

Jameaba, Muyanja-Ssenyonga

Article

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*Corresponding author: Muanja Ssenyonga, Institute of Governance and Public Affairs (IGPA), Department of Management and Public Policy, Gadjah Mada University, Yogyakarta, Indonesia
E-mail: muanja.ssenyonga@gmail.com

Reviewing editor:
Muhammad Shafiqullah, Economics, University of Nottingham - Malaysia Campus, MALAYSIA

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FINANCIAL ECONOMICS | REVIEW ARTICLE

Imperatives for post COVID-19 recovery of Indonesia's education, labor, and SME sectors

Muanja Ssenyonga^{1*}

Abstract: The article assesses the impact of COVID-19 pandemic on the Indonesian economy and the influence that repercussions from the pandemic have had on the country's long-term development goals and objectives. The article used backcasting approach to link expected development objectives and targets with current state of social and economic conditions. Results demonstrated a gap between long-term and current economic performance, attributable largely to the impact of COVID-19 pandemic on the economy and society. A drastic decline in aggregate demand due to contraction in household and corporate expenditure, investment, and exports sparked a surge in open unemployment and underemployment. While swift and wide-ranging government response helped to attenuate the impact of the crisis on the economy and vulnerable sections of society, COVID-19 pandemic impact compounded existing fundamental problems facing the Indonesian economy including de-industrialization, wide urban-rural, East-West, inter-regional digital divide; unemployment and underemployment; weak human resource development; low participation in global value chains; and low education effectiveness. Policy recommendations to nudge the economy and society back to its long-term development trajectory include initiatives to

ABOUT THE AUTHOR

Muanja Ssenyonga, Jameaba, is an economist holding a PhD in economics from Gadjah Mada University (GMU), Yogyakarta. Research interests include cross-cutting topics including labor relations, Poverty and Inequality, financial stability and financial inclusion. Publications include but not limited to financial inclusion and financial stability, poverty and income inequality, and labor relations, and banking and digitalization. Professional experience includes serving as a visiting lecturer and researcher, Master Program in Public Administration (MAP-GMU), research fellow in Pavia University, Lombardy, Italy (spring 2016); Research fellowship South-South Cooperation, Santiago, Chile (spring 2013). The research on imperatives for the post COVID-19 pandemic Indonesian economy builds on previous research experience on the intersection of digitalization, financial institutions performance, educational effectiveness, and labor relations. Results underscore the fact that to attain sustainable effectiveness and competitiveness, it is imperative for economies to adopt and align their practices, procedures and institutions with emerging trends and drivers of best-practice performance.

PUBLIC INTEREST STATEMENT

The article assesses the impact COVID-19 pandemic has had on Indonesian economy and long-term development trajectory. Using long-term development projection targets as a reference, the article reviewed the current state of economic and social indicators, factoring in the adverse impact of COVID-19 pandemic, to identify whether or not long-term development projections are still achievable. Results highlighted the scale of disruption of COVID-19 pandemic on economic growth, investment and exports, open unemployment, and underemployment. However, government swift and multisectoral spending to vulnerable sections of the population and economy lessened the impact of the pandemic on the economy and society. Nonetheless, COVID-19 pandemic has compounded and exacerbated some of the existing fundamental problems facing Indonesian economy, including the cross-regional, urban-rural digital divide, low education effectiveness and labor productivity, and limited participation in global value chains. The article recommends key pathways to restore the economy to its long-term development trajectory.

enhance emergency response program effectiveness and tackling structural problems. The initiatives include strengthening and widening the coverage of government programs that support business and society in education, labor and employment, and SME and trade. The thrust of the pathways stresses the need for accelerating the implementation of the national information highway and the ASEAN connectivity initiative. Achieving will support efforts to mainstream the adoption and deployment of digitalization in the economy, government, and transboundary trade.

Subjects: Information & Communication Technology (ICT); Politics & Development; Development Policy; Economics and Development; Economics; Industry & Industrial Studies; Open & Distance Education and eLearning; Theories of Learning; Continuing Professional Development; Education Policy & Politics

Keywords: COVID-19 pandemic; GVCs; SMEs; economic zones; Industrial parks; flipped classroom; product complexity; labor relations

JEL Codes: A30; E02; E24; E26

1. Introduction

Indonesia's economic performance during 2015–2019 period, while not as stellar as it was in early to mid-1990s, is still ranked among the top performers in the ASEAN region. This is the case considering the magnitude of the adverse impact of global macroeconomic shocks that roiled the global economy, which ranged from the spiraling sovereign debt crisis in the EUROZONE, a drastic drop in oil prices that began in June 2014. Economic growth was in the order of 5% per year, poverty fell below two digits for the first time in 2019 (9.4%), while the percentage of employed earning an income below 1.90 USD purchasing power parity (PPP) was 4.3% (2019), and total unemployment was in the order of 4.7% (ADB, 2020a). Meanwhile, an income per capita of 4,197 USD (2019) demonstrated the country's economic status as a low middle-income economy. Based on projections of World Economic Forum (WEF), if the growth in middle income and labor force continued at the pre-COVID-19 pandemic rates, Indonesia was projected to become the world's fifth largest economy in 2024, behind China, the USA, India, and Japan (WEC, 2019).

Nonetheless, the outbreak of COVID-19 pandemic during the first quarter of 2020 has to a large extent reversed the trajectory of most indicators of economic performance. With death toll of nearly 15.6 per 100,000 people from COVID-19 as of 28 March 2021, Indonesia, along with the Philippines, is one of the worst affected among ASEAN members¹. Since 2 March 2020, when President Joko Widodo announced the first COVID-19 victim in Indonesia until 29 August 2020 (Purwanto, July 03, 2020), Indonesia had recorded an accumulative total of 1.5 million confirmed COVID-19 cases, with a death toll of 7,261 (4.29%) and recovery of 122,802 (72.58%). Given the current COVID-19 infection rate, no epidemiologist can predict with high confidence level when Indonesia will flatten the curve. Based on the number of COVID-19 confirmed cases in South East Asia as of 08 April 2021, Indonesia with 1.55 million cases and 42,227 deaths has almost double the number of cases of the Philippines, in second place, which has so far recorded 828,000 cases and 14,119 deaths.² Indonesia and the Philippines, the two nations in ASEAN most affected by COVID-19 pandemic, continue to struggle in their efforts to contain the pandemic, including increasing difficulties to finance rising national debt (Yap, 2020). Unsurprisingly, the protracted “war” with an invisible but highly disruptive enemy has already had serious repercussions on almost all aspects of social, economic, and as long as the problem drags on, increasingly having its impact albeit still muted, manageable, and predictable on national politics. This being an election year when 270 subnational polities are slated to conduct local government head elections on 9 December 2020 makes the speedy transmutation of a precedented health crisis that would supposedly have coalesced even the bitterest of foes together to stage a united fight for the sake of national solidarity, public safety, and security into what is increasingly becoming a hot political potato, the more understandable.

The unprecedented scale and scope of COVID-19 pandemic impact has triggered massive and wide-ranging response from national governments, international development organizations, and supranational organizations. The Indonesian government, in addition to declaring the COVID-19 pandemic as a national disaster (under the President of the Republic of Indonesia statement No.12/2020), which laid the foundation for the local government on condition of prior approval by the central government, to implement discretion-based declaration of large-scale wide-ranging public restriction policy. The Indonesian government had by 3 July 2020 earmarked nearly IDR 1,000 trillion on COVID-19 response and stimulus package to support vulnerable sections of society and key economic sectors (Ministry of Finance, 2020).

Nonetheless, containing the short-term ramifications of the pandemic is one thing, creating sound and sustainable policies that can support an enabling social and economic environment, which is vital for high, inclusive economic growth and development, is another. It is against that background that the objectives of this article are (i) to assess the impact of COVID-19 on the economy and society in general, and specifically on education service delivery, labor and employment conditions, SMEs, trade, and investment; (ii) identify underlying factors that have influenced the impact of COVID-19 on education service delivery, labor and employment, SMEs, trade, and investment; (iii) identify pathways to mitigate the impact of COVID-19 on education service delivery, labor and employment, SMEs, trade, and investment and by extension supporting long-term economic recovery. The premise of the article is that short-term and medium-term policies and programs should be influenced by considerations of viability and sustainability in the long term. This is because policies once implemented are not easy to rescind. To that end, the initiatives we propose in this article, while driven by the urgent need to address short-term problems that are attributable to the raging COVID-19 pandemic crisis (emergency response), we situate the proposed pathways into what is needed for recovery in the medium and long term. The intention of this is to ensure that policymakers do not use the pretext of responding quickly to an emergency in a crisis situation, to implement policies that while mitigate the impact of the crisis on society and economy in the short term, achieve that at the expense of long-term economic sustainability. This is because, while such an approach may be politically expedient and rewarding in the short term, it cannot deliver long-term sustainability. The initiatives we propose fall into three broad areas, including digitalization of public service delivery and government administration services; strengthening the enabling environment for public and private sector remote working and operations; tackling rising unemployment and education system crisis; and creating an enabling business environment to support sustainable participation in global value chain activities.

The repercussions of COVID-19 pandemic on the global economy and society continue to rise. By 6 January 2021, COVID-19 pandemic had caused more than 20.5 million years of life lost (YLL) due to excess deaths in 81 countries (Arolas et al., 2021) and caused a decline at least a year on life expectancy in many countries (John & Susan, 2020; Marois et al., 2020). Based on the WHO report, the loss of 8.3% in global income, which is attributable to a loss of 8.8% in global working hours as a result of inactivity, rising unemployment, and a decline in labor market participation rate that is “equivalent to 255 million jobs” (ILO, 2020); YLL due to premature deaths; and a decline in life expectancy to inflict a loss of US\$10 trillion in future earnings (WHO, 2020).

Moreover, by 31 December 2020, the financial cost of the pandemic is estimated to be more than US\$11 trillion in expenditure on COVID-19 pandemic response and containment measures, largely through repurposing budgetary allocations, establishment of COVID-19 designated extra-budgetary funds (EBFs), and special COVID-19 response and relief funds established by international development organizations (Rahim et al., 2020). IMF executive board, for instance, authorized the multilateral donor agency to make available US\$250 billion out of its total lending capacity of US\$1 trillion for potential lending in various lending programs and debt relief through the Catastrophe Containment and Relief Trust (CCRT), to various countries in Latin America and the

Caribbean, Europe, Middle East and Central Asia, and Sub-Saharan Africa. The financial assistance is aimed at both strengthening emergency response to the COVID-19 pandemic and supporting fiscal sustainability (IMF, 2020a). Meanwhile, the World Bank has pledged to provide US\$160 billion to developing countries to support their efforts to contain the pandemic and mitigate its social and economic ramifications (World Bank, 19 May 2020c).

At the supranational level, EU's response to the COVID-19 pandemic was enormous, multipronged, and wide-ranging in scope, sectoral, and country coverage (EU Council, 13 July 2020). The 27-member Bloc has earmarked €1.33 trillion economic stimulus package that include €540 billion (supporting businesses and jobs in member states), €750 billion (ECB COVID-19 emergency purchase program), €37 billion (COVID-19 investment response initiative), €3.1 billion (EU supplementary emergency crisis response), €800 million (EU solidarity funds to support member countries in dealing with the health crisis), €220 million (allocated on research and financial support related to finding COVID-19 treatments and vaccines), and 164 million (support SMEs and startups in developing innovative solutions). Moreover, maintaining resilience against the COVID-19 pandemic and future potential crises. This is reflected in the main items of the €1.824 trillion EU Recovery Plan (2021–2027), which, in addition to €1.074 trillion in the Multi Year Financial Framework, contains €750 billion in *NextGenerationEU* funding. *NextGenerationEU* funding is specifically aimed at strengthening innovations and digitalization, and market reforms under the recovery and resiliency facility; extending COVID-19 pandemic response and repair programs through the Recovery Assistance for Cohesion and the Territories of Europe (REACT-EU); climate change mitigation and adaptation through supporting enhance support for Rural Development, and an increase in available funding for Horizon Europe, InvestEU, Just transition Funds, and Rescu facility (EU Commission, 12 February 2021).

What is worth noting, however, is that response and control measures implemented by governments, households, and companies increased debt stock to unprecedented levels. Based on estimates of International institute of Finance (IIF), measures and policies implemented by governments, households, and corporates to respond to and contain the COVID-19 pandemic contributed to an increase of US\$24 trillion (355%) in global debt from US\$257.4 trillion (fourth quarter 2019) to US\$281.5 trillion in the fourth quarter of 2020 (Maki, 2021). With a drastic drop in aggregate demand ascribed largely to contraction in private consumption and investment spending, nonfinancial and financial firms are increasingly relying on borrowing to remain afloat, while governments are reverting to Too Big to Fail (TBTF) approaches to prevent systemically important companies from devastating bankruptcies.

Consequently, debt to GDP ratios have increased, as are corporate leverage ratios, both factors creating conditions for future financial vulnerabilities due to reduced fiscal space and resilience to adverse changes in macroeconomic conditions. In the case of Indonesia, debt to GDP ratio increased from 29.8% (August 2019) to 34.53% (August 2020). The ratio is still relatively low below 40% above which IMF is optimal for fiscal sustainability for developing and emerging countries and in comparison with ratios of other emerging economies (China, Turkey, Korea) and some developed economies (Japan, the USA, Spain, France). Indonesia's debt to GDP ratio for 2020 is also far below 64% level that World Bank considers the tipping point above which increase in debt increases the likelihood of economic distress and default (Caner et al., 2010).

However, Indonesia has earmarked US\$412 billion in investment for 2020–2024, 65% of which will be financed by a combination of direct government spending (40%) and state-owned enterprises (25%), while 35% from the private sector (Salna & Suhartono, 2019). Thus, the projected increase in Indonesian government borrowing in 2021 and beyond is projected to push the fiscal deficit to GDP ratio to 6.34% and above (IDN, 2020). Such a deficit ratio is more than double that mandated by the fiscal rule (3%). In a country that used to be renowned for balanced budgeting, breaching the fiscal

rule even if necessitated by the good intention of stimulating economic recovery, has the potential to arouse strong public resentment and political opposition. Moreover, the outbreak of COVID-19 pandemic has not only sparked a surge in global indebtedness and corporate leverage ratios, increased excess global deaths, inflicted immense damage to core business capabilities, made orthodox business models obsolete, but also disrupted skill and expert space as some highly prized skillsets prior to the pandemic have become redundant while new ones have assumed prominence.

Most importantly, however, one of the ramifications of COVID-19 outbreak has been the fundamental shift in the needs of users, increased importance, and benefits of having the capacity and agility to leverage first-mover advantages, and altered the innovation landscape ascribed to rising uncertainty about next normal futures (Goergieva, 2020; Twilio, 2020). The implication is that there is need to reorient and refocus innovation resources toward discovering actionable insights quickly and acting upon them by making appropriate choices of product production or service delivery process technology; new product and service offers; and realigning business model reconfiguration in line with new customer needs and attendant expected experiences (ADBI, 2020; Nalletamby, 2020). Besides, predicting and complying with new regulatory and competition dynamics, and accelerating and scaling up new products and services, have created opportunities for widening and intensifying collaboration and networking in the same industry as well as different industries in both backend and frontend operations technology, leveraging opportunities in resource mobilization, risk mitigation, and in establishing product and service regulatory standards. Using such a perspective and outlook as guardrail in policy design and implementation should support the consolidation and phased transformation of gains achieved during emergency response into a strong, rapid, and resilient economic recovery.

The expectation is that implementing the changes this article proposes will foster agility in the alignment of Indonesian government, business sector, and society with the new demands to reconfigure, renew, and reposition product and service production and delivery processes from primary production and export to a high value-added, global value chain-based, knowledge economy that is imperative for robust and resilient economic recovery in the next normal economy and beyond (Aamer et al. 2020). What is true for commercial firms is to a large extent also true for government institutions and agencies.

It is against that backdrop that this article proposes several initiatives in areas of education, labor, and SMEs, trade, and investment, which we hope can contribute to an accelerated recovery of Indonesian economy from the deep economic slowdown that is currently jolting the economy and society. Findings of this article contribute to knowledge and practice on the impact and management of major crisis situations. While the results may provide insights into the dynamics of COVID-19 response, and control measures and projected recovery for Indonesia, some of the findings are generalizable to other countries and context. Findings provide insights into factors that influence a country's performance during a prolonged multifaceted pandemic that affects all aspects of economy and society. The outbreak and course of COVID-19 pandemic has exposed fundamental problems, which operating for decades under normal conditions that are characterized by stability, certainty, and predictability "concealed". First lesson is that good leadership and management during normal conditions may falter during times of crisis that demand quick and accurate high impact decision making on issues that affect millions of people. Secondly, a decentralized political system, the multitiered and distributed lengthy decision-making process enhances public participation and engagement in the public policy process, but hampers and curtails quick decisive making under conditions of high uncertainty that characterize emergency and crisis situations. Third, some structural problems, specifically the digital divide between large and SMEs, across regions, sections of society, and between urban and rural areas, influenced the performance and effectiveness of response to COVID-19 pandemic and will also determine the pace and direction of recovery

efforts in future. The fourth lesson is that structural obstacles faced in operating effectively during COVID-19 induced “transient” economy also have implications for the kind of measures that need to be taken to ensure that economy does not face similar formidable obstacles in competing in the industrial revolution 4.0 global economy. The sixth lesson is that undoubtedly, while the impact of COVID-19 pandemic on labor highlighted the level of unpreparedness of the largest section of the labor force in a digitalized economy, findings in this article provide areas that reform and redress. The seventh lesson relates to the ramification of COVID-19 pandemic at the organizational level, both public and private. COVID-19 pandemic has accelerated digitalization, which in turn has triggered fundamental changes in drivers of competitiveness including business models, business process, skills, and competences individuals must have to become employable. Thus, the article finds by identifying obstacles that have hindered effective operations in a digital economy and provides invaluable actionable insights that need strengthening, reforming, and transforming including education system, human resource development, ICT infrastructure, business regulatory regime, corporate and political leadership, and regional cooperation.

2. Methodology

The article used backcasting methodology (Holmberg & Robert, 2000; Di Matteo, 2018; Wilson et al., 2006). Backcasting³ is a planning method that explores the feasibility and implications of current actions that are needed to achieve future outcomes and goals. Thus, the feasibility, opportunities, and obstacles in current actions are gauged from their contribution to achieving future scenarios. The main advantage of backcasting method in planning is its participatory nature in developing the vision, future state and timeline and phases needed to achieve that state. The method involves five steps. First, determining the timeline that is usually far into the future. Secondly, determining the current state, in this respect the economy and selected sectors, and key stakeholders. Thirdly, using future scenarios to clarify the future state by defining its essential features including changes needed in the current state to achieve it, key stakeholders, obstacles, and opportunities that are likely to characterize the process. Identify events that should occur progressively from the current state to the future state, followed by delineating and plotting actions on the predetermined timeline and how such actions relate obstacles and opportunities. Fourthly, designing actions necessary to overcome obstacles, identify key stakeholders including expertise that influence actions and obstacles, and indicators that will be used to measure their impact on the transformation process. This phase devises actions to obstacles to create opportunities that foster the achievement of the future state. Fifthly, repeating the process based on several future scenarios to compare advantages and disadvantages as well as differences and similarities in actions that connect current to the future state. Assessment outcomes inform the decision on which scenario is selected to implement based on plausibility, feasibility, and acceptability.

The process entailed a review of the vision and goals of Indonesian government development plan 2005–2025, and an assessment of social and economic indicators to obtain general picture of the state of the economy and societal conditions. Identifying gaps in expected and current social and economic conditions informed the course of action that was recommended. Thus, the article reviewed projections, objectives, and targets of Indonesian government’s long-term development plan (2005–2025) and the medium-term development plan (2020–2024), to provide the benchmark to which current social and economic conditions were compared. With a focus on education, labor, and employment, and SMEs, trade, and investment, the article conducted a review of the current level of performance of the three sectors considering what Indonesia requires to achieve its 2025 objectives. A review of the repercussions of COVID-19 pandemic on education, labor, and employment, and SMEs, trade, and investment was conducted to determine the extent to which it derailed efforts toward achieving long-term objectives through changing the trajectory of some of the macroeconomic anchors that are used to project economic performance. The article used data

and statistics obtained from various credible sources including data and published reports by the Central Bureau of Statistics (BPS), National Development Planning Agency (Bappenas), International Monetary Fund (IMF), PISA scores, the World Bank, papers published, and reputable domestic and international research centers that are relevant to the topic of COVID-19 impact and response, of digitalization on economy and society. BPS data on macroeconomic indicators such as economic growth rate across sectors, investment, stock market, government spending, and labor market condition provided evidence that was used to assess the impact that COVID-19 pandemic had on the economy; data from Bappenas included the national long-term development plan 2005–2025 and medium-term development plan (2020–20,024 reports; PISA scores were used to provide the backdrop on the performance of Indonesian education compared with other nations; IMF economic growth rates indicators provided the credible source of the impact of the COVID-19 pandemic on Indonesian economy compared with other nations and scenario-based projections; Ministry of Finance data was used to highlight government spending on economic stimulus, public health, education and social services to respond and contain the impact of the COVID-19 pandemic on the economy and society. Meanwhile, unemployment data was obtained from the World Economic Outlook database (WEO), IMF, which is regularly updated by the latest survey data.

3. Research findings

3.1. A gap between long-term development projections and current economic and social conditions

Indonesian long-term development plan (2005–2025) envisions the creation of an economically advanced, competitive, resilient, inclusive Indonesian economy that has high societal welfare and individual character maturity, underpinned by an innovative and adaptive human resources pool that is adept at the latest advances in science and technology.⁴ To achieve that vision, Indonesia economy should grow by at least 7.0% annually⁵ during 2020–2024 period, which is more than 200 basis points higher than an annual average of 5% achieved prior to COVID-19 pandemic, and 1050 basis points higher than 3.5% contraction registered during the pandemic. The implementation of the medium-term development plan for 2020–2024, which is the last phase of the 2005–2025 long-term development plan, encapsulates the achievement of the vision and goals laid out in the former. The objectives and targets include strengthening preparedness and readiness of the economy and society to support the industrial 4.0 revolution by raising the contribution of manufacturing and processing industry to GDP to 21%, enhance the contribution of tourism to GDP to 5.5% that is expected to increase domestic and foreign tourists to 350–400 million and 22.3 million, respectively, and generate e USD\$30 billion in foreign exchange revenues. In addition, the long-term plan is expected to enhance valued added of primary products including estates, mining, and extraction sectors by accelerating industrialization in Outer Java islands, and developing new industrial centers and cities in Outer Java islands; enhance public healthcare by reducing stunting to 14%, and maternity death rate to 183 per live births; enhance innovation capacity and competence by among other things fostering easier and quicker transformation research results into commercial products, increase the rate, frequency, quality of innovative products; and enhance human resource quality, employability, and innovativeness by supporting and promoting vocational education and training, among others (Bappenas, 2019).

Nonetheless, the repercussions of COVID-19 pandemic have compounded current social and economic conditions, thereby posing the danger of undermining the achievement of both medium-term and long-term objectives and targets. Results of a review of current social and economic conditions attest to that reality. Over the past 12 months, Indonesian economy has been plunged into a crisis, which is largely attributable to raging COVID-19 pandemic. Repercussions of the pandemic are reflected in a decline of fixed investment by 6.8%, as are rate of economic growth and exports and imports growth. The Indonesian economy, which prior to the pandemic was

projected to grow by 5.1% in 2020, had by the third quarter of 2020⁶ in the midst of the first recession in a decade. Moreover, apart from communications, agriculture, and government expenditure sectors, output across most economic sectors has declined, which has sparked a surge in unemployment from 5.28% in the third quarter of 2019 to 7.07% in the third quarter of 2020. The rise in open unemployment represented an increase from 2.66 million to 9.77 million jobless people.⁷ Besides, rising open unemployment rate overshadows an even higher protracted under-employment problem that has been responsible for the rapid expansion of the informal sector.

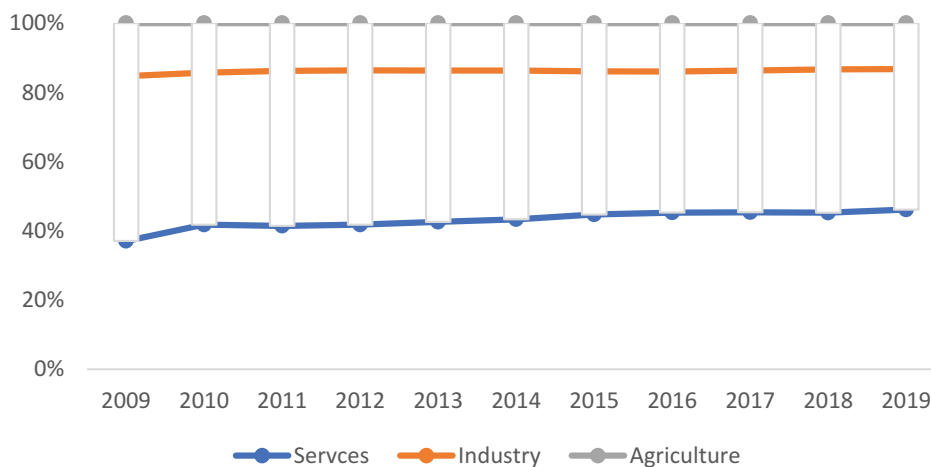
Moreover, the country’s response and containment efforts have been undermined by a combination of the protracted and wide-ranging nature of the ramifications of the pandemic, lack of crisis management strategy at the outset, poor coordination across different tiers of the central government and local governments, limited involvement of non-government actors in emergency response program design, implementation, monitoring, and evaluation, and institutional and infrastructure constraints to deliver core competences including agile leadership, team work and technical agility, agile product and service delivery, organizational agility, policy and program flexibility, multistakeholder collaboration, and engagement and continuous learning culture and innovativeness (Bisen, 2018; SAFE, 2019). In any case, while the scale, enormity, and rapid speed of the response efforts required to mitigate and control the pandemic in such a large archipelago country may be to blame for the procrastination, unpreparedness, and limited coordination that characterized the initial phases of the COVID-19 emergency response effort, such problems have showed a recurring pattern in the past. Recurring problems are not incidental but underscore structural problems.

Manifestations of the litany of the problems include, but not limited to, persistent decline in the manufacturing sector as a percentage of GDP (Figure 1) from 42.78% to 38.95% in 2009 and 2019, respectively⁸; the predominance of primary, low valued-added products in the country’s exports and low complexity of the country’s manufactured exports (Bappenas, 2019, 187); low but persisting poverty incidence as reflected in an estimated 25.8 million (9.4% of 274 million) of Indonesians still living below the poverty line; the still high infant mortality rate of 25 per 1000 live births (ADB, 2020a) and high stunting rate of 27.6% (2017); relatively low human capital index (HCI) of 0.54 in 2020 (World World Bank, 2020) and low human capital⁹; and high rural–urban, Java–Bali–Outer–Java digital divide due to the relatively urban-centered ICT technology infrastructure and deployment infrastructure.

Other structural issues that are also worth noting include low labor productivity ascribed to the large percentage of the labor force with primary school educational attainment; disparity in access to quality health service by region, gender, and income groups; and high-income inequality (UNDP, 2020).

Figure 1. Contribution of industry, services, and agriculture to GDP, 2009–2019 (%).

Source: Plecher (2020)



Disparity of access to quality education (Muyanja-Ssenyonga & Susanto, 2018) and health services has undermined labor quality and productivity enhancement efforts, development of requisite competence and adaptability capacity to support organizational and societal agility to take full advantage of developments in information and communications technology (ICT), regional integration, and globalization of product and service value chains. Meanwhile, the high rural–urban and cross-regional digital divide has undermined the adoption of proven best practices in COVID-19 crisis emergency response and containment including ICT and cloud-based solutions including remote working, online learning, telemedicine, e-government-based services, and e-commerce (Alatovic et al., 2021). Thus, considering the fundamental changes in operations management, regulatory environment, requisite skillsets, working conditions, and drivers of best performance at the individual, organizational, and economy level, which response and mitigation efforts to COVID-19 pandemic have engendered recovering from the devastating repercussions of the great recession will not only require reimagining the future that Indonesians want but most importantly also entail the need to reformulate, reconfigure, and reorientate economic operations, strategies, policies, and programs to achieve equitable, inclusive and sustainable growth and development (Alatovic et al., 2021; Berruti et al., 2021).

However, such a task is compounded by the lingering ramifications of decentralization policy implementation, which while enhanced decision-making autonomy and public participation in the public policy process, exacerbated the complexity, unpredictability, and uncertainty of public policy implementation. This in part ascribed to the uniform devolution of key functions by the central government to local governments that have stark differences in institutional, human resources, and infrastructure and administrative capacity (Booth, 2011; Nasution, 2016; Syaikh, 2001); central government and local government relations that are increasingly characterized by influence peddling, vested interests, and political party affiliation between leaders in the central government and those in local governments; frequent change in policy priorities and direction in line with changes in governments after election cycles (Pepinsky & Wiharja, 2011); and weak governance structures that have been responsible for an increase in frequency and magnitude of malfeasance opportunities. Nonetheless, the focus of this article is on the futures of sources of inclusive economic growth especially the role of micro, small, and medium size enterprises; nature of work, employment, and labor force; production, investment, and trade; and the imperative of developing, adopting, and deploying ICT and digitalization.

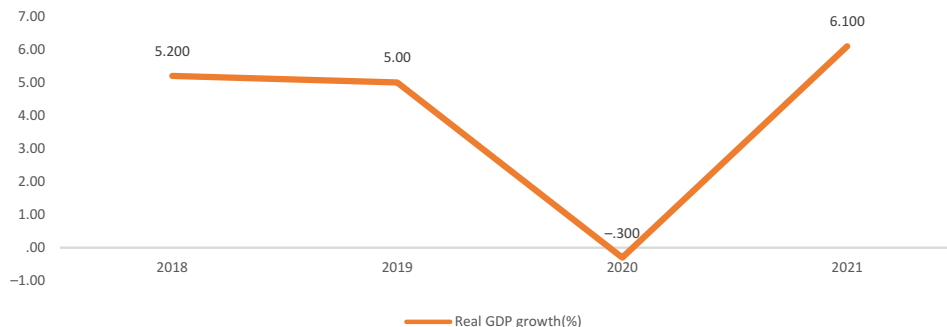
3.2. COVID-19 repercussions on the economy: accentuating the expectations-current state gap

The strong multisectoral, multifaceted containment and response programs, which the Indonesian government implemented since March 2020, most of which are expected to continue in 2021 as part of the IDR 373.2 trillion (\$25.74 billion) economic recovery program, have to a large extent protected the Indonesian economy from experiencing an even deeper economic recession. Despite the pandemic, Indonesia graduated from low middle-income status (\$1,036–4,045 USD bracket¹⁰) to high middle-income status (\$4,046—\$12,535 income bracket); made significant improvement in human development index from 0.707 (2018) to 0.718 (2020), which implied that the country had joined the ranks of high human development index nations. Indonesian income per capita is projected to continue on its upward trajectory to reach 5,449 USD in 2025 (Plecher, 2021), while economic growth rate in 2021 is projected to be within the 4.4–4.5% range. Nonetheless, that is not to say that the COVID-19 pandemic has not had devastating effects on the Indonesian economy and society both at the macro and micro levels. Moreover, the impact of the pandemic has been varied by economic sector, sections and groups of labor force, income brackets, and private and the public sector.

Nonetheless, the immediate impact of COVID-19 pandemic was on economic activities. Measures, which the Indonesian government has taken to stem an even more severe impact of COVID-19 on society, which included imposing limitations on people's movements and economic

Figure 2. The impact of COVID-19 pandemic on real GDP growth, 2018–2021, actual and projected, Indonesia.

Source: IMF, (2020a)

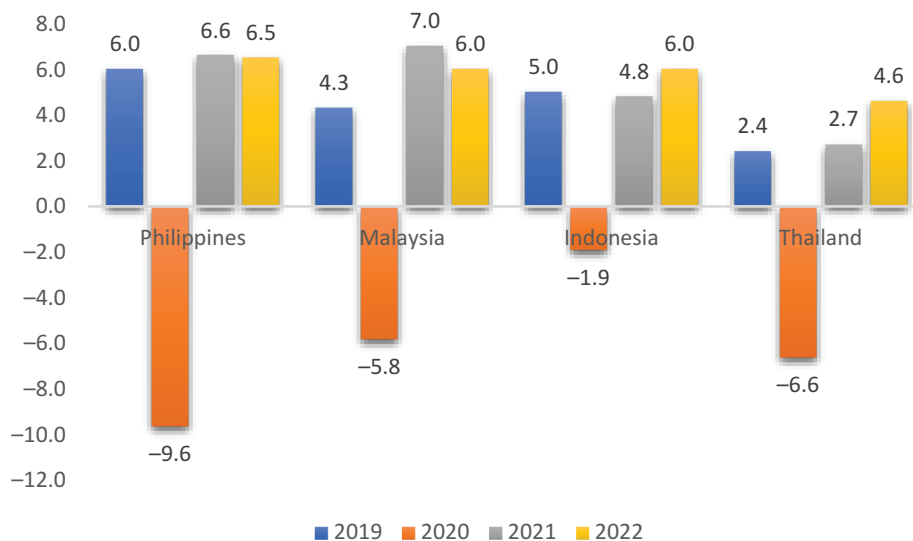


and social activities, transportation, have jointly contributed to a severe economic contraction that culminated into a recession. What is more concerning, however, is that nobody has the audacity yet to predict with some measure of confidence the true scale and magnitude of the impact, let alone the time when the impasse will end. Based on IMF (2020a) estimates, Indonesian economy real economic growth plummeted to -3% in 2020 from growth rate of 5.00% in 2019. However, the prediction projects a brisk, jockey stick recovery to occur in 2021 (6.0%) if the assumptions of a significant decrease in COVID-19 infections materialize (Figure 2).

Nonetheless, Indonesian economy has two key advantages, having on several economic crisis situations, enabling it to mitigate the impact of global macroeconomic shocks on the economy and society: the large size of the economy and the relatively low dependency on external trade in goods and services as percentage of GDP compared with other smaller ASEAN economies. In 2020 GDP for Indonesia, Thailand, the Philippines, and Malaysia, was US\$1.17 trillion, US\$509.200 billion, US\$398.33 billion, and US\$380.261 billion, respectively.¹¹ Meanwhile, based on WOE (2017) statistics, the ratio of the value of external trade to GDP for Malaysia, Thailand, the Philippines, and Indonesia was 135.9%, 121.6%, 70.7%, and 39.6%, respectively. To that end, Indonesia is projected to register lower real economic contraction than other ASEAN members such as Malaysia, the Philippines, and Thailand. Indonesian economy is projected to register the least real economic growth contraction of (-1.9%), in contrast with Malaysia (-5.8%), Thailand (-6.6%), and the Philippines (-9.6%). Moreover, as Figure 3 shows, with the exception of Malaysia, which IMF

Figure 3. Projected economic contraction and recovery of Indonesia, Malaysia, the Philippines, and Thailand, 2020–2022.

Source: WEO (2021)



projects to register real economic growth of 7.0% and 6.0% in 2021 and 2022, respectively; Indonesia is projected to almost return to pre-COVID-19 pandemic growth by posting 4.8% and 6.0% in 2021 and 2022, respectively (IMF, 2021). This is in part attributable to the projected upward trend in energy and non-energy commodity prices including, agricultural commodities (palm oil), metals and minerals (copper, iron ore, tin, gold, platinum and silver), coupled with swift recovery of China and US economies that are major export destinations for key Indonesian exports (World Bank, February, 2021).

There is no economic sector that has not been affected by the ramifications of the pandemic. However, the ramifications of COVID-19 pandemic containment programs have been very devastating and disruptive for some sectors that depend much on frequency and intensity of merchandise and people movement and level of business confidence and expectations. Such sectors include entertainment and hospitality, logistics and transportation, real estate and property market, and private consumption and investment. Public investment has also been adversely affected due to the repurposing of a substantial percentage of public investment toward spending on healthcare related to strengthening COVID-19 pandemic control, treatment of infested victims, tracing and testing suspected cases; and economic stimulus programs to support highly vulnerable households and virtually all economic sectors (see Table A1 in Appendix for details).

Except for health and education, individual consumption, and gas products, all other sectors of the economy showed a drastic decline in the second quarter 2020 compared with the same quarter in 2019. The worst affected include gas goods services (-57.70%), non-gas goods services (-41.36%), automotive (-34.12%), other equipment (-26.09%), oil and gas goods (-26.24%), restaurants and hotels (-16.53%), transport and communications, exports of goods and services (-11.66%), capital formation (-8.61%), leading to a drastic contraction of GDP from 2.97% (Q1-2019, Q1-2020) to -5.22% (Q2-2019, Q2-2020). There is thus little doubt that if the Indonesian economy records another decrease in GDP during the July-September 2020 quarter, it will be officially entered into a recession (Figure 4).

One of the economic activities that are among the first to experience a reduction and among the last top rebound from an economic crisis is direct investment. It is therefore not surprising that the

Figure 4. A break-up of the pandemic fallout in all economic sectors in the economy.

Source: BPS, 2020.

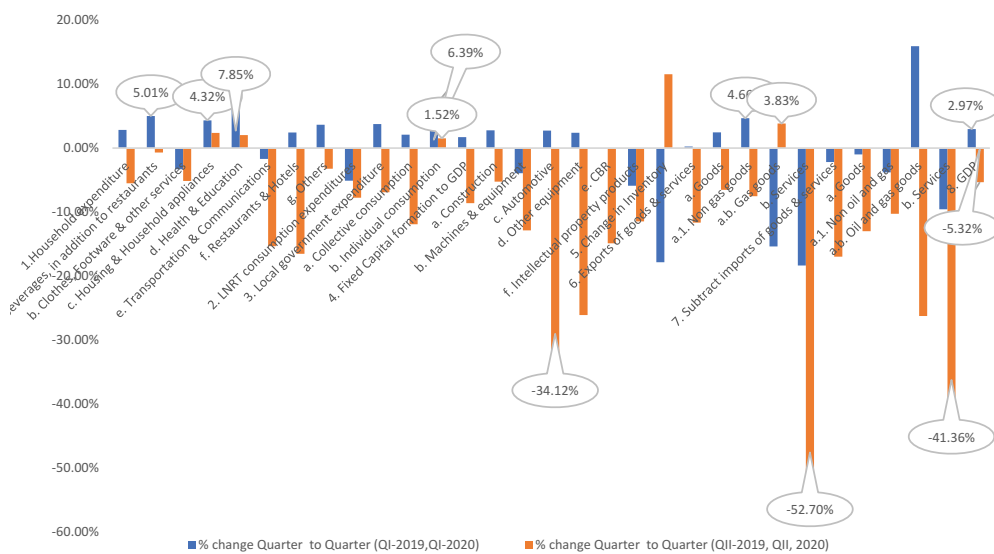
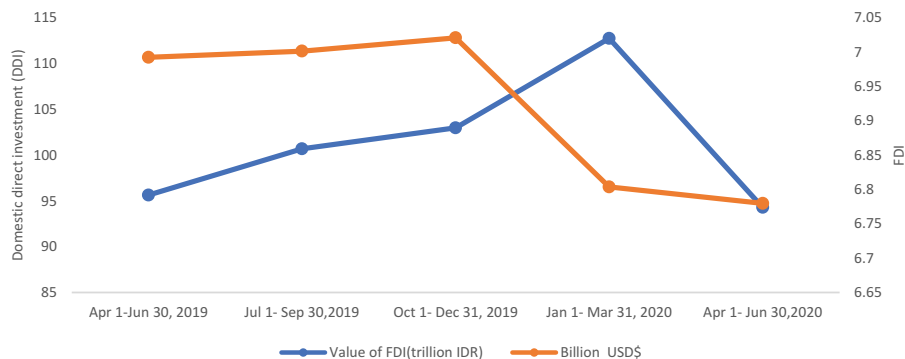


Figure 5. Trajectory of domestic and foreign direct investment, April–June 2019, April–June 2020.

Source: BPS, (2020)



value of both domestic and foreign direct investment decreased in the second quarter of 2020. Nonetheless, it is worth noting that while FDI took a downward trend during the second quarter of 2020, domestic direct investment had been on a downward trend since the fourth quarter of 2019. This may imply that the decline in domestic and foreign direct investment while in part is attributable to the advent of the COVID-19 pandemic the fact the domestic direct investment shows a downward trend in the fourth quarter of 2019 before the impact of COVID-19 pandemic on Indonesian economy occurs attests to the reality, other factors that are key to direct investment are equally responsible (Figure 5).

The performance of the stock market is another indicator of the state of health and trajectory of economic activity. While the number of companies listed in Jakarta stock exchange shows no change, on the contrary showed a slight increase during COVID-19 pandemic, both the value and volume of shares have decreased drastically. Rising COVID-19 cases even amidst government efforts to combat its spread, continuation of contagion from trade partners who are also still experiencing the fallout of the pandemic, compounded by contraction in economic activity, and uncertainty about the impact of the pandemic on the economy, have triggered risk-averse behavior of investors across all sectors of the economy. Risk aversion has translated into large-volume sell-off of shares for cash to reduce potential future losses in the event worst-case scenarios of

Figure 6. Impact of COVID-19 pandemic on the stock market.

Source: BPS (2020).

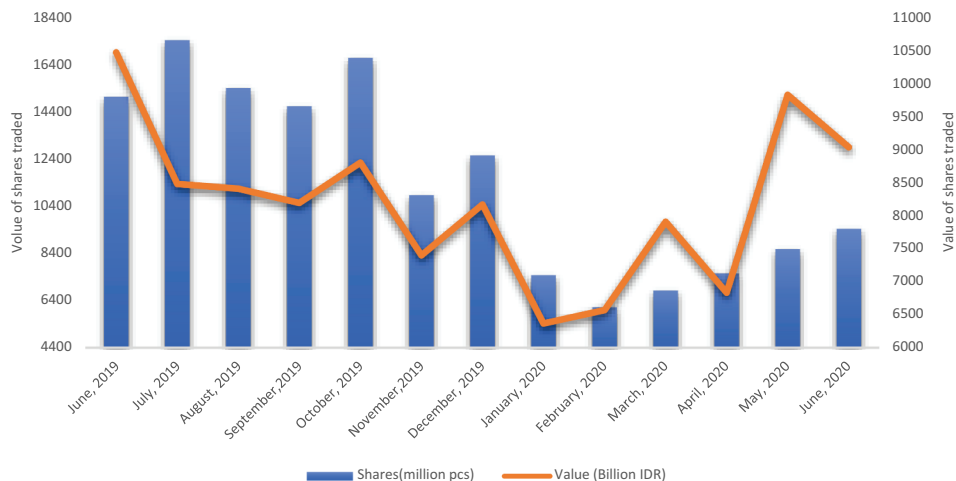
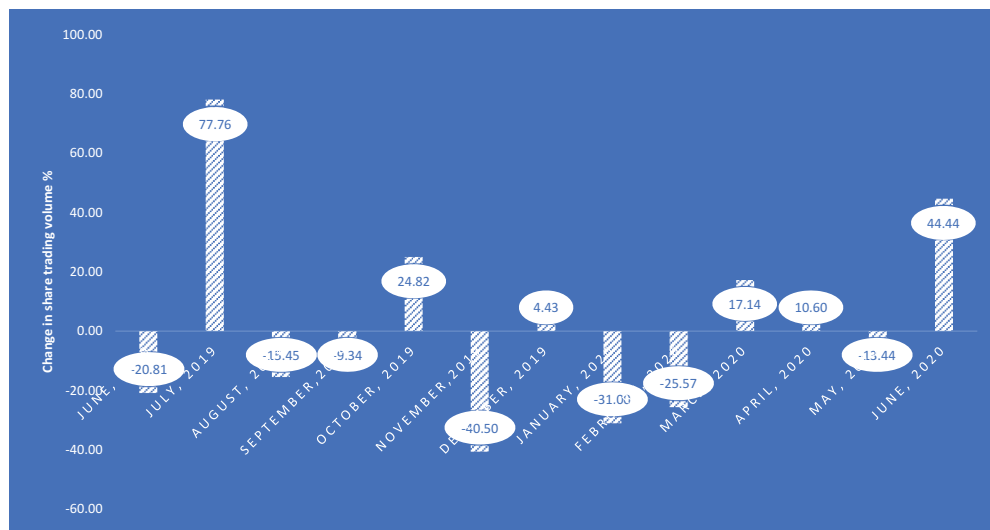


Figure 7. Fluctuations in stock exchange reflecting rising uncertainty.

Source: BPS (2020).



even worse economic conditions materialize with an even longer duration of the pandemic and its ramifications than current forecasts demonstrate (Figure 6).

Sectors with the largest sell off included mining, construction, real estate, and property (Prasidya, 8 September 2020), which is attributable to the direct impact of economic slowdown, and measures put in place to contain the spread of the virus that included closure of offices, education institutions, hotels and entertainment spaces, restricting traveling and transportation, and physical distancing. Consequently, containment measures have triggered an increase in remote working, remote schooling, remote shopping, and an increase in telemedicine services, all of which have reduced demand for commercial property, leading to a decrease in property value.

It is also true that property, real estates, and construction are long term in nature, which usually are among the first to decrease as the economic performance slows down, and due to the importance of factoring in long-term economic performance in decisions to invest, recovery takes long to occur, which is why sell off occurs in higher volumes than is the case with other sectors of the economy. The fluctuation of the volume of shares traded highlights rising uncertainty among investors, which gauges both public investors' confidence and public consumption confidence about the current economic conditions, and trajectory (Figure 7).

To mitigate the adverse impact of the fallout of COVID-19 pandemic on the economy and society, central government has taken various measures that are aimed at supporting vulnerable population and economy, key sectors of the economy by extending subsidies in the form of business finance, employee payroll support, energy expenses, and support to local and central government institutions (Figure 8 and Figure 9).

By 3 July 2020, the government projected spending on COVID-19 mitigation and economic stimulus package to amount to IDR 695.2 trillion (Ministry of Finance, 2020:35), which is projected to rise to IDR 905.1 trillion (Purwanto, 2020) (Figure 9). The drastic increase in government expenditure is amidst a decrease in government revenue due to slowdown in economic activity, limitation imposed on traveling and movements in line with coming into effect of the policy on nationwide, large-scale social limitation (PSBB). The increase in government spending at a time

Figure 8. Drastic increase in central government expenditure January–June 2020.

Source: BPS, 2020)

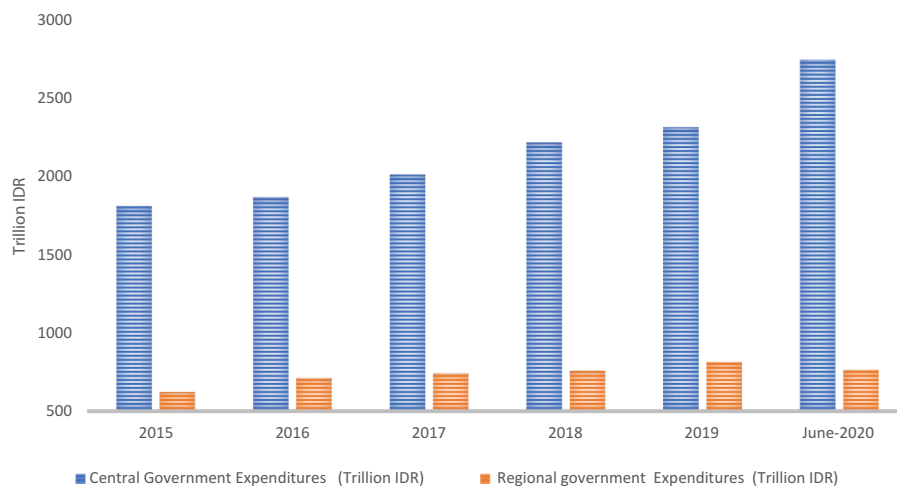
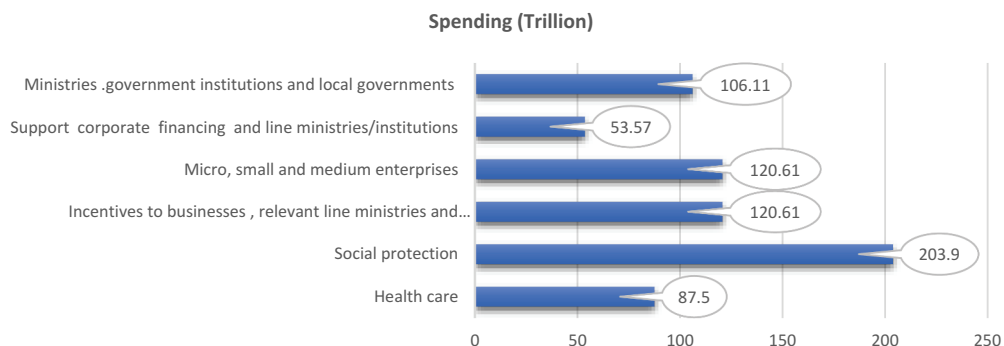


Figure 9. Government spending induced by COVID-19 by area and purpose.

Source: Ministry of Finance RI (2020:35)



when government revenues are decreasing is raising fears of widening fiscal deficit to reach 1.10%, which, however, is still far below the mandated cap of 3% of GDP. With lockdowns and related measures imposed on import and export destinations of Indonesian products, it is not only the fiscal balance that is facing strains but also current account balance.

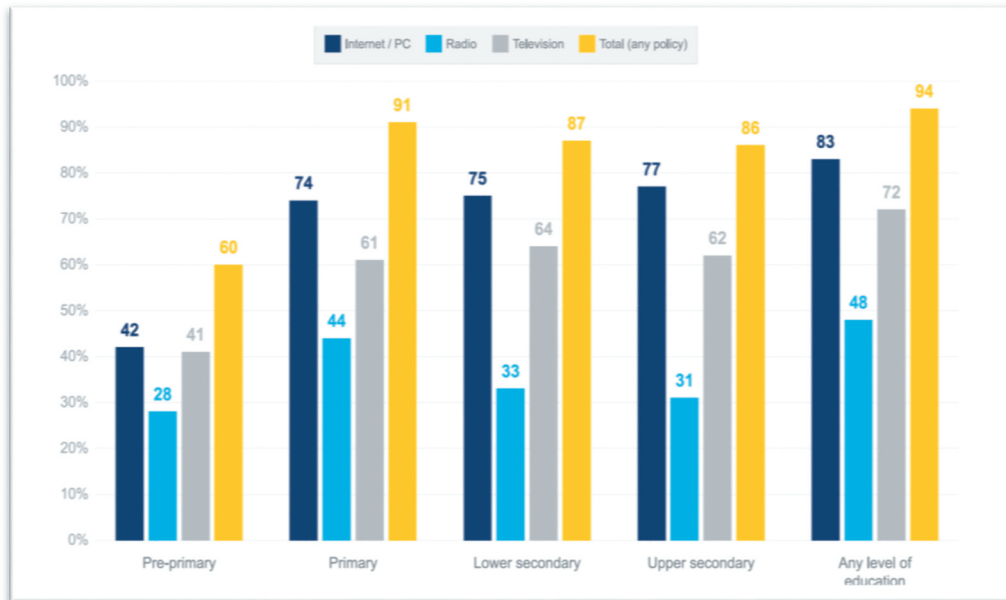
3.3. Education

The closure of in-person learning during the COVID-19 pandemic has created the potential danger of widening the gap in access to not only quality education but also to any education at all, for many primary, secondary, and upper secondary students. This is because of the lack of digital assets in households and adequate requisite digital technology and communications infrastructure and supporting education policies. Besides, the absence of teachers for students to consult in-person and differences in the support that parents can provide to students (UNICEF, 2020) have also been identified as major obstacles to remote learning.

A UNICEF report attests to that reality by noting that 31% (460 million) of all students at all levels globally do not have access to remote learning programs. The largest percentage of students with limited or no access to remote learning was in Eastern and Southern Africa (49%, 67 million), followed by West and Central Africa (48%, 54 million), Middle East and North Africa (40%, 37 million), South Asia (38%, 147 million), Eastern Europe and Central Asia (34%, 25 million), East Asia and the Pacific (20%, 80 million), and Latin America and the Caribbean (9%, 13 million) in

Figure 10. Percentage of countries that have introduced remote learning programs, by education level.

Source: UNICEF (2020).

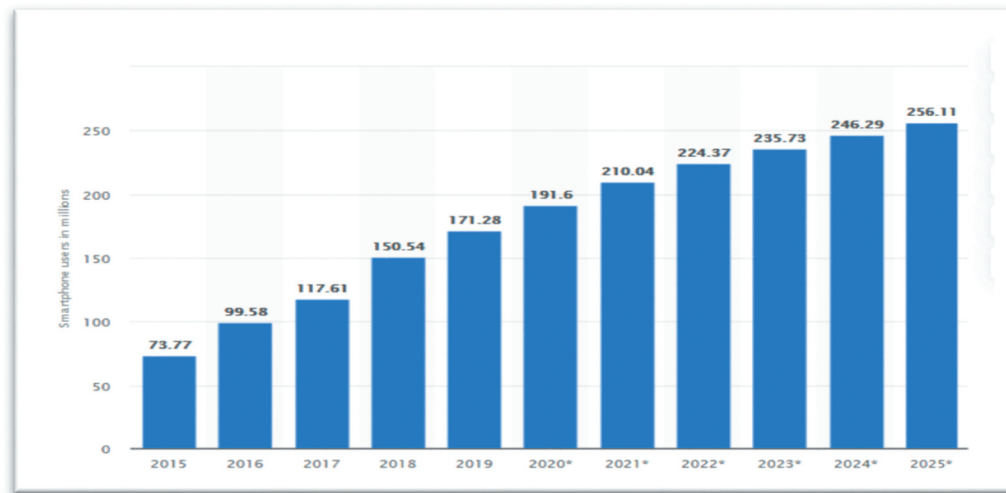


that order. The above figure includes 31% of pre-primary school going students, and more than 200 million at the elementary level (UNICEF, 2020). The problem is that the establishment of remote learning programs is less likely the younger the age of learners. At pre-elementary, primary, lower secondary, and upper secondary, 60%, 91%, 87%, and 86% of countries worldwide have established remote learning programs, respectively (Figure 10). The implication is that 40%, 9%, 9%, 13%, and 16% of countries worldwide have not established remote learning programs to support pre-elementary, elementary, lower secondary, and upper secondary students, respectively.

Impediments of access to remote learning services have been pronounced in Indonesia. The problem is still pervasive in rural areas and remote parts of Java-Bali in general, and in Eastern Indonesia in particular. There are several factors that are attributable to the problem, the most

Figure 11. Smartphone ownership in Indonesia, 2015–2025*.
 *Predicted figure.

Source: Muller (20120a).



important being the big digital divide between urban and rural areas and between western and eastern Indonesia (Figure 11).

Despite the fact that mobile phone penetration in Indonesia is high estimated in the order of 191.6 million (73% of the population of 263 million) in 2020 and predicted to reach 96% (256.11 million users) in 2025 (Muller, 2020a); ownership ranges widely from more than 75% in Jakarta (Western Indonesia) and above 70% in urban areas on average to about 40% in rural areas (Maulani, 2018). Meanwhile based on Islands, 58% of the population on Java Island (Western Indonesia) have access to mobile phones, which is in contrast with 27% of the population in Papua (Eastern Indonesia) (Muller, 2020a). In the same vein, in 2018, while based on the Association for Internet Service Provider in Indonesia (APJII), 73% of Indonesian population living in urban areas had access to Internet in 2017, only 48.25% of the population in rural areas had such access. By 2018 access to mobile phone had increased to 90.66% and 48.25% for urban and rural areas, respectively (Maulani, 2018).

Nonetheless, limited access to remote learning while crucial during COVID-19 pandemic conditions is not the only problem, rather underlines fundamental problems that have bedevilled the Indonesian education system. Manifestations of such problems include relatively low performance on cognitive tests; rising unemployment of graduates of institutions of advanced learning including universities and vocational colleges; disparity in the quality of education between Western Indonesia and Eastern Indonesia, which is largely attributable to differences in available physical infrastructure, school facilities, and human resources; the direction and conduct of education policy under different ministries and across ministries and government institutions [tertiary education falls under the jurisdiction of the Ministry of Education and Culture (state and private universities and colleges providing non-religious education), Ministry of Religious affairs (religious inclined education), and line ministries and government institutions (which provides specialized education and training in line with respective functions)]. The implication of that is that graduates from the three education channels that are independent of each other follow different curricular, teaching is based on different philosophies and priorities, which also means that the orientation, purposes, and goals and outlook of students are also different. Consequently, graduates working in the same office may differ in their approach to issues, mindset, and culture simply because of differences in their educational background and history.

Other problems related to education in Indonesia include inadequate supporting digital technology infrastructure, tools, devices, and equipment; lack of well thoughtout remote learning programs and curricular at all education levels; absence of teachers with capabilities to deliver remote learning courses that require sufficient ability to integrate digital technology in lessons¹²; the big digital divide hence disparity in reach and quality of communications and Internet networks across the Archipelago (Iswara (2020); and the initial assumption that the pandemic was only temporary hence obviated the need for changing the 2013 education curriculum, which being an in-person, direct teacher-mediated format has complicated remote learning due to absence of direct face-to-face interaction with teachers.

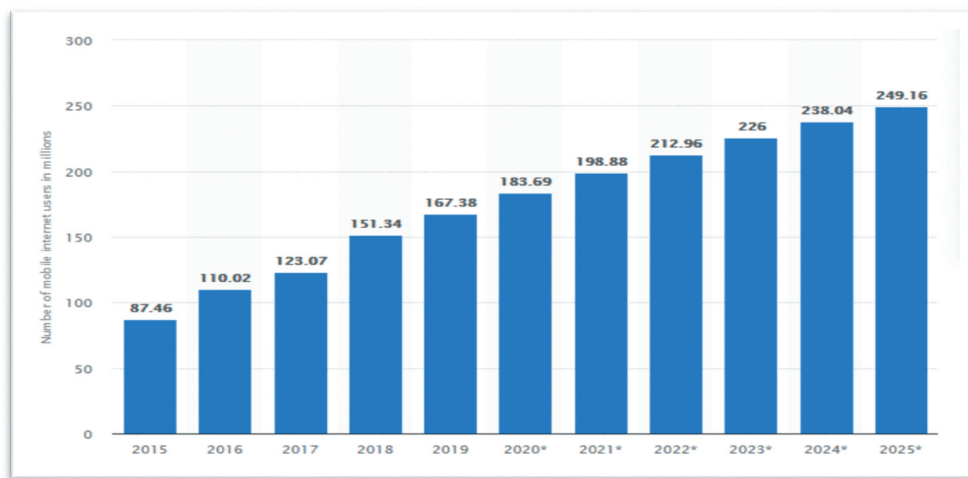
Nonetheless, Indonesia has levers it can use to increase the reach and quality of remote learning. The most crucial advantage is the high percentage of Internet usage in Indonesia (Figure 12). Indonesia has a high mobile phone ownership and usage (73%), which is coupled with a high and rising Internet usage of 68% (2020) and is projected to reach 94% in 2025 (Muller, 2020a, 2020b).

That said, creating organizational culture that shares and instills similarity in norms, values, and outlook is never easy under circumstances where workers are products of different tertiary educational curricular and orientation. This is not to mention inherent difficulties, which is an

Figure 12. Internet uses in Indonesia, 2015–2025*.

Source: Muller (2020b).

*data for 2020–2025 are projections



education policy that is formulated and delivered through starkly different institutional frameworks. Such differences pose difficulties in assessing skillsets needed and capacity to deliver them in a timely manner with commensurate quality through effective planning, implementing, and monitoring and evaluation of programs that equip learners with skillsets, working ethos, and social values that different components of society need to remain functional, enhance performance, and maintain and elevate competitiveness. Consequently, persistent unemployment and underemployment has become a common albeit unenviable feature that Indonesians continue to face.

What, however, makes the problem of unemployment more concerning is that the rising ranks of those people who are categorized as unemployed are no longer limited to individuals who are unskilled, semiskilled, and those with primary education attainment but is also increasingly becoming a problem for those with tertiary education. Looking at the trend of unemployment rates in Indonesia during 1991–2013 provides abundant evidence that unemployment of people with primary education attainment showing an upward trend during the period (30–50% of total labor force), while unemployment of individuals with tertiary education does not show significant change (8–15% of total labor force) with the exception of a slight decline in 2013. Meanwhile, during 2004–2014 period, individuals were actively looking for work and had vocational education and university education as the highest educational qualification was 15% and 7.7% unemployed, respectively (BPS, 2017). And that is the state of unemployment despite the reality that only 16% of Indonesian young adult population has tertiary education (Packham, 2020). Thus, considering the burgeoning unemployment of educated graduates, serious questions are being raised about the effectiveness of the link and march policy, which the Education Ministry once touted as an assurance that competencies and skills of graduates of educational institutions were in line with those required by employers in private and public sector organizations.

Nonetheless, the education system may not be entirely to blame for the problem. This is because the adoption of technological advancements in places of work precedes the incorporation of those skills in educational curricular, which creates a gap between skills that workers have and those that are required and needed to perform job tasks (Goldin & Katz, 2009). A good example is the rising automation of routine tasks, which has been responsible for a decrease in the demand for such skills, while triggering an increase in demand for interpersonal and analytical skills that are complementary to the effective adoption and use of technology in the workplace (e.g. computer

programming, machine learning, data analysis, augmented and virtual reality). Needless to add, such mismatches lower labor productivity, and in turn have adverse impact on economic growth (McGivney & Winthrop, 2016; McGowan & Andrews, 2015).

In light of that, concerns are being raised about the effectiveness of Indonesian education system. Effectiveness in this case refers to the extent to which education system outcomes, especially individuals holding education qualifications, contribute positively to society not only as educated individuals per se but also their employability. Employability is gauged by the possession of cognitive, socio-emotional, and technical skills that support and requisites for individual development, the job market, and contribute to societal development and renewal (Mortimore, 1997). The problem does not end there, however. This is because considering the fact that some of the unemployed graduates receive funding from local and national budget either directly (scholarships) or indirectly (capital grants, teachers' salaries, development of infrastructure and physical facilities), the existence of burgeoning unemployment among the educated Indonesians reflects allocation of more society resources to education provision than is necessary, which is an opportunity cost for investments in other equally important sectors including health and sanitation, agriculture, transportation, among others.

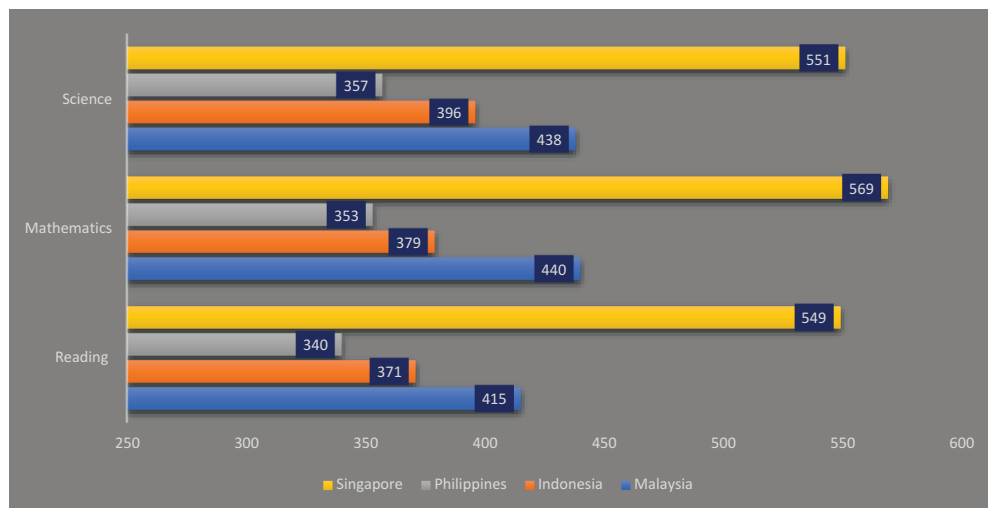
The problem of a mismatch between education system outcomes (supply) and manpower expectations and demand in society has been identified as a problem for some time. The long-term development plan (2005–2025) cites low quality of human resources of Indonesia, as reflected in the country's performance on the human development index (HDI), as one of the major challenges Indonesia faces, an obstacle to reduce poverty, income inequality between low-income earners and top income earners, male and female members of the population, as well as across regions (long-term development plan, 2005–2025: 31). In fact, inequality of access to quality education is one of the factors that have relegated Indonesia to persistent low labor productivity, anemic economic productivity, and modest competitiveness of the national economy. Thus, besides improving health services, enhancing the quality of education and attendant improvement of the quality of the country's most important resource (the 270 million population) is *sine quo anon* for not only the country's economic growth in the medium term but most importantly, in the long term as well.

An illustration of the fundamental problem that bedevils the country's education system is reflected in the performance of 15-year-olds on PISA tests in 2018 (Figure 13). PISA test results gauge the performance of a country's 15-year-olds on reading, mathematics, and science. Since the tests are standardized, PISA test provides a good benchmark and placement of the performance of a country's educational system compared with other countries at the same point in time. The latest PISA tests results were released on 3 December 2019 and showed that Indonesia trails Malaysia and Singapore on all the scores while outperforms the Philippines on all the three scores (OECD, 2019). What is perhaps more disconcerting for Indonesia is that its performance on PISA tests in 2018 (Figure 12) stagnated even deteriorated from that in 2016. In 2016, Indonesia was ranked 62 out of 70 countries that conducted the tests, and in 2018, its rank was 66 out of 76. To maintain Indonesia's performance achieved in 2016, the countries would have been ranked 65 out of 76.

In the globally interdependent world, Asia, and the Pacific region, including ASEAN economies has become the destination of highly educated labor that is needed to support high economic growth. However, if the performance of the country on indicators of human capital development is to serve as an indication of the country's readiness in that respect, the country's inability to equip its future workforce with requisite skills that are on demand on today's labor market, let alone in the future continues to underperform peers. That means that were the situation to remain as it is in the foreseeable future, the potential for Indonesians to reap the benefits of the ASEAN community that allows free flow of capital, labor, goods, and services, including skilled labor, remains small.

Figure 13. PISA 2018 test scores for Indonesia, Malaysia, Singapore, and Indonesia compared.

Source: OECD (2019).



There is thus need for revisiting the educational system, with strong focus placed on overhauling institutions, mechanisms, and other legacies that are obstacles to achieving both the general goals of producing an educated, ethical, and productive labor force, and specific objectives of fostering the acquisition of specific skillsets that are tailored to serving in certain sectors. The task becomes the more urgent given the lag between the adoption of technological developments in society, hence industry, commerce, financial, and nonfinancial sectors on one hand, and the acquisition of skills by current and future workforce (McGivney & Winthrop, 2016).

This is largely because of the length of its time it takes highly bureaucratic educational systems to incorporate and accommodate the latest developments in skill requirements of highly dynamic, competitive-edge seeking places of work in their curricular. The education model, in general, including policymaking process, curricular development, is non-participatory, rigid, and bound by past traditions, that make it impervious to developments in places of work. Undoubtedly some educational systems, with minor modifications and adjustments, have been able to fulfill the demands of the twentieth-century society.

Nonetheless, as long as educational systems and the philosophical foundation, organizational structure, business processes, an arm's length approach to the involvement of all stakeholders and paradigms on the role of education and learning practices, that continue to be oblivious to changes in drivers of employment, job tasks, and return on education, graduates from educational institutions will continue to face difficulties in meeting the changing skill requirements of an agile, dynamic, and complex social and economic environment. This is the plight of many educational systems in the developing world, including Indonesia. Thus, to remain effective, educational systems and institutions should not be merely reactive to what the job markets demands but become proactive and predictive of the quantity, quality of skills, and competences that future places of work will require by sector, occupation, and region. The tools to achieve such a feat are already available. There is no better way to do that than leveraging the increasingly ubiquitous digital revolution, and its drivers including advances in big data and data analytics, ICT, cloud computing, cognitive computing, augmented reality, and blockchain technology.

On the contrary, while places of work take short lead times to adopt technological advancements in production and business processes, and human and non-human resource management practices in the production and delivery of goods and services, education and training materials that equip future

Figure 14. Comparing three PISA 2018 test scores and competitiveness, digitization, e-governance, and Waseda IDG ranks.

Source: miscellaneous IMD (2019), BBVBBVA (2017), OECD (2019), Waseda-IAC-International Digital Governance Rankings 2018 Report (Toshio, 2018).

Country name	Reading score	Country name2	Mathematics	Country name3	Science score	IMD Competitiveness Ranking	Digitization rank	e-governme nt (EGDI)	Waseda-IAC Digital (IDG)Rankings	International Government
B-S-J-Z(China)	555	B-S-J-Z(China)	591	B-S-J-Z(China)	590	22	65	65	32	
Singapore	549	Singapore	569	Singapore	551	2	7	7	2	
Macao (China)	525	Macao (China)	558	Macao (China)	544	NA	NA	NA	29	
Hong Kong (China)	524	Hong Kong (China)	551	Estonia	530	29	19	16	18	
Estonia	523	Taiwan	531	Japan	520	23	6	10	7	
Canada	520	Japan	527	Finland	522	7	9	6	13	
Finland	520	Korea	526	Korea	519	10	18	3	6	
Ireland	518	Estonia	523	Canada	518	11	13	23	16	
Korea	514	Netherlands	519	Hong Kong (China)	517	8	3	NA	NA	
Poland	512	Poland	516	Taiwan	516	13	NA	NA	NA	

workers with such skillsets take long to become part of education curricular. This is indeed the era when economies are transitioning from the third industry revolution that has been characterized by the use of computers, automation, and ICT adoption and deployment, to mainstreaming the development, adoption, and deployment of autonomous systems, and smart products thanks to the ability to leverage the immense potential of data, machine learning, and artificial intelligence, creating what is referred to as the digital industry 4.0¹³ era or Industry 4.0 revolution (Schwab, 2016).

Thus, it is not surprising that countries with education systems that have in place processes, structures, and mechanisms to adopt and incorporate changes in the learning process including teaching materials, pedagogy, concept of a classroom and learning itself to respond to changes in society, including labor market, and technological adoption outperform those that do not (OECD, 2019). The level of digitization and attendant adoption and deployment of e-government programs are good indicators of technology preparedness of a country in general and the education system (Figure 14).

While based on 2018 PISA test report Estonia seems to be one of the biggest surprises (OECD, 2019), the outcome is understandable considering key policies, which Estonia has been implementing since the early 1990s. The policies were driven by the vision of creating an information society through strengthening ICT infrastructure development, mainstreaming electronic service delivery, established supportive regulatory and institutional framework, and undertook public awareness programs on the importance, efficiency, and effectiveness of using e-service delivery media in education, health, public sector procurement, permits processing, transportation, among others.

The vision of an information society e-government is for Estonia integral to the country's efforts to preserve and its independence from the former Soviet Union and today's Russian federation. Estonia, has succeeded in establishing the requisite legal framework, implemented reforms in the country's bureaucracy that were tailored toward enhancing transparency, accountability, and responsiveness through e-government programs. In addition, Estonian government has on its account and with the collaboration of the private sector injected substantial investment in ICT and in spreading public awareness about the importance of digitization to society, spreading the coverage of broadband Internet country wide, and in implementing e-services in virtually all aspects of life including police services, schools, health services, financial services, as well as introducing and mainstreaming digital identity, and tax administration (PWC, 2015).

As regards the performance of an education system, Finland is another befitting example. The conception of an education system for Finnish society is that it must have the ability and capacity to deliver quality education that is appropriate, relevant, and contextual. Education prepares and equips a country's population with the necessary and relevant knowledge and skillsets to enable them to achieve their potential at places of work and as productive members of society. To that end, the quality of education outcomes in part depends on the content of the curriculum, quality of teaching, and opportunities for knowledge transfer the education system provides.

To that end, content of both national curriculum and local curricular, and the process that goes into developing it, is crucial to imparting relevancy, adaptability, suitability, and sustainability of learning materials to current and future development goals of individual learners and society. Finland is lauded for having the best education system, which is in part attributable to the quality of its 2016 curriculum. The strengths of the curriculum, among others, lies in the overarching goal of education, which is to foster and facilitate the "development of an individual as a human being and citizen; accords less emphasis on homework and tests, ensures that teachers are well remunerated for their services, while also allowing them and learners sufficient time to do other things beyond teaching and learning (Lähdemäk, 2018).

The relevancy and appropriateness of Finland curriculum 2016 lies in the process of its development. Lähdemäk (2018) argues that the development of curriculum was based on a highly participatory process that involved virtually stakeholders and institutions in society. Besides, curriculum development process was underpinned by the concept and belief that to be effective, education should be holistic. As a consequence, students have access to various subjects in the curriculum that support their efforts to become knowledgeable in various fields as well as enabling them to acquire various skillsets. Moreover, the content of the local curricular, while generally follow guidelines set by the national curriculum, is also influenced by local features, geography, and demographics. Performance evaluation of students takes into consideration individual differences and goals, subjects are aimed to equip learners with facilitating learners to think and learn to learn and allows learners the opportunity to acquire multiliteracy competences and cross-subject work, and ICT competences. ICT skills are considered a prerequisite for adaptive citizens for the digital and information society (Figure 15).

Creating an education environment that sensitizes learners to explore, rather than ingest whatever the teacher delivers only to regurgitate the same during tests and examinations is one of the characteristics of quality education system. Therefore, the concept of a flipped classroom (FC), which puts learners at the center of the learning process and teachers, teaching aids and facilities as facilitators of the process, has been proved more effective in delivering better learning experience. Research by Sezer and Elcin (2019) found that flipped classroom settings enabled higher cognition, competence, and skills to perform tasks than traditional teacher-oriented classrooms. Other benefits of an FC include higher interaction between learners and teachers, elevated learning motivation because learners have an opportunity to explore learning materials, which enables them to gain exposure to underlying theories through pre-recorded videos, prepared readings, and work on assignments. Consequently, learners in FC have the opportunity to learn a lot about the content of the lesson before attending the traditional classroom setting, with the classroom setting used for doing practices of the concepts learned in the classroom in the attendance and supervision of the teacher (Andrade & Coutinho, 2016; Salna & Suhartono, 2019).

There is no denying the fact that Indonesian curriculum 2013 contains some aspects of the FC concept, the non-adoption of an FC system at various tiers of Indonesian educational system as a complement to the traditional classroom setting, remains one of the education system's remaining key structural obstacles. The current education system in Indonesia overemphasizes the need

Figure 15. Core principles of Finland 2016 curriculum.

Source: Lähdemäk (2018).



to muster the ability to recall what is learned and give answers to sample test problems through rote learning than incentivizing transfer of learning to new tasks and experiences Priyatma, 2020). As Priyatma argues, in many cases, the education systems incentivize students to replicate, even not copy and paste what is already published work, which, without much efforts to make new significant contribution, is presented as assignments to very busy teachers and lecturers.

Thus, the core of problem, Priyatma argues, is the failure of the education system to encourage critical thinking, which is a prerequisite for creativity while at school and later in life as productive manpower. Creativity enhances, fosters, and is an enabler of innovations development in the form of new products, production processes, and business models, or improvements of existing ones. Being innovative at work, thus, is part inculcated first at school and later with becomes cherished and lauded tradition and value in society, which lays the foundation to become embedded into invaluable practices and organization and societal culture.

Quality learning should be delivered by the country's best talent pool, which includes university faculty and lecturers of other advanced education and training institutions. This is the case in most education systems, in other emerging and developed nations. As a consequence, admission into the faculty of education in many an education system is one of the most difficult as only students with academic performance above the 75 percentile (upper quantile) qualify for the few slots available. Nonetheless, Indonesian is an exception in that respect. In Indonesia, except for those universities and institutions of higher learning that specialize in providing teaching courses (education colleges and universities), most private and public universities do not have either a department or faculty of education. Could this be one of the remaining obstacles that continue to undermine the effectiveness of Indonesian education system?

In his campaigns prior to April 2019 general and presidential elections, the now re-elected President Joko Widodo underscored the importance of strengthening the country's human resource talent pool. Sufficient quantity and quality of a diverse human resource talent pool is required to provide technical support for the country's priority development policies and programs. The thrust of the programs is to elevate the country's participation in global value chains from being suppliers of raw materials and to high-value, manufactured products and services. This is reflected in the Panca (five) priority areas that form the core of current Indonesian government, including human resource development, infrastructure development, simplifying regulatory framework and the bureaucracy,

economic transformation toward high-valued added products and services, supporting environmental protection, and social and cultural advancement (Hakim, 2020).

Thus, one of the key pathways for the current government to reduce persistent unemployment is to create an enabling economic and social environment that supports creativity, nurtures and sustains entrepreneurship, and equips the educated but un-employed manpower with new skills enhances their employability through reskilling and upskilling programs (Furstenthal et al., 2021). Revisiting the philosophical, institutional, pedagogical, and organizational cultural framework of vocational education and training institutions (VTCs) as a source of ready-to-employ graduates should be one of the top priorities. Specifically several areas need an overhaul. One such area is the need to widen the scope of perspectives and approaches in determining the vision and mission of vocational education within the context of Indonesia's long-term development strategy. This implies adoption and modification of the apprenticeship system that should be aligned it with the Indonesian social and regulatory framework; linking skills that are taught in VTCs with skillset requirements by involving employers in designing and implementing the curricula; providing VTC students sufficient time and opportunity to test and improve their skillsets and learn new ones at places of work through an arrangement that by central and local government manpower offices, VTCs management, human resources development, and job placement agencies. In short, vocational education should serve the main purpose for their existence-producing employees with skillsets that are influenced by tasks and activities of jobs in the economy and society.

Besides, another imperative is the need to strengthen the ability, agility, and adaptability of the educational system to produce graduates at all tiers of education that have the requisite skillsets to become good, productive, innovative, and ethical citizens. Today, campaign pledges are being concretized into national strategy, policies, programs, and actions, the most notable of which is the restructuring of the Ministry of Education and Culture. Doubtless, what is discernible are the good intentions to lay a firm foundation for a reinvented educational system that will equip learners with knowledge, values, and skills that are relevant and appropriate for a highly paced evolving society. And some of the key drivers and pillars of such society include uncertainty of skillsets that are needed for future work in both the public and private sector, which implies that the teaching and training should be based on an understanding that equipping learners with sufficient flexibility and adaptability is far more important than fostering the common practice of feeding them with a deluge of course materials that while contextual to certain situations are often not transferrable to new contexts (active learning); increasing digitization of places of work, lifestyle, and international relations and trade. Consequently, knowledge and skills in computer literacy, computer programming, information and communications technology, Internet and networking, big data, and data science are no longer not only required for employees, corporate managers, and public decision makers, but are also becoming crucial skills for citizens to live and lead productive, healthy, and enjoyable lives. To that end, in the long term, there is need to reform the education system to strengthen its ability to create an enabling environment that supports and fosters the acquisition of creative thinking, socio-emotional, cognitive skills, but discourage rote learning and a surfeit of endless coaching lessons.

Besides digitalization of education service provision, while not the panacea and right answer to resolve the litany of some of fundamental problems in education that COVID-19 pandemic has exposed, it is obviously the most important and fundamental imperative that the Indonesian government and society have to take in the long term if the repertoire of ad-hocism, management by crisis, and trial and error policy framework that characterized March to June 2020 period is to be averted in future. There is no doubt, however, that remote learning continues to have its proponents and its critics even detractors. For principle, philosophical, geography, social economic status, and differences in social and economic development, and its inability to equip learners with socioemotional skills that are required for learners to become responsible, adept, socially inclined adults, remote learning is considered merely a stop-gap measure that remains in practice as long as the pandemic rages.

Nonetheless, remote learning has its devout admirers and supporters in developed, emerging, and developing countries alike across economic, social, racial, and cultural lines. Benefits of remote learning include its contribution to sharing pedagogy, teaching materials, and teaching experience among teachers who are spread not only in various parts of the country but worldwide; enabler of expansive reach, and delivery of personalized instruction to learners based on individual characteristics, time, location, and digital device used; and the opportunity it creates to extend learning time and learning opportunities for learners to suit schedules of teachers and learners, which are vital inputs in the development of blended teaching programs that leverage advantages of in-person and remote learning while at the same mitigating the shortcomings associated with both. For instance, remote learning methods and pedagogues through webinars, podcasts, and other Internet-based communications media that are possible at relatively low cost should lay a strong foundation for tertiary education that provides the best and appropriate learning experiences for all students by taking into account differences in social, economic, and geographical contexts as well as personal characteristics, including socioemotional development (Reimers & Schleicher, 2020).

Nonetheless, like other sectors, adopting and deploying digital technology is unavoidable not only because of the benefits it provides but also most importantly its ability to align well with theory and empirical research on the best teaching and learning approaches that are in line with students' lifestyles, complexity of working environment, and jobs market. Such conditions require a multitude of interdisciplinary skills that cannot be acquired through attending conventional college programs, rather either by participating in components of different programs that are offered in different faculties of the same institution or has become the practice, attending different faculties that are spread across various colleges and universities. Increasing mobility of students, a development that is attributable to the demands of participating in a gig economy while at the same time attending education programs also means that participating in fixed time lecture courses that require in-person attendance has become a strain on students time and resources. This is especially so for students who come from low-income households, who happen to be the majority in many developing countries.

Thus, digitalization and remote learning opportunities it creates opens the opportunity for the adoption of blended learning that combines flipped classroom and traditional class approaches. The traditional classroom setting has been associated with high student satisfaction, but low active participation of learners in the learning exercise. Consequently, learning in traditional classrooms has been associated with lower cognition and performance on tasks than the flipped classroom except tasks that are similar to those taught in class. This is ascribed to difficulties learners face in transferring learning. Flipped classroom setting, on the other hand, is associated with higher cognition, creativity, and performance.

Nonetheless, the ingrained perception that learners have about the traditional role a teacher is supposed to play in the learning process¹⁴ has led students to perceive FC as delivering not as much learning satisfaction as the traditional classroom setting. To that end, using a blended teaching approach that combines FC and traditional classroom should enhance learners' creativity, cognition and enhance their ability to transfer knowledge they acquire in classrooms to tasks that are both related and unrelated to what is taught in class. That way, the creativity, agility, adaptability, and resourcefulness of learners will be enhanced, which in turn will make their more employable and avid contributors to the rapidly changing working environment and society (Van Alten et al., 2019).

However, digitalization does not only offer much in enhancing education system learning outcomes but also contributes to mitigating structural social and economic obstacles that learners face, which limit their capacity and ability to become actively engaged learners. There is a good lesson that underscores the potency, importance, and efficacy of leveraging digitalization in achieving college

goals while at the same not forsaking those of students. That lesson is Georgia State University. Georgia State University, which has a student population that is highly mixed both with respect to the racial composition and social economic background of its student population, which mostly comprises minority, low-income students, who dabble as workers and students. The university has been able to implement the principles and best practices of data analytics that include conducting descriptive analysis of the current condition to determine whether or not students outcomes are in line with expectations (descriptive analytics); taking a deeper drive into the processes and practices that generate such outcomes to identify patterns (diagnostic analytics). Subsequently, the university uses insights it gains from the process to make predictions of outcomes (predictive analytics), which informs prescriptions on how best to intervene to prevent bad outcomes from materializing, while strengthening and creating an enabling environment that supports the realization of good outcomes.

To gain actionable insights from data on individual behavior, performance of processes and practices, Georgia State University has invested substantially in big data technology and infrastructure, human resources, and data-centric organizational culture. The advantage of having big data and data analytics capabilities is the capacity and ability it gives the university that has invested wisely in digital technology, human resource development, and in implementing necessary cultural transformation that support and promote data creation, storage, updating, and sharing among organizational units as a source of competitive advantage (Mikalef et al., 2019). Meanwhile, ICT infrastructure equips the university with the ability to record all student activities that facilitates detailed description of students' behavioral patterns, storing such insights in secure formats that are shared among relevant units. Besides, individual student patterns are trackable through dashboards, which practitioners scan to determine the nature and potential trajectories of patterns. The main goal is to identify patterns that deviate from normality or expected behavior, triggering prediction of the trajectories in the event no intervention is made. Subsequently, appropriate course of action is taken to ensure that future outcomes do not deviate from what is optimal for the organization and student.

Thus, data analytics capabilities equip an organization with capabilities to proactively act early enough on signs and patterns that point to emerging problems (Anadiotis, June 03, 2020). That proactivity reduces the cost in money, time, and reputation terms for the organization. Georgia State University has leveraged its big data analytics capabilities to steer students' behavior in the right direction before things get out of hand. Some of the issues that Georgia State University has resolved thanks to its big data analytics capabilities include students' behavior as reflected in registration patterns, academic performance, housing needs, and financial security. Insights are generated through background monitoring and tracking of student activities and conditions, which equip the university with the latest developments on all issues that relate to student's current situation, academic performance, and economic wellbeing. Deviations in students' behavioral patterns with respect to financial condition, lecture attendance, and housing trigger alerts on the university dashboard, which academic supervisors use as a reference to devise appropriate course of action in line with student situation. By proactively identifying the potential for deviation in students' behavioral pattern, university officials have requisite information to redirect students away from situations that would cause disruption to their studies, if not leading to their dropping out of the education system altogether. Besides, the university uses insights gleaned from student data to redesign courses that suit students' schedules, and proactively provides academic advice before students even raise complaints.

It is not, thus, surprising that by leveraging big data analytics Georgia State University has been able to register drastic improvement in student academic performance, student attendance, a drastic reduction in dropout rate, and narrowed achievement gaps of students coming different racial and social economic backgrounds. And this at a time when lessons are conducted using remote learning methods, because of the prevailing social distancing conditions that have made in-person learning

difficult (Gumbel, 2020). Thus, similar to other instances where data analytics has been put to effective use, firm performance has improved because of enhanced ability to not only identify problems but, more importantly, learning from past instances to isolate organizational, individual, and social contextual factors that predict good performance from those that undermine it. Moreover, understanding the key factors that influence performance, organizations can devise and formulate creative ways of combining such factors to push performance to even higher heights (Ashrafia et al., 2019).

As regards workers, e-education is the most appropriate and time and cost-effective way to equip new skills that current workers need to be able to meet the requirements to perform similar tasks on jobs they are doing today in future (reskilling), as well as equip workers with new skills in new jobs (upskilling). This is because e-government being accessible 24/7 suits very well with workers' off-work schedule, whether they want to augment skillsets to work on the current jobs or acquire competence and capabilities to do jobs that are starkly different from those they are doing today.

Countries that have adopted e-learning in reskilling their workforce such as Singapore and Estonia have used remote learning approaches and technology to achieve that. That has enabled them to have an agile, flexible, knowledgeable, and competent and productive workforce in the public and private sectors alike. Meanwhile, South Korea, the leader in e-government development and deployment in Asia and among the leaders in the World (UN, 2020), has leveraged e-government in providing telecommunications infrastructure and supporting human capital resources that support pervasive online services that connect central government to local governments (G2G), central government, and local governments, on one hand, and individual and corporate service users, on the other (G2B and G2C), and those that facilitate connections between business enterprises and consumers (B2C) consumers. Specifically, however, e-government has been used in efforts to reduce inequality of education quality across regions by providing special attention to remote areas through the central government matching local government spending on education, provision of personal computers, and expanding broadband Internet connections. That said, as UN (2020) argues, the performance on e-government does not solely depend on the country's income per capita (ability to mobilize financial resources) but most importantly political will, strategic leadership, and commitment.

3.4. Labor and unemployment

The impact of COVID-19 pandemic on the economy has been hard, but some sectors have fared worse than others, including tourism, entertainment, and hospitality sector; transportation; services; and commercial real estate. The ride hailing services subsector has also been hit particularly hard. In the short term, governments, business sectors, and communities have put in place a slew of initiatives to mitigate the impact of the pandemic on incomes of workers, thereby reducing the number of layoffs. The list includes establishing temporary funding mechanisms that support business working capital by paying off a certain percentage of workers' salaries or linking access of businesses to financial support from the fund to prevent laying off workers for a specific time; dialogue between employers, workers' representatives, and the government (emergency tri-partite arrangement) to formulate a temporary mechanism that gives employers some breathing space by allowing them to defer payment at an agreed percentage of employees' salaries to a later date which should reduce working capital needed for businesses at a time when they have limited access to borrowing from risk-averse banks due to high risk of default; and reskilling workers who have been laid off for new jobs in others. Other emergency measures should involve the central government, local governments, and non-governmental organizations in facilitating the development of Internet-based applications or platforms that link SMEs with suppliers of raw materials and e-markets; microfinance institutions, commercial banks (Bank Rakyat Indonesia specifically), and FinTech for financial advice and working capital sourcing; insurance against future financial risk (Indonesian credit insurance Company (PT. ASKRINDO)); and increasing access to affordable export market information.

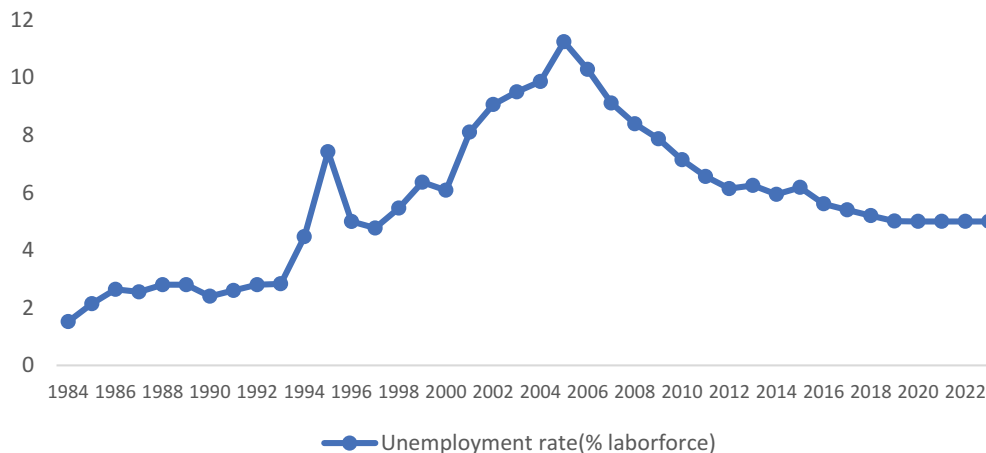
Meanwhile, the reskilling process should take the form of programs are multiphased, involving various stakeholders, and well targeted. The first phase should involve identifying sectors for intervention to facilitate the establishment of an agency that specifically will have the tasks of linking laid off workers with employers, mediated by new skill acquisition in identified educational institutions. This should be followed by identifying jobs in the economy that require skills that take a short time to acquire, such as e-commerce, animation, video content creation and editing, advertising creation, among others. The subsequent phase should entail identifying vocational institutions and academies that offer courses and programs and are equipped with the capacity to teach skills in short intensive course formats, but are also willing to modify their curricula to align with requirements of employers, worker demographics, competence and changes in job requirements.

Subsequently, financing the program should as much as possible be paid for by the central government,¹⁵ local governments, employees’ associations and other voluntary contributions from the business community, and international development agencies (ILO, UNDP, World Bank, UNIDO, ADB, among others). Such a format will increase willingness of both employers and employees to participate in the program. A good example of a successful reskilling program is Virginia Ready Initiative in the state of Virginia. The program was able to reskill laid-off workers through a program that linked laid-off workers, Virginia colleges (education and training providers), employers, and the Virginia government talent pool empowerment programs (Zemmel, 2020).

Besides, to complement the above efforts, reskilling efforts can also be accelerated through multistakeholder collaboration arrangements that involve the government, employers, and online education platforms. Online education platforms such as COURSEERA, EDX, Khan Academy, and local platforms including *Ruang guru* and *Rumah belajar* (Indonesia) have sufficient skills and experience in designing courses that are customized and personalized to the needs of learners, enterprises, and social content. Thus, provided that inputs from employers inform program design and content, coupled with the facilitation of the government through the Ministry of Education and Culture, manpower, and social affairs, should create courses and programs that can deliver low cost, scalable on-demand skills in a short time. For ease and affordability of access, remote program content and delivery of reskilling programs should be tailored to run on mobile phones. This is because Indonesia has a usage and Internet penetration, of 73% and 68%, respectively.

Nonetheless, in the long term, there is need to tackle the problem of persistent and rising unemployment of the educated in Indonesia. While the unemployment rate defined as percentage of labor force actively searching for work but are unable to find it has been declining and is projected to remain at most at 5% by 2022, unemployment of the educated does not show assigns of abetting (Figure 16). Unemployment, which was 1.49% in 1984, rose to 4.58 (2016), 3.04 (2017), 5.28 (August 2019), and is projected to remain at around 5% during the 2018–2023 period (IMF, 2018).

Figure 16. Unemployment rate trend (% of labor force) 1984–2022*. * Projected. Source: WEO.



While tackling the fundamental problems that labor faces lies largely in reforming the education system, we do believe that some of the measures that the government should take must specifically focus on improving labor market dynamics as they are today. Even prior to the outbreak of the COVID-19 pandemic, labor relations in Indonesia were far from amicable. One of the areas that have been a constant source of tension between employees, on one hand, and employers and the government, on the other, relates to drafting and implementation of the jobs' creation law (Law No.11/2020). The law claims to do away with a litany of regulations and procedures that have created obstacles and uncertainty for employers in hiring and firing employees as and when conditions permit; difficulties in operational permits processing.¹⁶ Other bones of contention included the government regulation that indexed annual wage increases to inflation, which obviated the need for lengthy annual negotiations between employers, trade unions, and local governments, and outsourcing. Such conditions have created uncertainty for employers, including FDI companies, forcing them to relocate their production facilities to other countries. Some of the most recent cases include NISSAN, Chevrolet, and SAMSUNG electronics, among others.

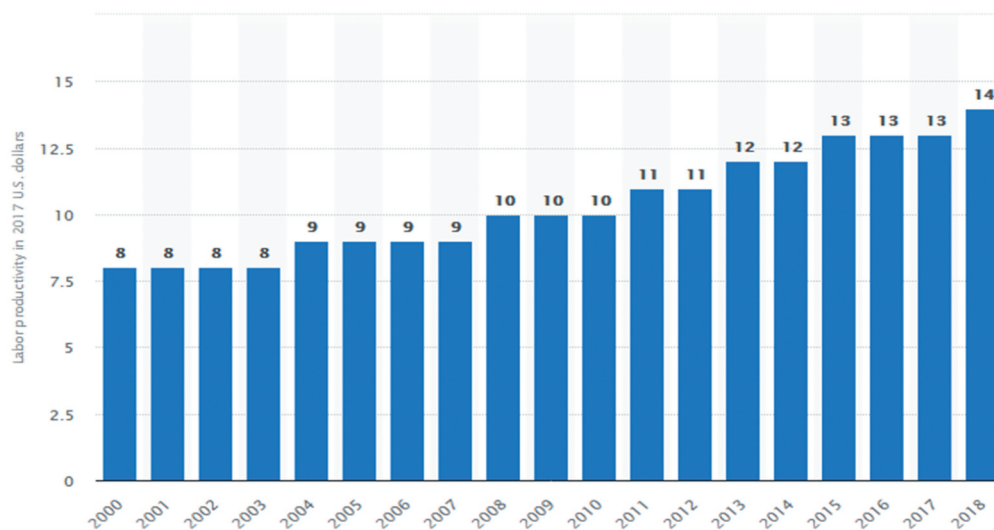
Indonesia has shown a steady increase in labor productivity per hour worked during 2000–2018 period from US\$4 in 2003 to US\$14 in 2018 and recorded an increase in hours worked by 3.2% during 2010–2017 that surpassed ASEAN Plus Three member states (Figure 17).

Nonetheless, the devil is in the details. In general, Indonesian labor force faces a fundamental problem, which is the low competitiveness compared with workers in other key ASEAN member states such as Malaysia, Thailand, the Philippines, and Vietnam. Growth of labor productivity during 2010–2017 [Upton (12 November 2019)] was 3.8%, which is higher than Malaysia (2.5%) but lower than the Philippines (4.1%), Vietnam (5.8%), and Thailand (5.3%). Based on Upton (12 November 2019) report, Indonesia performed poorly with respect to growth in total factor productivity, which decreased by –1.5% during 2010–2017 period. Indonesia's dismissal performance on TPF during 2010–2017 period was in stark contrast with that of Vietnam (1.8%), Malaysia (0.7%), the Philippines (1.4%), and Thailand (0.6%). Moreover, despite relatively low wages, labor conditions remain acrimonious as reflected in frequent demonstrations. Thus, it is not difficult to see why investors may opt to relocate their manufacturing facilities from China to Vietnam, rather than Indonesia.

While Indonesian manpower, Law No.13/2003, Chapter 9, article 66, allows outsourcing, but limits it to nonessential or noncore or nonessential services that do not have direct relationship with the production of goods and delivery of services (the core business of the employer). That

Figure 17. Labor productivity of Indonesian workers per hour worked in US\$, 2000–2018.

Source: Hirschmann (2019).



obviously means that cutting firm costs by reducing workforce is unlikely to have any significant impact on production cost, which is often the main purpose of outsourcing. In the same vein, the law allows employers to reduce workforce on condition that the employer provides proof that such a measure is strictly due to difficulties in production and operations that warrant such a policy. Even then, the employer is required to pay enormous severance payment that is linked to the length of employment and wages earned (95 weeks for 10 years of service).

Moreover, some of the provisions of Law No. 13/2003 are not only detrimental to employers but have also become a problem for workers for several reasons, including the fact that the law allows 10 workers to form a trade union, which means that in one organization there is a likelihood that workers can form and join several trade unions. Doubtless, such a condition undermines the bargaining position, which unionized labor is supposed to have in conducting negotiations with employers on wage and working conditions through collective bargaining agreement (CLA¹⁷), regional government employees' wage setting, and review council. The provision also complicates tripartite negotiations as the employer may opt to cherry pick a trade union, he or she considers pliable or aligns with firm interest, while objecting to one that are deemed "belligerent."

With the advent of COVID-19, the plight of workers has worsened because of the economic downturn that has led to furloughs and layoffs. There is an even existential danger that some jobs may be lost forever because companies become bankrupt, relocate their operations elsewhere (mostly to Vietnam), and transformation of tasks in line with business model changes that are influenced and driven by digitalization. This especially so with tasks that are both routine and those that do not need personal judgment. Based on Ministry of Manpower estimates, since the onset of COVID-19 pandemic crisis, nearly 1.5 million workers have lost their jobs, and indications are that the situation is more likely to worsen but it improves in the medium term.

To respond to the above challenge, we propose several initiatives that, according to the results of the assessment made, can lighten the burden Indonesian workers face in the short- term, medium term, and long term. The list includes supporting employers to keep workers on the payroll by allowing deferred income tax payment; subsidizing production inputs where the government has a monopoly such as electricity, diesel and gasoline, natural gas, coal, and water, among others. Other measures, which the Indonesian government can take stave off rising unemployment, include widening the scope and coverage of the employment benefit programs for workers earning lower than IDR 5 million to those who have been laid off; supporting employers in organizing skill enhancing courses for current workers to improve performance on their current jobs; fostering collaboration with employers, employers' organizations, and profession organizations in designing courses that are delivered online to equip laid-off workers with new skills they need to qualify for new jobs (already identified).

Nonetheless, it would have been far more cost-effective had the Indonesian government took the initiative soon as outbreak COVID-19 emerged to allocate some of the repurposed government spending to support employers in the labor-intensive manufacturing and service sectors. Such financial support should have reduced the burden employers had to face in paying workers' salaries while production during times of reduced production and operations. That in turn should have staved off large-scale layoffs that occurred and still underway. It is, however, not too late to implement such a policy, which should mirror that adopted in the UK government and EU program. Specifically, the €100 billion fund EU Support to mitigate Unemployment Risks in an Emergency (SURE)¹⁸ supports Euro members in funding emergency work schemes that prevent layoffs through maintaining workers' income (EU Commission, 2020). By preventing layoffs and maintaining worker income, such measures reduce the adverse impact of lower production in the private sector consumption, which is the largest driver of consumption in many an economy, including Indonesia.

However, such a policy can only deliver strong impact on the economy if it is accompanied or in simultaneity with other equally important programs including injecting economic stimulus directly toward economic sectors that are key to supporting economic recovery such as phased reopening of the entertainment and hospitality services sector; repurposing and redeploying some of the budget allocation meant for infrastructure development, temporarily during this semester, toward providing energy subsidy to small and medium size enterprises; extending unconditional cash transfers to households that are categorized as poor based on BPS June 2020 figures; supporting Bank Indonesia in stabilizing the foreign exchange Rate (Rupiah versus US dollar) by strengthening the foreign exchange reserves it has at its disposal.¹⁹ Besides, increasing the impact of central and local government spending by ensuring that spending goes to areas, where spending out of earned income is high (can be done by subsidizing BPJS payments for the following 4 months) should reduce pressure on middle- and low-income earners, who have high propensity to consume, thus pivotal for economic recovery. One of the household consumption-enhancing measures is government support for household payments for health insurance premiums. Insurance premium payments during the pandemic are assumed great importance in the pecking order of household expenditure. The implication is that unless sufficient funds are set aside to finance such payments, households cannot take the risk of paying for other consumption goods.

For the medium term, however, investing in e-commerce seems to be the best option to create much-needed employment. E-commerce covers areas such as ride hailing and food delivery (Grab and Gojek), financial e-wallet (OVO and GoPay), peer lending, crowdfunding, traveling and accommodation (Traveloka), e-market (Bukalapak and Tokopedia), and is projected to employ 26 million workers by 2022 and has a lot of room to grow (Das et al., 2018). Indonesia has five e-commerce unicorns, an achievement that is attributable to organic growth but accelerated by the outbreak of COVID-19 pandemic. The pandemic has created perfect conditions for the buoyancy of e-commerce thanks to the existing health emergency, selective imposition of social restrictions on people movements in areas with high COVID-19 infection rates, public fear to contract the virus while shopping or visiting in areas where there are many people; remote working requirements and telemedicine; and remote learning, virtual conferences and seminars (webinars).

To support the e-commerce sector, the government should temporarily suspend regulations that are aimed at restricting online transactions through the imposition of high taxes; continue improving infrastructure development by improving and expanding road and rail networks; regulate air cargo freight charges to prevent monopoly; and support vocational education that equip peoples with e-commerce skills inclusion packaging products, website design and marketing, access to finance, and customer relations management. At the same time, the government should strengthen measures to protect consumers from fraudulent activities and manipulative advertisements, with punitive sanctions for offenders to serve as a deterrent. Supporting e-commerce has another advantage, which is that e-markets serve as selling and payment points for millions on SMEs. However, the problems Indonesian labor faces being fundamental require fundamental solutions.

Some of the structural solutions we deem pertinent include amending the Manpower law No.13/2003 (UU, No.13/2003), especially the provisions that set high severance payments; the provision on outsourcing, which is ambivalent in its application hence has been the source of protracted demonstrations over the years; and the provision that in effect opened the Indonesian labor market to fractionalized or weakened trade union activity by allowing just 10 people to form a union, when in fact negotiations on wage and working conditions require only one trade union in an organization. It is against that backdrop that three interrelated initiatives are proposed for the long term.

First, there is the need to strengthen the relevancy and effectiveness of technical and vocational institutions (TVCs) as suppliers of ready-to-employ manpower. Technical and vocational institutions (TVCs) are supposed to be suppliers of manpower that is “labor-market” ready. However, the reality is starkly different. Many graduates of vocational institutions have increasingly become an addition to the ranks of unemployed because of either lack of the requisite skills or inadequacy of the same. Since the problem in part lies in the reality that skills that are based on curricula used in TVCs that often lags developments in the labor market by many years, one of the ways to enhance effectiveness of TVCs as providers of qualified and relevant manpower is to fundamentally change curriculum development (Bandura & Grainger, 2019). This can be done by, among other things, increasing the intensity and frequency of collaboration between prospective employers and management of TVCs; carrying out regular review and update of curricula content to align it with changes in tasks and competence requirements in the labor market; and creating opportunities for teachers in TVCs to undergo annual education refresher courses to update their knowledge and understanding of dynamics and developments of labor market skills and digital literacy (Morgan et al., 2019).

The second initiative advocates for equipping workers with skills for a digital-driven economy that is currently taking shape. Achieving that requires conducting a national dialogue that should involve all key stakeholders including employers and employers’ organizations, workers’ organizations, and institutions of advanced learning including universities, TVCs, and professional and trades organizations. Collaboration of the above stakeholders should help in designing a national manpower vision for the future, setting feasible goals, objectives, and strategies to achieve the required quantity and quality of worker force with requisite skillsets within the timeline that matches demand for such skills in the labor market and society.

However, effective and functional collaboration that involves various stakeholders drawn from state and non-state alike is only possible if there is an agency or framework that brings them together. Thus, the third initiative entails establishing a new ad hoc agency that will comprise representatives from all stakeholders including religious education stream, non-religious education stream and functional education stream; main industries (employers); public servants employees agency (BKN); national standards board; and the National Bureau of Statistics (custodian of relevant data on labor dynamics and real and services sector developments). It is within the framework of the agency that multistakeholders will identify the key drivers of current and future economic activity, especially the Industry 4.0 developments and attendant digitalization age. Based on such knowledge, the team of experts will be able to make projections on the impact of such developments on the economy and society today and in future. Using outcomes of the projected impact on the economy and society, combined with a good understanding of key sectors of the Indonesian economy and labor force, should help in identifying current talent and skill pool and how they will evolve in future based on various scenarios. By comparing projected skill requirements with baseline scenario supply, ad hoc agency experts will be able to determine unmet need of various skills and competences by sector, industry, and occupation. The subsequent step will entail formulating and designing strategies, programs, and projects that will translate projections into skilled workforce to support social and economic development during the 2021–2045 period.

A good example of a country that has established an education and training system that has been able to both maintain and enhance skillsets and competences of its employees is Singapore. This specifically relates to the public service. Public officials in Singapore are entitled to participate in people developer programs that involve 100 h of structured and unstructured learning per year. Such programs are delivered in both traditional classroom setting (at the civil service college) and remote learning (Learn.gov.sg platform). The arrangement allows public officials to take offline and online courses during flexible timelines that suit their off-work schedules, enabling to maintain and enhance

their skillsets, elevate their employability, and quality. Upskilling and reskilling occur without the need for employees to leave their jobs or lose connections with workmates and family members.

Nonetheless, what is even worth emulating is the ability of the public service with the collaboration of 12 Singapore educational institutions of higher learning and the Singapore government to design and deliver more than 2,500 courses and 400 programs in 17 domains. The arrangement brings together the civil service college, five polytechnics, six local universities, the Institute of Technical Education, and UdeMy for Government massive open online course platform. Courses offered through the Learn.gov.sg applications include those that equip public servants with emerging skill areas such as leadership and management, robotics and automation, and data analytics and productivity. Courses are offered through collaboration.²⁰

Nonetheless, in the case of Indonesia, the thrust of reskilling and upskilling employees should be more extensive, wide-ranging, and inclusive of both private sector and public sector employees, and multitier, involving the central government, provincial government, and district and city governments. Thus, the replication of the Singapore model should be modified to make it more extensive to include the government (Ministry of Education and Culture, Ministry of Religious Affairs, and officials charged with education and training in line ministries and other government organizations); provincial, district, and city government education offices; employers and employers' organizations; employees and employees' organizations (central and local chapters); universities and vocational institutions (to serve as providers of courses); Indonesia Education commission; public service commission (Komisi Aparat Sipil Negara); and the Civil Servants Agency (BKN).

3.5. SME, trade, and investment

In 2019, micro-, small-, and medium-sized enterprises contributed 99.99% of all enterprises in Indonesia, 38.5% to total employment, 61.1% to GDP (ranging between US\$612-672 billion), 14.17% (US\$20.8 billion) to the country's non-oil and gas exports, and 9.6% to Indonesia's GDP growth (ADB, 2020b; Mufti, August 07, 2019). Thus, SMEs are an important source of economic resilience that can mitigate the adverse impact of COVID-19 pandemic crisis on the business sector, economy, and society. Nonetheless, while the trend in digitalization adoption and deployment is rising, one of the key obstacles SMEs that has undermined resilience during COVID-19 crisis is the inability to adapt their business models to changes in the business conditions, consumer purchasing behaviors, and operations. An acceleration in the shift from in-person to online shopping behavior requires presence on online platforms, interactive, easy-to-use websites, and regular and customer experience-immersing updates on firm Facebook and Instagram profiles. In other words, unlike past crises, COVID-19 crisis requires a fundamental change in the business process from the old characterized by predictability and stability of the operating environment, competition, and customer behavior that was based on physical and in-person interaction with suppliers and buyers alike, to the new one underpinned by digital technology and infrastructure, remote and 24/7 "presence" on customers' smartphones, tablets, and personal computers. To that end, limited digitalization of operations, business process, management practices, and marketing and sales functions has meant that many MSMEs in Indonesia underperform and laggards on digital transformation. Thus, while the COVID-19 outbreak created immense opportunities for MSME businesses, limited digitalization of business process and marketing operations has undermined their ability and capacity to reap the benefits. Thus, it is not surprising that, by May 2020, 47-49% of MSMEs in Indonesia had either suspended operations temporarily or closed shop altogether due largely to a drastic decline in revenues (Cahyani, 2020; LIPI, 2020; Rachmawati, 2020).

In the short to medium term, the government, business community, and other relevant stakeholders should leverage high smartphone ownership and Internet usage to create solutions that reduce the impact of the economic slowdown on SME operations. To that end, mainstreaming the digitalization in not only business process and marketing, but also the business model used to

deliver value, has the highest potential to strengthen SME contribution to the economy and society. The existence of a strong and rapidly growing e-commerce in Indonesia is an opportunity, which a digitalized SME subsector can exploit to not only contribute to mitigating the impact of COVID-19 pandemic, but, more importantly, enable the subsector to lay a solid foundation for higher competitiveness and becoming ready for the industrial revolution 4.0.

E-commerce is already strong in Indonesia. In 2017, 30 million Indonesians used e-commerce to conduct transactions, generating more than US\$8 billion in spending. Online shoppers spent more than US\$8 billion that comprised US\$5 billion in e-tailing and US\$3 billion in social commerce, a figure that is projected to reach US\$40 billion, and US\$15–25 billion by 2022, totaling an estimated US\$55–56 billion (Das et al., 2018), and US\$150 billion in 2025 (Das et al., 2016). Based on projections, consumer spending using e-commerce channels is projected to reach 64 million in 2022 (Muller, 2020b). Considering that, several imperatives are proposed.

First, efforts should be made to enhance SME access to the omni channel e-commerce through short-term training on website development, e-market participation, product improvement and marketing, improving management practices, and employee skill improvement. Secondly, there is a need to provide requisite information and knowledge to SMEs on using mobile applications that facilitate access to financial resources through online platforms including peer-to-peer lending, crowdfunding, commercial bank online banking platforms, and FinTechs. However, to prevent SME practitioners from becoming victims of scams and frauds, the provision of education and training on access to online financial services should be in simultaneity with availing sufficient education and information on differentiating authentic online financial service providers from fraudulent services. Secondly, to provide SMEs access to fair prices for their products and services, there is need for links and connections with inputs suppliers, potential buyers and partners, and e-markets both in the domestic economy and abroad. Realizing such a goal is a daunting task for most SMEs. To that end, forging collaboration among local government offices that are charged with social affairs, economic planning, cooperatives and SMEs, SME organizations and entrepreneurs, banking and non-bank financial institutions, and representatives of Indonesian financial supervisory services, is crucial for the process.

The outbreak of the COVID-19 pandemic has exposed the great divide in digitalization across sectors, regions, and individuals based on where they live, social economic status. With remote learning the only way teachers and lecturers can deliver teaching materials to pupils and students, respectively, the importance of wide broadband, fast, 24/7 Internet access has never been greater. In fact, the outbreak and ramifications of the COVID-19 pandemic including social distancing, shelter-in place, among others, have accelerated the speed and scope of digitalization in various sectors of the economy by nearly a decade (Twilio, 2020). An argument that Frost et al.(2021) corroborate in their article on financial inclusion and financial inclusion. This is in part because obstacles to digitalization adoption that many a firm faced prior to the pandemic including limited budget outlays, reluctance of C-suite leadership to approve digitalization initiatives, legacy software issues, and organizational resistance especially from employees who nursed fears of losing their jobs, roles, and authority have been obviated by the need to act quickly and smartly that COVID-19 pandemic necessitated. Some of the areas that needed urgency included deploying ICT and supporting frontend and backend facilities and technology to ensure constant and no-latency connection with remote workers, connecting with increasingly disloyal online customers, and keeping in constant contact with distant and diverse suppliers. Another driver has been the need for enterprises to take advantage of changes in regulatory framework that has been implemented during the pandemic that are aimed at supporting economic agents in reducing the impact of the crisis on their bottom lines through easing restrictions on product and process innovations. The expectation was that by mitigating the impact of the pandemic on business operations would reduce the likelihood of firm closures, layoffs, and product cuts that would harm the economy.

The implication is that those firms, subnational governments, and countries, which prior to the pandemic had invested heavily and smartly in information and communications technology infrastructure, broadband Internet networks, and supporting human capital, are reaping hefty rewards, while those that did not are facing formidable difficulties not only to adapt to the evolving digitalization-driven business environment, global trade and commerce system, and society. Thus, to remain relevant and competitive, laggards on digital transformation have either to digitalize or lose out permanently to competitors. Based on the United Nations electronic government development and deployment report (UN, 2018), e-government and governance strengthen coordination among public service providers at all stages of the public policy process at the central and subnational level, contributing to improvement in government operations, information sharing, and decision making. Besides, e-government deployment enhances the ability and capacity of governments to respond quickly and appropriately to complaints of citizens, increases transparency and accountability to the citizenry, and fosters participation and engagement of users in the policy process, which in the end strengthens and widens public legitimacy and trust whilst at the sometime enhancing policy ownership (UN, 2020).

Moreover, the adoption and deployment of e-government in delivering services increases policy efficiency and effectiveness, thanks to improvements in coordination in policy design and implementation. It also supports collaborative and participative public policy process by considering perspectives of key stakeholders including service users, policymakers, policy impact evidence researchers, other non-state stakeholder practitioners such as local and national non-governmental organizations, and academia. Important as well is that e-government deployment enhances public acceptability, which is attributable to the high public engagement it evinces that in turn contributes to better program targeting, performance assessment, and effective monitoring and evaluation.

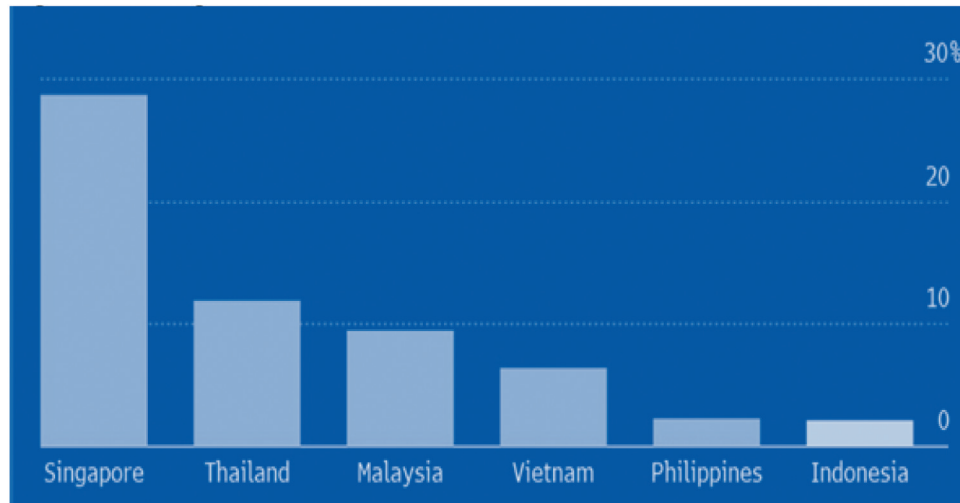
Nonetheless, the same report highlights the large digital divide between, for example, Singapore, Malaysia, and Thailand, on one hand, which are grouped in the very high EGDI category (0.700–1.00) and Indonesia, on the other, with score of 0.6612 on EGDI in the high EGDI category (UN, 2020). Such a digital divide, albeit small, reflects differences in the scope and quality of online services (OSI), telecommunications infrastructure development (TII), and human capital development (HCI), which in the age of digitalization are good proxies for firm and country competitiveness. Specifically, for Indonesia, while it has strong performance on HCI (0.7342, very high HCI category), its low performance on telecommunications infrastructure development index (0.5669) and online service index (0.6824) meant that its overall score put the country into the high EGDI group. To that end, accelerating government programs to expand the deployment of broadband Internet connection is no longer a requirement but an imperative to prevent regression in education attainment, as well as nudge Indonesia toward a high growth path for its manpower.

It is also noteworthy that digitalization has the potential to alleviate or even eradicate some of the outstanding problems that FDI faces in Indonesia. This is because apart from industrial relations obstacles relatively low FDI as percentage of GDP compared with other ASEAN states such as Singapore, Thailand, Malaysia, and the Philippines (Figure 18) is ascribed to the existence of negative list policy, transshipment obstacles for importers of intermediate components, high corporate tax (25%) Salna (2019), and low digitalization. Digitalization of production, management, administrative, and business processes should help Indonesian firms and economy leapfrog the rigidity of legacy management, bureaucracy, and production processes and systems directly to modern state-of-the-art ones. By deploying e-government, Cambodia and Bhutan, for instance, have in just a few years been able to propel their public service delivery systems from middle-level category to high e-government-driven systems (UN, 2020), which has been reflected in improvement in economic competitiveness.

Figure 18. Foreign investment as % of GDP, for some ASEAN states, first half, 2019.

Source: Maybank Ing Research based on CEIC data, Bloomberg QuickTake

<https://www.bloombergquint.com/quicktakes/why-indonesia-misses-out-as-companies-move-from-china-quicktake>.



Moreover, adopting and deploying digitalization is imperative in helping domestic firms enhance access to nationwide markets but also importantly, quality inputs, human capital, financial capital, and working ethos. Facilitating SME participation in global value chains is the best way to achieve that. Global value chains entail the participation of firms across countries in the production of parts and tasks necessary to produce goods and services (World Bank, 2020aa). GVC framework is underpinned by hyper-specialization of labor in the production of parts and tasks that are required to produce and deliver a final product and service, respectively. GVCs link firms that produce parts and tasks of a certain product or service, which are in many countries based on capacity and capability to contribute to value added to the product or service. To that end, participation in GVC depends, among other factors, on endowment factors (labor, capital, and land), market size, geography (location in close proximity to production, financial, and shipping hubs), FDI (the firm that holds ultimate responsibility and control of the production process or marketing process), domestic industrial capacity (enabling business environment, easier and cheaper access to requisite inputs, existence of agglomeration effects), and institutional quality (contractual consistency, regulatory clarity, political stability).

Participation in GVC takes broadly three forms: forward participation, forward and backward participation, and backward participation. Forward participation refers to the involvement of firms in supplying raw materials and inputs to foreign producers of intermediate products or raw materials, while backward participation relates to the involvement of firms in converting semi-finished products into final products that are ready for consumption. Meanwhile, forward and backward participation involves the participation of firms in importing inputs and raw materials that are converted into intermediate inputs that are subsequently exported to producers of final products. GVCs, thus, generate many benefits for firms, regions, and regions where they operate, improvement in productivity gains being one of the most notable (World World Bank, 2020).

Specialization of production of parts of a product or tasks of a service creates immense opportunities for high labor productivity, which translates into higher incomes and welfare of workers who are directly involved as well as members of the population and community located near and far from production zones. Improvement in productivity also generates demand for other products and services, which generates spillover effects that spur the emergence of economic activities that support the production of GVC products and services. And the spread of labor gains in terms of jobs in the formal

sector is not only limited to sectors and regions in countries where firms that produce parts and tasks are located, but also through spillover effects to other firms and regions (Long, Helble & Trang, 2019).

The foregoing is especially true because participation in GVC enhances labor quality. This is because all firms that participate in GVCs are expected to use the same quality inputs and follow universal working standards and conditions. Improvement in labor quality in GVC production centers induces enhancement of the labor pool quality with spillover effects to other sectors. Meanwhile, increase in labor productivity, creation of new jobs, and higher incomes earned translate into higher welfare of workers, firms that participate in GVC and economies of regions where such activities are located. In any case, labor productivity induces higher firm performance, increase in sales revenues, higher profitability, and high expenditure on research and development. Thus, GVCs spend more on research and development, which enhances their capacity to innovate (Deyshappriya & Maduwanthi, 2020; Sok et al., 2020).

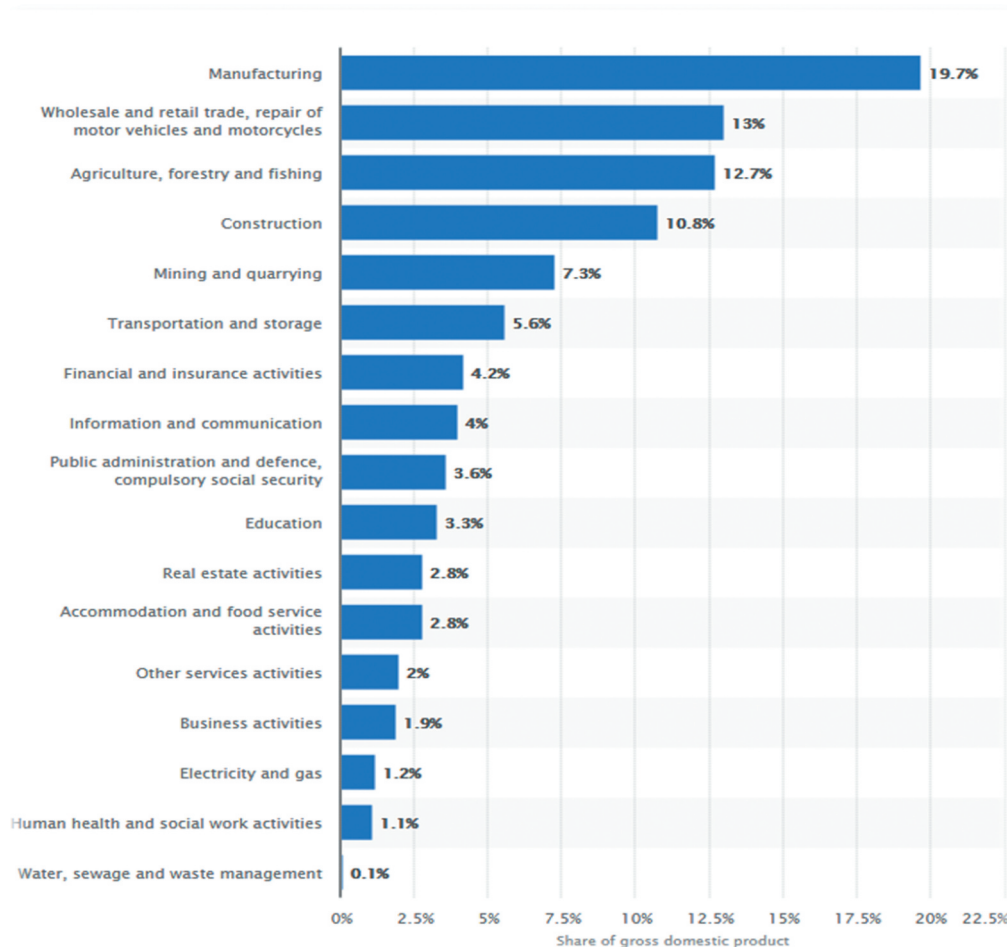
Besides, GVC participation incentivizes innovative activity of participating firms for existing products that have low value added, which contributes to increasing value of exports, revenues, and profitability (Dang & Dang, 2020). Several factors support SME participation in higher value-added tasks in the global value chain space in Indonesia. First, one of the key supporting factors for SME participation GVCs is the strategic location of the country in a region that has freight and financial transactions hubs linking China, Singapore, Hong Kong to Europe, Southern, Western, and Eastern Asia, Europe, and North America. Indonesia, being a member of ASEAN, offers GVC investors not only access to its US\$1.1 trillion market, but the entire ASEAN market of 625 million and US\$2.8 trillion (2019) and thanks to free trade treaties between ASEAN and China, Japan, South Korea, and New Zealand, implies that locating enterprises in Indonesia provides access to high potential markets in those economies as well (Dezan, 2017).

Secondly, Indonesia has diverse and abundant factor endowments (land, labor, and human capital) that are vital for forward, forward, and backward GVC participation. Firms in the country have a variety of GVC networks they can join including mining and extractive industries; textile and garment manufacturing; automotive components and automotive assembly manufacturing; agricultural processing industries; electric vehicle battery production (Indonesia is a leading producer of nickel, which is a key raw material in the production of electric batteries); ships maintenance and dismantling; pulp and paper industry; and fresh and marine fisheries processing, packaging, and trade.

Thirdly, a large and rapidly growing market to support GVCs that produce intermediate components and financial consumer products for not only the South East Asian but also the global market. Indonesia had GDP of US\$1.015 trillion in 2017 in current foreign exchange rate terms, and US \$2.89 trillion in PPP terms, which placed the country in the number 1 and 16 position, in South East Asia and the World, respectively. Moreover, based on the World International Comparison program, the Indonesian economy in 2017 was equivalent to 2.4% of world GDP of US\$120 trillion²¹ (World Bank, 2020b,5). By 2019, Indonesian economy had the GDP of US\$1.1 trillion (in current market foreign exchange rate terms), and US\$ 3.7 trillion (PPP), catapulting the economy to seventh position in the World. Moreover, Indonesia's GDP per capita increased from US\$3,837 in 2017 to US\$4,164 in 2019, joining the ranks of upper middle-income economies. Thus, with respect to the size of the market, Indonesian economy has the capacity to support not only forward GVC participation, but also importantly, a vital source of value-added production of goods and services, and capital inflow and human capital development. Thus, the country has much to offer to a variety of GVC firms involved in both forward and backward participation, and those involved in transforming imported intermediate inputs and components into final products for both the domestic market and foreign markets.

Figure 19. Contribution of sectoral activities to GDP (%), 2019.

Source: Statista: <https://www.statista.com/statistics/1019099/indonesia-gdp-contribution-by-industry/>



Fourth, Indonesia has a large industrial capacity, as reflected in the contribution of the manufacturing sector to GDP that based on 2019 statistics is close to 20% (Figure 19). The high manufacturing capacity makes the economy prepared to support high value-added GVC activities, including a variety of quality input source, human capital, and communications and telecommunications infrastructure. Besides, the existence of an open import and export regime, which is currently undergoing reforms that involves the adoption and deployment of e-document processing and management, is another advantage for GVC operations. The country has also established special economic zones that are better suited to serve GVC operations as they offer tax holiday incentives and corporate income tax reductions the duration of which depends on the value of the investment. The country also has in place various tax allowance incentives including accelerated depreciation and amortization, extension of tax carry-forward, value-added tax reduction on imported goods and those traded among companies, customs exemption on inbound and outbound goods, and import excise duty exemption. In addition, moreover, the country is currently implementing reforms that are aimed at simplifying licensing requirements and labor-related regulatory frameworks for firms that meet the requirements. The implementation of Law No.11/2020 on jobs creation specifically tackles those two issues.

Besides, the existence of industrial parks that are located in all parts of the country, which offer investors easy access to infrastructure, raw materials and intermediate products, transportation

and connections. Besides, firms that located their enterprises in industrial parks enjoy tax incentives that take various forms including duty exemption on imports and purchase of machinery and equipment used in producing goods or services, corporate income tax reduction, and other investment incentives. Nonetheless, both special economic zones and industrial parks face obstacles that relate to the absence of adequate communications infrastructure, poor transportation, and susceptibility to frequent power outages (Rastogi, 2018). Such hurdles increase production cost, which may undermine GVC operations that are based on just-in-time production arrangements benchmark efficiency with competitors that are in other countries that do not have such problems.

Support for GVC operations is also manifested in the existence of institutional capacity including strong regulatory framework on starting a business, paying taxes and restitution, streamlined provisions on hiring and firing workers, ease of repatriating profits, strong and stable investment incentive regime, political stability, and supportive financial institutions. Nonetheless, weak areas in this respect include regulatory burden that continues to hamper imports of intermediate components, weak enforcement of intellectual property rights, ambiguity in enforcing the bankruptcy law, burdensome firing of employees, and difficulties in land acquisition and extending tenure.

Thus, enhancing production process, management practices, and quality products and services requires the government to create an enabling environment that supports the participation of domestic firms in global value chains. Global value chains have been associated with significant improvements in labor and firm productivity due to access to quality inputs, global product and service standards, and access to foreign capital and technical assistance that contribute to enhancement in human development in the domestic economy due to spillover effects to other sectors. Moreover, GVCs are also a vital source of job creation, which, while is not directly attributable to GVC projects, but owes much to the increase in activities that support inputs supply, transportation, and other supporting services to GVC operations (Long et al., 2020).

Nonetheless, encouraging domestic firms to participate in GVC should take into consideration some of the potential dangers such a process may pose to the economy. The list includes the possibility of aggravating existing regional income inequality since firms that participate in GVCs are likely to have better access to resources through strong connections, organic growth, and mergers and acquisitions; being strategically located in regions that have relatively better supporting investment climate in the country, which in general also happen to be those industries are located, and higher interdependence of the economy at the sectoral, local, and national level through synchronized import and export functions. Higher interdependency of the domestic economy with foreign economies poses the danger of aggravating the slightest economic shocks exponentially, creates difficulties in implementing an independent monetary and trade policy, and is likely to increase the country's carbon footprint²² due to plastic packaging, and long distances that GVC production process and marketing take (World Bank, 2020a).

Thus, this article proposes several imperatives, which the government should take to enhance both the intensity and quality of the participation of domestic enterprises in GVCs. First, conducting an inventory of all current GVC activities in the country. The stock taking exercise is needed to determine industries where GVCs operate, review problems faced, and map the plan for action to enhance the capacity and attractiveness of Indonesia as a destination of GVCs. This is especially important for GVCs that import or use intermediate products to produce more advanced intermediate products for the domestic market and foreign markets, as well as those that convert domestic intermediate products and inputs into final products and services for the domestic market and export destinations.

The above exercise should not only be limited to processing and producing products but also the delivery of services. The government, with the collaboration of the private sector, domestic, and international experts, can identify services or tasks that are part of services, which some areas in Indonesia have the requisite human capital, infrastructure, and institutions to deliver. Secondly, formulating and implementing a national vision, master plan, and strategy. Specifically, for the service sector, one subsector that has huge domestic potential and proven competence to participate in GVCs is creative industries subsector that concentrates on the development of video games, animation, and computer applications. Indonesia has many computer programmers and animation producers, adequate connectivity, and democratic system that respect individual, civil, economic, and intellectual freedom to create and engage in such services without fear of state intervention.

Nonetheless, to be sustainable, GVC participation must be preceded by the resolution of persistent regulatory burden problem. The regulatory burden, which both domestic and foreign investors still face in investing and operating their businesses in Indonesia, is largely attributable to the maze of central and local government regulations that entrepreneurs are required to fulfill before and while operating businesses. This includes onerous permits to open a business, acquire land, dealing with complex labor relations, and logistic difficulties that increase production and operational costs due to obstacles imposed on imports of raw materials, and exports of intermediate products and final products. This problem is specifically a handicap to GVC operations because of the business model that involves importing raw materials and intermediate products that are either assembled or processed and transformed into final products for export to foreign destinations. One of the best lessons on dealing with regulatory burden is Vietnam.

Indonesia can learn a lesson or two from the experience of Vietnam in reducing the regulatory hardships that investors used face in the country. Vietnam first set a target in terms of percentage and timeline to reduce compliance costs for businesses and Vietnamese citizens. The project code named project 30 set the target of 30% of compliance cost reduction to be achieved during the 2007–2010 period. The policy was aimed at simplifying bureaucratic procedures, increasing efficiency, and reducing unnecessary costs (Scwarz, 2010). Subsequently, a three-phase process was used to reduce regulatory burden. First, the team of experts that included Vietnamese and foreign nationals conducted an inventory of all bureaucratic procedures and regulations, which were subsequently storage in a searchable database. Secondly, a participatory review of regulations and procedures that involved all stakeholders including businesses and associations to determine whether such regulations fulfilled the criteria of reasonableness, necessity, and consistency. Those regulations that failed to meet the three criteria were flagged for elimination. The third phase involved the elimination of flagged procedures through a process that entailed conducting a pilot project, the outcome of which informed future reform efforts. Subsequently, to ensure continuation of the review process of bureaucratic procedures, the government issued a resolution that provided the legal foundation to support the implementation of the regulatory reform process (resolution 25 of 2010). This was bolstered by the establishment of an agency that was entrusted with leveraging expert knowledge on best international practices to monitor and review new reforms to assess the degree to which they met the three criteria of reasonableness, necessity, and consistency. Today, Vietnam is one of the most attractive destinations for both GVC and traditional FDI investment in ASEAN and beyond.

The third imperative relates to improving business climate using approaches other than reducing regulatory quagmire. Strong and sustained political commitment and leadership at the local government and the central government level can serve as a galvanizing force for the realization of better production, connectivity, and transportation climate for GVC investors in both industrial parks and special economic zones. There is a need for political commitment and leadership to implement tax and labor incentives, support human capital development, upskilling and reskilling

programs, promote management practices and work ethos and ethics, and, more importantly, fight the scourge of corruption.

Fourth, strengthening coordination in trade policy, labor relations, issues of rules of origin, and financing, and investment, which protocols are already an integral component of ASEAN economic community and social and cultural community. Implementing the above initiatives improves the efficiency of GVC operations, which are interdependent across economic sector, industry, and country borders. Specifically, Indonesia should push for an accelerated usage of the Palapa Ring broadband project, which is a 35,000-km fiberoptic network that was supposed to be complete by 2019 (The Jakarta Post, 27 April 2016; Iswara, 19 May 2020). Besides, supporting an accelerated implementation of ASEAN digital integration framework action plan (2019–2025) should also support GVC operations. This is because the action plan aims to increase digitization of domestic and interregional e-commerce, investment, growth, and development by strengthening secure production, exchange, sharing, storage, and protection of personal and business data. Enhanced data security is expected to spur an increase in transboundary connectivity, SME development, and inclusive growth and development in the region (ASEAN Secretariat, 2019).

The interdependence of GVCs across sectors implies that in a country such as Indonesia, which has a long list of negative investment list (where foreign investment is not allowed), creates problems for investors who have interwoven operations in various sectors, some of which are on the negative investment list (Salna, 8 November 2019). Such sectors include telecommunications, food crops subsectors, education, among others²³. Thus, action is needed to deal with the obstacles to GVC operations that arise from the existence of the negative list. The good news is that within the framework of implementing Law No.11/2020 on job creation the Indonesian government is in the process of drafting a regulation that will reduce subsectors and economic activities where foreign investment is not allowed (Ayman, 2021).

In a related development, Salna (2019) raises the issue of difficulties that manufactures of final products in Indonesia face. The problems relate to the lengthy transshipment inspections and high tariffs that are in 10–15% range for such intermediate products as tires, engines, and gear boxes. The high cost and transshipment time it takes to import intermediate components for domestic manufacturers increases production cost. Consequently, higher operations costs of domestic manufacturers undercut the competitive advantage they have relative to manufacturers in other countries with lower transshipment time and tariffs such as Thailand and Vietnam. While efforts to resolve the problem are known and seem easy, in practice the adoption and deployment e-processing in transshipment activities has proven difficult and protracted. This is in part a direct consequence of the rampant entrenched cleavages that have a lot to lose from digitalizing the manual, in-person administrative procedures. Thus, while there is no better way to improving export and import trade than adopting and mainstreaming e-processing in import inspection, monitoring and approval, beneficiaries of legacy systems, who are spread in strategically different tiers and positions in management and leadership remain a formidable force against such endeavors. Dislodging such a formidable obstacle requires the existence of strong and committed and transformational corporate and political leadership.

4. Conclusion

The outbreak of COVID-19 pandemic triggered economic contraction of 1.9% in 2020, which is in contrast with an economic growth rate of 5.0% in 2019. Despite an increase in private savings, which is partly attributable to higher risk aversion and precautionary behavior that limited investment in securities and other non-cash assets, and an increase in government expenditure, which was manifested in the large multisector emergency response and economic stimulus package, the decline

in domestic investment and exports fueled unemployment that plunged the economy into a recession in the third quarter of 2020. The large economic stimulus package is close to IDR 1,000 trillion (\$68.97 billion) mark, which aims to support health, social protection, businesses, and government institutions to function amidst the raging crisis. Based on economic projections (IMF, 2021), policy response has to a large extent prevented the economy and society from a deeper prolonged economic crisis. Nonetheless, the COVID-19 pandemic has to some extent demonstrated the magnitude to which the economy and society are unprepared to leverage benefits that are associated with emerging trends and drivers of global competitiveness. This includes fragmented and urban-centered digitalization and connectivity; limited participation in high value-added global value chains in global goods and services production, investment, and trade; business climate that is plagued by unpredictable regulatory framework, institutional obstacles and high logistics costs; and severe shortages of dexterous, adaptive, and resilient human resource talent pool.

The author proposes initiatives that have two broad goals, *inter alia*, containing the impact of the fallout from spreading and deepening, through taking short-term measures and programs, whilst taking measures that should deal with the long-standing structural problems. The two types of initiatives are different but are reinforcing and complementary. In the short term, the focus should be to make use of available resources, capabilities, and capacities that include a buoyant e-commerce, high mobile ownership, and high Internet penetration to connect SMSE to financial resources, suppliers of inputs, and e-markets for SME products; provide reskilling training to laid-off workers and job seekers, and connect labor seekers with private and public sectors businesses that face labor shortages; deliver economic stimulus to businesses and individuals to mitigate the impact of COVID-19 pandemic; and facilitate the delivery remote inclusive education programs, and affordable healthcare.

In the long term, the existence of a gap between long-term development expectation and current social and economic conditions necessitates imperatives on reimagining the future, and reviewing and reorienting current policies to align with drivers of best practice performance. This includes making huge investments in infrastructure development; investing wisely in enhancing human resource quality by linking education system process and outcomes to both labor market current and projected future skillset demand and while also investing in labor force reskilling and upskilling programs and improving labor policies; strengthen and empower micro, small, and medium sizes in the economy. However, a strong economy and society is not only built on applied knowledge but also underpinned by values and institutions. Thus, the education system should also support the development and accumulation of expertise that are vital for sustaining and augmenting various types of society basic knowledge corpus including anthropology, linguistics, sociology, history, archeology, philosophy, and pure physical sciences. Nonetheless, accelerating the development and deployment of digitalization across economic sectors, sections of society, and rural and urban areas should be the core and main thrust of the development strategy that will create an enabling supporting environment for strengthening and deepening the country's enhanced participation in global trade, facilitate the relocation of global firms to Indonesia, and foster research and development, and evolution of a regulatory that is conducive to innovations and intellectual property rights protection (Alsamawi et al., 2020; Furstenthal et al., 2021). Increasing government focus on the creative industries underlines one of the justifications for the emphasis if nothing else.

Thus, the cross-cutting issue that links short-term and long-term trajectories is ICT and digitalization adoption and deployment, which explains emphasis on the need to accelerate the development and implementation of the national information highway (Palapa project). Palapa project coupled with ASEAN digitalization integration framework action plan (2019–2025) that are key ingredients for providing 24/7 broadband Internet services nationwide that is vital for mainstreaming the adoption and deployment of digitalization in the economy and society in business processes, producing goods, and delivering services.

Thus, despite its devastating effects on economy and society, COVID-19 pandemic will leave a legacy that is likely to guide policy action toward the better. Hurried action, which was necessitated by the emergency of COVID-19 pandemic outbreak, while daunting and challenging, has provided and equipped the government, business sectors, civil society, and the public with invaluable lessons learned with respect to what works and what does not, opportunities, obstacles, and challenges, that will in various ways help in designing and implementing the future of workplaces, education, and health service provision for post-COVID-19 pandemic society. Such society will be based on and driven by remote working and education, telemedicine, and contactless production of goods and delivery of services. Doing that will go a long way to turn what some pundits have described as a crisis like no other (IMF, 2020b), into an invaluable opportunity for the economy and society to achieve high, inclusive, and sustained growth once the crisis is overcome.

4.1. Limitations

While the research was based on the backcasting approach, lack of sufficient data prevented conducting quantitative analysis that would have strengthened the robustness of the projections. Moreover, the method used in this article did not adopt the workshop format that involves multiple stakeholders in setting the timeline, identifying events, and actions required to achieve the future state and obstacles and opportunities that characterize the process. The article's results were also constrained by the inflexibility that emanated from the fact current actions, obstacles and opportunities toward achieving the future state were only based on the baseline scenario rather than comparison of outcomes of various scenarios. The long-term development plan goals and targets provided the future state. This was compounded by the wide scope of the research. Narrowing the scope of the research in future research and using quantitative analysis packages should enhance robustness of the results.

The research focused on a single economy. Thus, future research should conduct a comparative study of several economies at either the same level of economic and social development or different at economic development levels but sharing social and cultural characteristics, should help in generating results on the impact of COVID-19 pandemic on economy and society, as well as recommended response and recovery policies in the short term, medium term, and long term.

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Author details

Muyanja Ssenyonga¹
E-mail: muyanja.ssenyonga@gmail.com

ORCID ID: <http://orcid.org/0000-0002-8157-2208>

¹ Institute of Governance and Public Affairs (IGPA),
Department of Management and Public Policy, Gadjah
Mada University, Yogyakarta, Indonesia.

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Notes

1. <https://s.nikkei.com/2Y2rSrJ>
2. <https://coronavirus.jhu.edu/map.html>
3. <https://canvas.uts.edu.au/courses/1276/pages/backcasting>
4. https://www.bappenas.go.id/files/1814/2057/0437/RPJP_2005-2025.pdf
5. <https://www.worldbank.org/en/country/indonesia/overview>
6. <https://tradingeconomics.com/indonesia/gdp-growth-annual>
7. <https://tradingeconomics.com/indonesia/unemployment-rate>
8. Which has largely been attributed to weak link between domestic manufacturing and global Value chains, low investment in physical infrastructure, human capital development, and logistics development (Arvis et al., 2018), improvement and expansion, all of which in various ways undermined the capacity of the economy to compete with cheap manufactured labor-intensive and electronic imports from China since the late 1990s (Lipsey and Sjöholm; Booth, 2011; Tongzon, 2005)
9. Relatively low rank on the human development index of 107 out of 186 countries on with score of 0.718 in 2020, which placed the country in the high

- human index category for the second year but 0.019 points below world average (0.737 in 2020).
10. Country Classification: World Bank Country and Lending Groups. <https://datahelpdesk.worldbank.org/knowledgebase/articles/906,519-world-bank-country-and-lending-groups>
 11. <https://tradingeconomics.com/>
 12. This is a problem that is not limited to developing countries but is a worldwide one. Based on PISA 2018 survey, on average only 64% of principals in OECD countries acknowledged the existence of teachers with the ability to integrate digital technology devices, a statistic that has a wide range from 27.3% in Japan to 84.1% in Lithuania (Reimers & Schleicher, 2020). If some teachers in industrialized countries, which in general have higher digitalization development and deployment still have relatively “low” ability to integrate digitalization in learning, one can only imagine the situation in many developing countries where information and communications networks infrastructure, supportive human resources, and leadership commitment and support, are still limited.
 13. Industry revolution 4.0 is a continuation of industry revolution 3.0, which begun with the invention of the computer and automation by increasing and widening the use of automated connectivity of processes, products, and systems, massive real-time data exchange thanks to cloud computing, cognitive computing, IoT, Industrial IoT, and artificial intelligence. Meanwhile, Industry Revolution 2.0 refers to the industrialization era that got underway after the discovery of electric energy that fostered mass production. Industry revolution era 1.0 is traced to first mechanization of economic activities (industrialization) attributable to water and its harnessing into energy after the discovery of a steam engine. So the industry revolution 1.0 is associated with water and steam energy use, industry revolution 2.0 electricity and mass production, industry revolution 3.0 related to the power of computer and automation, while industry revolution 4.0 mainstreaming and deepening gains of industry revolution 3.0 through harnessing data, connectivity, automation of products, processes, and systems made possible by cloud computing, cognitive computing, and artificial intelligence (Schwab, 2016)
 14. In a traditional classroom setting, a teacher is active, explorer, and “vetter” of learning materials, presents theories underpinning course materials, and gives home worker after the lesson to enable learners to home in the learned materials. On the contrary, learners are passive listeners of what the teacher has to say, can pose questions but not a requisite part of the lesson, and do homework after the lesson, which is mandatory to obtain marks but not a principal component of the “lesson.”
 15. Some of the money the central government allocates to support business financing can be repurposed for this program.
 16. The Omnibus jobs creation law (Law No.11/2020) as enacted on 5 October 2020. Some of the provisions of the la that have causes concerns across a wide spectrum of groups ranging from labor unions, indigenous peoples’ rights activists, to environmental protection advocates include efforts to improve investment climate by relaxing the stringency of areas covered by more than 70 national laws on issues that range from employment, securing business operational permits, to environmental protection. Nonetheless, it is provisions that relate environmental protection and industrial relations that have aroused the strongest opposition. Opposition to provisions that relate to environmental protection is attributable to among other stipulations, the provision that merges business permit processing and project environmental impact assessment analysis report, reducing the scope and parties than can lodge claims against environmental damage caused by among others business operations; removing the requirement for provinces to maintain a minimum of 30% forest cover; requiring proof of wrong doing by complainants against concessionaire holders for environmental damage liability that relates to their concessions. Environmentalists and indigenous community advocates are concerned that the regulation of environmental protection in the newly enacted Omnibus jobs creation law (Law No.11/2020) has the potential to accelerate deforestation, forest and land fires and biodiversity loss, forsaking rights of indigenous communities in favor of mining and plantation concession companies, and in general putting business and profits over inalienable indigenous community human and economic rights and environmental sustainability (Regan, 2020; UU.No.11/2020). Meanwhile, strident opposition to provisions on manpower relations specifically centers on the reduction of the size of severance and retirement payments workers who are laid off or reach retirement receive from their former employers. Omnibus jobs creation law (Law No.11/2020) reduces the amount of retirement payment from 32 times of the worker’s monthly wages to 25 times. And of the 25 times, the employer pays 19 times of the employee’s monthly wage with the remaining 6 times the employee’s monthly wage being paid by the government through a new scheme *Jaminan kehilangan Pekerjaan (JKP)* under the national social security board (BPJS). In addition to paying the remainder of the severance allowance, the job loss security scheme (JKP) will also pay for employee vocational training exercise to enhance competence through reskilling. Nonetheless, in some key areas such as acquisition of land for business operations that the Omnibus jobs creation Law No.11/2020 provides more certainty by giving businesses the opportunity to apply for land acquisition through the central government if local governments do not have regional spatial plans that are one of the principal conditions and basis for issuing such land acquisition and use permits. That said, despite the fact that under the spatial plan provisions, the central government has the power and authority to directing, regulating, and supervising local governments in developing and implementing spatial plans which must be complementary with national spatial plans and strategic plans, the provision that allows businesses the opportunity to process their land acquisition applications at the central government level rather the than the local governments where their businesses are physically located does not constitute an infringement of the

central government on the authority and power enshrined in law No. 32/2004 as revised to become law No. 23/2014 on local governments.

17. Law No.13/2003 allows only one trade union to represent workers in an enterprise, implying that although the laws allows employees to multiple trade unions in an organization, in effect only one can participate in negotiations conducted through a bipartite institution or an organizational regulation on industrial relations with organization management (Law No.13/2003, article 119).
18. Sixteen EU members have already benefited from the scheme.
19. Can be achieved through arrangements with IMF or Chiang Mae initiative, the latter being preferable considering the strong opposition any borrowing from IMF for any reason, is likely to arouse from politicians, academia, and opportunists alike.
20. <https://www.ccollege.gov.sg/Programmes/Pages/Default.aspx>
21. Ranked 16th in terms of GDP in PPP terms.
22. This includes road, rail, marine, air transportation that have high carbon emissions.
23. Earlier this year Indonesia allowed the establishment of branches of foreign universities in Indonesia.

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Appendix

Table A1. Impact of COVID-19 pandemic on the economy in first and second quarter of 2020 (constant 2010 billion Rupiahs)

	2019					2020			% change to quarter to 2019, QII, 2020
	Quarter I	Quarter II	Quarter III	Quarter IV	Quarter I	Quarter II	Quarter III	% change to quarter to 2019, QI-2020	
1. Household expenditure	1,442,556	1,467,601	1,512,796	1,513,446	1,483,314	1,386,684		2.83	-5.51
a. Foods and beverages, in addition to restaurants	530,680.7	539,118.7	556,717.2	552,602.6	557,271.4	535,309.1		5.01	-0.71
b. Clothes, footwear, and other services	56,593.49	58,055.58	57,872.68	58,398.5	54,719.05	55,075.54		-3.31	-5.13
c. Housing and household appliances	194,292.9	197,614.4	200,559	203,909.9	202,693.6	202,286.6		4.32	2.36
d. Health and education	101,013	102,066.6	107,270.3	107,293.8	108,946.7	104,128.2		7.85	2.02
e. Transportation and communications	357,097.3	364,626.4	376,655.1	376,306.4	351,048.2	308,727.2		-1.69	-15.33
f. Restaurants and hotels	135,259.5	137,655.3	143,608.4	145,444.4	138,547.5	114,902.9		2.43	-16.53
g. Others	67,619.54	68,464.13	70,112.98	69,490.74	70,087.8	66,254.53		3.65	-3.23
2. NPISHS consumption expenditures	34,339.64	35,057.62	33,223.42	33,553.16	32,590.85	32,338.16		-5.09	-7.76

(Continued)

Table A1. (Continued)

	2019			2020				
3. Local government expenditure	153,655.8	209,451.6	207,759.4	284,729.7	159,416.3	195,004.8	3.75	-6.90
a. Collective consumption	94,620.12	131,216.5	126,340	178,038.6	96,607.3	115,583.1	2.10	-11.91
b. Individual consumption	59,035.71	78,235.2	81,419.34	106,691.1	62,808.96	79,421.71	6.39	1.52
4. Gross domestic fixed capital formation	861,640.9	865,774.7	917,553	951,395.1	876,315.8	791,199.7	1.70	-8.61
a. Construction	645,280.8	648,328.9	679,372.1	714,321.4	663,115.7	614,245.4	2.76	-5.26
b. Machines and equipment	91,463.63	88,203.06	105,040.8	102,294.4	87,877.92	76,854.31	-3.92	-12.87
c. Automotive	47,346.78	47,270.55	48,779.61	50,123.26	48,635.15	31,142.72	2.72	-34.12
d. Other equipment	14,026.39	13,741.14	15,183.24	15,162.73	14,361.45	10,155.62	2.39	-26.09
e. Cultivated Biological Resources (CBR)	43,504.46	46,918.68	47,243.73	50,783.83	43,485	39,930.77	-0.04	-14.89
f. Intellectual property products	20,018.87	21,312.41	21,933.56	18,709.51	18,840.62	18,870.87	-5.89	-11.46
5. Change in inventories	61,523.99	59,179.55	35,709.17	-26,458.9	50,546.33	66,004.87	-17.84	11.53
6. Exports of goods and services	545,148.3	539,333.3	598,970.4	583,667.8	546,420.1	476,443.6	0.23	-11.66
a. Goods	486,790.6	479,298.7	530,974	521,064.6	498,767.8	448,048.4	2.46	-6.52
a.1. Non-gas goods	433,422.9	437,308.3	480,215.9	475,696.3	453,609.5	404,449.6	4.66	-7.51

(Continued)

Table A1. (Continued)

	2019				2020			
a.b. Gas goods	53,367.63	41,990.35	50,758.07	45,368.32	45,158.31	43,598.81	-15.38	3.83
b. Services	58,357.7	60,034.57	67,996.41	62,603.21	47,652.3	28,395.18	-18.34	-52.70
7. Subtract imports of goods and services	483,753.1	489,170.6	519,332.1	537,023.9	473,171.8	406,193.3	-2.19	-16.96
a. Goods	416,439.5	420,647	448,046.4	461,456.7	412,301	366,013	-0.99	-12.99
a.1. Non-oil and gas	357,102	348,868.5	384,203.5	385,280.5	343,516.6	313,067.7	-3.80	-10.26
a.b. Oil and gas goods	59,337.5	71,778.5	63,842.86	76,176.2	68,784.46	52,945.25	15.92	-26.24
b. Services	67,313.64	68,523.59	71,285.7	75,567.21	60,870.76	40,180.32	-9.57	-41.36
Statistics discrepancy	10,044.28	48,064.17	32,208.44	-33,200.7	27,586.53	48,165.57	174.65	0.21
8. GDP	2,625,156	2,735,291	2,818,887	2,769,909	2,703,018	2,589,647	2.97	-5.32

Source: BPS (2020).



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