

# ASEAN Education Cooperation

## An Assessment of Education Divide and Measuring the Potential Impact of Its Elimination

**Sanchita Basu Das and Badri Narayanan**

*Quality education is a key determinant for ASEAN's aspiration to be a single market and production base and to attract foreign investment. However, the region is characterized by an education divide in terms of quality and output, and this is likely to increase in the post-COVID-19 period. A simulation, modelling a productivity increase in the education sector through an increase in the Human Development-Education Index for lagging ASEAN countries to the level of Singapore (benchmark country), shows that GDP, exports and consumption are poised to go up much more for the countries that lag farther behind Singapore in their education quality. This increases ASEAN countries' potential to achieve outcomes from regional integration and hence provides an incentive to pay more attention to education cooperation, particularly by setting regional targets for improved education quality and output at the national level while linking education more intrinsically to ASEAN economic cooperation.*

**Keywords:** Export efficiency, governance performance, stochastic frontier gravity model, Vietnam, East Asia, ASEAN, education, economic development, HDI.

### 1. Introduction

A development divide has long characterized ASEAN regional integration. Soon after the accession of the last ASEAN member in 1999, the region was feared to be divided into a two-tier structure between the old ASEAN members (i.e., Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand) and the newer ones (i.e., Cambodia, the Lao PDR, Myanmar, and Vietnam) (Severino

**Sanchita Basu Das** is Economist at the Regional Cooperation and Integration Division of the Economic Research and Regional Cooperation Department of the Asian Development Bank (ADB), 6 ADB Avenue, Mandaluyong City 1550, Metro Manila, Philippines; email: [sbasudas@adb.org](mailto:sbasudas@adb.org)

**Badri Narayanan** is Senior Economist at the School of Environmental and Forestry Sciences, University of Washington, Seattle, Senior Fellow at the European Centre for International Political Economy, and Courtesy Faculty Member, Oregon State University, 21746 SE 3rd Pl, Sammamish, WA 98074, USA; email: [badrig@uw.edu](mailto:badrig@uw.edu)

2007). The divide was cited not only for per capita income but also for the level of human development, availability of transport and digital infrastructure. Also, gaps in institutional and human capacities make it difficult for all ASEAN countries to raise their productive ability together. Those gaps constrain their ability to develop a single market and production base, as espoused in the ASEAN Economic Community (AEC) Blueprint<sup>1</sup> (Salazar and Basu Das 2007).

COVID-19 has further increased this disparity among ASEAN countries. The blow dealt by the pandemic was felt differently by the ten economies across all indicators of COVID-19 (i.e., number of infections, deaths and tests conducted). ASEAN countries employed different ways to contain the spread of the virus, which could be observed in the form of mobility restrictions and duration of containment and control measures. There were also significant differences in the size of budgetary support, the pace of utilization of the additional resource, focus areas of government expenditure, and financial assistance to businesses (Lee, Negara, and Sambodo 2020). Moreover, the pandemic highlighted some fundamental issues in most of these economies, contributing to the differences in terms of readiness. For example, around half of ASEAN countries suffer from a weak healthcare system, including Cambodia, the Philippines, the Lao PDR and Indonesia. There is a lack of uniformity in digital accessibility across ASEAN residents, and more than 50 per cent of the ASEAN population remains offline. This became a challenge during the pandemic, as people in ASEAN did not have equal access to information and even suffered in areas of their daily livelihood (UN 2020).

COVID-19 exposed vulnerabilities in the education sector of ASEAN countries as well. The sector plays a pivotal role in building AEC. The regional documents in ASEAN, including the ASEAN Socio-Cultural Community and ASEAN Education Work Plan, identify education as a fundamental public good and highlight its importance for improved human development capacity and mobility of skilled labour in the region. The ASEAN Work Plan on Education 2016–20 aimed at enhancing access to and the quality of basic education<sup>2</sup> and increasing the use of ICTs for all levels of education (ASEAN Document n.d.). These have implications over time for acquiring advanced skills and improving employment prospects. These also have implications for enhanced economic competitiveness in terms of increasing trade and investment, leading to ASEAN's greater engagement with the global economy. Despite its importance, ASEAN countries face an education divide. The gap, although limited in terms of enrolment rate, is relatively higher when considering quality, measured in terms of pupil-student ratio, use of ICTs, infrastructure, and others. More significant differences exist in learning levels, which are reflected in international test scores (such as PISA) and the UNDP Human Development Index.

COVID-19 has exacerbated the education quality divide. The pandemic resulted in school closures in ASEAN countries for a prolonged period, resulting in students' learning losses. ADB (2021) estimates that students in Southeast Asia have lost, on average, more than 35 per cent of a year of learning,<sup>3</sup> more than a loss of 29 per cent for developing Asia. Learning losses vary across the ASEAN countries, depending on the duration of school closures and uneven access to digital devices among the population. As learning losses will reduce future productivity and earnings, estimates show a loss of around US\$180 or a 2.4 per cent decline in expected annual earnings for students affected by school closures in developing Asia (ADB 2021a).

Although the school closures led to a transformation from traditional classroom teaching to a virtual one, there are no estimates yet on how far this shift has managed to mitigate the learning losses. Much depends on the readiness of e-learning methods, including e-books, IT tools, and other study materials. In many cases, e-learning presented new challenges, as both students and teachers struggled with access to digital infrastructure and devices, as well as knowledge of technical skills.

This paper discusses the state of the education divide in ASEAN and measures the importance of education quality to economic development to increase the possibility of attaining economic outcomes from stronger regional cooperation. The paper provides policy recommendations drawn from the analysis

and building on regional documents and studies. The past literature has looked into various studies to present the importance of education to human capital, innovation and economic growth. Much discussion on ASEAN education has been restricted to higher and technical education. This paper fills this gap in the research by delving deeper into the ASEAN education divide and assessing its role with other sectors of the economy that contributes to economic integration.

The remainder of the paper is organized as follows. Following the introduction, the next section presents the literature review of the role of the education sector in economic growth and development. The third section elaborates on the education divide in ASEAN using selected indicators divided into three categories (quantity, quality and output). It also shows the differences in the duration of school closures and learning losses during COVID-19. The subsequent section undertakes a simulation exercise to measure the potential impact of closing the education divide in ASEAN. It discusses the impact of the education sector on other sectors of these economies to understand the implications. The fifth section reviews the current regional cooperation document in the education sector in ASEAN and presents the case of education cooperation in the European Union. Policy lessons are drawn in the final section to conclude the paper.

## **2. Literature Review**

The literature review covers three aspects: (a) education and human capital; (b) education and trade, investment and technology; and (c) ICT-improved access to education. Education has a robust relationship with building human capital that is of inherent value. There is a direct correlation between educated people and higher productivity. Education generates higher-skilled people who increase the absorption capacity of technology from more developed to less developed economies. Education is also useful for providing positive social outcomes (Barroa and Lee 2013). There is also evidence of a strong association between higher cognitive skills and economic growth (Hanushek and Woessmann 2008). It is estimated that one additional year of school education generates a rate of return of about 5–8 per cent per year for an individual (Patrinos 2016).

Education enables countries to improve their comparative advantage in new product categories. In fact, quality primary education strongly correlates with countries' development of their comparative advantage in products they are already producing (Felipe, Jin, and Mehta 2021). It is also a core determinant for countries following an FDI-led growth strategy (Brooks et al. 2010). Because an adequate education system is reflected in better human capital (Hanushek and Kimko 2000), foreign investors are often attracted by the quality and relevance of education that matches their industry requirements in developing countries. Attainment of adequate education—with better quality human resources—is essential for technology adoption and diffusion and the resulting productivity increase (Kim and Terada-Haglwara 2010). This is observed for both developed and developing countries: Asian economies that grew quickly acquired well-educated human resources.

Education affects the nature and growth of exports. The level and quality of education in a country's workforce (especially in developing countries) influence the nature of its factor endowments and, as a result, the composition of its trade (Oztrak 2001). According to Grossman and Helpman (1989), knowledge accumulation and trade go hand in hand, as one enhances the other, especially through imports (Ben-David and Loewy 1995). The quality of education appears in differences in countries' growth trajectories. Using a dataset of sixty-two countries over ten-year intervals from 1960 to 2000, Jamison, Jamison, and Hanushek (2007) concluded that quality of education has a positive effect on economic growth. They used the two variables to assess education quality—Mathematics test scores (EQTEST) and US labour market returns to education by country of immigrant origin (EQBT)—and showed that a 1 standard deviation rise in test scores led to an increase in per capita GDP growth by 0.5–0.9 percentage points.

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There are also studies showing that improved basic education enables individuals to be more aware of innovation at an early stage of development and more capable of managing new technologies for better economic outcomes. For example, Foster and Rosenzweig (1996) have shown empirically that access to basic education increased farmers' capabilities of moving from traditional to new farming techniques and further to non-farming activities.

The COVID-19 pandemic has had a significant impact on education. Governments around the world put a stop to face-to-face teaching and moved to online learning methods. This implies lost opportunities for students to learn crucial social, cognitive, and emotional skills, along with the chance that they may forget what they have learnt in the past (Cooper et al. 1996). As learning at a young age has implications for students' ability to acquire advanced skills in the future, missed learning opportunities are likely to put the skill attainment level at risk going into the future (Meyers and Thomasson 2017). Schools in many countries have pivoted to digital classrooms, but the benefits from such shifts depend on Internet availability and accessibility among the general population. A cross-country empirical analysis of 117 economies—a mix of emerging and advanced economies—shows that greater Internet access does mitigate some of the damage inflicted by the COVID-19 pandemic, and it further stipulates that improved Internet access is likely to mitigate some of the economic loss due to the pandemic. Estimates show that improving Internet access per population from the average for an emerging market (52.9 per cent) to that of an advanced economy (87.8 per cent) will help to reduce the former's growth slowdown by half (ADB 2021).

ASEAN acknowledges the importance of education in enhancing human capital in the region and has accordingly created institutions to support education cooperation (Dang 2017). These came into play simultaneously as ASEAN embarked on its initiative of the ASEAN Free Trade Area (AFTA), and later the ASEAN Economic Community, to enhance economic competitiveness. However, much attention is paid to ASEAN higher education and vocational training, marginalizing discussion of the role of basic education in higher-level learning and skills acquisition. Individual ASEAN countries also recognize the role of education in driving economic growth. While all countries have plans to improve their education system and quality, educational quality differs and remains uneven across ASEAN countries (Maneejuk and Yamaka 2021).

### 3. State of Education Divide in ASEAN

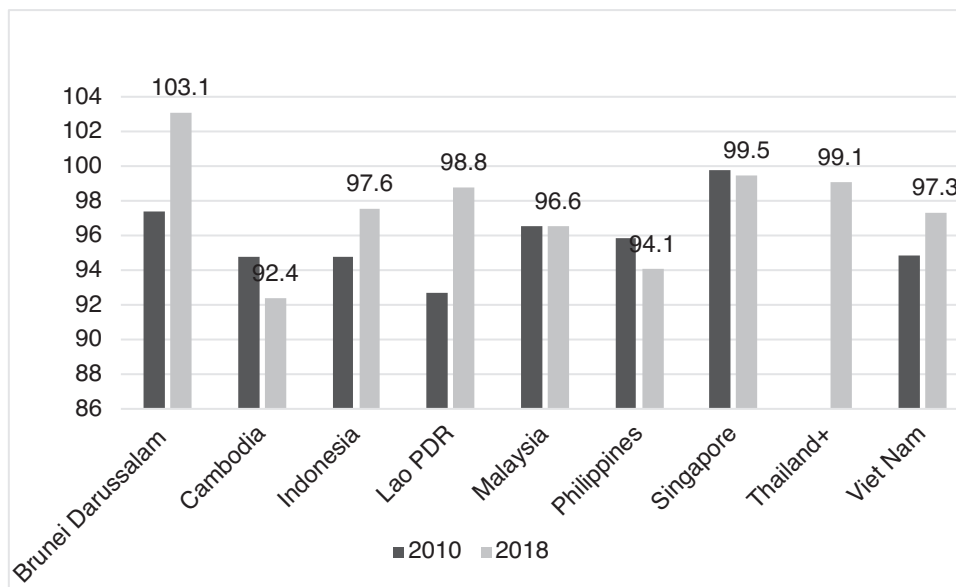
This section looks at the educational divide through three lenses: quantity, quality and output. It then presents the gaps in access to education and technology among ASEAN countries that increased the divide further during the COVID-19 pandemic.

#### 3.1 Quantity

Figures 1A and 1B show the net enrolment ratios in ASEAN countries in primary and secondary school education. This ratio has improved over time between 2010 and 2018 for both education categories. In 2018, while the ratio remained relatively high for primary schools, there was wide variation in enrolment in secondary education. Other than Singapore, Malaysia and Vietnam, most ASEAN members' enrolment ratio is below 90 per cent.

Figure 2 records students' completion rate for primary and lower secondary educational programmes, which varies across ASEAN members, although the disparity is greater for lower secondary schools. Except for Brunei Darussalam, Singapore and Vietnam, the completion rate for primary and lower secondary educational programmes remains low in one or both categories.

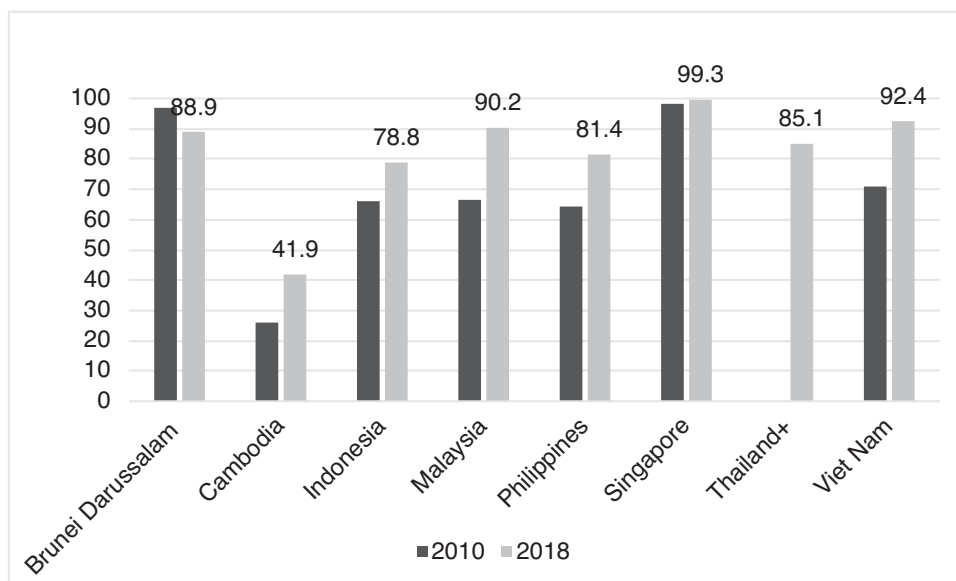
FIGURE 1A  
Net Enrolment Ratio in Primary School (in Percentage)



NOTE: Thailand data only available for 2018.

SOURCE: ASEAN Statistical Yearbook 2020, The ASEAN Secretariat.

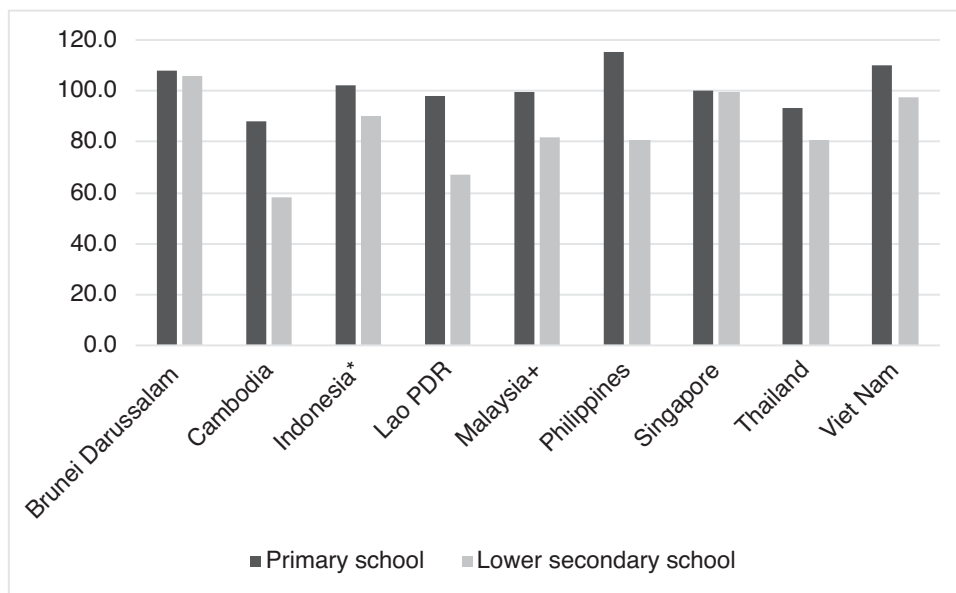
FIGURE 1B  
Net Enrolment Ratio in Secondary School (in Percentage)



NOTE: Thailand data only available for 2018; no data available for the Lao PDR.

SOURCE: ASEAN Statistical Yearbook 2020, The ASEAN Secretariat.

FIGURE 2  
Completion Rate, Total (% of Relevant Age Group), 2018



NOTE: Figures for Malaysia's primary school and Indonesia's lower secondary school from 2017.  
SOURCE: World Development Indicators.

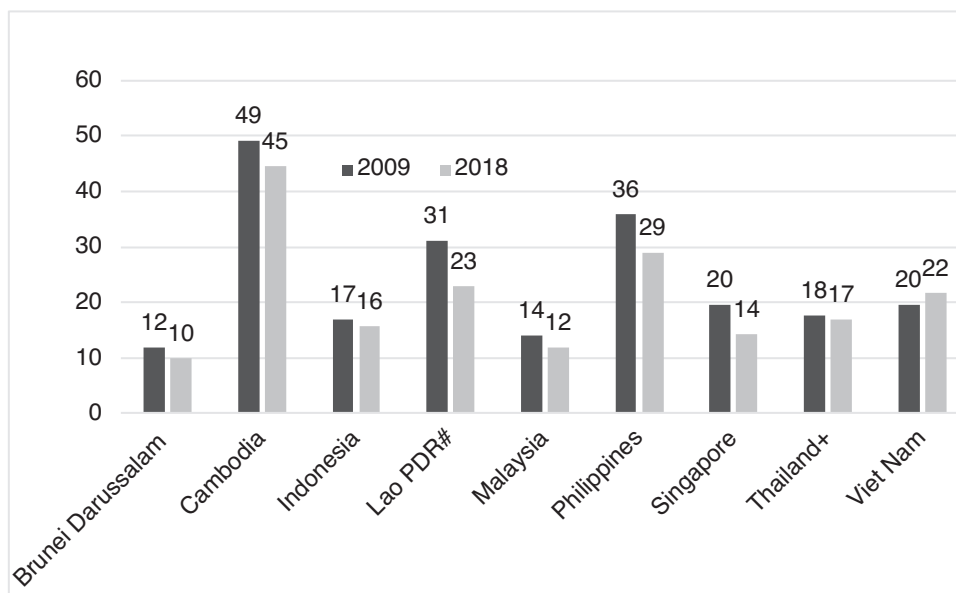
### 3.2 Quality

ASEAN countries face differences in the quality of the provision of basic education. Figures 3A and 3B show the student-teacher ratio in primary and secondary schools, which indicates the quality of education provision. During 2009–18, while the lowest ratios were observed in Brunei Darussalam, Malaysia, and Singapore, the ratios were relatively higher and greater than twenty for Cambodia and the Philippines. A higher ratio implies lower student access to a teacher, which in turn creates challenges for teachers to pay more attention to individual students, thus affecting student performance in the long run. The ratio of the spread of teachers over students has improved for most countries during this time.

With regard to school infrastructure, apart from Singapore and Brunei Darussalam, most ASEAN countries face shortages in school infrastructure. The lack of infrastructure is especially noticeable among less developed ASEAN members (Tullao et al. 2016). Table 1 shows that a sizeable proportion of primary schools in Indonesia, the Philippines, and Vietnam do not have access to round-the-clock electricity. There is also a gap among the countries regarding access to computers for educational purposes or even basic sanitation facilities.

The use of ICT to enhance the delivery of education services has been made mandatory in many of the ASEAN countries. However, implementation has remained patchy in most countries due to a lack of resources. Tullao et al. (2015) enumerate the differences in the application of ICT in education systems in ASEAN countries. While Cambodia has made it compulsory to use ICT in education service delivery by putting it in its constitution, countries like Malaysia, Singapore and the Lao PDR have assigned a separate department within their education ministry the task to implement various technologies in public schools. The Philippines has mandated the use of ICT in all learning areas. Despite these initiatives,

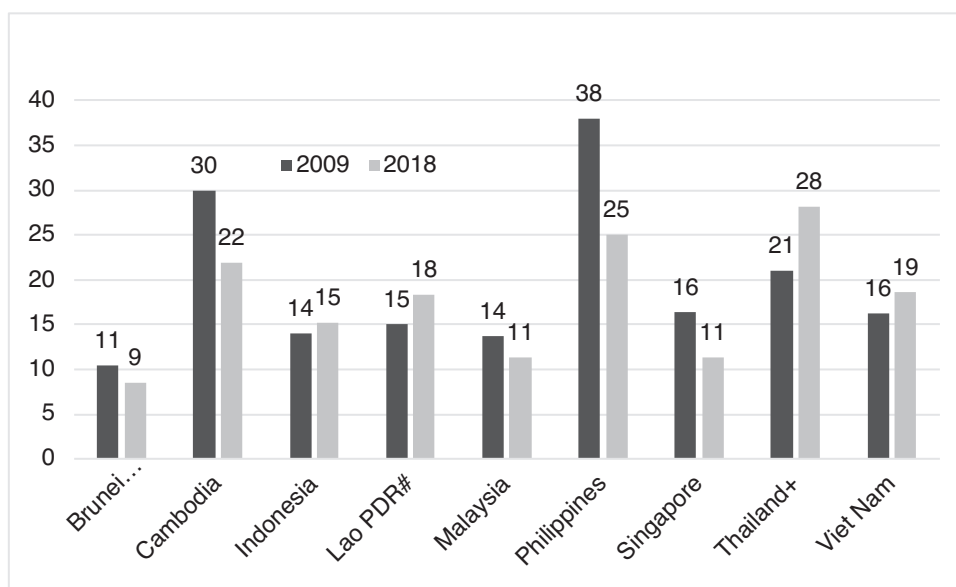
FIGURE 3A  
Pupil-Teacher Ratio in Primary School



NOTE: Data for Thailand from 2007 and 2015; latest data for the Lao PDR is 2016.

SOURCE: ASEAN Statistical Yearbook 2020, The ASEAN Secretariat.

FIGURE 3B  
Pupil-Teacher Ratio in Secondary School



NOTE: Data for Thailand from 2007 and 2015; latest data for the Lao PDR is 2016.

SOURCE: ASEAN Statistical Yearbook 2020, The ASEAN Secretariat.

TABLE 1  
Selected School Infrastructure Indicators in ASEAN Countries (Percentage)

	<i>Electricity (2018)</i>	<i>Computers for Pedagogical Purposes</i>	<i>Single-Sex Basic Sanitation Facilities</i>
Brunei Darussalam	100	97	100
Cambodia	—	—	68.7
Indonesia	93.6	41.1	51.6
Lao PDR	—	—	76.1
Malaysia*	100	81.7	100
Philippines	94.9	77.9	—
Singapore	100	100	100
Thailand	—	—	—
Vietnam	93	79.1	—

NOTE: Figures for Malaysia from 2017; —, data not available.

SOURCE: ASEANStats, ASEAN Secretariat.

implementation remains incomplete. All ASEAN countries have yet to ensure equal access to telecom, electricity, and the Internet. There is also a lack of budgetary resources provided for this particular part of education delivery. However, Malaysia and Singapore are relatively advanced in deploying ICT in their education sector. According to the UNDP Human Development Indicator dashboard for 2020, around 97 per cent of primary and 96 per cent of secondary schools in Malaysia have access to the Internet, which should be compared to the 61 per cent of secondary schools in Indonesia.

### 3.3 Output

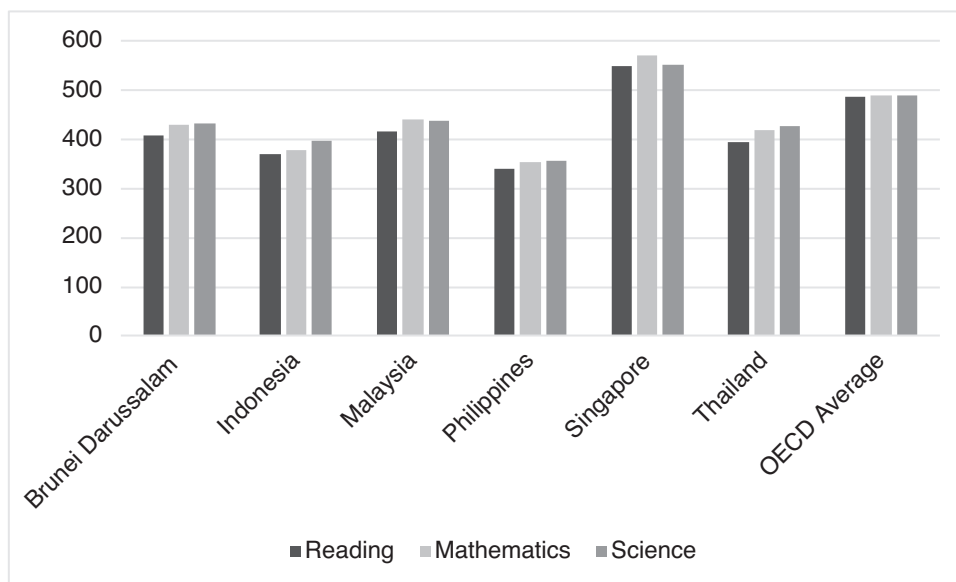
Three indicators are presented here to assess the quality of education output: the Organization for Economic Co-operation and Development's (OECD) Programme for International Student Assessment (PISA), LAYS 2020, and the UNDP Human Development Report. In 2018, Singapore performed the best in terms of the PISA assessment (Figure 4), followed by Malaysia, Brunei Darussalam and Thailand, among the ASEAN countries that participated in the assessment, for all three assessed subjects (Reading, Mathematics, and Science). Most ASEAN countries performed poorly compared to all countries participating in the PISA assessment in 2018. For example, in reading competency, Malaysia ranked 56th, Brunei Darussalam 59th, Thailand 66th, Indonesia 72nd, and the Philippines 77th out of 78 countries. Singapore was the top performer, ranking second in all three assessed categories.

Figure 5 illustrates how Learning Average Years of Schooling (LAYS), which captures both quantity and quality of education, differs among ASEAN countries. As the indicators around quantity are relatively high, the differences in quality parameters define the variation between expected years in schooling and learning-adjusted years in school. The most significant difference appears in the Philippines, and the minor difference appears in Singapore.

Similar differences can be observed in the Human Development Indicators—Education Index. The newer members of ASEAN, namely the Lao PDR, Cambodia, and Vietnam, lag Singapore and Malaysia. This is also reflected in the percentage increase in index required to attain the Singapore level being higher for the lagging countries.

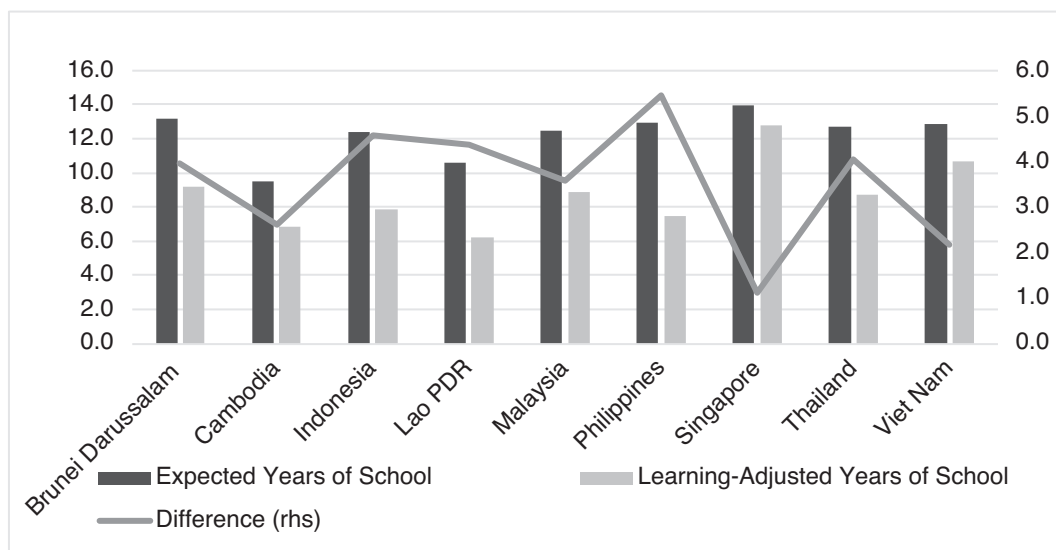


FIGURE 4  
PISA Score 2018



SOURCE: PISA Results 2018, OECD.

FIGURE 5  
Average and Learning-Adjusted Years of Schooling, 2020



SOURCE: World Bank. Human Capital Index, 2020.

TABLE 2  
Education Index for the ASEAN Member Countries (2019)

Rank Out of 189 (2019)	HDI (Value)	Education Index	% Increase Needed to Attain Singapore's Level
	2019	2019	
Brunei Darussalam (47)	0.838	0.702	16.82%
Cambodia (144)	0.594	0.484	42.65%
Indonesia (107)	0.718	0.65	22.99%
Lao PDR (137)	0.613	0.481	43.01%
Malaysia (62)	0.810	0.726	13.98%
Philippines (107)	0.718	0.678	19.67%
Singapore (11)	0.938	0.844	0%
Thailand (79)	0.772	0.682	19.19%
Vietnam (117)	0.704	0.63	25.36%

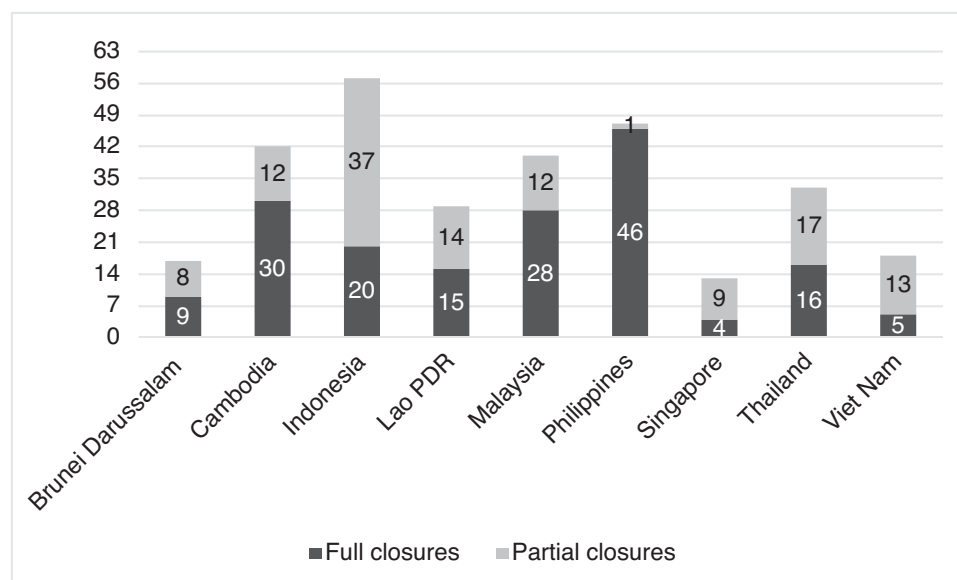
SOURCE: UNDP Human Development Indicators.

### 3.4 COVID-19 and the Education Divide

While the differences in education indicators existed before the COVID-19 pandemic, these were further aggravated in 2020 and beyond as the pandemic forced governments to make people adhere to lockdowns, isolation, social distancing and cessation of daily activities to limit the spread of the virus. Education was affected by these measures, as countries went into government-directed school closures. According to the Human Development Report (2020), school closure affected around 90 per cent of children globally. While some could afford to learn remotely through the Internet, others suffered a complete loss of formal education in 2020. It is estimated that, during the peak of COVID-19, while the short-term out-of-school rate in primary education was 20 per cent for countries with high human development, this indicator was 86 per cent in low human development countries. The shock to the education sector will result in a long-term loss in students' learning capabilities that will have implications throughout adult life, including the loss in earnings. The same learning shock was felt across ASEAN countries. Schools were closed either fully or partially (i.e., in some parts of the country and/or for selected grades). From March 2020 to June 2021, while government-directed school closure was the longest for the Philippines (forty-seven weeks), it was the shortest for Singapore (thirteen weeks), Brunei Darussalam (seventeen weeks), and Vietnam (eighteen weeks) (Figure 6). Singapore and Vietnam implemented partial school closures rather than full closures.

Remote learning became a way to mitigate some of the adverse effects of school closures. A survey done by UNESCO<sup>4</sup> in collaboration with UNICEF, the World Bank, and the OECD highlighted those ASEAN countries predominantly used online platforms (similar to Google Meet, Zoom, and other websites) and television as modes for education. The Lao PDR and the Philippines also used radio as a medium for instruction. Paper-based learning modules or worksheets were also distributed in most countries where students do not have access to television or the Internet. ADB (2021a) estimates show that school closures during the pandemic resulted in greater loss of LAYS in all scenarios (best, intermediate and worst) based on the assumption of the level of effectiveness of remote learning compared to physical learning in developing countries. While it is estimated that in 2020, Southeast Asia had an average of 8.34 LAYS, the school closures during the pandemic resulted in the greater loss of an estimated 35 per cent of LAYS in the intermediate scenario, 27 per cent in the best scenario, and 45 per cent in the worst scenario.

FIGURE 6  
Number of Weeks Schools Partially or Fully Closed, till 30 June 2021



SOURCE: UNESCO COVID-19 Response.

These are higher than the average for developing countries in Asia, where the estimated loss of a LAYS is 23 per cent, 29 per cent and 38 per cent in the best, intermediate and worst-case scenarios, respectively.

Table 3 shows the variation in learning losses among ASEAN countries for all three scenarios. In the intermediate scenario, the highest losses are observed for Malaysia, the Philippines and Cambodia, which also faced relatively longer periods of full school closure during the pandemic. These differences also reflect the extent of these countries' readiness in terms of distance learning, as the decision to close schools for almost all these countries was quick, with little time for preparation among teachers or household members (ADB 2021a).

Access to online learning also depends on households' access to ICT infrastructure and tools. ASEAN countries differ considerably in terms of the proportion of households with access to the Internet, computers and mobile devices (Figure 7). This has great importance for efficient remote learning during school closures. While 90 per cent or more of households in Singapore and Malaysia have access to the Internet, this falls to below 50 per cent for Cambodia, the Lao PDR, the Philippines and Vietnam. The gap is stark, as in the case of households owning a computer. Ownership of mobile phones is relatively better, as more than 75 per cent of individuals in Brunei Darussalam, Malaysia, the Philippines, Singapore and Thailand own a handset.

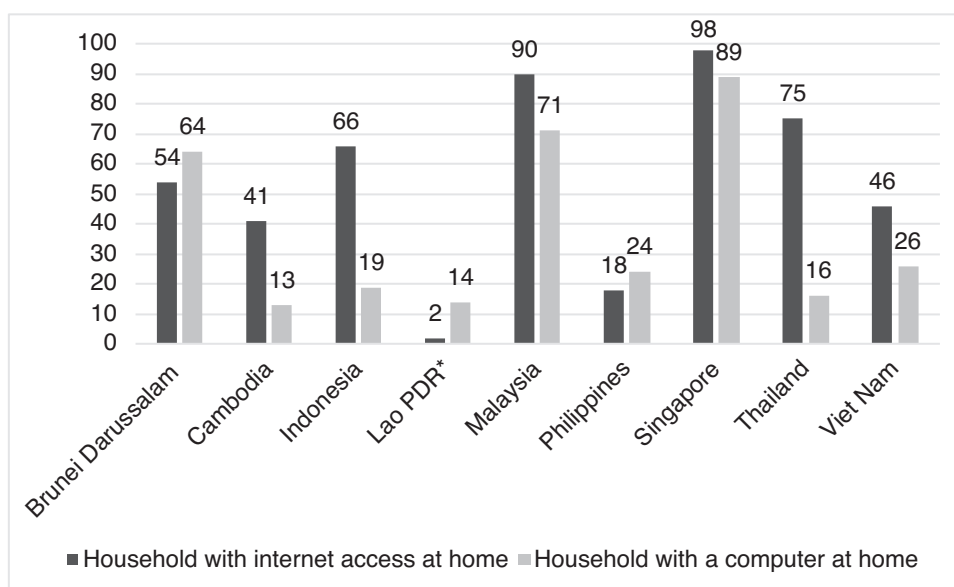
Kizilcec and Halawa (2015) have argued that attrition rates in online education are generally higher than in classroom learning. They found that online learners from developing countries tend to have lower test scores than learners from advanced countries. The COVID-19 pandemic must have led to higher attrition rates among students in less developed countries compared to more advanced ones. This will not only translate into the loss of labour productivity and economic competitiveness among ASEAN member countries but also into a loss in earnings over time.

TABLE 3  
Learning Losses

	Average Loss in LAYS			Baseline
	Optimistic	Intermediate	Pessimistic	LAYS 2020
Brunei Darussalam	0.05	0.15	0.27	9.22
Cambodia	0.37	0.42	0.50	6.84
Indonesia	0.22	0.33	0.48	7.83
Lao PDR	0.18	0.21	0.25	6.25
Malaysia	0.45	0.67	0.95	8.89
Philippines	0.53	0.61	0.72	7.49
Singapore	0.04	0.10	0.18	12.81
Thailand	0.15	0.22	0.31	8.68
Vietnam	0.17	0.20	0.23	10.68
Southeast Asia	0.27	0.35	0.45	8.34

SOURCE: ADB (2021a).

FIGURE 7  
Percentage of Households with Access to Digital Means, 2019



NOTE: Data for the Lao PDR pertain to 2017.

SOURCE: International Telecommunication Union, Country ICT Data, Digital Development Dashboard.

#### 4. Measuring the Potential Impact of the Education Divide in ASEAN

This section looks at education as a sector and its impact on other sectors of the economy; it is divided into two parts, which focus on the methodology and findings, respectively.

#### *4.1 Methodology*

This paper attempts to measure the potential effects of education quality in ASEAN countries on economic growth and development, increasing the possibility of achieving economic outcomes from greater regional integration. The section is based on a widely used global multi-country, multi-sector Computable General Equilibrium model and dataset called GTAP (Global Trade Analysis Project). The important advantage of this dataset is its macro-sectoral level information on education and its forward and backward linkages with other sectors, as well as multiple countries. The analysis measures the quality of education using the 2019 Education index from the UN Human Development Report.<sup>5</sup> ICT is inherent in the quality of education index. The methodology deployed gives a one-time education productivity shock to laggard countries to reach the level of Singapore (based on the 2019 Education Index from the UN Human Development Report shown in Table 2). The analysis in this paper assumes there is a linear correlation between the quality of education and productivity. The simulations are comparatively static and do not consider the dynamic nature of the trickle-down impact of educational quality on labour productivity over time.

#### *4.2 GTAP Model and Database*

The global research community has widely used Computable General Equilibrium (CGE) models to answer pressing policy questions. The CGE model is a framework in which the linkages between various sectors and the allocation of endowments/resources (such as land, labour and capital) are captured. This framework accounts for the fact that resources are fixed in the economy while sectors can expand and contract, depending on how much their product is needed by other sectors and by final consumers. For each sector, a typical CGE dataset comprises the inputs needed for production in terms of factors and materials used from the production of other sectors, imports and details of where the output goes: domestic or exports. What happens in one sector can affect the whole economy, not only through its share in the economy, but also through its forward and backward linkages with other sectors. In other words, education may be a small sector vis-à-vis the size of the economy, but if we account for its linkages with other economic sectors, it can be very significant. GTAP data has 2014 as a reference year, so our first step was to update it to 2019 using macroeconomic data available from the World Bank on GDP, consumption, investment, government, exports and imports, and using the GTAPAdjust entropy optimization procedure.

#### *4.3 Findings*

Table 4 shows the positive contribution of education quality (improved human resources) to output growth and international trade (exports and imports). Countries may lose or gain in terms of exports or imports depending on the extent of the expansion of domestic production and consumption. For example, if there is excessive domestic demand, exports may fall, and imports may rise; therefore, neither of these is a symptom of adverse development as GDP and economic welfare increase in all cases. All ASEAN countries have seen an increase in GDP due to the quality upgrade, with the highest being the Lao PDR and the lowest being Malaysia. Most ASEAN countries have seen an increase in the volume of merchandise exports except for Brunei Darussalam, Indonesia, the Lao PDR and the Philippines. Indonesia has the most significant drop by 2.75 per cent. This comes from excessive domestic demand for goods and services required to expand the education sector in these countries. All countries saw an increase in the volume of merchandise imports by region, except Cambodia, with a decrease of 0.11 per cent, due to greater domestic production capacity created in some goods and services that depend on the education sector.

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TABLE 4  
Percentage and Absolute Changes due to Rise in Education Quality

	<i>GDP Output</i>		<i>Merchandise Exports</i>		<i>Merchandise Imports</i>	
	<i>% Gain</i>	<i>Absolute*</i>	<i>% Gain/Loss</i>	<i>Absolute*</i>	<i>% Gain/Loss</i>	<i>Absolute*</i>
Brunei Darussalam	0.62	75.6	-0.02	-2.18	0.11	4.75
Cambodia	0.85	188.9	0.04	8.70	-0.11	-24.85
Indonesia	0.88	8,932.7	-2.75	-6,066.33	2.10	4,074.38
Lao PDR	1.22	205.5	-0.27	-13.03	0.33	26.27
Malaysia	0.46	1,453.3	0.05	122.19	0.04	82.28
Philippines	0.80	2,510.7	-0.19	-168.18	0.16	208.11
Singapore	<0.00	negligible	0.02	85.78	0.04	141.38
Thailand	0.67	3,064.4	0.00	13.94	0.08	199.66
Vietnam	0.78	1,747.5	0.08	191.61	0.12	293.23

NOTE: \* in US\$ million in 2019 prices.

SOURCE: Authors' model simulations.

TABLE 5  
Education Sector Output and Economic Welfare

	<i>Education Sector: % Gain in Output</i>	<i>Private Consumption: % Gain</i>	<i>Economic Welfare US\$ million</i>
Brunei Darussalam	24.53	0.327	70.57
Cambodia	116.82	0.550	155.52
Indonesia	22.58	0.927	9,714.43
Lao PDR	72.51	0.615	211.95
Malaysia	15.70	0.300	1,379.73
Philippines	17.07	0.571	2,517.38
Singapore	—	0.007	18.12
Thailand	21.98	0.380	2,979.90
Vietnam	29.20	0.670	1,666.93

SOURCE: Authors' model simulations.

Most countries saw an increase in the output of the “education” sector (Table 5), except for Singapore, with a marginal 0.22 per cent decrease. The highest is Cambodia, followed by the Lao PDR and Vietnam. The reason why this increase appeared in all countries except Singapore is that Singapore’s education sector was the target towards which the model increased the productivity of other countries. The city-state thus has no relative gain in productivity compared to these other countries and faces a marginal decline in the education sector. In other words, Singapore’s education sector is hardly affected, given that its productivity remains unchanged. Most ASEAN countries show a positive change in economic welfare (measured as an equivalent variation), with Indonesia showing the greatest change, along with the percentage change in private consumption. As shown in Table 4, it makes sense why some of the countries face a fall in exports, due to the rise in private consumption demand, mainly because of the demand for

goods and services corresponding to the uplift of the education sector, leading to greater wages for people at large, who in turn consume more.

As this is a static simulation exercise, the results should be interpreted as the impact of improved quality and productivity of the education sector on economic growth, trade, the quantity of education supplied and economic welfare, which in turn have ripple effects on the sectors with forward and backward linkages. In all countries, utility and construction, transport and communication increase because of their strong complementarities with the education sector. In all countries except Brunei Darussalam, the agricultural and food sectors and other services sectors also gain. There are mixed results in other sectors across countries. When a sector declines, it means that there is competition for factor endowments between the losing sectors and the education sector, resulting in a movement of factors from these sectors into the education sector. Such diversions are particularly observed in sectors like textiles and heavy manufacturing. Table 6 presents the impact on other sectors of the individual economies.

A key element in bridging the gap between high- and low-performing countries in international assessments like PISA are digital technologies. Digital platforms, especially for education, can help mitigate the inefficiencies of weak institutions and poor infrastructure, especially in developing countries. It might sound counterintuitive that governments which cannot maintain school buildings in rural areas should focus on a likely more expensive option (digital technology in education). However, the increasing penetration rates of smartphones and other digital platforms through which students can gain access to an inclusive education system have promise. According to the ADB (2021b) Asian Economic Integration Report, countries have partnered with telecommunications companies to increase bandwidth to try and reach people from disadvantaged communities with limited access to digital platforms. This digital expansion will also aid in improving productivity (through education or otherwise), which will further lead to growth in output as evinced by the positive changes in GDP throughout the ASEAN economies and other indicators.

## **5. Regional Cooperation in Education**

This section looks at the cautious approach that ASEAN and the European Union have taken towards education cooperation. While the EU is in a relatively advanced stage of education cooperation, it has taken around fifty years to reach that stage. ASEAN education cooperation has a long way to go.

### *5.1 ASEAN Education Cooperation*

The ASEAN Charter (ASEAN Secretariat 2007) stresses the importance of human resources “through closer cooperation in education”.<sup>6</sup> This was further elaborated in the Cha-Am Hua Hin Declaration on Strengthening Cooperation on Education to achieve an ASEAN Caring and Sharing Community (2009)<sup>7</sup> that linked enhanced education quality to improved mobility of workers to raise the competitiveness of the ASEAN region in the long run. Even long before the Charter, the countries had established the Southeast Asian Ministers of Education Organization (SEAMEO) in 1965 to help countries with their nation-building objectives and agendas, such as basic education for all, teacher training, and vocational training, among others.

The region has established new institutions, including the ASEAN Education Ministers’ Meeting (ASEM) in 2006, which was responsible for facilitating the building of the ASEAN Economic Community. Both new and old institutions have worked in tandem since then to harmonize ASEAN education—or, more particularly, the higher education system—to lead ASEAN towards a knowledge-based society in the long term (ASEAN 2015). Cooperation in education (human development) resides under the ASEAN Socio-Cultural pillar (Figure 8). ASEAN’s goal is to achieve better livelihoods for its populations

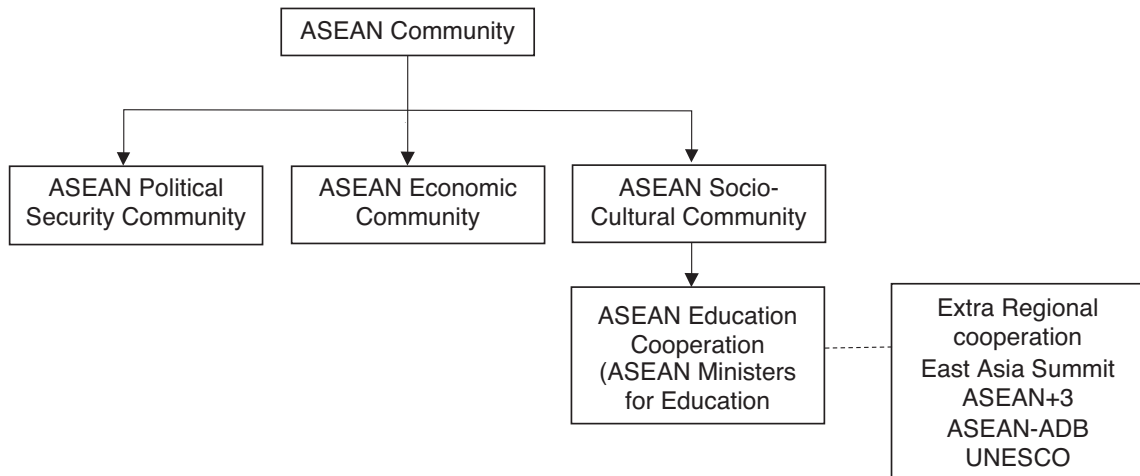
TABLE 6  
Percent Changes to Output in Other Sectors

Sector	Brunei									
	Darussalam	Cambodia	Indonesia	Lao PDR	Malaysia	Philippines	Singapore	Thailand	Vietnam	
Grain Crops	-0.05	<b>0.02</b>	-0.14	<b>0.03</b>	<b>0.05</b>	<b>0.09</b>	<b>0.01</b>	<b>0.02</b>	<b>0.02</b>	
Meat	-0.12	<b>0.06</b>	<b>0.24</b>	<b>0.03</b>	<b>0.04</b>	<b>0.28</b>	<b>0.08</b>	<b>0.05</b>	<b>0.34</b>	
Extraction	-0.10	<b>0.07</b>	-0.63	-0.41	-0.01	<b>0.00</b>	<b>0.00</b>	-0.03	-0.01	
Processed Food	-0.04	<b>0.16</b>	-0.48	<b>0.15</b>	<b>0.08</b>	<b>0.16</b>	<b>0.21</b>	<b>0.10</b>	<b>0.21</b>	
Textiles	-0.49	-1.48	-1.93	-3.50	-0.14	-0.10	-0.07	-0.23	0.05	
Light manufacturing	-0.22	-0.35	<b>0.23</b>	-1.46	<b>0.08</b>	0.03	<b>0.12</b>	<b>0.05</b>	-0.02	
Heavy manufacturing	-0.17	-0.39	-0.96	-2.25	-0.07	-0.28	<b>0.08</b>	-0.15	-0.11	
Utility & Construction	<b>0.53</b>	<b>0.64</b>	<b>2.75</b>	<b>0.11</b>	<b>0.15</b>	<b>0.36</b>	<b>0.01</b>	<b>0.24</b>	<b>0.43</b>	
Transport and communication	<b>0.16</b>	<b>0.22</b>	<b>0.59</b>	<b>0.27</b>	<b>0.10</b>	<b>0.21</b>	<b>0.02</b>	<b>0.06</b>	<b>0.35</b>	
Other Services	-0.03	<b>0.74</b>	<b>0.57</b>	<b>0.48</b>	<b>0.11</b>	<b>0.31</b>	<b>0.02</b>	<b>0.07</b>	<b>0.32</b>	

SOURCE: Authors' model simulations.



FIGURE 8  
Placing ASEAN Education Cooperation in the ASEAN Community Pillar



SOURCE: Authors' illustration.

through investment in education and capacity-building, encouraging innovation and entrepreneurship, and integrating ICT to facilitate socio-economic development (ASEAN Secretariat 2009).

ASEAN has developed a five-year work plan to promote education for all. It is in its third phase, having completed 2010–15 and 2016–20. The ASEAN Work Plan on Education (2016–20), to achieve improved quality and access to basic education, aligns well with the UN Sustainable Development Goal 4 (SDG4), which calls for inclusive and equitable quality education for all.<sup>8</sup> ASEAN priority areas for basic education include enhancing education quality and access for all through quality-focused interventions. The latter includes online education's role in improving teaching quality and pays greater attention to higher and technical education. The latest workplan from 2021–25 was adopted by ASEAN countries earlier in 2021.

The use of ICT and raising the capacity to access digital learning have also been prioritized among the education systems. Currently, ICT initiatives in ASEAN are supported by the SEAMEO Regional Center for Innovation and Technology (INNOTECH) and the International Council for Open and Distance Education (ICDE). The activities range from massive open online courses (MOOCs) enabling students to study courses online, to open educational resources (OER) that provide online teaching materials in the form of filmed lectures, tapes and videos.

Most ASEAN countries have improved their education indicators. The net enrolment rates for primary schools have been higher in recent years, implying that more children have access to education. Student-teacher ratios across many ASEAN members have improved, suggesting that teachers are well spread across a smaller number of students, thus giving them more attention. However, much needs to be done to improve school infrastructure and educational outcomes. While many education policies are the responsibility of national governments, cooperative measures can provide policy directions in a larger context of regional targets and aspirations. While ICT in education is available at the regional level for higher studies, it needs more rigorous implementation in primary and lower secondary education. ASEAN, as an organization, needs to promote ICT infrastructure and facilitate better accessibility, to adapt to the new normal of the post-COVID-19 era.

Basic education has yet to be rigorously discussed in ASEAN documents, although it has a significant role in higher education. Education is currently tied up to the AEC characteristics of “mobility of skilled labour”, which is limited, and education has much larger implications as the ten members of ASEAN have competitive advantages in different industries or different value chains within a particular industry. Raising education quality in the national economies will enable them to increase their economic competitiveness and attract foreign investment. Aggregating the individual economies will ultimately enable ASEAN to achieve its aspiration of a single market and production base in the long run. ASEAN is, however, unlikely to move towards a common approach in pursuing basic education under the ASEAN socio-cultural pillar. There are too many differences among the ASEAN countries to pursue basic education in a harmonized manner.

### *5.2 Evolution of EU Education Cooperation*

Earlier in 2021, the EU members adopted a framework for European education cooperation 2021–30 in accordance with the goals of creating a European Education Area by 2025. It emphasized five priority areas, including: improving the quality and inclusivity of the education system for all, achieving lifelong learning, motivating teachers in the education profession, strengthening higher education, and supporting green and digital transformation through education. Reaching the decision to establish an education area took more than five decades. The first meeting for education cooperation among the respective ministries took place in November 1971, which later passed a resolution in 1976 that was non-binding. It primarily showed the political will to participate in education cooperation. In the early 1980s, education cooperation was incorporated for discussion in relation to the EU’s economic and social objectives. While 1992 saw education (including school education) as part of the Maastricht Treaty, the treaty remained quiet on harmonization topics. The European Parliament became a stakeholder in education cooperation, giving it a more legal identity. Starting in 1993, as the EU implemented its single market, education cooperation entered a new phase. The evolution of education cooperation in the EU was largely driven by globalization, with an increased discussion of a knowledge-based society, information society, and lifelong learning (European Commission 2006).

In the late-1990s, several countries in the EU showed their willingness for harmonization in higher education. After much deliberation, thirty European countries agreed to join the Bologna process in 1998 to achieve some form of convergence across the different higher education systems. As EU cooperation entered a new phase of economic, social and environmental goals in 2000 with the Lisbon strategy, education cooperation became a core element to success. A single integrated framework for policy cooperation in education came into being in 2004. The EU has developed many programmes since the 1980s, including Comett, Erasmus, PETRA, Youth for Europe, Lingua and Eurotecnet.<sup>9</sup> The grouping launched frameworks in Education and Training in 2010 and 2020 that provided opportunities to build on best practices in education policy and advance policy reforms at the national and regional levels. Different target measures were set to cover both the quantity and quality of education, in line with lifelong learning objectives.<sup>10</sup>

In summary, one may say that it took a while for the EU to garner confidence in education cooperation. Starting from 1971, it took more than twenty-five years to reach the stage of harmonization; prior to that, there was political willingness, although commitments were kept broad and flexible. It was only in 2000 that the EU strengthened the connections between education cooperation and economic and social cohesion. Compared to the EU, ASEAN is a much younger organization. It has been just around twenty years since ASEAN started discussing the parameters of the ASEAN Community. While the EU’s education cooperation was driven by both internal and external pressures, such as economic downturn, unemployment, globalization and a wish to adopt concepts like lifelong learning and the knowledge

economy, it is possible that, for ASEAN, the impact of COVID-19 long after the pandemic years will be a turning point in education cooperation.

## 6. Conclusion and Policy Recommendations

This paper discussed the education divide among ASEAN countries. The divide is largely observed in quality and output rather than in quantity. Looking at the 2019 Education Index from the UN Human Development Report, Singapore ranks the highest among ASEAN members, while others lag by differing extents. The COVID-19 pandemic has exacerbated this divide. With school closures and mass online education, countries seem to have suffered learning losses that are generally higher than elsewhere in Asia. These losses undermine the objective of building the ASEAN Economic Community. Better quality education is a necessary condition for increased capability in the acquisition of skills and hence human resource development. It is directly correlated with building economic competitiveness, which ASEAN countries aim to achieve through economic integration within themselves and the global community.

The simulation exercise, which looked at a hypothetical scenario in which all of the ASEAN member countries put in the effort and investment needed to raise the HDI—Education Index to the extent of Singapore, concluded that the productivity improvements in the education sector may have a profound short-term economic impact due to the ripple effect coming from greater consumption of goods and services related to the education sector, even when long-term labour productivity gains from improved education are not taken into account. The countries that currently have much lower educational quality, attainment, and productivity are the ones that may particularly have the most to gain. GDP and economic welfare would rise for all ASEAN countries except Singapore, which would remain unchanged due to the assumption that its education sector would not witness any further improvement from its already high levels. The rise and fall of exports and imports were determined by greater economic activity-induced demand and greater expansion of domestic production and consumption patterns.

The results emphasize that improved education quality increases the potential of ASEAN countries to achieve a better economic outcome in national economies that advances regional economic cooperation. This, in turn, incentivizes ASEAN countries to strengthen commitments under education cooperation and link it better with ASEAN Economic Community measures.

Going forward, the paper provides the following policy recommendations:

- Although education is the responsibility of national governments, the overarching ambition of forming an ASEAN Community should compel policymakers to set targets at the regional level to improve education quality and outputs. Measures in education cooperation should be aligned with all components of the AEC. Currently, education is tied to the AEC characteristics of “mobility of skilled labour”, which is limited in nature. Education cooperation should also be discussed in the Master Plan of ASEAN Connectivity that covers ICT and broadband infrastructure, which became a key for online education during the COVID-19 pandemic.
  - Further policy papers should be written on lifelong learning or knowledge-based manufacturing, which are already mentioned in the AEC Blueprint. Corresponding targets should be set for national economies to succeed in these emerging concepts.
  - Regional cooperation could explore ways to establish quality assurance systems for all levels of education, including through the ASEAN Quality Assurance Network (AQAN) and the ASEAN Quality Assurance Framework (AQAF).
  - Basic education has yet to be rigorously discussed in ASEAN documents. More discussion is needed on quality convergence among the countries.
  - ASEAN should promote exchange programmes among students at all levels. In the post-pandemic
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period, a blended approach of online and physical exchanges could be explored to encourage balanced mobility.

- While the movement of teaching professionals may not be desirable at this juncture, networking events and exchange programmes should be encouraged among ASEAN countries for knowledge sharing and peer-to-peer learning.
- The use of ICT is possible at the regional level for higher studies but needs to be incorporated for basic education as well. Regional cooperation should strive to improve the availability and accessibility of broadband networks and IT tools for students, teachers, and households. The use of Big Data should be encouraged for efficient policymaking in the post-COVID-19 era. The private sector should be engaged to work with telecom companies to gather and analyse data at the household level to understand regional needs going forward.

### Acknowledgements

We thank Srujanee Mishra from Infinite Sum Modelling LLC, Seattle, for her research assistance. The paper was first presented at the ADBI-ADB-ISEAS Conference on Improving the Quality of Basic Education in Southeast Asia, 15–17 September 2021, and later during an ADB-Economic Research and Regional Cooperation Department webinar on 1 October 2021. We are grateful to all the participants for their comments and feedback during these events.

### NOTES

1. The ASEAN Economic Community is one of the three pillars of the ASEAN Community. The other two pillars are the ASEAN Political-Security Community and ASEAN Socio-Cultural Community.
2. Basic education comprises primary education and lower secondary education (first and second stages of education) (<http://uis.unesco.org/en/glossary-term/basic-education>).
3. This is derived from a relatively new indicator called Learning Average Years of Schooling (LAYS), which captures both quantity and quality of education. For a student, this is measured as the number of years of schooling by age eighteen, adjusted by the country's average student achievement. In general, for developing Asia, a LAYS that captures quality of education is lower than the quantity, i.e., average years of schooling, in a country (ADB 2021a).
4. UNESCO, Survey on National Education Responses to COVID-19 School Closures ([tcg.uis.unesco.org/survey-education-covid-school-closures/](http://tcg.uis.unesco.org/survey-education-covid-school-closures/)).
5. This paper considered the UN-Human Development Report—Education Index and not the World Bank's Human Capital Index (HCI), as the latter combines both health and education for its index score.
6. ASEAN Charter (2007) (p. 4).
7. <https://asean.org/wp-content/uploads/images/archive/15thsummit/Declaration-Education.pdf>
8. <https://bangkok.unesco.org/sites/default/files/assets/article/Education/files/session-2asean-cooperation-education-sdg-4.pdf>
9. Comett is a programme for education in training and technology; ERASMUS is a student exchange programme in the EU; the PETRA Programme focuses on vocational training for young people and preparing them for their adult lives; Youth for Europe is a portal providing opportunities within the region; Lingua promotes foreign language competence; and Eurotecnet deals with self-learning competency, training the trainers, and others.
10. For example, 15 per cent of fifteen-year-olds should be underskilled in Reading, Mathematics and Science or at least 15 per cent of adults should participate in learning.

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