial hedging/derivatives transactions and crypto assets. Improved governance, fit and proper requirements consumer protection and liquidation processes for the insurance sector. Establishment of the Policyholder Protection Scheme with mandatory participation requirement. Comprehensive revision of the voluntary pension law, with improved governance, actuarial focus/function, pension age or early retirement issues and introduction of cut-loss provisions.

**Sustainable Finance.** Legal foundation to incorporate sustainable finance, in particular green finance, into financial regulation and supervision and for the development of carbon market and carbon trading activities. This can support financial flows toward climate mitigation and adaptation.

**Financial Innovation and Consumer Protection.** Strengthened BI and OJK coordination in overseeing and regulating fintech development bringing flexibility to the regulation and favoring the expansion of innovation. Mandate on consumer protection clearly assigned to financial sector authorities and inclusion of dispute resolution for all consumers of financial services.

**Access to Finance for MSMEs.** Regulation to allow state-owned-banks (SOBs) to write-off NPLs on their MSME loan portfolios, which will help clean up SOB balance sheets and ensure consistency in reporting of NPLs in the banking sector. The government intention is for this to lower NPLs on MSME portfolios and encourage banks to extend credit to MSMEs.

For the Indonesian financial sector, the effect is likely to be contained.

However, there are reasons for caution, as Indonesian banks increased their holdings of government securities.

First, strong capital adequacy, balance-sheet and liquidity indicators provide a cushion against interest rate and liquidity risk shocks. Second, there are limited direct linkages with the affected entities or financial institutions holding a significant share of AT1 bonds written off by the Swiss authorities. Third, Indonesian banks, as with most EMDEs, are less reliant on short-term funding and nonstable deposits. Furthermore, Indonesia has not seen large portfolio equity and debt outflows in March, and the currency remains relatively stable.

This could expose them to interest rate risks, and deposit insurance coverage in Indonesia is lower than that in AEs. Close monitoring of these developments is still merited, as recent developments regarding the closure of First Republic bank in the United States, the second largest bank closure in the country’s history, indicate that the stress felt by the global banking sector is not over yet.

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17 In the case of the Credit Suisse acquisition deal.
3. The Outlook and Risks

Global growth is projected to slow to 2.1 percent in 2023 before recovering softly to 2.4 percent in 2024. Most of the slowdown comes from AEs where inflation is elevated, monetary policy is tighter and demand thus softer. After peaking in 2022, commodity prices are expected to moderate. In 2022, a warmer-than-expected winter in the Northern Hemisphere reduced electricity consumption and thus demand for oil and gas (World Bank, 2023a). This trend may continue in 2023. Global inflation has also abated and provides space for central banks to ease the pace for monetary tightening. The EAP region is expected to buck the global trend with growth projected to strengthen to 5 percent in 2023. The recovery in China will balance the moderating activity of other economies in the region.

Several recent bank collapses in both the US and Europe have raised global risk premia. Regulatory failures, poor risk management, combined with high and rising interest rates could trigger other banking crises. This could therefore prompt higher financial vulnerabilities, and further tightening in credit conditions, skewing the economic risks further to the downside. Moreover, inflation could be more persistent than expected, particularly if there is a shock coming from commodity or food prices given uncertain geopolitical conditions and increased risks on food crops from climate change. If this materializes, further monetary tightening could take place, exacerbating the already subdued economic activity.

GDP growth is projected to moderate from 5.3 percent in 2022 to 4.9 percent in 2023 and stay broadly flat at 5 percent in the medium term (Table A.2). Growth will continue to be supported by private consumption as inflationary pressures subside. Exports are also expected to remain stable despite softening commodity prices. Global uncertainties are projected to impact foreign investment, which would put a drag on growth and suppress growth potential. Imports are also projected to weaken. The upcoming elections, however, are expected to increase both private and public consumption and provide a temporary boost to domestic demand.

Indonesia's growth is expected to remain robust, though the pace is moderating.

Downside risks are high as wider-than-expected banking stress and potentially persistent inflationary pressures could further harm growth.

The global economic outlook remains soft amidst economic uncertainty.
Sustained global monetary tightening could keep financing costs high and tighten credit conditions. Banking sector shocks in the US have increased global financial uncertainty and may prompt capital outflows from EMDEs, including Indonesia, which could incite further policy tightening. Moreover, deteriorating global economic activities can lead to adverse impact on exports and further weaken investment. Domestically, despite moderating, inflation could be stubborn and put a strain on consumer purchasing power.

Headline inflation is projected to continue its gradual decline and is projected to reach 3.6 percent by December 2023. With signs of moderating demand, inflation is expected to taper further down in 2024-2025 at an average of 3.5 percent. The authorities have also announced that there will be no increase in the VAT or electricity tariffs this year, which would put less pressure on prices. Easing inflation could provide greater space for monetary policy to remain accommodative in supporting the recovery.

The current account surplus is projected to record a small surplus of 0.02 percent of GDP in 2023 before turning into deficit of 1.0 percent in 2025. Export growth is expected to decelerate as prices of palm oil and coal soften and as global demand decelerates further. Imports will moderate in line with moderating domestic demand and investment in 2023. Indonesia is expected to comfortably meet its external financing requirements. FDI is projected to gradually pick-up as the Omnibus Law on Job Creation (JCOL) and the GoI agenda to develop the downstream mining and mineral industries are implemented, reaching 1.4 percent of GDP in 2025. Positive interest rate differentials with the US and a stable macro framework are projected to continue to support portfolio inflows. As a result, official reserves are expected to remain ample to finance 6.0 months of next year’s imports over the medium-term.

In 2023, the fiscal deficit is projected to be around 2.5 percent of GDP, lower than the 2013 Budget target of 2.8 percent of GDP. This is attributed to strong revenue performance from commodity windfalls, though revenue growth is expected to moderate compared to 2022. Faster disbursements ahead of the 2024 elections will keep expenditures close to the Budget’s target. In the medium-term, revenues are projected to improve gradually as the Tax Harmonization Law reforms begin to hold. Public spending is projected to remain stable at around 15 percent of GDP with a compositional shift towards medium-term priorities such as health, social assistance, and infrastructure investment. The subsidies bill is expected to drop with declining global energy prices. With fiscal consolidation achieved, a sizeable surplus in 2022, and favorable financing conditions, the GoI is expected to comfortably meet its fiscal financing needs (averaging 5.9 percent of GDP in 2023-2025). It will do so while navigating emerging external risks as well as domestic risks particularly those coming from infrastructure SOEs’ (Box A.3).
Globally and in Indonesia, SOEs have played a vital role for public investment but remained under-funded. The World Bank (2017) finds that 66 percent of public investment worldwide is implemented by SOEs, which often rely on government capital injections to keep them afloat. Relative to comparable private firms in terms of asset size and sector, global infrastructure SOEs have larger liabilities by almost 1 pp of GDP. Its fiscal implications are sizable. Global estimates suggest that infrastructure SOEs required annual fiscal injections of 0.3 percent of GDP on average to remain afloat during 2008-2019 (World Bank, 2023c). This is a comparable figure to Indonesia where capital injections to SOEs witnessed a significant increase in 2015 and 2016 but declined afterwards (Figure A.26). Investment in economic infrastructure by SOEs in Indonesia expanded from 0.9 percent of GDP (average 2011-2016) to 1.6 percent of GDP (average 2017-2019). Currently, SOEs in Indonesia account for more than one-third of infrastructure investment (Figure A.27).

Indonesia’s highly leveraged infrastructure SOEs may pose fiscal risks, especially in the wake of insolvency in one of these entities. As infrastructure SOEs have increasingly taken on debts to fund large projects, their liability-to-equity ratios have risen. Indonesia’s infrastructure SOEs leverage ratios are comparable to those of global SOEs in the same industry, but they are significantly higher than peer private firms listed on the Indonesia Stock Exchange and in emerging market (EM) countries (Table A.1). Waskita Karya, one such SOEs, has been unable to pay the coupon and principal on its bonds since February 2023. The company is now preparing a comprehensive debt restructuring agreement, scheduled to conclude in June. Although its main creditors are 5 state-owned banks (SOBs), contagion risk to the banking sector is expected to be limited, as Waskita’s borrowing represents only 0.4 to 1.4 percent of overall SOBs’s lending portfolio (around 0.15 percent of GDP). Capital injections for SOEs are likely to increase with the Ministry of State-Owned Enterprises (MSOE) requesting an additional IDR 25 trillion (0.1 percent of GDP) on top of the IDR 40.4 trillion (0.2 percent of GDP) initially allocated in the 2023 Budget.

The MSOE has consolidated several SOEs so far to enhance their performance and competitiveness. Between 2019 and 2022, the total number of SOEs has been reduced from 114 to 41 through consolidation. Furthermore, the MSOE is planning to reduce the number of infrastructure SOEs from 9 to 4. This consolidation is expected to streamline the firms’ business focus and enable better performing entities to take over the assets of poorly performing ones.

Figure A.26: Capital injection to SOEs has increased (LHS-IDR trillion; RHS percent of GDP)

Figure A.27: Contributing to higher investment in economic infrastructure by SOEs (infrastructure investment by sources, percent of GDP)
Table A.1: Infrastructure SOEs Liability-to-Equity Ratio

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<td><strong>IDX – industry average</strong></td>
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<td><strong>0.8</strong></td>
<td><strong>1.2</strong></td>
<td><strong>1.3</strong></td>
<td><strong>1.5</strong></td>
<td><strong>1.2</strong></td>
<td><strong>1.6</strong></td>
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<tr>
<td><strong>EM – industry average</strong></td>
<td><strong>2.2</strong></td>
<td><strong>3.2</strong></td>
<td><strong>4.0</strong></td>
<td><strong>2.5</strong></td>
<td><strong>3.0</strong></td>
<td><strong>2.9</strong></td>
<td></td>
</tr>
</tbody>
</table>

Global SOEs – road construction firms’ average 2.2 3.2 4.0


Note: Currently, the available data on IDX website can provide the average of industry ratio in 2019-2022 only. Hutama Karya’s ratio in 2022 was from its full-year (not Q3) financial statements.

4. Structural Growth Constraints and Reforms Priorities

Potential growth is declining due to reduced labor input, human capital challenges and slowing productivity growth.

Investment contributed on average 5.6 pp to growth between 2003-2019 with private investment far exceeding public. This is equivalent to about 60 percent of growth, which is higher than the contribution of capital to growth in other Lower Middle-Income Countries (LMICs) (Figure A.28). At the same time, however, growth in TFP slowed by nearly half in the 2010s (contributing on average 0.6 pp annually) relative to the 2000s (1 pp annually). The contribution of TFP growth in Indonesia’s has been lower compared to other LMIC’s. This may reflect the relative importance of capital deepening in Indonesia and human capital challenges, both of which are key to TFP growth in the long run. Labor input contributed 14 percent to growth, and human capital 8 percent. Like TFP, both labor and human capital growth have slowed in recent years (Figure A.29) and have been growing at slower rates than other LMICs in the last 20 years.

Between the early 2000s and 2019 (prior to COVID-19), labor productivity growth slowed by about 0.7 pp. While there have been significant gains from labor moving from lower productivity sectors to higher productivity ones, these gains have been gradually fading (e.g. from agriculture to industry). Within-sector productivity growth accounted for over 70 percent of total labor productivity growth (Figure A.30), like other EMDE’s and advanced economies.

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18 Capital accumulation has been primarily driven by private investments, which averaged 29.0 percent of GDP, while public investment averaged only 2.9 percent of GDP in the past decade (Worldbank MPO Database, 2023).

19 Dieppe (2021).

20 On average, TFP growth was 0.9

21 Within sector productivity captures that part of overall labor productivity growth that is due to productivity improvements within the same sector. This may reflect the effects of improvements in human capital, investments in physical capital, technological advances, and the reallocation of resources from the least to the most productive firms within each sector. Between-sector productivity growth captures the part of overall labor productivity growth that is driven by the reallocation of resources between two different sectors. This includes both static sectoral effect, and dynamic sectoral effect. Static reallocation: shows that workers are moving to sectors with different productivity levels regardless of whether productivity in those destination sectors is rising or falling. Dynamic reallocation: shows that workers are moving to sectors with different productivity growth rates.
The slowdown in sectoral reallocation of labor partly reflects lower absorption of labor by the services and industry sectors and decrease in productivity growth in services.

The pandemic exacerbated the declining potential growth trend.

There have been large labor movements from agriculture (1.3 pp decrease) to industry (0.2 pp) and services (0.7 pp). While services have higher productivity in absolute terms, its productivity growth declined and led to the overall drop in labor productivity (Figure A.31). Productivity growth in services fell by 14 percent while productivity increased by 50 percent in industry and 50 percent in agriculture. This is consistent with the shift of lower-skilled labor from agriculture to services, particularly in trade, hotel, and restaurants. Moreover, a substantial share of employment and financial resources in Indonesia has also shifted to business in these relatively low productive service sectors.

COVID-19 further exacerbated the decline in human capital and severely affected capital accumulation. Between 2020 and 2022, the contribution of capital stock to growth dropped to just 4.5 pp annually (Figure A.29), owing to a slowdown in public investments as the GoI reallocated fiscal spending to addressing the pandemic. However, private investment, particularly FDI, recovered slightly in 2022. Meanwhile, human capital growth slowed down. Adjusted years of schooling decreased to 7.8 years from around 8.2 prior to COVID-19.

Figure A.28: Indonesia’s investment growth has been larger than that of LMICs

Figure A.29: TFP, labor and human capital growth had slowed in recent years

Source: World Development Indicators; World Bank staff calculations using Growth Decomposition Tool

22 Employment rate growth had a negative contribution to value added growth in the period, as not all the decrease in agriculture if fully reflected in the increases in industry and services.

23 Ikhsan et al. (2022).
Policy makers are encouraged to build on recent competitiveness reforms to embed further market friendly policies that can accelerate productivity growth.

Prudent and targeted fiscal and monetary policy responses to COVID-19 and commodity price shocks have helped maintain macroeconomic policy space. In parallel, GoI has pursued reforms to address critical bottlenecks to competitiveness. These include measures to liberalize the investment regime through the JCOL, and policies to strengthen the financial sector through the FSOL.

Ensuring the predictability, credibility, and transparency of investment and financial sector reforms will be central to investor sentiment. Combining these with Indonesia’s stable macroeconomic conditions and low levels of private and public debt could help contain the costs and risks of private investment. This could promote efficient allocation of resources, which is necessary to help raise productivity growth and potential output growth.

Competitiveness is the set of institutions, policies and factors that determine the level of productivity in a country. Determinants of competitiveness evolve at different stages of development (Figure A.36).

a. At early stages of development, foundational policies and institutions that promote strong governance, human capital, infrastructure, and macroeconomic stability are critical for structural transformation and growth. They allow labor and investments to shift from low growth agriculture to high growth industry and services.

b. For Indonesia, which has already experienced significant structural transformation across sectors, the focus should be on improving productivity within sectors. This

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The competitiveness assessments are based on composite indices of 4 drivers of factor accumulation (basic governance, human capital, basic infrastructure, and macro stability) and 5 efficiency drivers (business regulations, labor markets, financial sector, competition, and trade openness). The composite indices are z scores, which assess Indonesia’s performance relative to 9 comparator countries (Brazil, China, Egypt, India, Indonesia, Republic of Korea, Nigeria, Mexico, Philippines, Türkiye). The z scores were calculated by: (i) subtracting the average from the series for each country’s value; and (ii) dividing by the standard deviation.

Economic insecurity is defined as either: (i) being poor with a likelihood of less than 10 percent to be poor next year, or (ii) being non-poor with a likelihood of more than 10 percent to be poor next year. Thus, economically secure households are non-poor with a likelihood of less than 10 percent to be poor next year. Source: World Bank (2023b).

Indonesia has performed well on basic governance, basic infrastructure, and macro stability, which have been important for structural transformation and growth.26

Indonesia has experienced steady improvements in its public sector governance framework and infrastructure regulations and outcomes, whilst also implementing a solid macro policy framework. These have led to structural transformation and important gains in poverty reduction with more inclusive growth and declines in inequality since 2014 (see Box A.4). But Indonesia has fallen behind on human capital (Figure A.37). Despite progress in recent years, Indonesia remains challenged by stunting, education quality, and health services gaps. Some of these challenges have been aggravated by learning losses caused by the pandemic, which are discussed in further detail in Part B of the report.

**BOX A.4**

**Indonesia’s gains in terms of poverty reduction**

Indonesia has virtually achieved the goal of eradicating extreme poverty. Indonesia’s extreme poverty rate dropped from 18.8 percent in 2002 to 2.7 percent in 2019 (Figure A.32), using the US$ 1.90 2011 PPP per day. Amidst these promising developments, the Government of Indonesia (GoI) committed in 2020 to fully eradicating extreme poverty by 2024. Indeed, extreme poverty continued to drop further to 1.5 percent in 2022. A small amount of frictional poverty is likely to remain, with further progress being difficult to monitor based on surveys given measurement error and statistical inaccuracies.

The decline in poverty was broader than just for the extreme poor. In addition to the international extreme poverty line at US$ 1.90 2011 PPP, for the purposes of international comparisons, the World Bank defines international poverty lines at US$ 3.20 2011 PPP for lower middle-income. In Indonesia, the share of the poor, defined as living below a poverty line at US$ 3.20 2011 PPP, dropped from 61 percent in 2002 to 20 percent in 2019 and further to 15.7 percent in 2022. While the pace of poverty reduction is comparable to peers.

While millions have moved out of poverty, not all are economically secure.27 The concept of economic insecurity measures vulnerability of households to shocks that can affect their consumption level and bring them down into poverty. In 2019, 40 percent of Indonesians were economically insecure (Figure A.35). Most of these households are non-poor but can fall into poverty when exposed to a shock. The share of economically insecure households has hardly changed since 2011, reflecting that while a significant share of households managed to reach economic security, a similar share escaped poverty but are still insecure.

Economic insecurity can undermine improvements in productivity. Short spells of lowered consumption can reduce productivity in the long run due to adverse effects on human capital investment at the household level. Reliance on adverse strategies when coping with income shocks—such as the sale of productive assets—can further reduce productivity. Even before shocks, economically insecure households may anticipate them and adopt conservative or risk-averse production and investment strategies that lower consumption and/or investment. Thus, regardless of whether poor households adopt adverse coping strategies after or before shocks, they reduce long-term productivity. This in turn lowers their chances of securely escaping poverty.

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26 The competitiveness assessments are based on composite indices of 4 drivers of factor accumulation (basic governance, human capital, basic infrastructure, and macro stability) and 5 efficiency drivers (business regulations, labor markets, financial sector, competition, and trade openness). The composite indices are z scores, which assess Indonesia’s performance relative to 9 comparator countries (Brazil, China, Egypt, India, Indonesia, Republic of Korea, Nigeria, Mexico, Philippines, Türkiye). The z scores were calculated by: (i) subtracting the average from the series for each country’s value; and (ii) dividing by the standard deviation.

27 Economic insecurity is defined as either: (i) being poor with a likelihood of less than 10 percent to be poor next year, or (ii) being non-poor with a likelihood of more than 10 percent to be poor next year. Thus, economically secure households are non-poor with a likelihood of less than 10 percent to be poor next year. Source: World Bank (2023b).
Indonesia has historically restricted market competition through regulation, which prevent more productive firms and industries to grow. GoI efforts under the JCOL help tackle some of these, including through the removal of ‘sectors open with conditions’ from the Investment Law; removal of requirements to establish business sectors ‘reserved for MSMEs and cooperatives’ and those that are ‘open to large businesses on condition that they cooperate with MSMEs and cooperatives’; and removal of sector discrimination towards foreign investments from five sectoral laws. Building on these, the next stage is to identify specific constraints within policy areas (e.g., finance, procurement, land, business regulations, trade) or within sectors that prohibit market contestability. For example, in the last Indonesia Economic Prospects (December 2022), several barriers to international trade were highlighted. Additionally, restrictions on international trade in services are among the most restrictive in Indonesia (Figure A.38).

(i) Law no. 13/2010 on Horticulture; (ii) Law no. 39/2014 on Estate Crops; (iii) Law no. 38/2009 on Postal; (iv) Law no. 1/2009 on Aviation; and (v) Law no. 17/2008 on Shipping.
Countries such as the Republic of Korea that have sustained strong growth have sustained performers on foundational drivers of growth and opened markets to competition. Other emerging market economies that have opened markets but fallen behind on basic foundations have suffered rapidly declining potential and actual growth. The focus on market friendly reforms is consistent with Indonesia’s progress in implementing recommendations of the Growth Commission report (World Bank, 2008) for sustained long-term growth (See figures in Annex 1). Relative to peers Indonesia has a committed, credible, and capable public sector; maintained macroeconomic stability; and achieved high rates of savings and investment. But it has scope to improve market competition, and openness to trade and technology transfer.

If Indonesia can sustain its performance in growth of GNI per capita from the last 10 years, it could potentially reach HIC status by 2045. Growth over the last 20 years, however, has been driven by commodity cycles and foundational policies and institutions. A combination of these have helped accelerate investment and job creation. Going forward, the drivers of competitiveness will need to turn to market friendly policies and institutions that are able to allocate resources to productive firms and industries. This also includes improving efficiency gains in natural resource to bring benefits for human capital and natural capital (World Bank 2023e).

Competitiveness reforms can boost GDP growth through their impacts on capital accumulation, labor utilization, and total factor productivity (or efficiency). Based on a methodology to assess the structural drivers of growth using Stochastic Frontier Analysis, preliminary analysis shows that closing gaps in human capital, the quality of business regulations, and government effectiveness (which cover market-based institutions), could have the biggest impact on growth.

Removing constraints to competition is shown globally to promote economic growth.

Indonesia could achieve its goal of becoming a High-Income Country by 2045, but this will require a new generation of reforms that further open and sustain its markets to domestic and foreign competition.

Strengthening competitiveness drivers in Indonesia so they can converge to levels achieved in the Republic of Korea in the next 10 years could potentially accelerate growth to above 7 percent.

Figure A.36: Determinants of competitiveness will vary according to a country’s stage of development

Figure A.37: Indonesia performs well on drivers of factor accumulation relative to its peers though lags on efficiency drivers (z score)

Sources: Adapted from Sala-i-Martin and Artadi (2004), Porter (1990), and World Economic Forum’s Global Competitiveness Index.

Notes: Z scores derived for sub-indicators under each of the above indices, then grouped according to 9 categories. Results are averages of Z scores of sub-indicators under each category. Sources: latest data points from Global Competitiveness Index, Economic Freedom Index, OECD Product Market Regulations, Bertelsmann Transformation Index, Economist Intelligence Unit.

Rovo (2020).
Figure A.38: Indonesia maintains one of the most restrictive policies on international services trade (y axis = OECD STRI; x axis = log of per capita GDP)

Figure A.39: Indonesia could reach HIC by 2045 if it can sustain its performance of the last 10 years (y axis = number of years to reach HIC based on growth in GNI pc between 2009 and 2019)

Figure A.40: Closing competitiveness gaps with Korea across drivers of factor accumulation and efficiency drivers in the next 10 years could help accelerate annual average growth to above 7 percent

Sources: OECD Trade Restrictions Index, World Development Indicators, compiled by WB Staff.

Sources: World Development Indicators, compiled by WB Staff.

Sources: World Bank staff calculation
Table A.2: Selected Macroeconomic Indicators

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<tr>
<th>Real GDP growth and inflation, percent change</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
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<td>Real GDP</td>
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<td>Consumer Price Inflation (CPI) (average, %)</td>
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<td>2.0</td>
<td>1.6</td>
<td>4.2</td>
<td>4.1</td>
<td>3.6</td>
<td>3.4</td>
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<tr>
<td>Consumer Price Inflation (CPI) (end of period, %)</td>
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<td>1.7</td>
<td>1.9</td>
<td>5.5</td>
<td>3.6</td>
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<td>13.4</td>
<td>12.7</td>
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<td>of which Tax Revenue</td>
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<td>8.3</td>
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<td>16.8</td>
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<td>15.8</td>
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<td>Exports, Goods and Services</td>
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<td>16.8</td>
<td>20.8</td>
<td>23.9</td>
<td>22.4</td>
<td>22.2</td>
<td>22.0</td>
</tr>
<tr>
<td>Imports, Goods and Services</td>
<td>-18.2</td>
<td>-15.1</td>
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<td>-20.7</td>
<td>-20.3</td>
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<td>1.1</td>
<td>1.3</td>
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<td>Gross Reserves (months of imports of goods and services)</td>
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<td>7.5</td>
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<td>15,443</td>
<td>16,977</td>
<td>19,588</td>
<td>20,987</td>
<td>22,686</td>
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<td>Per Capita GDP (US$)</td>
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<td>3,757</td>
<td>3,856</td>
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<tr>
<td>Nominal GDP (US$ billion)</td>
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<td>1,059</td>
<td>1,187</td>
<td>1,319</td>
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B. Pathways to Learning Recovery and a More Productive Future for Indonesia’s Children
B. Pathways to Learning Recovery and a More Productive Future for Indonesia’s Children

1. Preface

The situation was different in many educational institutions in the preceding three academic years, when many were closed to physical attendance or students could not see each other’s faces behind their masks. Educational institutions today may seem to have reverted to pre-pandemic conditions; however, the experience has left invisible tolls in human capital development among the children and the youth of this generation. As learning is cumulative by nature, current learning loss, if left unremedied, will exacerbate and prevent future learning—especially if losses occur in linked foundational skills. Learning loss can derail not only student learning trajectories but also their overall human capital that contribute towards their potential economic prospects and lifetime earnings.

The 2019 SDI survey collected data on the language and math competencies of Grade 4 students, and the same instruments were used to test the language and math competency of Grade 4 students in 2023. By using these two years of learning data, this report aims to provide new evidence of learning loss before and after the COVID-19-induced school closures in Indonesia (2019 and 2023).

2. The COVID-19 pandemic aggravated the pre-existing global learning crisis

COVID-19 was an enormous shock to people’s life trajectories, especially disrupting human capital accumulation among children and young people.32

In June 2023, most students in Indonesia celebrated the end of academic year 2022-23 together at schools and madrasahs (Islamic schools) [hereafter, this report refers to them jointly as educational institutions] across the archipelago nation.

In order to assess the magnitude of learning loss during the COVID-19 pandemic, a sample-based school survey was conducted nationwide in Indonesia in March 2023, visiting educational institutions that had been included in the World Bank’s Service Delivery Indicator (SDI) survey in 2019.

The 2019 SDI survey collected data on the language and math competencies of Grade 4 students, and the same instruments were used to test the language and math competency of Grade 4 students in 2023. By using these two years of learning data, this report aims to provide new evidence of learning loss before and after the COVID-19-induced school closures in Indonesia (2019 and 2023).

30 Schady et al. (2023)
31 More details about the survey are discussed in Section 5 and Annex 1.
32 Schady et al. (2023)
1.3 billion children in Lower Middle Income Countries (LMICs) missed at least half a year of school, 960 million missed a year, and 711 million missed a year and a half or more. In Southeast Asia, there was a considerable variation in the length of school closures, for example, 115 days in Singapore, 321 days in Vietnam, and 532 days in the Philippines. Meanwhile in Indonesia, the number of days of fully or partially closed was 644 days (see more from the survey in Section 6).

Even before the COVID-19 pandemic, there was a global learning crisis. 258 million children in primary and secondary school age were out of school, and even if they went to school, many children were learning very little.

Learning crises already existed around the world prior to the COVID-19 pandemic, and the crisis exacerbated existing inequalities within countries.

**Box B.1**

**Definition and Conceptual Model of Learning Loss**

**Learning loss:** Learning loss consists of (i) “foregone learning” which refers to learning that will not occur due to school closure, and (ii) “forgetting” which refers to already acquired learning that students forgot or lost during school closures caused by disengagement with the education system. Learning loss can also capture dropping out triggered by income shock. With no mitigation, the length of school closure will reduce the amount of time students have available for learning opportunities from the education system. Without adequate measures, learning losses may continue to accumulate even after students are back in school, and students risk learning less every year compared to pre-COVID-19 student cohorts.

See the conceptual model in Figure B.1.

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33 World Bank et al. (2021)
34 The classifications are updated annually and are based on the GNI per capita (Atlas method) of the previous year. According to the latest classification published on July 1, 2022, Indonesia’s GNI per capita was $4,180 was in 2021 and included in the LMIC category [GNI per capita range of $1,086 - $4,255].
35 Schady et al. (2023)
37 This is based on the aforementioned data from UNESCO Institute for Statistics, including fully closed and partially open days between March 1, 2020 to March 31, 2022. According to the government regulations, educational institutions in Indonesia were closed for 650 calendar days between March 24, 2020, as declared by MoECRT and MoRA decree, and January 3, 2022 as declared in the joint Ministerial Decree on December 22, 2021.
38 UNESCO (2019)
39 World Bank et al. (2021); UNICEF (2021b)
40 World Bank et al. (2021)
41 UNICEF et al.(2022)
Indonesia has the world’s fourth largest education system, with approximately four percent of the world’s student population.\textsuperscript{42}

The last two decades saw a remarkable improvement in access to education, reaching close to universal primary education.\textsuperscript{3}

However, the quality of education has been Indonesia’s most significant challenge, and the issue of low levels of learning outcomes was present even prior to the COVID-19 pandemic.

### 3. Remembering where we were – the Indonesian education system prior to the COVID-19 pandemic?

The formal education system, governed and regulated by the Ministry of Education, Culture, Research and Technology (MoECRT) and the Ministry of Religious Affairs (MoRA), educates approximately 53 million children from Grade 1 to 12 and employs about 3.3 million teachers. In addition, nearly 230,000 early childhood education services support 7.4 million children at pre-school age, and over 4,000 higher education institutions support nearly eight million students at tertiary education level.

The enrollment of students at primary and secondary levels has increased by more than ten million (31 percent increase) in the past two decades since 2002, driven in large part by advances in secondary education.\textsuperscript{47} The net enrolment rate (NER\textsuperscript{44}) for primary education has increased from 89 percent to 93 percent between 2005 and 2018, and the NER for secondary education has also risen from 53 percent to 79 percent in the same period.\textsuperscript{45} These substantive improvements in access to education have been supported by the Government of Indonesia’s (GoI) commitment and allocation of resources.

In Indonesia, students attend schools for 12.4 years by age 18 on average, but actual learning was estimated to be only at the level of 7.8 years of schooling.\textsuperscript{46} At a primary school level, 53 percent of children lived with learning poverty.\textsuperscript{47} Student learning at the secondary level has also been a challenge, and over the past 20 years, average performance has not improved. Indonesia has participated in the Programme for International Student Assessment (PISA)\textsuperscript{48} since 2001. Indonesia’s latest PISA scores (2018) showed low mean scores in all subjects, with an average reading performance of 371 (ranked 71 out of 76 PISA participating countries/economies), an average math score 379 (ranked 70 out of 77) and an average science score of 396 (ranked 69 out of 77 countries).\textsuperscript{49} Since Indonesia’s first participation PISA in 2001, performance in reading has been hump-shaped, that is, it increased till 2009 but declined since then. Math and science performance fluctuated but remained relatively flat during the past 20 years. However, these results must be seen in the context of the vast strides that Indonesia has made in increasing enrollment. Typically, increasing enrollment leads to the inclusion of more disadvantaged or relatively academically weaker students.\textsuperscript{50} Inequity of learning opportunities and outcomes, however, especially among the poor, those living in remote areas, and living with disabilities, was another major concern. The gap in literacy between advantaged and disadvantaged socio-economic groups increased from 44 score points in 2009 to 52 score points in 2018.\textsuperscript{51}

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\textsuperscript{42} World Bank et al. (2021).
\textsuperscript{43} World Bank (2020d).
\textsuperscript{44} Net Enrollment Rate (NER) is the ratio of children of official school age who are enrolled in school to the population of the corresponding school age group of children.
\textsuperscript{45} The World Bank Data
\textsuperscript{46} Ibid
\textsuperscript{47} Learning poverty refers to being unable to read and understand an age-appropriate text by age ten. More information can be found from (World Bank, 2021). The learning poverty of 53 percent in Indonesia is approximately 19 percentage points higher than the average for the East Asia and Pacific region. Learning poverty is higher for boys than girls in Indonesia; the percentage of boys with learning poverty is 55.4 percent compared to 51.3 percent for girls.
\textsuperscript{48} OECD (2019).
\textsuperscript{49} OECD https://gpseducation.oecd.org/CountryProfile?primaryCountry=IDN&threshold=10&topic=PI
\textsuperscript{50} Beatty et al. (2021).
\textsuperscript{51} OECD (2021).
4. GoI’s efforts to sustain education despite the challenges during the COVID-19 pandemic

GoI reacted first by ceasing regular activities, closing educational institutions and introducing new learning approaches primarily through home-based learning. The central government (MoECRT and MoRA, together with Ministry of Health (MoH) and Ministry of Home Affairs (MoHA)) developed distance learning guidance and a special curriculum in response to the change, and reformed some education financing schemes to support students and teachers during the distance learning period. The Emergency Curriculum was introduced as an option for schools, offering a simplification of the 2013 Curriculum, the prevalent curriculum prior to the pandemic. The role of subnational governments also emphasized education service delivery, including the use of curriculum, and decisions on re-opening educational institutions based on their own assessments of health risks and feasibility.

In May-June 2020, during nationwide closures of educational institutions, only around 40 percent students reportedly used mobile learning apps and/or accessed online schooling via the internet. MoECRT then started the first internet data subsidy program for students from September to December 2020, but the survey showed the proportion of students using mobile apps and/or accessing online schooling did not improve by November 2020. In areas outside Jakarta, particularly the population at the bottom 40 percent by income, were less likely to receive the internet quota subsidy and were hence less likely to use mobile learning apps and/or online schooling at home. Students’ main obstacles were not only no/limited interest access but also lack of supporting devices and lack of adequate learning environment and support at home. Twenty-nine percent of parents reported that they had insufficient time and 25 percent reported a lack of capacity to support their children’s learning at home.

A study reported that student dropouts were already observed by December 2020 (first year of COVID-19), due to economic reasons such as the decline in household income and unpaid work. By September 2021, a study reported that total of 25,430 Indonesian children had lost one or both parents to COVID-19 and 20 percent of 15-24 year-olds stated that they were depressed or had low interest in doing any activities. Severe disruptions in daily life, social isolation from peers, and pressure to learn from home with limited guidance have impacted children’s mental health.

Since the decision to close educational institutions on March 24, 2020, GoI has put tremendous effort into mitigate learning disruption caused by COVID-19. Remote- and home-based learning came with a service delivery challenge due to the lack of preparation of both educational institutions and households. COVID-19 pandemic negatively affected children’s learning opportunities and wellbeing.

52 Ministerial Circular Letter No. 4/2020 by MoECRT; Circular letter No B-686.1/DJ/ DLII/PP00/03/2020 and Circular letter No B-699/Dt.I/PP03/03/2020 by MoRA.
53 There were many learning activities to support home-based learning, such as educational TV and radio programs, online teacher training and platform for peer-to-peer communications, and so on. More information on GoI’s response to COVID-19 in the education sector can be found in Butter et al. (2021).
54 Based on the HiFy survey Round 2. HiFy survey is a high-frequency phone-monitoring survey of households to collect data on the socio-economic impact of the COVID-19 in Indonesia, conducted by the World Bank. Participants were randomly selected across the country, and around between 3,000-4,000 panel households participated in a 7-round panel survey between May 2020 and April 2022. More information can be obtained from World Bank (2023).
55 See more information on Butter et al. (2021)
56 World Bank (2020a); World Bank (2020a) hn et al. 2019.
57 The MoECRT resumed the provision of the internet quota for students from March 2021 (Butcher et al.,2021), and its effect on student learning needs further investigation.
58 Ibid
59 Issues with the arguably limited effectiveness of online learning at home and insufficiency of the internet quota during the COVID-19 were also raised by the Indonesian Child Protection Commission (KPAI) in the Ministry of Women’s Empowerment and Child Protection which has been monitoring online education in 34 provinces of Indonesia (Pradana & Syarifuddin, 2021; Satyro, 2020).
60 HiFy survey Round 2 and Round 4, and Pradana & Syarifuddin (2021)
61 Schady et al. (2023)
62 UNICEF (2021b)
63 UNICEF (2021a)
64 UNICEF (2021)
65 UNICEF (2021b)
Forty-five percent of children have been experiencing difficulties in concentrating, 13 percent have become angrier and 6.5 percent have experienced sleep difficulties. COVID-19 also affected children’s growth and development and led to behavioral change and sleep disorders in Indonesia, and cases of malnutrition, obesity, vitamin D deficit, lack of physical activities and more screen time are also reported. The incidence of cyber gender-based violence (GBV) has also seen a rise since the beginning of the pandemic, both globally and in Indonesia as children spent more time online as a result of school closures and lockdown measures.

A joint regulation on school reopening guidelines, issued by MoECRT, MoRA, MoH, and MoHA on December 22, 2021, shifted the default school operation from remote-based or partial opening to full opening. This point marks the shift of the GoI’s effort from mitigating the potential negative educational impact and health risks to learning recovery and acceleration. The main measures to support such initiatives shifted to ensure that the planned medium-term reforms could get back on track.

The MoECRT embarked on a series of reforms through the Merdeka Belajar (Freedom to Learn) policy starting in 2019, aiming to overcome the problem of quality of learning evident from the PISA results in 2018. As concerns on acute education disruptions due to COVID-19 faded over time, Merdeka Belajar became the mainstream campaign to accelerate student learning. The Merdeka curriculum was launched in February 2022 by MoECRT and adapted by MoRA in April 2022, aiming to improve learning outcomes by focusing on foundational skills including literacy, numeracy and character education. The implementation of the new curriculum is still in progress, and remains to be seen if and how the new curriculum and reform answers the problem of learning losses caused by COVID-19. One of key obstacles is the lack of evidence on students’ learning in post-pandemic to rethink education strategic planning in COVID-19 recovery. To plan for a post-pandemic world, the education sector must understand what students’ learning loss look like after the pandemic. This report aims to support GoI by contributing to filling in this knowledge gap.

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66 According to a nationally representative household survey conducted between October – November 2020 with 12,216 households. For more information, see UNICEF et al. (2021).
67 Sekartini (2021)
68 Cyber GBV refers to actions that harm others based on their gender identity or enforcing gender norms using the internet or mobile phone technology, according to Hinson et al. (2018, p. 1). Cyber GBV is increasing globally over time especially among young people. More information can be found in Flynn et al. (2021).
69 UNICEF (2020b)
70 NCVAW (2020)
71 World Bank (forthcoming).
73 INOVASI (2022)
5. Did learning losses occur, and if so, to whom, how, and how much?

5.1. Literature on learning loss in Indonesia

Using the globally standardized tool for estimating learning loss, the World Bank estimated in 2021 that school closures for the first year and half due to COVID-19 would result in a total learning loss of between 0.9 and 1.2 years of adjusted schooling and the reduction of student’s PISA reading scores of between 25 and 35 points.74 The extent of learning loss was affected by the effectiveness of distance learning rather than by the duration of school closure during the time period used for the analysis.75 A study conducted by the Innovation for Indonesia’s School Children (INOVASI) project in partnership with the MoECRT in August 2021, found a loss of 5-6 months of progress of Grades 1 and 2 students in literacy and numeracy after 12 months of learning from home.76 These previous studies and available evidence related to learning loss was mainly from rapid assessments or early evaluation of the pandemic-induced school closures. Most of the studies were also geographically limited or based on estimations, lacking national-level empirical evidence. There was a need to identify student learning levels after school reopening, to formulate evidence-based actions for learning recovery.

5.2. Objective of the study and research design

The study compares performance of Grade 4 students in 2019 and 2023. While these are two different groups of individuals, this report employs the assessment result of Grade 4 students in 2019 as a counterfactual for student performance of 2023 and considers that students in 2023 would have performed at the same level of 2019 Grade 4 students, in the absence of the disruption caused by COVID-19. This study also aims to examine how the changes differ by educational institution and individual characteristics, to better understand the complexity and diverse effects of the pandemic on students’ learning at a national level.

To ensure comparability, the 2023 survey was designed to closely replicate the key features of the 2019 survey. First, the survey visited the same educational institutions80 to allow direct comparison of performance between Grade 4 students from different years.81 Second, the survey used identical test instruments in literacy and mathematics82 and followed the same test administration guidelines. Third, the timing of data collection was also aligned to ensure the time elapsed since the beginning of academic year was equal between 2019 and 2023. The follow-up survey was conducted from February to March 2023, in alignment with the survey timeline of 2019 survey, also conducted from February to March 2019. The 2023

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74 Afkar & Yarrow (2021)
75 Afkar & Yarrow (2021)
76 INOVASI (2021)
77 See Annex 1 for the technical description of the survey, including the design, instruments, sampling, matching, and weighting.
78 This report refers to the 2023 survey as “the Learning Loss Survey of 2023” and the 2019 Survey as the SDI survey for the ease of referencing. It also avoids any confusions with GoI’s national assessments including AN and AKMI by using general terms such as a learning assessment survey or learning assessment.
79 SDI is a global tool developed by the World Bank to measure the quality of service delivery in the key areas of health and education, last performed in Indonesia in early 2019. Further information on the 2019 SDI survey can be found on the following link: https://openknowledge.worldbank.org/entitlements/publication/8fd78c37-968a-55e2-96b4-9fc6067f7e65. Indonesia’s 2019 SDI collected various school-related data, such as school management, school leadership, teacher performance, and student learning outcomes in language and math were also assessed. This learning assessment data was considered as a unique source of learning data prior to the pandemic, and the follow-up learning survey of 2023 was designed using 2019 SDI survey as the baseline.
80 There was an adjustment to the list of visited schools to make the survey nationally representative. See the following sections on sampling.
81 Methodologically, this is an approach whereby student performance data is collected from the same grade across different cohorts. In the international literature, some studies trace the same individual and compare before and after the pandemic.
82 It consists of 15 literacy questions and 17 math questions. Test questions are designed to capture the foundational skills of language and math.
survey instruments also comprised a school principal module, teacher modules, and student modules to capture multidimensional information related to learning during the COVID-19 pandemic.83

5.3. Who suffered from learning losses, and how did they contribute to inequity?

An analysis of learning assessment results revealed that the national average of Grade 4 children’s performance in math was 0.281 standard deviation (s.d.) lower than the average score of Grade 4 students in 2019, and their performance in language in 2023 was also 0.271 s.d. lower. Standard deviations are used in a large amount of literature documenting the heterogeneity of schooling productivity.85 Following the internationally used rule of thumb that average student learning in a calendar year (12 months) is equal to about 0.300 of a s.d.,86 the result is converted to the number of months lost in this section. Grade 4 students in Indonesia in 2023 have lost 11.2 months equivalent of math skills and 10.8 months equivalent of language skills in comparison with Grade 4 students in 2019 (Figure B.2). Standardized scores and the detailed analysis based on regression modeling and statistical testing of the means are presented in Annex B.2.

Both urban and rural students experienced learning losses, but the size of impact was different on math and language. Urban students lost 12.8 months of learning in math but lost only 10.4 months of learning in language. On the other hand, rural students lost 10.5 months of learning in math and 13.4 months of learning in language (see Annex B.2 for standard scores and the result of statistical testing).

![Figure B.2: Size of learning losses in months, by subject, public-private status of educational institutions, and area](image_url)

Source: Authors’ analysis using SDI Survey 2019 and Learning Loss Survey 2023
Note: Detailed numbers are presented in Annex B.2.

Urban students experienced larger learning losses in math while rural students experienced larger learning losses in language.

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83 The school principal module collects information related to school characteristics, availability of internet access and school grants, use of different curricula, schooling time and use of remote or hybrid learning, and principals’ management practices during the pandemic. The teacher module includes two parts. First is an interview which asks teachers’ backgrounds, teaching practices during the pandemic, and their assessments and opinions of student academic performance. The second part is actual monitoring of teachers’ current teaching practices through video recordings of an entire class. An instrument called TEACH (a set of tools developed by the World Bank to enhance education quality [https://www.worldbank.org/en/topic/education/brief/teach-helping-countries-track-and-improve-teaching-quality]) was used to codify the teaching practices to systematically assess the capacity and practice of teachers. Student modules consist of two parts. The first is the literacy and math tests. The second part is a student questionnaire to capture multidimensional information related to learning during school closures, access and availability of technology including internet or digital tools, and time use during school closures.

84 This study analyzes learning losses in math and language for Grade 4 students only. It is important to note that students in different grades are likely to have different learning losses. Grade 4 students studied by this survey experienced school closures during their first, second and third grades (academic year 2019/20 – 2021/22) when they should have been learning the foundational skills. Students who are in secondary education in 2023 are likely to have different experiences.

85 See for example, Azevedo et al. (2020)
86 See for example, Hanushek & Wößmann (2020). In OECD countries, learning gains on most national and international tests during one school year are between 0.25-0.33 standard deviation (Woeßmann, 2016). In developing countries, the standard deviation equivalent to one year of schooling are 0.45 in Vietnam and 0.2 in Peru (Singh, 2020), in a range of 0.2 to 0.3 standard deviations in Tanzania, Uganda, and Kenya (Jones, 2017), and a range of 0.04 to 0.56 depending on municipalities with its average of 0.3 in Brazil (Azevedo and Goldemberg, 2020). Based on the literature and to the best of our knowledge, authors assess that a 0.3 standard deviation is the fairest assumption to equate with one year of learning for Indonesia on this instrument. More discussion can be found in: Woessmann (2016); Singh (2020); Jones (2017); Azevedo & Goldemberg (2020).
Overall, public educational institutions experienced greater learning losses than private educational institutions.

Despite having one of the world’s longest periods of school closure, Indonesia’s learning loss may not appear as large as the global trend after 14 months of school reopening since January 2022.

Students in public educational institutions experienced 11.8 months and 13.4 months equivalent of learning losses in math and language whereas students in private institutions lost 10.8 and 4.6 months of learning respectively.

Indonesia’s 21 months of regulatory school closure (including instructed school closure, period of remote-learning and partial school opening) is one of the longest in the world. However, the approximately 11 months of learning loss in math and language may not appear as large as international trends indicate. Evidence from a recent study by the World Bank using data from 22 countries, shows each month of school closure tends to lead to one month of lost learning on average. Figure B.3 presents the relationship between months of school closure and months of learning. Overall, there is a tendency for one-month of school closure to relate to one month of learning loss. This may be partly explained by the learning recovery that took place since school reopening. This may also be related to how the education was delivered during the school closure or measurement related aspects such as the grade assessed and test instruments used for assessments.

Both boys and girls experienced learning losses, but the size of impact was different on math and language. Boys lost 9.2 months of learning in math and 12.0 months of learning in language whereas girls lost 13.2 months of learning in math, but only 9.6 months of learning in language.

A proxy poverty index was created based on the Indonesia Socioeconomic Survey (SUSENAS) from March 2022, and applied to the household asset information reported by students through the Learning Loss Survey of 2023. Students were separated into five groups based on the poverty score calculated from the poverty (or asset) index. Students from the bottom 20 percentile of household wealth experienced significantly greater learning loss in language while girls experienced greater learning loss in math.

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As a result of learning losses caused during the pandemic, inequalities across subgroups widened. Larger learning loss. They lost 18.1 months and 27.2 months of learning in math and language. On the other hand, students from the top 20 percentile of household wealth only lost 3.5 and 5.6 months of learning in math and language. Based on this number only, poor students suffered more significantly and relatively wealthy students effectively managed to mitigate the loss of learning opportunities.

The learning inequalities existed across subgroups prior to the pandemic. For example, students in public educational institutions were on average 3.9 months behind students in private schools in language. This gap widened to 12.8 months due to greater learning loss among students in public schools. The learning gap widened the most between the wealthy and poor students. The learning gap which existed prior to the pandemic of 13.9 months in math and 18.7 months in language widened to 28.5 and 40.2 months in respective subjects. On the other hand, there were some reductions in math learning gaps in rural-urban and male-female subgroups because of urban and female students, who performed better prior to the pandemic, experienced greater learning losses (Figure B.5).

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89 This survey was conducted in March 2023, nine months through the academic year after the students became grade 4. By subtracting 27 months, it means their performance level is equivalent to the beginning of Grade 2 average.
5.4. What factors affected learning loss?

The survey asked if the student experienced any sickness or death of their own family or somebody close during the period of school closure. A significant number of students reported Yes to these cases—respectively 25.6 percent and 16.4 percent. The question did not exclude death or sickness caused by other reasons than COVID-19, but the statistics show such incidents were common. Students who did not experience the death of someone close had average learning gaps of 8.9 months equivalent in comparison with 2019 average in math and language. On the other hand, the students who experienced death of family members or someone close performed 17.0 and 15.1 months behind the 2019 average in math and language, creating average 8.1- and 6.2-months equivalent gaps in math and language between these groups (Figure B.6).

While the pandemic accelerated digital transformation in the education sector, it also revealed a digital divide, limited capacities of the supply side to meet diverse needs, and created challenges among students, teachers, educational institutions and parents to access remote learning. While the average scores of students who reported using the internet ‘often’ were 7.4 (math) and 4.1 months (language) behind the national average of 2019, those who reported ‘never’ had 35.0 (math) and 57.3 (language) months equivalent learning gaps from the national average of 2019 (Figure B.6). While this use of the internet indicator is correlated with poverty or remoteness, this shows the use of the internet during COVID-19 pandemic was correlated with student learning outcomes, for better or for worse.

**Figure B.6: Learning gaps among subgroups with different experiences in their environment during school closures**

<table>
<thead>
<tr>
<th>Experience</th>
<th>Math</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sickness Yes</td>
<td>-11.911.9</td>
<td>-11.3-10</td>
</tr>
<tr>
<td>Sickness No</td>
<td>-17-15.1</td>
<td>-8.9-8.9</td>
</tr>
<tr>
<td>Death Yes</td>
<td>-8.9-8.9</td>
<td>-7.4-4.1</td>
</tr>
<tr>
<td>Death No</td>
<td>-9.6-8.2</td>
<td>-16.116.2</td>
</tr>
<tr>
<td>Internet use Often</td>
<td>-16.116.2</td>
<td>-57.7</td>
</tr>
<tr>
<td>Internet use Rarely</td>
<td>-35</td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors’ analysis using SDI Survey 2019 and Learning Loss Survey 2023
Note: This figure uses an average score of students in 2023 in comparison to 2019 national average (learning gap). Since these group do not have pre-COVID-19 score average, this is not called a learning loss.

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90 This is not called a learning loss because individual level scores for this group in 2019 do not exist.
91 World Bank (2022)
92 In November 2020, a HiFY survey showed that around 51 percent of students reported receiving the internet quota subsidy, but only 82 percent of them were using it for daily learning. The percentage of population outside Java receiving the internet quota was only 37 percent, highlighting a challenge of equitable and effective distribution of internet quota (Butcher et al. 2021).
From the early stage of the COVID-19 pandemic, there was a major concern about learning loss caused by the closure of schools, which could lead to significant disruptions in learning process and learning hours. The Learning Loss Survey 2023 asked principals how many hours they officially offered schooling to Grade 4 students (in Grades 2 and 3 in the previous years). Figure B.7 shows the numbers of officially recorded schooling hours including remote-learning, partial school opening, and full school openings by MoECRT schools and madrasahs. Before the pandemic, average operating hours were 1,086 hours in 2018/19 (1,061 hours for schools, 1,149 hours for madrasahs). In the academic year 2019/20, educational institutions were fully open until the announcement of school closures in March 2020. The academic year 2020/21 was the year with the severest school closures due to the pandemic in most places in Indonesia. Educational institutions gradually opened after school reopening was officially announced in December 2021, and more educational institutions fully opened during the year 2021/22. One important finding is that during these three years, average total schooling hours were 2,599 hours (866 hours per year) among madrasahs and 2,271 hours (757 hours per year) among schools. Annual structured learning hours during this period (on average) was reduced 29 percent among schools and 25 percent among madrasahs on average.

The distribution of the curriculum is summarized in Table B.1. Following the instruction of the central government, the most commonly used curriculum during the period of school closure was the Emergency Curriculum – which 43.7 percent of educational institutions followed. On the other hand, emergency curricula designed or provided by the district (36.2 percent), foundations (i.e., NGO, private) (4.4 percent), or educational institutions themselves (25.8 percent) were also in use. Almost none of educational institutions used the standard curriculum from pre-pandemic times, and very few educational institutions (mostly schools) adopted the new Merdeka curriculum. It is also noteworthy that 9.2 percent of schools and 16.1 percent of madrasahs reported that they used multiple curricula, which could be in different years of school closure.

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Figure B.7: Average number of structured learning hours by schools and madrasahs, 2018/19 – 2021/22

<table>
<thead>
<tr>
<th>Year</th>
<th>All</th>
<th>Schools</th>
<th>Madrasahs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018/19</td>
<td>1,086</td>
<td>1,061</td>
<td>1,149</td>
</tr>
<tr>
<td>2019/20</td>
<td>685</td>
<td>668</td>
<td>775</td>
</tr>
<tr>
<td>2020/21</td>
<td>160</td>
<td>148</td>
<td>220</td>
</tr>
<tr>
<td>2021/22</td>
<td>247</td>
<td>248</td>
<td>264</td>
</tr>
</tbody>
</table>

Source: Authors’ analysis using SDI Survey 2019 and Learning Loss Survey 2023

93 These are learning hours that educational institutions reported that operating (either remotely, partially open, or fully open) and students were supposed to be actively engaged in learning.

94 These self-reported statistics may contain principals’ over- or under-reporting, and these statistics of learning hours may not indicate the quality or effectiveness of each mode of learning. Therefore, a detailed analysis of how these learning hours correlate with student performance and learning loss will be conducted in the next study.

95 Assessing the correlation between the use of curriculum and learning loss would require a close assessment of curriculum implementation by teachers. This report does not cover detailed analysis of teacher performance and practices, so the analysis of curriculum and learning loss will be discussed in subsequent analytical work.
The survey asked two questions related to teachers’ perceptions or opinions about the competencies of Grade 4 students. Among the teachers who taught Grade 4 both during pre-pandemic time and today, 27 percent said the performance of Grade 4 students is better today than in pre-COVID-19 times. 36 percent said the performance is about the same, and 37 percent said the performance today is worse than the pre-COVID-19 period. However, teachers underestimate the seriousness of the issue. 73.4 percent of language teachers and 48.6 percent of math teachers responded that more than 60 percent of their students have the right level of competencies for Grade 4.

5.5. How could learning losses affect future economic productivity

COVID-19 led to a large loss of human capital in three life stages from young children, school-age children to youth. Global literature has estimated that a child who has discontinued schooling experiences a decline in their cognitive and social-emotional development trajectory, which could translate into a 25 percent reduction in earnings when the child becomes an adult. In aggregate, learning losses experienced by today’s students could reduce future global earnings by US$21 trillion if unaddressed. Just in the past three years, the pandemic has led to significant reductions in employment opportunities, and consequently led to an increase in the number of youth who are not in education, employment, or training (NEET). The unemployment rate rose by 1.8 percent to 7.1 percent in 2020 compared to the year before. Underemployment (i.e., underuse of a worker’s potential because a job does not use the worker’s skills, is part-time, or leaves the worker idle) also causes a long-term impact, affecting the career development for youth and their lifetime earning trajectory.

According to the Indonesia Family Life Survey (IFLS) 2014 data, which had simple cognitive and math test modules, one standard deviation increase in the math is correlated with 36 percent higher earnings. Using this statistic and adjusting for inflation, the lost earnings or lost productivity of a future worker due to learning losses caused by the COVID-19 pandemic are left unaddressed, they have the potential to significantly impact students’ future earnings and the country’s productivity.

In line with the international literature, learning loss carries significant implications for individual future earnings.

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**Table B.1: Proportion of educational institutions that used different curricula during the school closure (%)**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>0.1</td>
<td>0.0</td>
<td>43.1</td>
<td>37.0</td>
<td>3.3</td>
<td>25.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Madrasahs</td>
<td>0.5</td>
<td>0.0</td>
<td>45.9</td>
<td>33.6</td>
<td>8.0</td>
<td>28.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>0.2</td>
<td>0.0</td>
<td>43.7</td>
<td>36.2</td>
<td>4.4</td>
<td>25.8</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Source: Authors’ analysis using SDI Survey 2019 and Learning Loss Survey 2023
Note: 9.2 percent of schools and 16.1 percent of madrasahs reported that they used multiple curricula during this period.

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96 The survey collected more teacher related variables including classroom observation of teaching practices; however, this study reports only on this variable due to its relevance to the recommendations.
97 Teachers were asked to estimate the percentage of students in their class that can perform at right competency for Grade 4 in language and math.
98 The question related to the percentage of students that are at the right level of competencies for Grade 4. Teachers were given categorical answers as: 0-20%, 21-40%, 40-60%, 60-80%, or 80-100%.
99 Azevedo et al. (2020)
100 Schady et al. (2023)
101 Ibid.
102 World Bank (2020d)
103 Ibid.
104 IFLS 2014 is a nationwide household survey conducted by the GoI. It had a module for an IQ-test, pattern recognition, and a simple math test. Test items are available online at https://www.rand.org/pubs/working_papers/WR1147z3.html. This study created a standardized score by using math items only.
105 This is based on a regression analysis, controlling for age [which proxies the work experience] and gender.
loss would be on average IDR 9.9 million or US$ 691 per year (in 2021 prices). This estimate is slightly above an earlier World Bank study. The study used global modeling to estimate the impact of prolonged school closure on students’ future earnings and this indicated that learning loss would reduce an students’ future annual earnings between US$408 and US$578 per student (IDR 5.8 million to IDR 8.3 million equivalent). Learning loss also affects the probably of obtaining full time waged employment. According to an analysis of IFLS 2014, workers with one standard deviation lower cognitive and math skills were 5.8 percent less likely to have full employment.

Workers with lower productivity have lower lifetime earning profile. Figure B.8 provides a graphical presentation of the age-earning profile of workers who lost learning and hence the lower productivity and counterfactual scenario of workers without learning loss for new labor market entrants. Assuming they work from age 18 to 60, the new labor market entrants who lost 0.3 standard deviation equivalent of learning will have 30.9 percent (male) and 39.2 percent (female) lower lifetime earnings. Lower individual-level productivity among the pandemic-affected new labor market entrants will translate into a lower economic productivity.

Figure B.8: Simulated age-earning profiles of workers with and without learning loss, by gender

Source: Authors’ analysis using SDI Survey 2019 and Learning Loss Survey 2023, IFLS 2014 and WDI data.
Note: Quantile regressions were run at the mean (counterfactual) and IDR 8.0 million lower from the mean (lost learning) to simulate the different earning growth curves, by including gender and years of education as control variables.

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106 In 2014 nominal value, the 36 percent higher income due to one s.d. difference was equivalent to IDR 8.0 million (or US$ 674). This average was calculated by excluding workers who reported zero earnings. Calculated by using the GDP deflator and exchange rates from World Development Indicator (WDI) dataset published in July 2022. 2014 exchange rate was US$1=IDR11,865.21 and 2021 exchange rate was US$1=IDR14308.14.

107 Afkar & Yarrow (2021)

6. Conclusion and Policy Recommendations


Learning losses are likely to limit opportunities for students to advance to higher levels of schooling. Global study estimates that COVID-19 school closures will lead to significant long-term future earning losses associated with lost human capital. There is a globally established and used framework for learning recovery called the RAPID Framework, which also offers a compilation of good practices and lessons learned from the ongoing global learning recovery efforts during the COVID-19 pandemic. Using this framework as a basis and by reflecting on the results of the survey, this report provides a set of policy recommendations for learning recovery in Indonesia.

Policy Recommendation 1: Initiate deliberate actions for learning recovery now, by prompting political commitment for learning recovery, allocating resources and engaging stakeholders.

Business-as-usual approaches do not help remediate learning losses. While the GoI is advancing on implementation of the new Merdeka Belajar policy for learning recovery, deliberate actions specifically to address learning recovery in the short term are less explicit in current GoI policy. If learning loss is not remediated now, it could compound and grow over time and the student cohort that lost learning will never have an opportunity to catch up.

1. Deliberately allocate budgets for immediate learning recovery actions and prompt political commitment for learning recovery. Recovering from pandemic-induced learning losses requires political alignment across multiple stakeholders, many of whom have different priorities. Political commitment, at all levels of the government (national, provincial, district) is necessary for learning recovery, and the most effective way to signal the policy priority for learning recovery actions is ‘allocating budgets for learning recovery’. While the GoI’s current policy can be the main vehicle for learning recovery, labeling specific programs as learning recovery programs with allocation budget will communicate the GoI’s commitment more clearly.

2. Raise awareness of teachers, principals, officials of subnational governments, and all education stakeholders about student learning loss and support them to teach students at the right level. Teachers have important roles in learning recovery and their understanding and commitment is also necessary (also see recommendation 2.3), as is raising awareness among education stakeholders and ensuring they take deliberate actions to support student learning. This includes a call to employ the assessment instruments and differentiated approach of Merdeka curriculum specifically to address learning recovery through targeted guidance in its adoption.

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109 Psacharopoulos et al. (2020)
110 World Bank et al. (2022)
111 The RAPID framework consists of the following five elements: (1) Reach every child and keep them in school; (2) Assess learning levels regularly; (3) Prioritize teaching the fundamentals; (4) Increase the efficiency of instruction including through catch-up learning; and (5) Develop psychosocial health and wellbeing.
112 Schady et al. (2023)
113 Ibid
114 MoECRT started a ‘quality reading book program’ in 2022 as part of overall Merdeka Belajar program, aiming to improve reading skills at early childhood education and primary education levels (https://itjen.kemdikbud.go.id/web/merdeka-belajar-episode-23-buku-bacaan-bermutu-untuk-literasi-indonesia/). Such specific interventions would help teachers to understand what to do. Similar actions for math can be also considered.
1.3. **Raise awareness of parents to engage them in continued supplementary home-based learning.** Schools alone are not enough to assure learning recovery, but parents and households play an important role in how students spend their time after regular school hours. While not all parents can teach at home, informed parents can nudge children to read at home or offer guided support to children doing homework for their learning recovery. Global evidence shows that effective home and remote learning requires engaged students, and parents need to be supported to help students access home learning opportunities and ensure their socio-emotional wellbeing.\(^{115}\) Parents would benefit from clear guidance and resources from GoI for continued ‘supplementary’ home learning. Education technology also provides opportunities for effective household engagement for learning recovery.\(^{116}\)

**Policy Recommendation 2: Catch up on lost learning time, teach at the right level for students, and track student performance improvement.**

34. The second set of recommendations focus on improving service delivery at educational institution level, by catalyzing efforts by teachers and institutions.\(^{117}\)

2.1. **Catch up on lost learning hours by increasing class hours, offering remedial lessons during semester breaks, or leveraging private learning support outside regular class hours.** Based on the global evidence, the simplest but perhaps most powerful approach for recovery learning is to catch up on learning hours. Some countries have already reacted by increasing school hours or introducing remedial lessons.\(^{118}\) Some 41 percent of the 143 countries interviewed in February 2021 claimed to be extending academic years instructional hours nationwide.\(^{119}\) Increasing learning hours for remedial purpose can be managed within the regulatory teaching hour responsibility of teachers if teachers’ capacity is underutilized or can be compensated as additional tasks (which requires additional resources). Remedial lessons provided through third parties (e.g., NGOs, private tutoring) can be possible options where available. The GoI can spearhead this movement through its flagship Kampus Mengajar (University Teach) program, which recruits university students to be temporary supplement teachers or tutors in disadvantaged regions, refocusing their roles in the short-term to identify and address learning losses in the area.

2.2. **Emphasize Teaching at the Right Level and actively adaptive learning.** Students’ learning levels are different even if they are sitting in the same classroom; hence it is important to focus on making progress in student learning rather than progress on curriculum completion, especially when many students are behind the standard curriculum competency for certain grades. This approach was introduced in Indonesia even before the pandemic, and it is compatible with the ongoing MoECRT Merdeka Belajar reform that promotes differentiated learning by paying attention to individual students’ strengths, abilities and interests. In particular, the Merdeka curriculum aims

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115 Munoz-Najar et al. (2021)
116 Global studies in Italy and Botswana indicate interventions combining technology and direct instruction can improve learning of students. At a primary education level, weekly SMS messages followed by a phone call with parents improves child’s foundational numeracy skills by 0.12 s.d., equivalent to almost 5 months of schooling, while SMS alone is not as effective. At a secondary education level, free individual tutoring online to disadvantaged students during the lock down by volunteer university students for 3 to 6 hours per week increased students’ academic performance by 0.26 s.d. (equivalent to 10.4 months of learning), and also improved students’ social-emotional skills, aspirations and psychological well-being.
117 This set of recommendations mainly corresponds to the elements (2), (3), and (4) of the RAPID framework.
118 In Kenya and Mexico, the government has expanded the academic calendar by shortening holidays. (World Bank et al. 2021)
to empower teachers to provide differentiated learning to allow students to adjust to their learning speed and teach at the right level. To successfully implement this in every classroom, continued support to teachers, including the provision of guidance and regular monitoring, is necessary.

2.3. Continuously assess student competency and monitor improvements. Teaching at the Right Level requires understanding of student current competency levels and their progress. National assessments, including MoECRT’s Asesmen National (AN) and MoRA’s Asesmen Kompetensi Madrasah Indonesia (AKMI) are both useful tools to objectively review student performance. In day-to-day practices, small daily assessments, such as checking homework and small assignments, is also critical for teachers to understand student competency. Full utilization of the assessment instrument sets available in the Merdeka curriculum platform should be further promoted, including specific guidance for teachers in employing them.

Policy Recommendation 3: Address inequality in learning by allocating additional resources to support disadvantaged or underperforming students.

Considering fiscal constraints, public policy could prioritize those who were most affected and most disadvantaged because their resilience is likely lower than relatively better endowed groups.

3.1. Allocate additional resources to subnational governments and educational institutions for learning recovery activities where learning performance is particularly low or learning loss is particularly large. Students in rural areas and poor households perform particularly low and their learning loss is larger. These disadvantaged populations need to be prioritized for government support. While this has been partly addressed by the additional BOS (School Operational Funds) allocation to disadvantaged regions since 2021, further efforts should be made to identify disadvantaged populations outside of these groups. Interventions could include targeted financial subsidies, remedial or catch-up learning programs, highlighting the roles of schools and teachers to identify these marginalized individuals within schools. Equitable and effective provision of internet subsidies to promote additional remote learning could also be considered.

3.2. Provide implementation and capacity building support for subnational education officers to ensure effective use of resource and implementation of targeted interventions. Subnational governments are important actors for the service delivery of learning recovery. Educational offices of subnational governments need to be clearly informed about learning loss, and what activities are needed for learning recovery. For example, if remedial classes are to be offered, guidance is needed for teacher allowances for extra hours, additional teaching and learning resources, adequate supervision of additional classes, and monitoring of student performance among others. In the same vein, capacity building of school principals is essential to improve children’s learning experiences.

3.3. Provide support to students with disabilities, out-of-school children, and those who may need psychological help. Educational support for children with disabilities should consider those both in-school and out-of-school, since they were most likely to drop out before completing primary

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120 Beteille et al. (2020)

121 This set of recommendations mainly corresponds to the elements (1) and (5) of the RAPID framework.

122 UNICEF (2021b)
education\textsuperscript{123} and this situation worsened during the pandemic in Indonesia.\textsuperscript{124} In educational institutions, students with disabilities can learn better if they receive individual lessons based on their needs. To support children who drop out of education, financial subsidies can be provided in a form of conditional cash transfers for educational access or reentry to educational institutions. Psychological support is necessary for those who may have suffered from pandemic-related difficulties, trauma from death of family members, and those who experienced Gender Based Violence (GBV) in educational institutions or online.\textsuperscript{125}

\textsuperscript{123} UNICEF (2020)
\textsuperscript{124} Brenton, Ferrantino and Maliszewska 2022.
\textsuperscript{125} World Bank (forthcoming)
**ANNEX A**

Annex A.1: Indonesia’s Competitiveness Indicators vs Peers

**Sound governance**

**Macroeconomic stability**

**High savings and investment**

But potential to enhance competition

Including through international trade policies

Note: The competitiveness assessments are based on composite indices 4 drivers of factor accumulation (basic governance, human capital, basic infrastructure, and macro stability) and 5 efficiency drivers (business regulations, labor markets, financial sector, competition, and trade openness). The composite indices are z scores, which assess Indonesia’s performance relative to 9 comparator countries (Brazil, China, Egypt, India, Indonesia, Republic of Korea, Nigeria, Mexico, Philippines, Türkiye). The z scores were calculated by: (i) subtracting the average from the series for each country’s value; and (ii) dividing by the standard deviation.
ANNEX B

Annex B.1: Technical Note on the Learning Loss Survey 2023

1. Context
The Learning Loss Survey 2023 was designed as a follow-up to the Service Delivery Indicators (SDI) survey, last performed in Indonesia in early 2019. The instruments employed in the SDI survey included a measure of student learning outcomes in numeracy and literacy in Grade 4 for an almost nationally representative sample, offering an exceptional portrait of the education system immediately prior to the pandemic. The Learning Loss Survey 2023 was conducted from February to March 2023 to maintain the consistency of the timing of assessment with the SDI 2019 survey, which was completed during the same months in 2019. An adapted set of SDI 2019 instruments was employed, mainly to capture learning practices during the pandemic and allow the fieldwork to be accomplished under a compact timeline.

2. Instruments
Some modifications were made to the original 2019 SDI survey. The revised instrument removed questions that are less relevant for the assessment of learning losses and included additional questions on learning practices during the pandemic. Test items for math and language were remained identical to SDI 2019 to allow direct comparison of items. The 2023 used a new classroom observation tool called TEACH, which was developed by the World Bank to replace the former SDI classroom observation module. The methodology o collecting household data changed from house visits to a questionnaire to the students in order to facilitate the data collection.

3. Sampling, Matching and Weighting
The sampling framework has been adjusted from that of the 2019 SDI survey. The main objective of the original 2019 SDI survey was to obtain a nationally representative sample of madrasahs under MORA, and it included a sample of 253 madrasahs across the country and a sample of 87 MoECRT schools located MoECRT within the immediate vicinity of sampled madrasahs (a total sample size was 350 educational institutions by including additional ten non-Islamic MoRA institutions). This suggests that the 2019 sample did not represent a true distribution of MoECRT schools, as it differs with that of MoRA madrasahs. Because the objective of 2023 learning loss survey was to obtain a nationally representative sample of all educational institutions (i.e. schools under MoECRT and madrasahs under MoRA) in the country, adjustment to the sampling frame was made to increase the coverage of MoECRT schools.

Statistical adjustments were made to ensure national representation of the data by employing matching and weighting techniques. To account for the representation issue of the MoECRT schools in 2019 survey, matching is performed using the Mahalanobis Distance Matching technique, to adjust characteristics of the sample schools to be consistent with the national distribution. The list of provinces and districts selected are shown in Annex Figure B.1 and Annex Table B.1. The matching was mainly accomplished using school standardized accreditation scores available from the Indonesian National Accreditation Body for Schools and Madrasahs (BAN SM). This process generated a matching weight.

The survey also employs student weights to account for different number of students across educational institutions, and a school weight to take into account the different number of schools each sample represents. These three weights are then multiplied together to yield a single individual weight employed in individual-level analysis, while analysis at the school level uses a consolidated matching and school weight. The final data set includes the following: (a) a panel sample (i.e. revisiting) of 296 educational institutions, which includes 200 MoRA madrasahs randomly selected from the 253 original SDI sample, 87 MoECRT schools, and nine non-Islamic MoRA schools; and (b) a newly identified 113 non-panel MoECRT schools that would ensure MoECRT schools

Footnotes:
126 Further information on the 2019 SDI survey can be found on the following link: https://openknowledge.worldbank.org/entities/publication/f8d78c37-968a-55e2-96b4-9f6067f6e65
127 Further information on the instrument can be found in the following link: https://www.worldbank.org/en/topic/education/brief/teach-helping-countries-track-and-improve-teaching-quality
The final sample size of 2023 survey is 409 education institutions (see Annex Table B.2). At each educational institution visited, randomly selected 10 Grade 4 students are included for student assessment unless the number of Grade 4 students in the sample institution is less than 10. The total number of students interviewed and tested is 3,863 for 2023 (see Annex Table B.3).

In each educational institution, at least one teacher was selected to be observed and interviewed. In educational institutions that practice the thematic teaching system—where a single teacher, usually the homeroom teacher, teach a set of basic education subjects, including language and mathematics—one Grade 4 teacher was randomly selected. In educational institutions where teachers teach by subject, two Grade 4 teachers were selected, one for each of the subjects. In both cases, ten Grade 4 students were randomly selected for the assessment and given a short questionnaire from the pool of students taught by the teachers. In schools with less than ten students, all Grade 4 students were included in the sample.

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128 The 113 non-panel MoECRT schools were selected with the aim of making the combined sample of MoECRT schools nationally representative. Several balance checks were performed to maintain representativeness, achieved through balancing across several covariates on school characteristics, including school status, size, and sanitation facilities. The data to perform the exercise was obtained from the MoECRT administrative data bank (Data Pokok Pendidikan or Dapodik), using the 2019 point-in-time data to maintain consistency with the original survey.

129 The SDI 2019 data focused on 3,368 Grade 4 students to assess their learning results.
### Annex Table B.1: List of surveyed province and districts

<table>
<thead>
<tr>
<th>Province</th>
<th>Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aceh</td>
<td>Pidie, Aceh Tenggara</td>
</tr>
<tr>
<td>Bali</td>
<td>Karangasem, Bangli</td>
</tr>
<tr>
<td>Banten</td>
<td>Kota Serang</td>
</tr>
<tr>
<td>Dki Jakarta</td>
<td>Kota Jakarta Pusat</td>
</tr>
<tr>
<td>Jambi</td>
<td>Sarolangun, Tanjung Jabung Barat</td>
</tr>
<tr>
<td>Jawa Barat</td>
<td>Karawang, Pangandaran, Kota Bekasi, Bandung Barat, Sumedang</td>
</tr>
<tr>
<td>Jawa Tengah</td>
<td>Wonogiri, Blora, Temanggung, Karanganyar</td>
</tr>
<tr>
<td>Jawa Timur</td>
<td>Jombang, Trenggalek, Ponorogo</td>
</tr>
<tr>
<td>Kalimantan Barat</td>
<td>Ketapang, Sambas, Sekadau, Landak</td>
</tr>
<tr>
<td>Kalimantan Selatan</td>
<td>Tabalong, Hulu Sungai Tengah</td>
</tr>
<tr>
<td>Kalimantan Tengah</td>
<td>Katingan, Kotawaringin Timur</td>
</tr>
<tr>
<td>Kepulauan Bangka Belitung</td>
<td>Bangka Selatan</td>
</tr>
<tr>
<td>Kepulauan Riau</td>
<td>Bintan</td>
</tr>
<tr>
<td>Lampung</td>
<td>Tanggamus</td>
</tr>
<tr>
<td>Nusa Tenggara Timur</td>
<td>Alor, Flores Timur</td>
</tr>
<tr>
<td>Sulawesi Selatan</td>
<td>Pangkajene Dan Kepulauan, Kepulauan Selayar, Gowa, Tana Toraja</td>
</tr>
<tr>
<td>Sulawesi Tengah</td>
<td>Sigi, Tojo Una-Una</td>
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<td>Sulawesi Tenggara</td>
<td>Buton Tengah, Buton Selatan, Konawe</td>
</tr>
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<td>Sulawesi Utara</td>
<td>Kepulauan Sangihe, Bolaang Mongondow Utara, Bolaang Mongondow Selatan, Minahasa</td>
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<td>Sumatera Selatan</td>
<td>Ogan Komering Ilir, Muara Enim</td>
</tr>
<tr>
<td>Sumatera Utara</td>
<td>Asahan, Nias Barat, Tapanuli Utara, Samosir</td>
</tr>
</tbody>
</table>

### Annex Table B.2: Number of educational institutions surveyed in 2023 and number of SDI 2019 institutions used for the Learning Loss analysis

<table>
<thead>
<tr>
<th></th>
<th>Public</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban</td>
<td>Rural</td>
<td>Sub Total</td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MoECRT</td>
<td>37</td>
<td>42</td>
<td>79</td>
</tr>
<tr>
<td>MoRA Islamic</td>
<td>17</td>
<td>25</td>
<td>42</td>
</tr>
<tr>
<td>MoRA Non-Islamic</td>
<td>7</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>67</td>
<td>121</td>
</tr>
</tbody>
</table>

| 2023      |        |         |          |        |         |          |       |
| MoECRT    | 83     | 93      | 176      | 19     | 4       | 23        | 199    |
| MoRA Islamic | 17  | 25      | 42       | 64     | 95      | 159       | 201    |
| MoRA Non-Islamic | 7  | 2       | 9        |        |         |           | 9      |
| Total     | 100    | 118     | 218      | 90     | 101     | 191       | 409    |

Source: Authors’ analysis using SDI Survey 2019 and Learning Loss Survey 2023
Annex Table B.3: Number of students surveyed in 2023 and SDI 2019 students used for the Learning Loss analysis

<table>
<thead>
<tr>
<th></th>
<th>Public Urban</th>
<th>Public Rural</th>
<th>Public Sub-Total</th>
<th>Private Urban</th>
<th>Private Rural</th>
<th>Private Sub-Total</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MoECRT</td>
<td>362</td>
<td>395</td>
<td>757</td>
<td>40</td>
<td>20</td>
<td>60</td>
<td>817</td>
</tr>
<tr>
<td>MoRA Islamic</td>
<td>170</td>
<td>249</td>
<td>419</td>
<td>632</td>
<td>902</td>
<td>1,534</td>
<td>1,953</td>
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<tr>
<td>MoRA Non-Islamic</td>
<td>46</td>
<td>14</td>
<td>60</td>
<td>60</td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>532</td>
<td>644</td>
<td>1,176</td>
<td>718</td>
<td>936</td>
<td>1,654</td>
<td>2,830</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Public Urban</th>
<th>Public Rural</th>
<th>Public Sub-Total</th>
<th>Private Urban</th>
<th>Private Rural</th>
<th>Private Sub-Total</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MoECRT</td>
<td>799</td>
<td>851</td>
<td>1,650</td>
<td>190</td>
<td>37</td>
<td>227</td>
<td>1,877</td>
</tr>
<tr>
<td>MoRA Islamic</td>
<td>170</td>
<td>250</td>
<td>420</td>
<td>618</td>
<td>892</td>
<td>1,510</td>
<td>1,930</td>
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<tr>
<td>MoRA Non-Islamic</td>
<td>39</td>
<td>13</td>
<td>52</td>
<td>52</td>
<td></td>
<td></td>
<td>52</td>
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<tr>
<td>Total</td>
<td>969</td>
<td>1,101</td>
<td>2,070</td>
<td>847</td>
<td>942</td>
<td>1,789</td>
<td>3,859</td>
</tr>
</tbody>
</table>

Source: Authors’ analysis using SDI Survey 2019 and Learning Loss Survey 2023

Annex B.2: Detailed description of data analysis

1. Descriptive analysis of test items

Item comparison shows that Grade 4 student competency on specific tasks of math and language deteriorated between 2019 and 2023. The test assessed if students are able to perform basic arithmetic operations. Some key parameters are displayed in Annex Table B.4. For example, the percentage of Grade 4 students who correctly answered 2-digit and 3-digit multiplications dropped from 14.0 to 9.2 and 7.7 to 5.9 percent, respectively. On the test of Indonesian language (bahasa Indonesia), the percentages were lower for all tasks compared to 2019 although the language tests focuses on a relatively simple task to measure most fundamental reading skills, and the result shows over 90 percent of Grade 4 students being able to demonstrate abilities to recognize alphabets and simple words and read a simple sentence and a simple passage (Annex Table B.5). Reading fluency, measured by the time of reading a simple passage of 60 words, also slowed down to an average of 58.1 seconds in 2023 from 47.7 seconds in 2019.

Annex Table B.4: Percentage of Grade 4 students answering specific math tasks correctly

<table>
<thead>
<tr>
<th></th>
<th>Addition (3 digits)</th>
<th>Subtraction (2 digits)</th>
<th>Multiplication (2 digits)</th>
<th>Multiplication (3 digits)</th>
<th>Division (2 digits divided by 1 digit)</th>
<th>Simple math problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>65.5</td>
<td>34.2</td>
<td>14.0</td>
<td>7.7</td>
<td>31.2</td>
<td>15.7</td>
</tr>
<tr>
<td>2023</td>
<td>56.5</td>
<td>26.9</td>
<td>9.2</td>
<td>5.9</td>
<td>19.6</td>
<td>9.3</td>
</tr>
<tr>
<td>2023 (panel*)</td>
<td>55.5</td>
<td>25.9</td>
<td>8.6</td>
<td>4.9</td>
<td>19.4</td>
<td>8.9</td>
</tr>
</tbody>
</table>

Source: Authors’ analysis using SDI Survey 2019 and Learning Loss Survey 2023
Note: The examples of test items (not actually used) are the following. 3-digit addition: 245+135; 2-digit subtraction: 86-39; 2-digit multiplication: 47*20; 3-digit multiplication: 413*203; 2 digits divided by 1 digit – 65/5; simple math problem: “There are 12 apples in a box and if there are 10 boxes, how many apples are there in total?” * Panel sample means restricting the analysis to the educational institutions that were visited in both 2019 and 2023, including 200 madrasahs and 87 schools for the purpose of robustness check.

130 There are many local languages commonly used and spoken in different districts and provinces. This survey collects the information about the students’ mother tongues and languages commonly used in classroom instructions. However, this analysis focuses only on performance in Bahasa Indonesia.
2. Regression analysis for assessing the learning losses

The learning losses were calculated by running the following model of regressions. The test scores were standardized for the mean of zero and standard deviation of one. The list of covariates used for this report were school type (public, private), school location (urban, rural), students’ gender (male, female), and students’ household asset index as a proxy for poverty (richest 20 percentile and poorest 20 percentile, measured by household assets). Regressions were run with both with and without weights, and the standard errors are clustered at school level. The detailed results are presented in Annex Table B.6.

Learning losses in months are calculated by taking the ratio of zscore to 0.300 of standard deviation, the one-year equivalent learning used commonly in the literature.

The impact of the learning loss on individual wage was calculated based on the wage regressions on Indonesia Family Life Survey (IFLS) data from 2014 (latest available). It had a module for an IQ-test, pattern recognition, and a simple math test. This study created a standardized score by using math items only, and calculated the average wage for those who have performed with mean competency level and 0.3 standard deviation lower. A regression analysis on wage was conducted by controlling for age [which proxies the work experience] and gender to estimate the wage impact of 0.3 standard deviation change in math skills.

Following the calculation of individual wage differences by competency, a further analysis on the impact of wage difference on the economy was conducted. By using the following model, three regressions were run, which were (1) the overall sample, (2) at the 70th quantile, and (3) at the 55th quantile. The 70th quantile regression was to estimate the age-earning profile of workers at the average wage, and 55th quantile regression was for the workers with 0.3 standard deviation lower competency (and or IDR 8.0 million lower wage than the average). Age-earning profile was constructed for male and female workers accordingly and adjusted for the price to 2021 constant price.

Annex Table B.5: Percentage of Grade 4 students answering specific language tasks correctly

<table>
<thead>
<tr>
<th></th>
<th>Alphabet identification</th>
<th>Word identification</th>
<th>Identifying words for pictures</th>
<th>Read a sentence</th>
<th>Read a passage**</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>90.6</td>
<td>98.9</td>
<td>99.4</td>
<td>97.7</td>
<td>96.1</td>
</tr>
<tr>
<td>2023</td>
<td>93.1</td>
<td>97.8</td>
<td>86.4</td>
<td>95.7</td>
<td>92.8</td>
</tr>
<tr>
<td>2023 (panel*)</td>
<td>93.4</td>
<td>98.0</td>
<td>86.6</td>
<td>96.0</td>
<td>93.4</td>
</tr>
</tbody>
</table>

Source: Authors’ analysis using SDI Survey 2019 and the Learning Loss Survey 2023
Note: The result for 2019 in this table consists of different samples from published results in Yarrow et al. (2020). This result shows the national average by weighting MoECRT schools. See Annex 1 for the technical note about matching and sampling. * Panel sample means restricting the analysis to the educational institutions that were visited in both 2019 and 2023, including 200 madrasahs and 87 schools for the purpose of robustness check. **This item is used for testing reading speed and is described in the subsequent paragraph.
### Annex Table B.6: Descriptive statistics on Learning Loss derived from the results of regression analyses

<table>
<thead>
<tr>
<th></th>
<th>Literacy</th>
<th>Numeracy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unweighted</td>
<td>Weighted</td>
</tr>
<tr>
<td></td>
<td>2019</td>
<td>2023</td>
</tr>
<tr>
<td>School Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>-0.101</td>
<td>-0.407</td>
</tr>
<tr>
<td>(0.051)</td>
<td>(0.045)</td>
<td>(0.055)</td>
</tr>
<tr>
<td>Private</td>
<td>-0.224</td>
<td>-0.367</td>
</tr>
<tr>
<td>(0.049)</td>
<td>(0.055)</td>
<td>(0.048)</td>
</tr>
<tr>
<td>Diff</td>
<td>0.122*</td>
<td>-0.04</td>
</tr>
<tr>
<td>(0.071)</td>
<td>(0.071)</td>
<td>(0.073)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>0.019</td>
<td>-0.201</td>
</tr>
<tr>
<td>(0.048)</td>
<td>(0.044)</td>
<td>(0.051)</td>
</tr>
<tr>
<td>Rural</td>
<td>-0.319</td>
<td>-0.553</td>
</tr>
<tr>
<td>(0.049)</td>
<td>(0.051)</td>
<td>(0.078)</td>
</tr>
<tr>
<td>Diff</td>
<td>0.338***</td>
<td>0.352***</td>
</tr>
<tr>
<td>(0.068)</td>
<td>(0.067)</td>
<td>(0.072)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>-0.327</td>
<td>-0.583</td>
</tr>
<tr>
<td>(0.047)</td>
<td>(0.046)</td>
<td>(0.054)</td>
</tr>
<tr>
<td>Female</td>
<td>-0.011</td>
<td>-0.195</td>
</tr>
<tr>
<td>(0.037)</td>
<td>(0.036)</td>
<td>(0.041)</td>
</tr>
<tr>
<td>Diff</td>
<td>-0.316***</td>
<td>-0.388***</td>
</tr>
<tr>
<td>(0.047)</td>
<td>(0.045)</td>
<td>(0.065)</td>
</tr>
<tr>
<td>Top 20%</td>
<td>0.21</td>
<td>0.079</td>
</tr>
<tr>
<td>(0.046)</td>
<td>(0.048)</td>
<td>(0.079)</td>
</tr>
<tr>
<td>Diff</td>
<td>0.205***</td>
<td>0.259***</td>
</tr>
<tr>
<td>(0.083)</td>
<td>(0.083)</td>
<td>(0.122)</td>
</tr>
<tr>
<td>Bottom 20%</td>
<td>-0.362</td>
<td>-0.837</td>
</tr>
<tr>
<td>(0.090)</td>
<td>(0.058)</td>
<td>(0.093)</td>
</tr>
<tr>
<td>Diff</td>
<td>0.572***</td>
<td>0.917***</td>
</tr>
<tr>
<td>(0.113)</td>
<td>(0.079)</td>
<td>(0.124)</td>
</tr>
<tr>
<td>Overall</td>
<td>-0.172</td>
<td>-0.389</td>
</tr>
<tr>
<td>(0.036)</td>
<td>(0.035)</td>
<td>(0.036)</td>
</tr>
</tbody>
</table>

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. Standard errors in parentheses. Observations are weighted relative to their geographical location and characteristics. Standard errors are clustered at the school level.
References

PART A


PART B


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Supported by funding from the Australian Government through the Australia-World Bank Indonesia Partnership (ABIP) program