Chapter 9

Narrowing the Development Gap Amongst ASEAN Members: Measurement, Progress and the Way Forward

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9.

Narrowing the Development Gap Amongst ASEAN Member States: Measurement Progress and the Way Forward

Simon Feeny

1. Introduction

The Association of Southeast Asian Nations (ASEAN) was founded in 1967 by five countries: Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Today's five other ASEAN Member States (AMS) joined later: Brunei Darussalam in 1984, Viet Nam in 1995, the Lao People's Democratic Republic (Lao PDR) and the Republic of the Union of Myanmar (Myanmar) in 1997, and Cambodia in 1999. The inclusion of the last four of these countries (often referred to collectively as CLMV) raised concerns of a 'two-tier' ASEAN. There were large differences between CLMV and the older six AMS across numerous development dimensions, not just in income per capita but also in terms of human resources, institutional quality, infrastructure, and competitiveness (ASEAN, 2020a). These differences are commonly referred to as development gaps.

In attempts to narrow these development gaps, ASEAN Heads of State, adopted the Initiative for ASEAN Integration (IAI) in November 2000. Following this initiative, ASEAN Foreign Ministers adopted the Hanoi Declaration on Narrowing the Development Gap for Closer ASEAN Integration in July 2001. The ASEAN Community Vision 2025 also reiterated the commitment of ASEAN Member States (AMS) to narrowing the development gap. The objective of the IAI was to create a framework for economic integration that would enable the ASEAN-6 (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand), to assist CLMV to narrow the development gap and improve the competitiveness of the entire ASEAN region. Specific actions to be taken by the ASEAN-6 to increase the capacity of CLMV and narrow the development gap were outlined in subsequent IAI workplans: the first from 2002–2008, the second spanning 2009–2015, the third from 2016–2020, and the fourth from 2021–2025. IAI workplans have a broad scope. The current workplan (IAI IV) (ASEAN, 2020b) includes interventions in food and agriculture trade facilitation; micro, small, and medium-sized enterprises; education; health and well-being; and enabling action.

This paper evaluates the progress ASEAN has made to narrow the development gap and explores how the agenda should be pursued in the post-2025 era. Section 2 summarises the different approaches to measuring development gaps. Section 3 employs a range of data to measure gaps in different development indicators for AMS and assesses whether these gaps have narrowed through time. Section 4 examines which of the major ASEAN initiatives appear most successful in contributing to narrowing development gaps. Finally, Section 5 concludes with some policy recommendations on how the development gap should be addressed in the post-2025 era.

2. Measuring Development Gaps

Development gaps refer to disparities in economic, social, and human development between different countries. Since development is a multidimensional concept, measuring development gaps is a complex task that must involve the use of multiple indicators. Moreover, several different methodologies can be adopted to measure development gaps and assess how they have changed through time.

Given the original concerns over a two-tier ASEAN, a common approach to examine the development gap has been to compare the average level of a development outcome for the ASEAN-6 with the average level for CLMV and examine how the differences in these two averages have changed through time.

A second, more conventional approach to measuring the development gap is to assess whether countries have experienced beta convergence. Beta convergence occurs if AMS with lower development outcomes are *improving them faster* than richer ones. If this is the case, we would expect to observe a narrowing of the development gap over time.[1] In other words, if beta convergence is occurring, we would expect to observe a negative correlation between a development outcome in a base year (t) and the growth rate of the development outcome in a subsequent period. A formal exposition of the model that is used to estimate beta convergence is provided in the Appendix of this chapter.

A third approach to assessing development gaps is to examine whether the level or dispersion of a development outcome amongst members is narrowing through time. If this is confirmed, the countries under consideration are said to be experiencing sigma convergence. Ram (2018) notes that the two most commonly used measures of sigma convergence are: (i) the standard deviation of the logarithm of the development outcome under consideration; and (ii) the coefficient of variation of the development outcome (CV) (calculated as the ratio between the standard deviation and the mean of the values for the development outcome for all countries under consideration).[2] These two dispersion measures are also adopted in the analysis conducted in this paper. A decline in either of these measures implies sigma convergence and a narrowing of the ASEAN development gap.[3]

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[1] An important distinction can be made between absolute convergence and conditional convergence. Absolute converge arises when all countries converge to the same steady state (or level of a development outcome). Conditional convergence occurs when only countries with similar structural characteristics converge. Different development outcome levels (steady states) will persist through time if different structural characteristics persist.

[2] There is an ongoing debate over which of these two measures is the better one to use (Dalgaard and Vastrup, 2001; Ram, 2018). Moreover, another approach to measuring sigma convergence is to use a population weighted measure which considers the population size of a country. Larger countries will have a bigger impact on the findings from this approach. This chapter focuses on unweighted data since ASEAN is concerned with differences in development outcomes across its AMS regardless of their population size. Population weighted measures of sigma convergence are more appropriate if examining changes in inequality at the global level.

[3] Young, Higgins, and Levy (2008) demonstrate that β convergence is a necessary condition for σ convergence.

3. Progress Towards Narrowing the Development Gap Amongst ASEAN

Since development is multidimensional, it is necessary to use different development outcomes to effectively measure the ASEAN development gap and to ascertain whether the gap is narrowing. At the same time, given the large number of development indicators available, a high degree of pragmatism is warranted and a limited number of development indicators must be selected with justification.

The first development indicator that this paper focuses on is income, measured using constant gross domestic product (GDP) per capita measured in purchasing power parity (PPP) terms. Income is highly correlated with many other development outcomes. Moreover, improving productivity in the agricultural sector (on which a large proportion of CLMV populations rely), facilitating trade, and promoting micro, small, and medium-sized enterprises are three of the five strategies of IAI IV. The three strategies seek to raise incomes in CLMV countries to narrow the development gap. Improving incomes is also central to the 2025 ASEAN Blueprint (ASEAN, 2015) and is therefore selected as one of the development outcomes used in the analysis of this paper.

The second development outcome relates to health, examined using two development indicators: (i) the rate of infant mortality (number of deaths of infants under one year of age per 1,000 live births); and (ii) life expectancy at birth (measured in years). These indicators effectively reflect the strength of a country's overall health system. Improving health outcomes is critical for promoting higher labour productivity and overall living standards which are major goals of the ASEAN Socio-Cultural Community Blueprint 2025 (ASEAN, 2016a). Health and well-being also comprise one of the five strategies of the IAI IV workplan.

The third development outcome is education, examined using the expected years of schooling (the number of years of schooling a child of school entrance age can expect to receive, if prevailing patterns of age-specific enrolment rates persist throughout the child's schooling life). This is consistent with the ASEAN Socio-Cultural Community Blueprint 2025 that seeks to improve access and quality in basic education. Education is also another of the five strategies of the IAI IV workplan.

These are indicators that are widely used to measure progress in three important dimensions of development. There are also sufficient data with which to examine the gaps in these indicators through time. The analysis of the gaps in this core set of development indicators is complemented by an analysis of other less traditional ones: governance; gender equality; and the ease of doing business. These indicators are also highly relevant to narrowing the development gap agenda as well as the 2025 ASEAN Blueprint.

Strengthening governance is an important cross-cutting issue to achieve all of ASEAN's objectives and is also an important component of the second characteristic of the 2025 ASEAN Blueprint: A Competitive, Innovative, and Dynamic ASEAN. It is also In line with the ASEAN Leaders' Statement on Strengthening ASEAN's Capacity and Institutional Effectiveness made in 2023 (ASEAN, 2023). The level of governance is measured using the mean of six indicators of governance from the World Bank: (i) voice and accountability; (ii) political stability and absence of violence/terrorism; (iii) government effectiveness; (iv) regulatory quality; (v) rule of law and (vi) control of corruption.[4]

Consistent with the objective of ASCC Blueprint 2025, gaps in gender equality are also examined using the United Nations Development Programme's Gender Development Index (GDI) (ASEAN, 2016a).[5] This indicator is consistent with the IAI IV objective of raising the share of girls in secondary and tertiary education to increase the social mobility of women and reduce gender disparities. The workplan recognises that gender and social inclusion are crucial to CLMV's socioeconomic development in the next 5 to 10 years.

Finally, the World Bank's Ease of Doing Business Rankings are also examined amongst AMS (World Bank, 2020).[6] The World Bank discontinued the Ease of Doing Business Rankings in 2021 because of an external investigation finding that World Bank staff had manipulated data in 2018 and 2020. Whilst ASEAN country data were not implicated, the investigation found that scores were raised in the cases of China and Saudi Arabia and reduced in the case of Azerbaijan (Machen et al., 2021). Because of the paucity of other longitudinal data related to the business environment, the Ease of Doing Business rankings are analysed in this paper. The 2025 ASEAN Blueprint recognises the importance of improving the investment environment and strengthening the role of the private sector whilst the IAI IV outlines the need to improve the business environment for micro, small, and medium-sized enterprises. A high ease of doing business ranking means the regulatory environment is more conducive to the starting and operation of a local firm.

Findings relating to the development gaps in these indicators and how they have changed through time are summarised according to the three methods outlined in Section 2.

[4] AEach indicator is based on the views of firms, citizens, and expert survey respondents in industrial and developing countries.

[5] GDI measures gender inequalities in achievement in three basic dimensions of human development: health, measured by female and male life expectancy at birth; education, measured by female and male expected years of schooling for children and female and male mean years of schooling for adults ages 25 years and older; and command over economic resources, measured by female and male estimated earned income (UNDP, 2023).

[6] YThe ease of doing business rankings combine survey responses on the following ten topics: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency. All topics are weighted equally. Data were collected by the World Bank with a standardised survey administered through more than 9,000 local experts, including lawyers, business consultants, accountants, freight forwarders, government officials, and other professionals who routinely administer or advise on legal and regulatory requirements. Data before 2013 are not comparable with data from 2013 onward because of methodological changes (World Bank, 2020).

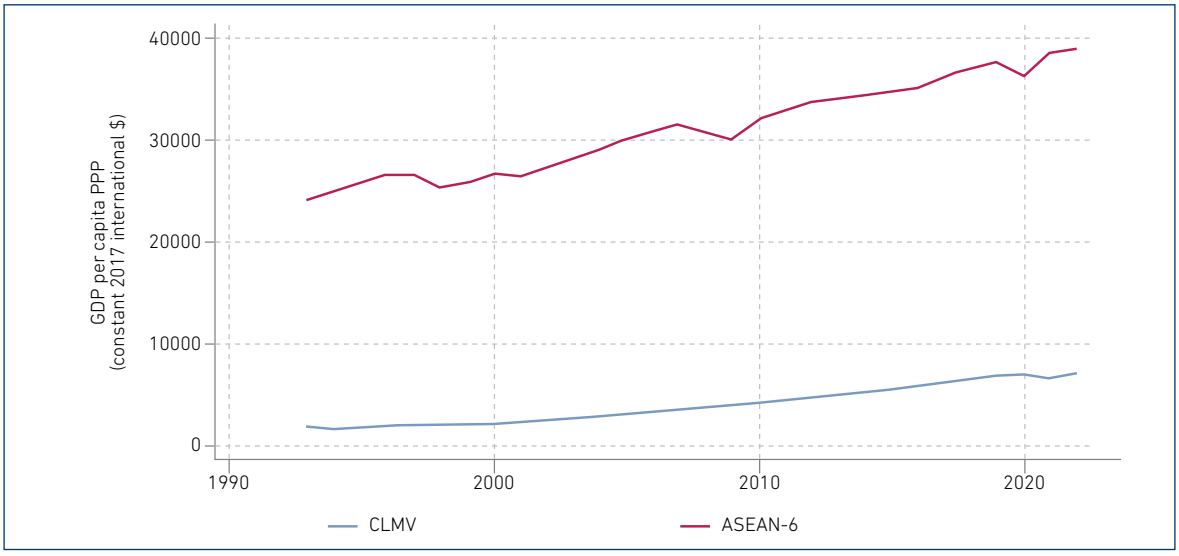
3.1. ASEAN-6 versus Cambodia, the Lao People's Democratic Republic, the Republic of the Union of Myanmar, and Viet Nam

Figure 9.1 to Figure 9.7 examine the development gap amongst AMS by comparing the average levels of the development indicators between the ASEAN-6 and CLMV country groups through time. Figure 9.1 indicates that the absolute gap in average levels of GDP per capita (PPP) has increased slightly between these two groups of countries during 1993 to 2021. Thus, whilst CLMV countries have experienced higher economic growth rates during this period, absolute income gaps have failed to converge.[7] Findings from the other figures reveal that the gap has fallen with respect to infant mortality and life expectancy and remained about the same for expected years of schooling, the GDI, governance, and the ease of doing business. Figures for the gaps in development outcomes across individual countries are included in Figure 9A.1 to Figure 9A.7 of the Appendix. In summary, findings from this approach provide very little evidence of a narrowing of the development gap amongst the two ASEAN country groups outside of the health sector.[8]

[7] Note that even when poor countries grow faster than richer ones, absolute income gaps can continue to increase because of the lower initial income levels of the poorer countries.

[8] Figure 3 demonstrates that life expectancy fell in 2021 for both groups of countries because of coronavirus disease (COVID-19). There was also a sharp fall in life expectancy for the CLMV group in 2008 because of the global economic crisis.

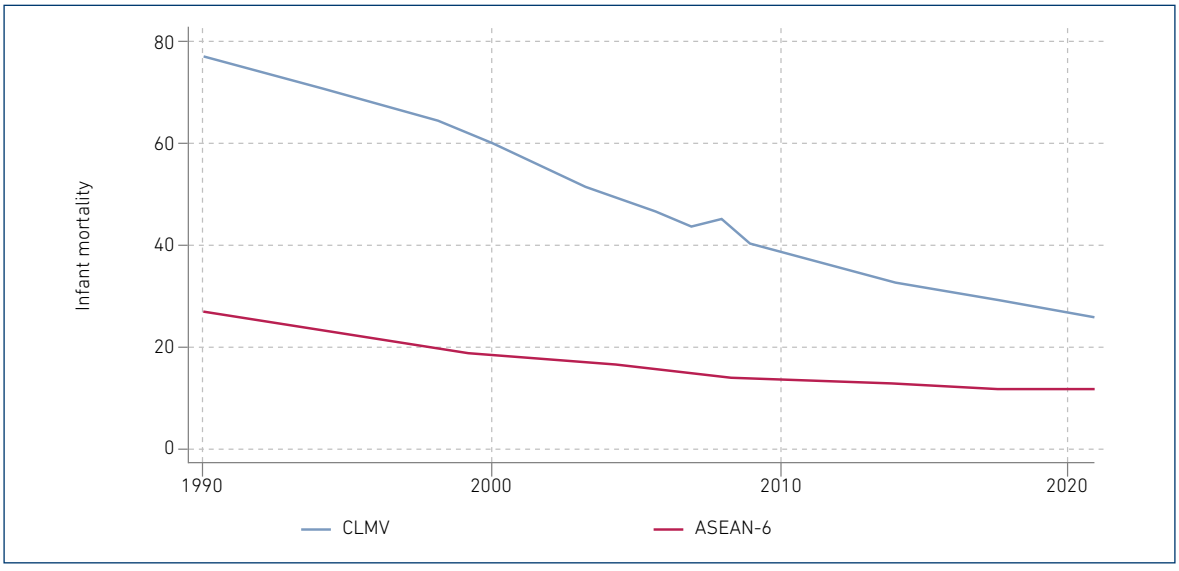
Figure 9.1. Average Gross Domestic Product Per Capita Purchasing Power Parity – ASEAN-6 versus CLMV, 1993–2022



ASEAN-6 = Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand; CLMV = Cambodia, the Lao People's Democratic Republic, the Republic of the Union of Myanmar, and Viet Nam; GDP = gross domestic product; PPP = purchasing power parity.

Source: The author using data from World Bank (2023a).

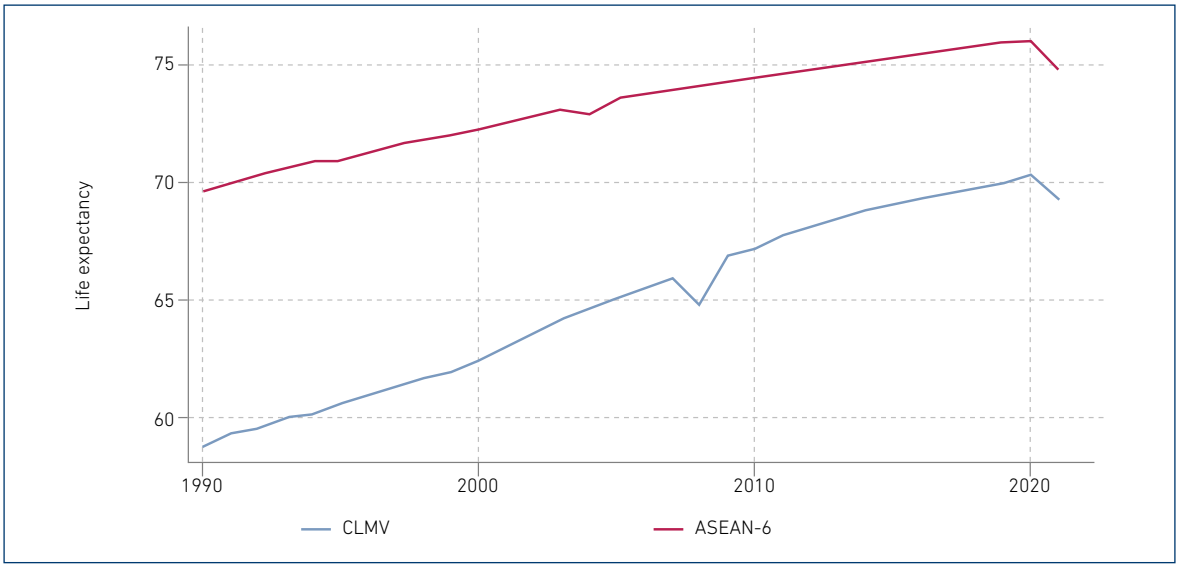
Figure 9.2. Average Infant Mortality – ASEAN-6 versus CLMV, 1990–2021



ASEAN-6 = Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand; CLMV = Cambodia, the Lao People's Democratic Republic, the Republic of the Union of Myanmar, and Viet Nam.

Source: The author using data from World Bank (2023a).

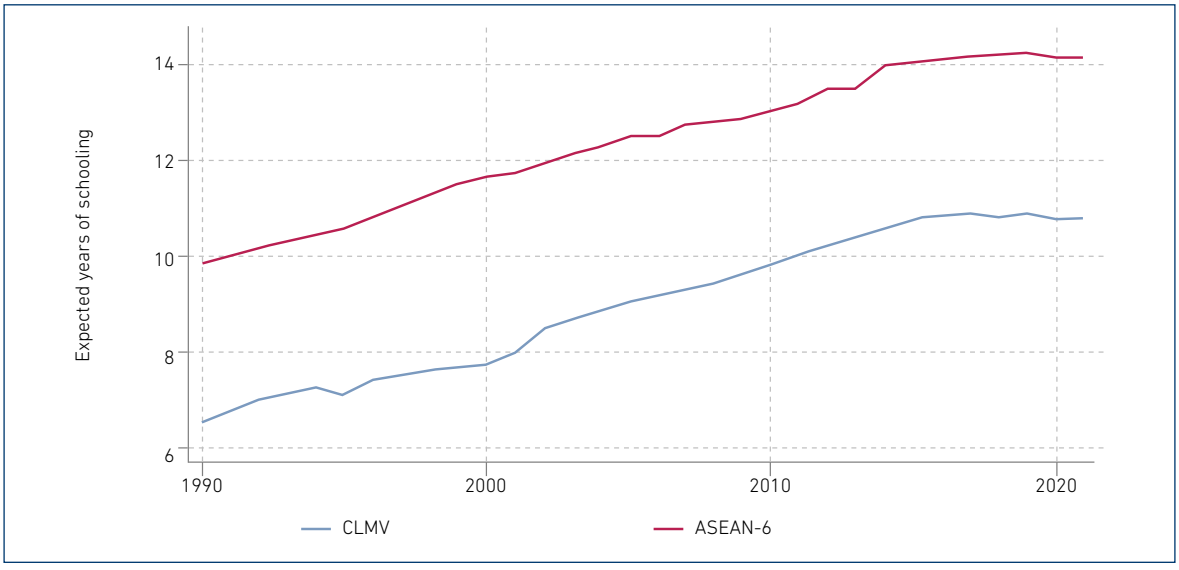
Figure 9.3. Average Life Expectancy –ASEAN-6 versus CLMV, 1990–2021



ASEAN-6 = Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand; CLMV = Cambodia, the Lao People's Democratic Republic, the Republic of the Union of Myanmar, and Viet Nam.

Source: The author using data from World Bank (2023a).

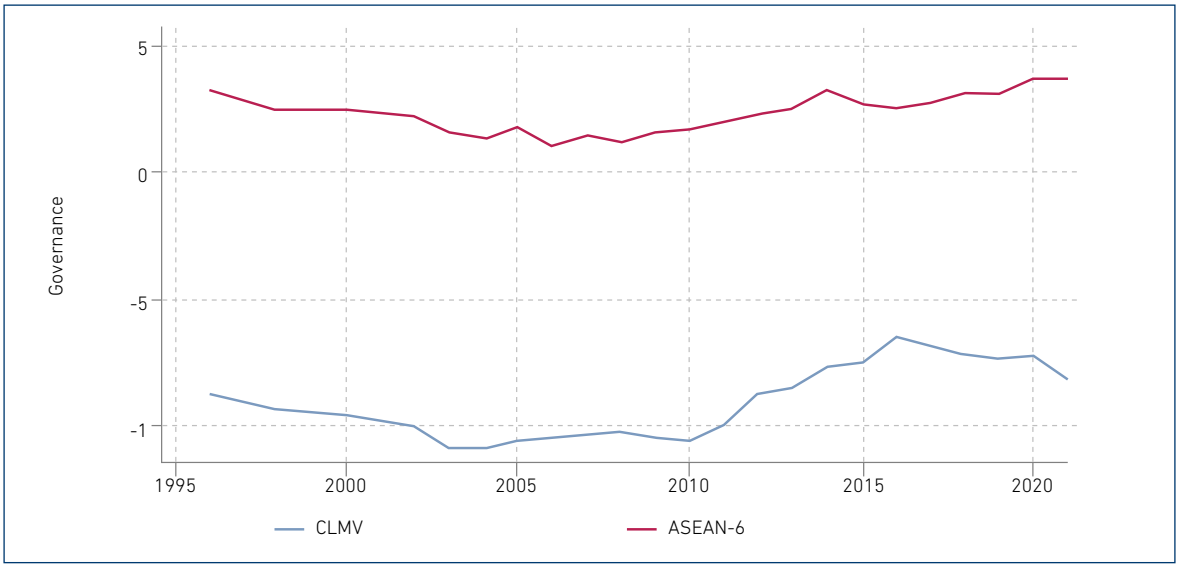
Figure 9.4. Average Expected Years of Schooling – ASEAN-6 versus CLMV, 1990–2021



ASEAN-6 = Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand; CLMV = Cambodia, the Lao People's Democratic Republic, the Republic of the Union of Myanmar, and Viet Nam.

Source: The author using data from UNDP (2023).

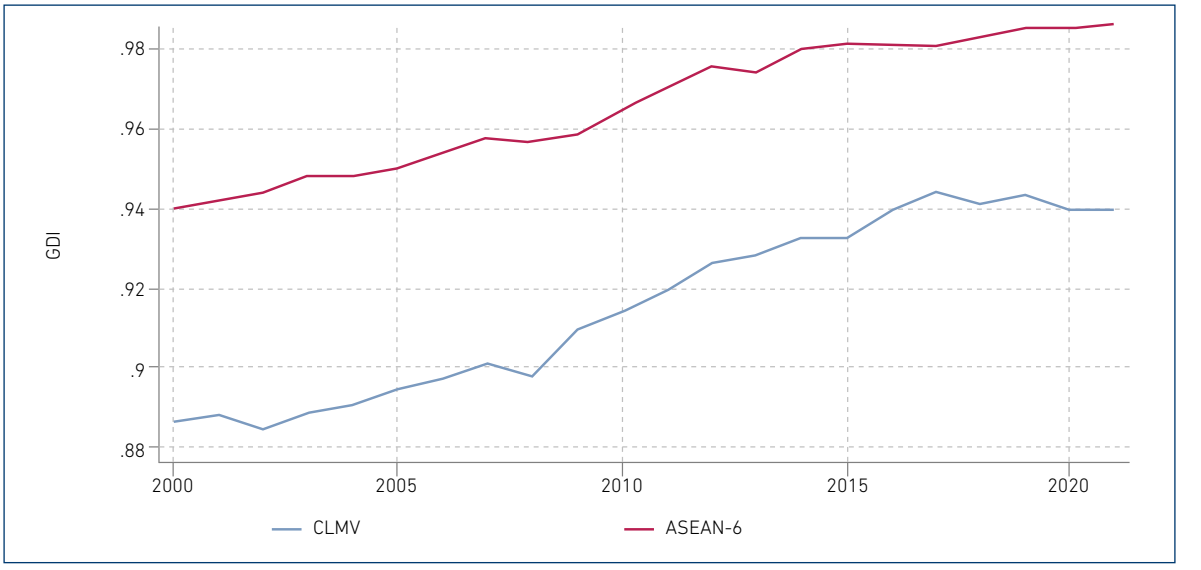
Figure 9.5. Average Level of Governance – ASEAN-6 versus CLMV, 1996–2021



ASEAN-6 = Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand; CLMV = Cambodia, the Lao People's Democratic Republic, the Republic of the Union of Myanmar, and Viet Nam.

Source: The author using data from World Bank (2023b).

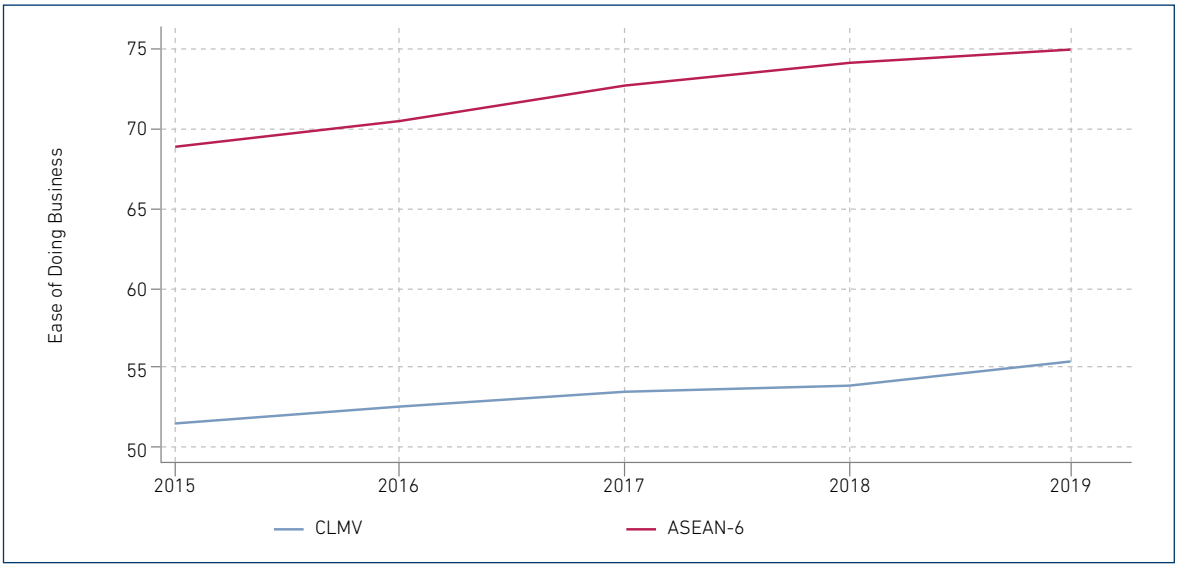
Figure 9.6. Average Gender Development Index – ASEAN-6 versus CLMV, 2000–2021



ASEAN-6 = Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand; CLMV = Cambodia, the Lao People's Democratic Republic, the Republic of the Union of Myanmar, and Viet Nam; GDI = gender development index.

Source: The author using data from UNDP (2023).

Figure 9.7. Average Ease of Doing Business – ASEAN-6 versus CLMV, 2015–2019



ASEAN-6 = Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand; CLMV = Cambodia, the Lao People's Democratic Republic, the Republic of the Union of Myanmar, and Viet Nam.

Source: The author using data from World Bank (2020).

3.2. Beta Convergence

Figure 9.8 to Figure 9.14 provide scatter plots for the seven development indicators whereby the level of the development indicator in the base year is provided on the horizontal axes and the subsequent average annual growth rate in the development outcome (up to the latest year of available data) is provided on the vertical axes. If countries with the lowest levels of development outcome in the base year have experienced faster growth in the change of the outcome a strong negative association should be observed, representing a narrowing of the development gap. In other words, the line of best fit in the scatter graph should be left to right downward sloping.

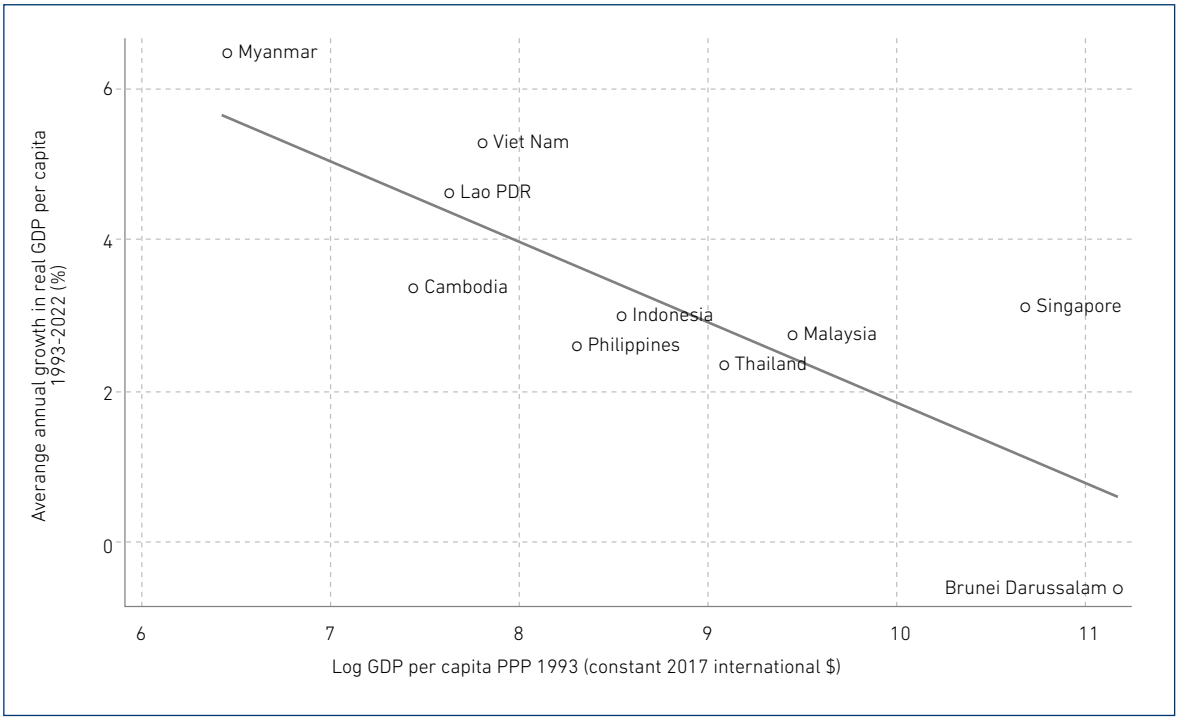
Figure 9.8 provides strong evidence of beta convergence amongst AMS for GDP per capita PPP during the period 1993 to 2021. Brunei Darussalam had the highest level of GDP per capita PPP in 1993 ($70,154)[9] and experienced the lowest level of average annual growth (-0.6% from 1993 to 2021) across all AMS. Myanmar had the lowest real GDP per capita PPP in 1993 ($635) but experienced the

[9] In this chapter, $ refers to US dollar.

highest average annual growth rate (6.5% from 1993 to 2021). The line of best fit is clearly left to right downward sloping reflecting the negative correlation between the two variables and demonstrating beta convergence.

There is less evidence of beta convergence amongst AMS with respect to rates of infant mortality (1990 to 2021). The line of best fit in Figure 9.9 is only weakly downward sloping and there is a large variation in the data across AMS. Singapore and Thailand appear as outliers. They are countries that had relatively low rates of infant mortality in 1990 but still managed to achieve large reductions in the rate up to 2021. However, as depicted in Figure 9.10 for life expectancy (another indicator of health), there has been clear beta convergence amongst AMS over the same period. Moreover, Figures 9.11 to Figure 9.14 provide strong indications of beta convergence with respect to expected years of schooling and gender equality (proxied by the GDI) but less evidence of convergence for governance and the ease of doing business. These findings are largely substantiated using the formal test of beta convergence outlined in Appendix A1. Findings using fixed effect panel regressions are more likely to infer convergence than the ordinary least squares regressions. Results are provided in Table 9A1 to Table 9A..7 in the Appendix.

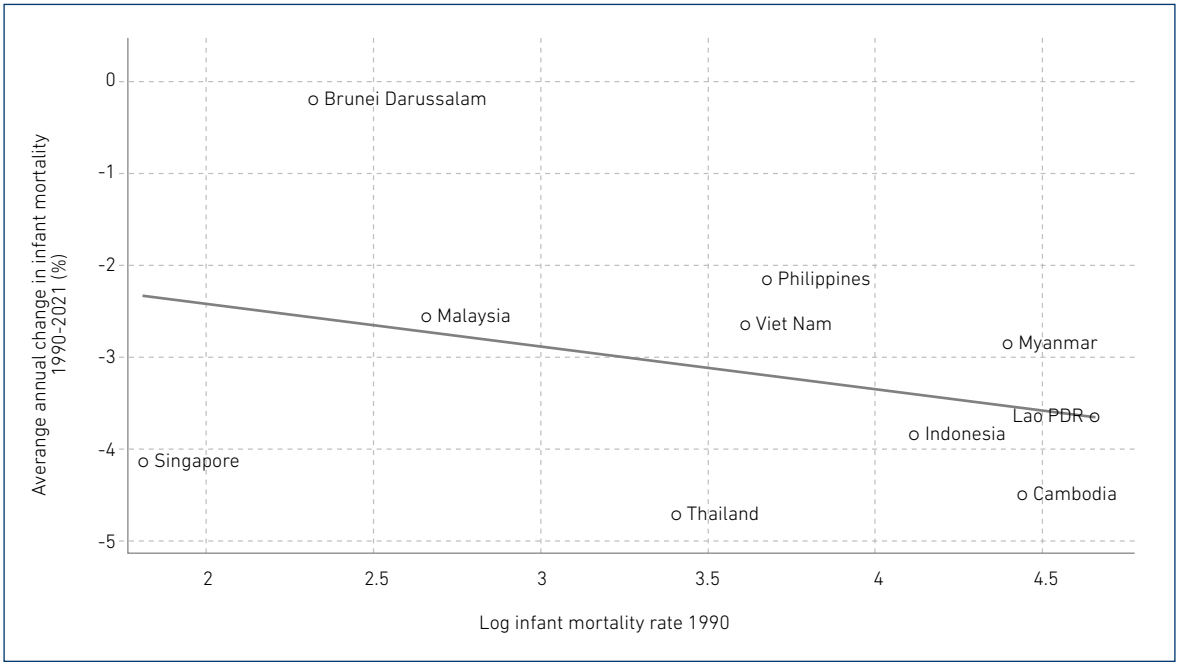
Figure 9.8. Beta Convergence – Average Gross Domestic Product Per Capita Purchasing Power Parity, 1993–2022



$ = US dollar, GDP = gross domestic product, Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar, PPP = purchasing power parity.

Source: The author using data from World Bank (2023a).

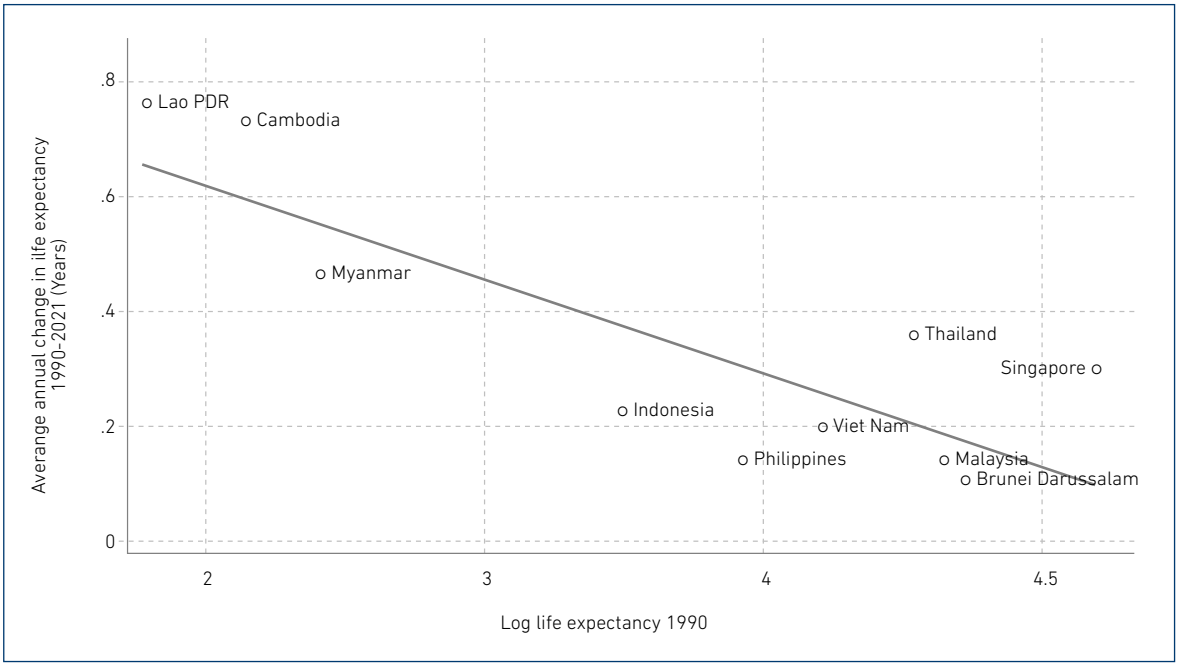
Figure 9.9. Beta Convergence – Infant Mortality, 1990–2021



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

Source: The author using data from World Bank (2023a).

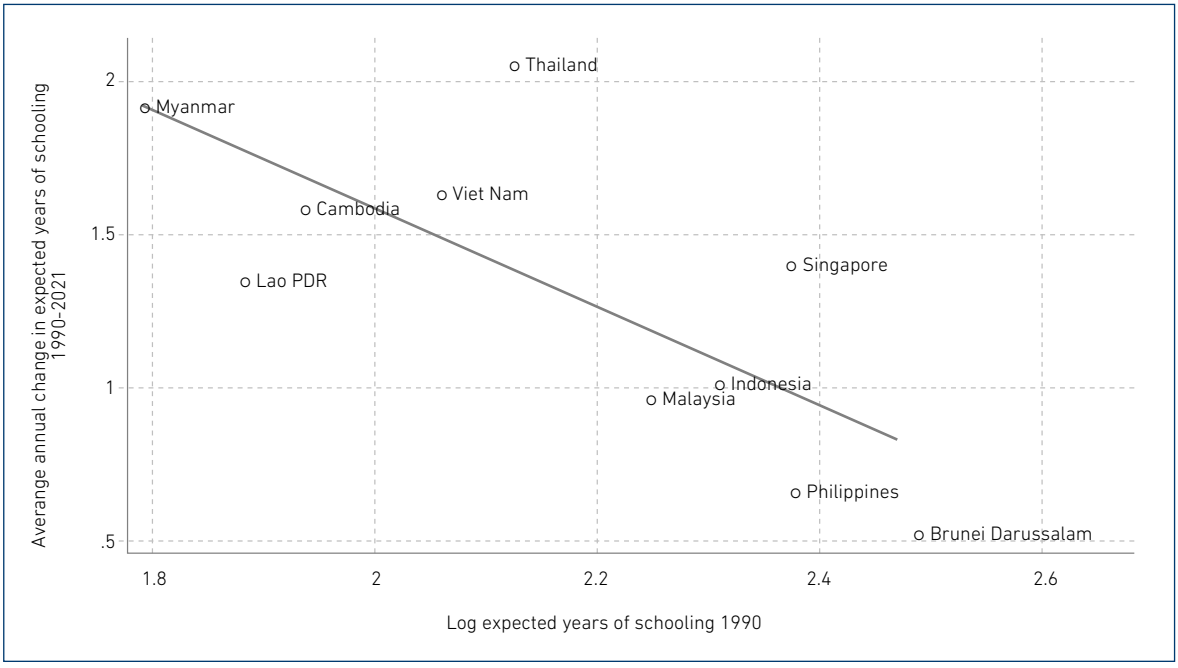
Figure 9.10. Beta Convergence – Life Expectancy, 1990–2021



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

Source: The author using data from World Bank (2023a).

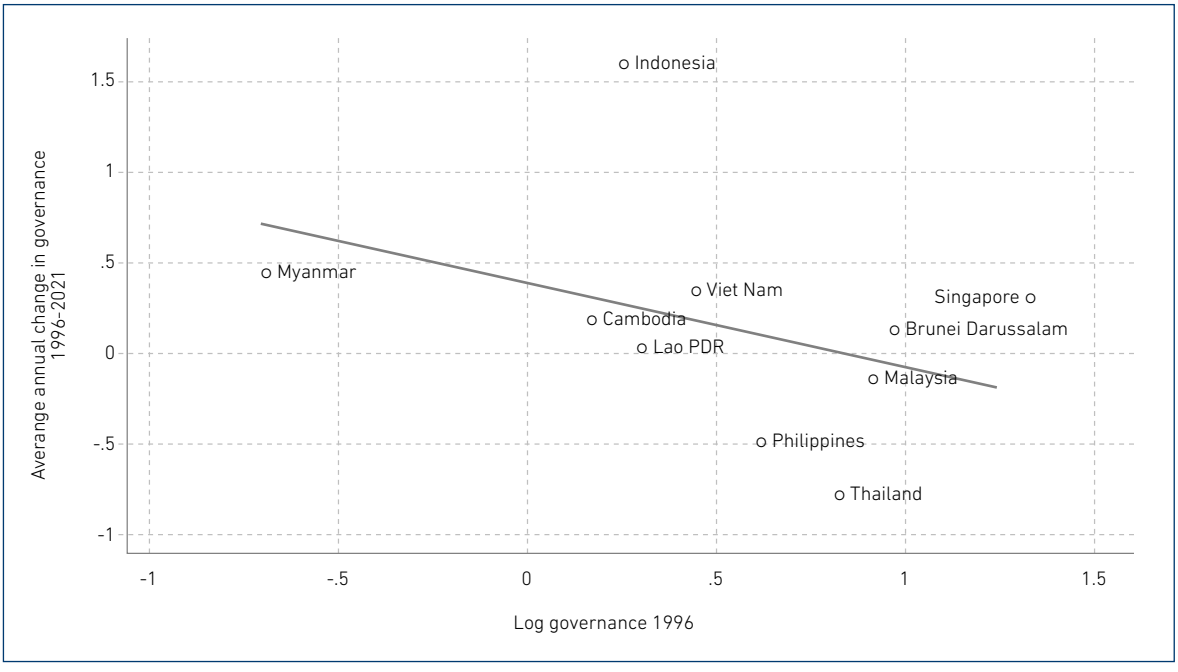
Figure 9.11. Beta Convergence – Expected Years of Schooling, 1990–2021



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar..

Source: The author using data from UNDP (2023).

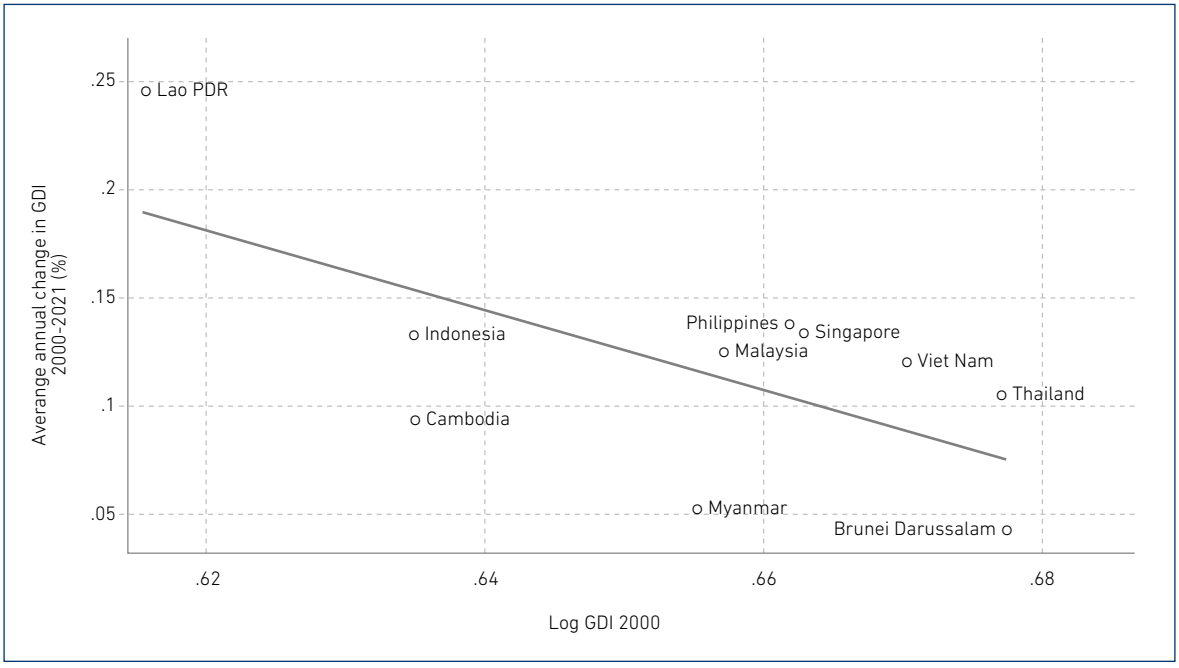
Figure 9. 12. Beta Convergence – Governance, 1996–2021



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

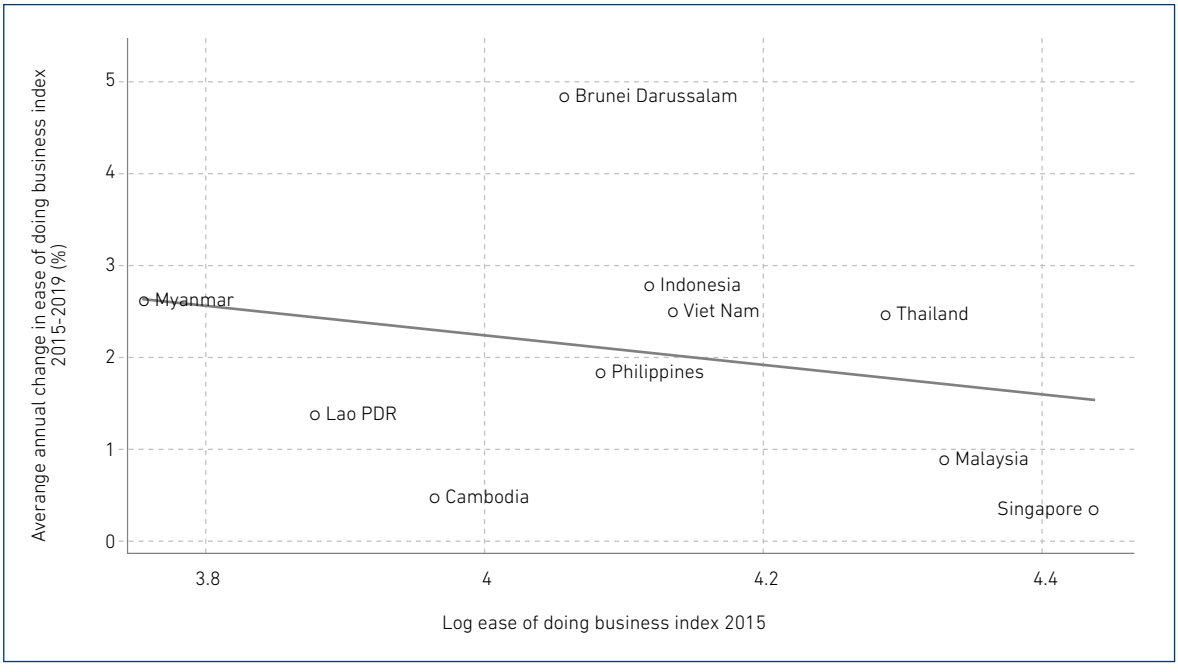
Source: The author using data from World Bank (2023b).

Figure 9.13. Beta Convergence – Gender Development Index, 2000–2021



GDI = gender development index; Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.
Source: The author using data from UNDP (2023).

Figure 9.14. Beta Convergence – Ease of Doing Business, 2015–2019



Lao PDR= the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.
Source: The author using data from World Bank (2020).

3.3. Sigma Convergence

Figure 9.15 to Figure 9.21 examine whether there has been sigma convergence amongst AMS for the seven development outcomes under consideration. The two measures of sigma convergence discussed above are plotted on each of the figures and provide very similar findings. A left to right downward sloping line for these measures would provide evidence of sigma convergence for each indicator.

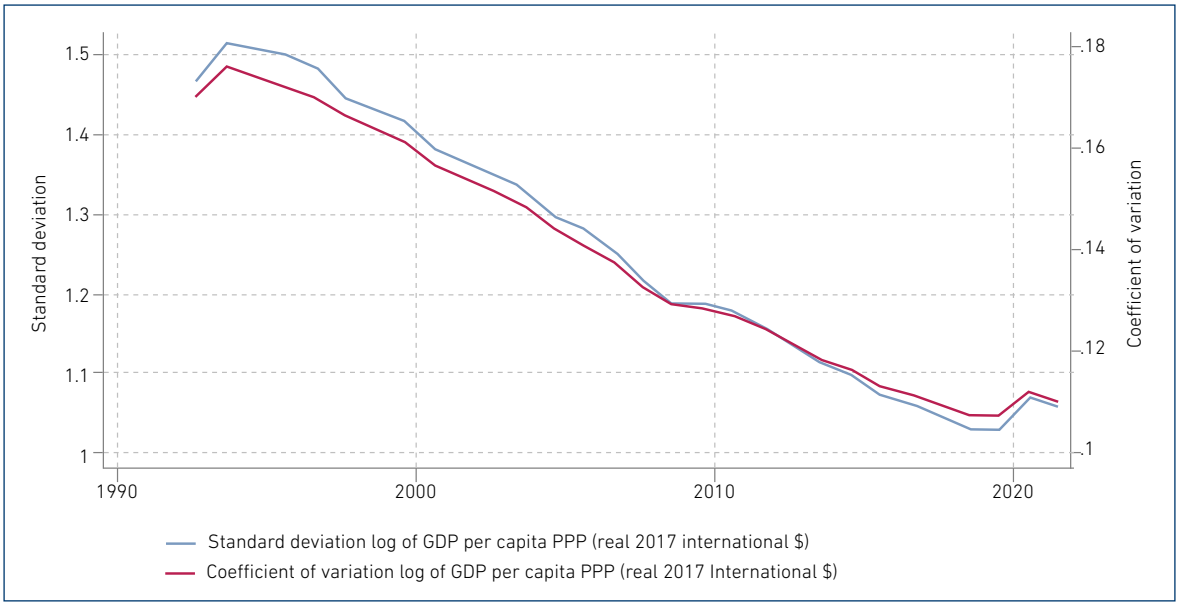
The figures suggest that there is often annual volatility in sigma convergence for the different development indicator. The most important feature of all the figures for which data are recently available is that both measures of sigma convergence increase in 2020 and 2021 indicating a divergence in development across AMS following the coronavirus disease (COVID-19) pandemic. This implies that the global pandemic had a greater impact on the less developed AMS and has increased inequality with respect to the different development outcomes. The divergence is particularly marked for infant mortality and the level of governance.

Overall, there is evidence of sigma convergence for GDP per capita (PPP). There is also evidence of sigma convergence for life expectancy, expected years of schooling, and the GDI.[10] Both measures of sigma convergence for these outcomes trend downwards despite annual fluctuations. Figure 16 suggests that the period from 1990 to the mid-2000s was one of sigma divergence for infant mortality. Convergence for this development outcome occurred from 2005 before diverging again following COVID-19. Sigma convergence for the level of governance follows a very similar pattern. Data for the ease of doing business is limited but suggest divergence during 2016 to 2018 but then strong convergence in 2019 (the latest year for which data are available).

In summary, across the different approaches to assessing the development gap, there is some evidence of a narrowing with respect to income, life expectancy, expected years of schooling, and gender equality but less evidence of convergence with respect to infant mortality, governance, and the ease of doing business. What is clear is that the choice of development outcome, as well the methodological approach, matters greatly when drawing conclusions on the development gap amongst AMS. The implications of this are discussed in Section 5.

[10] The large spike in the series for life expectancy represents sigma divergence in 2008, with the Global Financial Crisis having a greater impact on health in the less developed AMS.

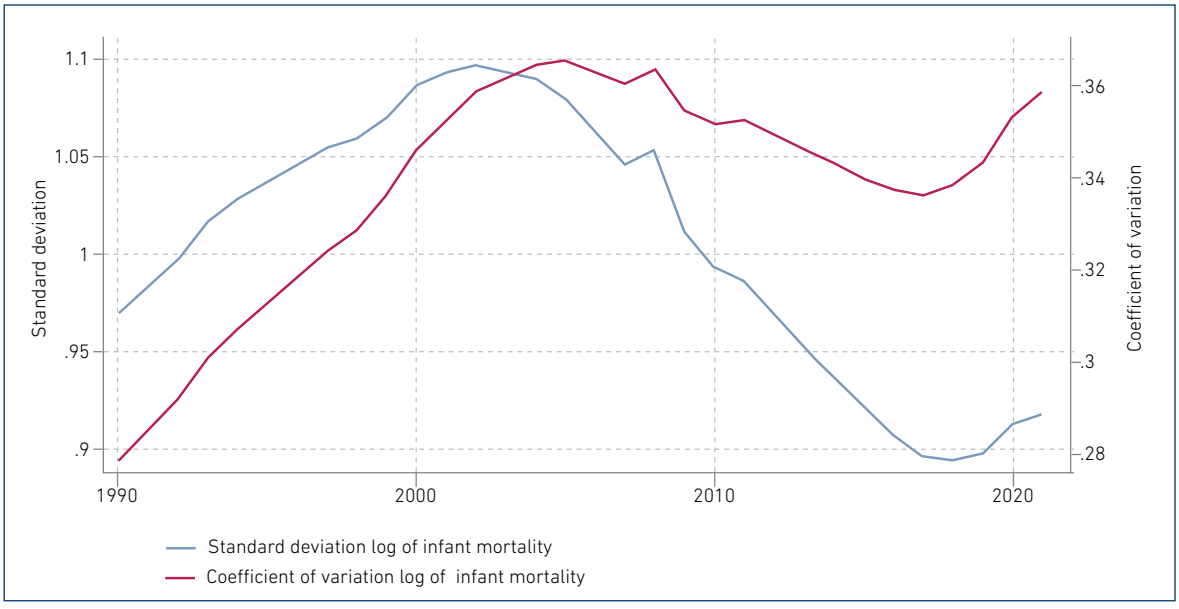
Figure 9.15. Sigma Convergence – Gross Domestic Product Per Capita Purchasing Power Parity, 1993–2022



$ = US dollar, GDP = gross domestic product, PPP = purchasing power parity.

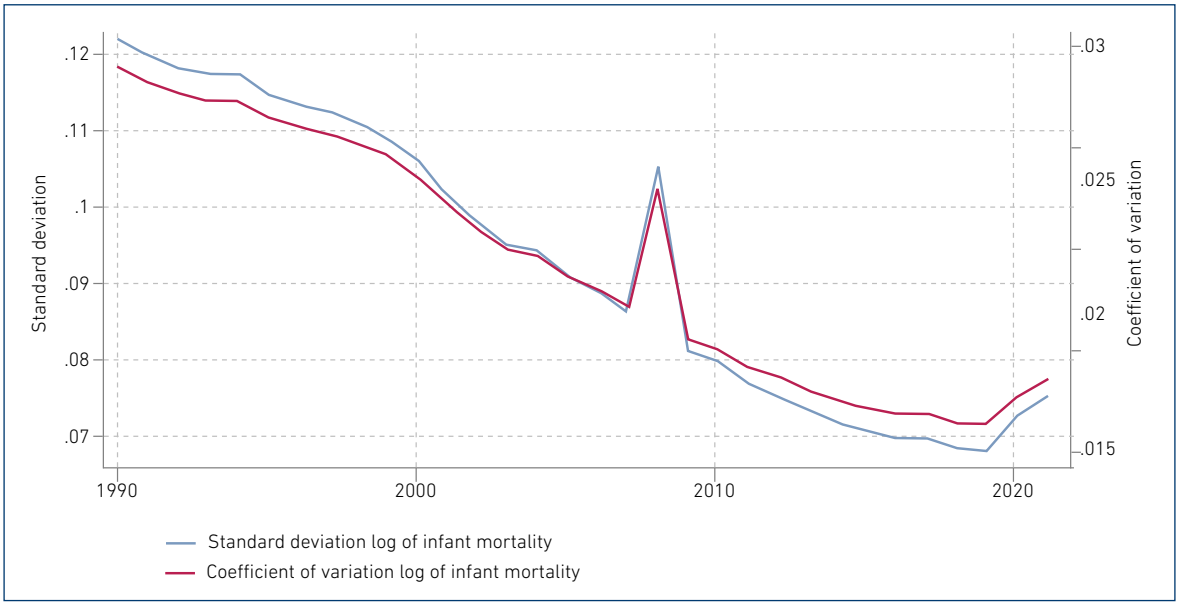
Source: The author using data from World Bank (2023a).

Figure 9.16. Sigma Convergence – Infant Mortality, 1990–2021



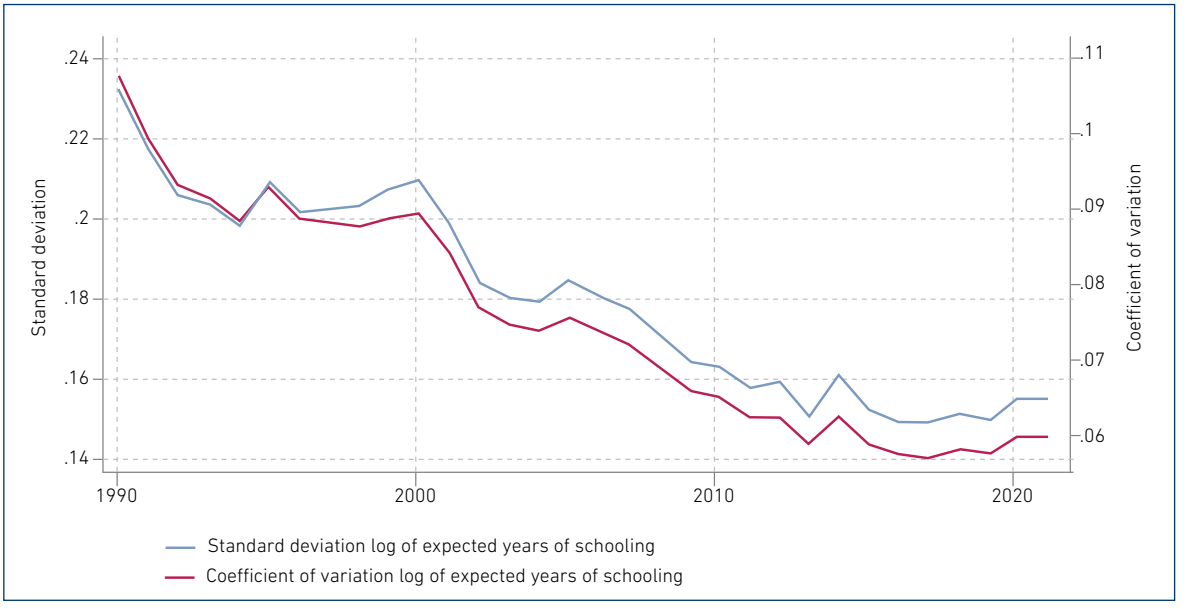
Source: The author using data from World Bank (2023a).

Figure 9.17. Sigma Convergence – Life Expectancy, 1990–2021



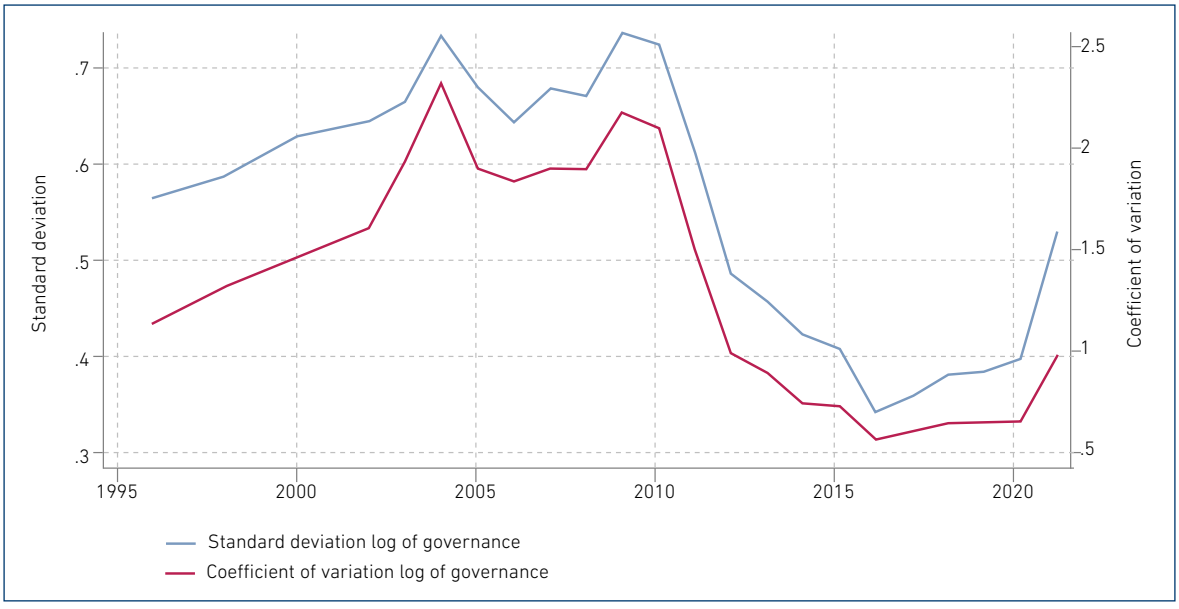
Source: The author using data from World Bank (2023a).

Figure 9.18. Sigma Convergence – Expected Years of Schooling, 1990–2021



Source: The author using data from UNDP (2023).

Figure 9.19. Sigma Convergence – Governance, 1996–2021



Source: The author using data from World Bank (2023b).

Figure 9.20. Sigma Convergence – Gender Development Index, 1990–2021

GDI = gender development index.

Source: The author using data from UNDP (2023).

Figure 9.21. Sigma Convergence – Ease of Doing Business, 2015–2019

Source: The author using data from World Bank (2020).

4. Evaluating the ASEAN Initiatives to Narrow the Development Gap

As discussed in the introduction to this paper, the IAI has been the key ASEAN initiative to narrow the development gap amongst its AMS, with specific projects and interventions up to 2025 highlighted in four IAI workplans. Given the very mixed evidence presented above, the indication is that the IAI has been unsuccessful in its objective of narrowing development gaps. This is not to say that there haven't been successes. Moreover, the current development gap may have been even larger in the absence of the IAI. Yet, it is probably fair to say that the initiative has fallen short of its ambitious expectations.

This section of the paper seeks to provide a more nuanced evaluation of the success of the IAI and other initiatives adopted by ASEAN with respect to narrowing the development gap. Four areas are examined which are expected to be central to narrowing the development gap agenda: (i) deepening economic integration; (ii) improving physical connectivity; (iii) improving institutional connectivity; and (iv) improving people-to-people connectivity. The paper acknowledges that this is by no means an exhaustive list of important ASEAN strategies. An evaluation of specific activities associated with these strategies also lies outside the scope of the analysis. Moreover, whilst establishing a counterfactual of the ASEAN development gap in the absence of these strategies is not possible, the section seeks to draw some broad conclusions using country level data and the findings from Section 3.

4.1. Economic Integration and the ASEAN Development Gap

Following the establishment of an ASEAN Free Trade Area in 1992, economic integration was further deepened with the founding of the ASEAN Economic Community (AEC) in 2015. The AEC carries the vision of a single ASEAN market and production base, being highly competitive, with equitable economic development, and being fully integrated into the global economy.[11] This Post 2025 Blueprint sets out a 10-year implementation plan (2016–2025), to achieve five key objectives by 2025: (i) a highly integrated and cohesive economy; (ii) a competitive, innovative, and dynamic ASEAN; (iii) enhanced connectivity and sectoral cooperation; (iv) a resilient, inclusive people-oriented, and people-centred ASEAN; and (v) a global ASEAN. The AEC 2025 Consolidated Strategic Action Plan provides the key actions that will be implemented to try to achieve the ASEAN economic integration agenda during the 2016 to 2025 period (ASEAN, 2017).

Whether ASEAN's economic integration has been a success is often contested (Menon, 2018; Koichi, 2021). On the one hand, intraregional trade within ASEAN has remained low at around 25% for almost 2 decades and approximately just one fifth of foreign direct investment (FDI) to ASEAN countries comes from other AMS. On the other hand, ASEAN has become the fourth largest exporting region in the world and whilst it accounts for just 3.3% of the world's GDP, it produces more than 7% of exports (Menon, 2018). Menon (2018) goes on to argue that ASEAN's success lies in its global integration, and it has clearly been successful when examining levels of trade and investment irrespective of their origin or destination.

Trade and investment can spur development in several ways including improved efficiency, technological absorption, economies of scale, and greater employment. Trade as a percentage of GDP is high for most AMS and has clearly increased in the lower-income AMS. Data from the World Bank (2023a) indicate that, in 2021, trade (the sum of exports and imports of goods and services) as a percentage of GDP was over 132% in Cambodia and more than 186% in Viet Nam. For Myanmar, trade was almost 66% of GDP in 2021 (higher than in Indonesia and the Philippines) whilst trade data are not available in the case of Lao PDR. As a point of comparison, the world trade to GDP ratio for 2021 was 56.5%. FDI to CLMV countries has also increased. Except for Singapore and Malaysia, net FDI inflows to the CLMV countries as a percentage of GDP were higher than in all other AMS during the period 2018–2022 (World Bank, 2023a).

[11] Note that the AEC still differs from other unions, such as the European Union, by not pursuing political or monetary union.

It appears very likely that economic integration has been successful in narrowing the ASEAN development gap. Whilst there is still a large income gap between the ASEAN-6 and CLMV countries, there has been both beta and sigma convergence amongst individual AMS. Should the low-income AMS continue to experience higher growth rates, income levels will continue to converge in the future. There is also a body of empirical evidence that demonstrates that exports and FDI have had positive impacts on the CLMV countries from an economic growth perspective (Menon, 2021 for CLMV countries; Mah, 2017 and Sokang, 2018 for Cambodia; Nantharath and Kang 2019 for Lao PDR; Thunt and Sung-Hoon, 2018 for Myanmar; and Nguyen, 2016 and Nguyen, 2020 for Viet Nam). Of course, if contributing to a narrowing of the development gap, the positive impacts of trade and investment in CLMV must be higher than the impacts in the ASEAN-6.

4.2. Physical Connectivity and the ASEAN Development Gap

The next three strategies that are discussed in this section are embedded within the 2025 Master Plan on ASEAN Connectivity (ASEAN 2016b). The vision of the 2025 Master Plan on ASEAN Connectivity is to achieve a seamlessly and comprehensively connected and integrated ASEAN that will promote competitiveness, inclusiveness, and a greater sense of community. The 2025 Master Plan on ASEAN Connectivity is therefore a vital component of ASEANs objective of narrowing the development gap.

Physical connectivity refers to the development of national and regional infrastructure development, specifically in the transport, information and communications technology and energy sectors. Physical connectivity is commonly referred to as 'hard infrastructure'. If such infrastructure is established in the lower-income AMS and in lagging regions within these countries, it can narrow the development gap by increasing employment opportunities for the poor, spurring economic growth, improving access to resources and markets, reducing the costs of production, increasing productivity and competitiveness, as well as linking the poor to basic services.

Table 9.1 provides some common measures of physical infrastructure for AMS. The data reveal that access to electricity is virtually universal in eight of the 10 members with the potential for some improvement to access in Cambodia and Myanmar. However, there are still large variations in access to safely managed water and sanitation. Whilst access to both water and sanitation is universal in Singapore, just 18% of the population use safely managed drinking water in Lao PDR and just 26% of the population of Thailand use safely managed sanitation services. The proportion of the population using the internet varies from 44% for Myanmar and 97% for Singapore. Mobile cellular subscriptions (per 100 people) exceed 100 for all member countries except for Lao PDR with a value of 65 in 2021. Thus, there are large variations in physical infrastructure amongst AMS.

Table 9.1. Measures of Physical Infrastructure for the ASEAN Member States

Country	Access to electricity (% of population)	People using safely managed drinking water services (% of population)[a]	People using safely managed sanitation services (% of population)[b]	Individuals using the internet (% of population)	Mobile cellular subscriptions (per 100 people)
Brunei Darussalam	100	Na	na	98	136
Cambodia	83	28	35	60	120
Indonesia	99	30	na	62	134
Lao PDR	100	18	61	62	65
Malaysia	100	94	85	97	141
Myanmar	72	57	61	44	126
Philippines	97	48	62	53	143
Singapore	100	100	100	97	147
Thailand	100	Na	26	85	169
Viet Nam	100	57	43	74	139

Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

Notes:

[a] Population drinking water from an improved source that is accessible on premises, available when needed, and free from faecal and priority chemical contamination. Improved water sources include piped water, boreholes or tube-wells, protected dug wells, protected springs, rainwater, and packaged or delivered water.

[b] The percentage of people using improved sanitation facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite. Improved sanitation facilities include flush/pour flush to piped sewer systems, septic tanks or pit latrines: ventilated improved pit latrines, compositing toilets or pit latrines with slabs.

Source: World Bank (2023a). Based on Feeny and McGillivray (2013).

The IAI is primarily directed towards the newer members of ASEAN, namely Cambodia, Lao PDR, Myanmar, and Viet Nam. However, it also encompasses subregional groupings, such as the Greater Mekong, Brunei Darussalam–Indonesia–Malaysia–Philippines East ASEAN Growth Area and the Indonesia–Malaysia–Thailand Growth Triangle.

Subregional programmes can be particularly important to narrow the development gap agenda if they connect remote and less developed areas of participating countries. However, whilst the focus of the IAI is on the CLMV countries, subregional cooperation within ASEAN has tended to focus on the higher-income countries and include the Indonesia–Malaysia–Thailand Growth Triangle and the Brunei Darussalam–Indonesia–Malaysia–Philippines East ASEAN Growth Area. However, there is also the CLMV Summit and Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy involving Cambodia, Lao PDR, Myanmar, Thailand, and Viet Nam.

In summary, whilst it is likely that physical infrastructure has played a role in the development of CLMV countries, better geographic and sectoral targeting of physical infrastructure should be undertaken to make the benefits of narrowing the development gap more tangible. Some empirical literature has also demonstrated that infrastructure can play an important role in reducing poverty, improving household welfare, and raising gender equity in CLMV countries (see for example, Nguyen et al., 2017; Liang et al., 2022; and Anti and Zhang, 2023) However, Abeysinghe, Tan, and Nguyen (2019) demonstrate that individual ASEAN country-based trend analysis shows very little growth effect of the 2025 Master Plan on ASEAN Connectivity. Further, a structural vector autoregression analysis that accounts for both direct and indirect effects demonstrates that impacts have been low.

4.3. Institutional Connectivity and the ASEAN Development Gap

Institutional connectivity relates to the policy environment of member countries and includes effective governance and institutions. It is often referred to as 'soft infrastructure'. As demonstrated in Section 3, this is potentially an area that has seen limited convergence amongst AMS, at least with respect to governance and the ease of doing business. This is explored further using additional data for which a lack of time-series data prevented an analysis of beta and sigma convergence.

Logistics is fundamental for competitiveness, impacting directly on efficiency, production costs, and trade and economic growth. Improving ASEAN logistics is a focus of the 2025 ASEAN Blueprint. The latest data from 2023 on the logistics performance of AMS countries (World Bank, 2023c) are provided in Table 2 below. Whilst there is not a great deal of variation in the logistics components (as each is ranked from 1 to 5), the rankings provided in the final column for the aggregated logistics index indicate considerable variation amongst AMS. Singapore ranks first in the world out of 139 ranked countries whilst Cambodia ranks 117th and Lao PDR ranks 120th. Requisite data are not available for Brunei Darussalam and Myanmar although these countries ranked 79th (Brunei Darussalam) and 136th (Myanmar) out of 159 countries in 2018 (the last time the logistics data were compiled). There are, therefore, considerable differences in the competitiveness of AMS.

Table 9.2. The Logistics Index for ASEAN Member States, 2018

Country	Ability to track and trace consignments (1=low to 5=high)	Competence and quality of logistics services (1=low to 5=high)	Ease of arranging competitively priced international shipments (1=low to 5=high)	Efficiency of customs and border management clearance (1=low to 5=high)	Frequency with which shipments reach consignees within the scheduled or expected delivery time (1=low to 5=high)	Quality of trade- and transport-related infrastructure (1=low to 5=high)	Overall logistics performance index (1=low to 5=high) (Rank)
Brunei Darussalam	2.75	2.71	2.51	2.62	3.17	2.46	2.71 (79)
Cambodia	2.8	2.4	2.3	2.2	2.7	2.1	2.4 (117)
Indonesia	3.0	2.9	3.0	2.8	3.3	2.9	3.0 (63)
Lao PDR	2.4	2.4	2.3	2.3	2.8	2.3	2.4 (120)
Malaysia	3.7	3.7	3.7	3.3	3.7	3.6	3.6 (31)
Myanmar	2.2	2.28	2.2	2.17	2.91	1.99	2.3 (136)
Philippines	3.3	3.3	3.1	2.8	3.9	3.2	3.3 (47)
Singapore	4.4	4.4	4.0	4.2	4.3	4.6	4.3 (1)
Thailand	3.6	3.5	3.5	3.3	3.5	3.7	3.5 (37)
Viet Nam	3.4	3.2	3.3	3.1	3.3	3.2	3.3 (50)

Lao PDR = the Lao People's Democratic Republic; Myanmar = the Republic of the Union of Myanmar.
Note: A total of 139 countries have data for the logistics index and are ranked.
Source: World Bank (2023c).

Data for overall competitiveness provide a similar story to that for logistics. The World Economic Forum's Global Competitiveness Report (WEF, 2019)seeks to provide stakeholders with a detailed map of the factors and attributes that drive productivity, growth, and human development.[12] The index is available for 141 countries. Table 9.3 provides the country rankings for AMS in 2019. Clearly there is still a huge disparity across AMS, with Singapore ranking first in 2019; Cambodia, 106th; and Lao PDR, 113th. Data for Myanmar are not available.

[12] The overall score is the average of the scores of the 12 pillars. The first four pillars relate to an enabling environment: (i) institutions; (ii) infrastructure; (iii) information and communication technology adoption; and (iv) macroeconomic stability. The next two pillars relate to human capital: (v) health; and (vi) skills. The next four pillars relate to markets: (vii) product market; (viii) labour market; (ix) financial system; and (x) market size. Finally, the last two pillars relate to the innovation ecosystem: (xi) business dynamism; and (xii) innovation capability. In total, there are 103 indicators distributed across the 12 pillars (WEF, 2019).

Table 9.3. Global Competitiveness Index Rankings for ASEAN Member States

Country	2019 global competitiveness rank
Brunei Darussalam	56
Cambodia	106
Indonesia	50
Lao PDR	113
Malaysia	27
Myanmar	na
Philippines	64
Singapore	1
Thailand	40
Viet Nam	67

Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar, na = not applicable.
Source: WEF (2019)

The 2016 World Bank's Digital Adoption Index (DAI) provides another example of the disparities across AMS (World Bank, n,d,). The DAI measures countries' digital adoption across three dimensions of the economy: people, government, and business. The index covers 180 countries. The overall DAI is the simple average of three sub-indexes. In 2016, Singapore was ranked first whilst Lao PDR was ranked 159th and Myanmar ranked 160th. ASEAN will need to work hard to ensure that digital literacy is universal amongst its members and that the benefits of artificial intelligence are also shared with lower-income members to ensure development gaps do not widen rather than narrow.

4.4. People-to-People Connectivity and the ASEAN Development Gap

People-to-people connectivity refers to empowering people and includes greater linkages amongst AMS in the areas of education, culture, and tourism. It also includes labour mobility which can potentially play a very important role in narrowing the development gap. Workers from lower-income AMS can earn far more in higher-income AMS for doing the same job and migration provides them with the ability to remit earnings back home which could be used for multiple development purposes (payment of school fees, improvements to the home, savings, starting a new business, health costs, etc.).

Despite ongoing restrictive labour migration policies, there is increasingly freer movement of labour within the AEC, which should assist with ASEAN's goals of narrowing the development gap as well as better integrating its AMS. However, ASEAN is seeking a freer flow of labour policy rather than one which allows for an unrestricted (free) flow of labour. AMS have signed Mutual Recognition Arrangements (MRAs) to facilitate the flow of skilled labour in the region. These MRAs enable the qualifications of migrants that are recognised by the authorities in their home country, to be mutually recognised by other AMS. However, the MRAs only cover eight professions and a tiny proportion of the migrant population. The International Labour Organization estimates that more than 87% of migrants in AMS are low-skilled and concentrated in just a few corridors. The top five corridors – Myanmar to Thailand, Indonesia to Malaysia, Malaysia to Singapore, Lao PDR to Thailand, and Cambodia to Thailand – represent 88% of the total intra-ASEAN migrant stock (Sugiyarto and Agunias, 2014).

Since most intra-ASEAN migration is undertaken by unskilled workers, they will not be employed under formal contracts which makes them vulnerable to exploitation, being paid below minimum wages, and not being eligible for social protection (Vineles, 2018). Whilst CLMV countries currently benefit from worker migration, they could benefit much more through a truly free movement of labour despite this being politically contentious. Higher-income AMS could also benefit through migrants filling labour shortages.

5. Conclusion: New Challenges and the Way Forward

The year 2025 is an important milestone for the ASEAN community. By 2025, the AEC aspires to be: (i) a highly integrated and cohesive economy; (ii) a competitive, innovative, and dynamic ASEAN with; (iii) enhanced connectivity and sectoral cooperation, by remaining; (iv) resilient, inclusive, people-oriented and people-centred and becoming; (v) a global ASEAN (ASEAN, 2015).

According to the mid-term review of the 2025 ASEAN Blueprint (ASEAN 2021), members were making considerable progress towards achieving their milestones. It found that 54.1% of action lines had already been completed whilst a further 34.2% were currently in progress. However, the review was completed prior to the impacts of the COVID-19 global pandemic being felt. The subsequent COVID-19 restrictions, as well as the disruption to global supply chains, would have taken a large toll on progress towards the Blueprint. Moreover, members will soon be turning their attention to the ASEAN Community Vision 2045, with the focus on building a self-reliant, dynamic, creative and people-centred ASEAN.

This final section of the paper looks at how recent and ongoing global events are having an impact on the development of ASEAN's members and how emerging agendas will influence future policy frameworks. It begins with suggestions on how the development gap should be measured and monitored before summarising the new and ongoing challenges that are having an impact on the narrowing the development gap agenda. Suggestions for how ASEAN should move forward in the post-2025 era are provided.

- **Policy recommendation 1: AMS should develop and adopt a common framework that moves beyond individual projects to assess the development gap amongst its members.**

The IAI seeks to narrow the development gap amongst AMS through the implementation of development projects and action outlined in the IAI workplans. Projects are implemented through financial and technical support from other AMS, development agencies, and technical experts. Arguably, the ASEAN approach to narrowing the development gap has been too project centric. A common framework which integrates and evaluates interventions at, and across, the sectoral level should be developed. Large development projects will have multiple spill-over effects and positive/negative externalities. A more comprehensive framework that evaluates multiple interventions and assesses progress within and across sectors can provide policymakers with stronger insights into the strategies that can accelerate reductions in development gaps.

As this paper has shown the choice of development indicator as well as the approach to examining whether gaps are increasing or decreasing, can lead to vastly different conclusions.

- **Policy recommendation 2: ASEAN should commit to a common standard/definition of the development gap amongst AMS and how it should be measured and assessed. It should be reported on annually.**

A common set of core development indicators should be specified and a common approach to assessing whether the gap across these development indicators is narrowing or widening agreed upon. As this chapter has demonstrated, approaches might include beta convergence, sigma convergence, or examining differences in the average value of development indicators for ASEAN-6 countries versus the CLMV group. Once these decisions have been made, a part of the ASEAN Secretariat should be responsible for monitoring development gaps on an annual basis with the publication of an annual report. Country case-studies should be undertaken when countries are either making exceptional progress or lagging others so that important factors can be identified and lessons learned that can be applied to other AMS.

- **Policy recommendation 3: ASEAN should establish a formal monitoring and evaluation framework that can better identify the types of activities that best contribute to narrowing the development gap. Annual reporting on what has worked and what has not worked should be undertaken.**

Currently it is difficult to determine which ASEAN initiatives and action plans have contributed most to narrowing the development gap agenda. Whilst this is no easy task, closer monitoring and evaluation of all activities in the IAI workplans should be undertaken to provide better insights into which strategies and activities have contributed most to narrowing the development gap agenda.

- **Policy recommendation 4: ASEAN must place a great emphasis on building resilience to shocks in its lower-income AMS as well as the resilience of the most vulnerable within these countries. Climate change adaptation policies should be scaled-up. The coverage and extent of social protection should be improved.**

External shocks, whether in the form of a global pandemic, an economic shock, or a climate-related disaster, tend to have the greatest negative impacts on lower-income countries as well as the poorest people in these countries. Thus, shocks directly undermine progress towards narrowing development gaps both across and within countries. This was demonstrated in Section 3 of the paper with divergence occurring across nearly all development indicators from 2020 because of the impact of COVID-19. This implies that policymakers must make narrowing the development gap a greater priority than it has been previously.

Other external shocks are also hampering progress. The Russian invasion of Ukraine and the Israel – Gaza conflict pose threats to regional and global stability as well as to investment. The disruption of gas supplies following the onset of the Russian invasion of Ukraine was a major contributor to higher rates of inflation being experienced across the world, particular with respect to the price of food and fuel. It is the poor who are most affected by rising prices as they spend a larger proportion of their income on meeting basic needs. Higher interest rates set to combat the higher rates of inflation will deter investment in new development projects.

Climate change poses another threat, both directly through climatic shocks and indirectly through reducing food production and raising prices. The 2021 ASEAN State of Climate Change Report noted that ASEAN's high vulnerability to climate change is because of 'growing intensity and magnitude of extreme weather events, and increasing economic, environmental, and social damage' (NTS-Asia, 2023). According to the Global Climate Risk Index devised by Eckstein, Künzel, and Shäfer (2018), Viet Nam, Myanmar, the Philippines, and Thailand are amongst 10 countries in the world most affected by climate change in the past 20 years. Moreover, the World Bank finds Viet Nam to be amongst five countries most likely to be affected by global warming in the future (World Bank 2021). In addition, 2023–2024 is another El Nino year with the higher temperatures likely to have a significant effect on rice and corn yields. The lowest ranked AMS according to the Global Food Security Index that provides data for 113 countries are Lao PDR (81), Cambodia (78) and Myanmar (72) (Economist, 2022).

Strengthening resilience to external shocks is required for the ASEAN Community Vision 2045 of being self-reliant and people-centred.

- **Policy recommendation 5: ASEAN should adopt a greater focus on improving the soft infrastructure of the CLMV countries, examining specific aspects of governance that need attention and deciding where improving them is of mutual interest. Successful capacity building programmes in the past should be closely scrutinised to identify the factors that contributed to success. Given that gaps in this area continue to prevail, ASEAN should adopt new and innovative ways to achieve this objective.**

This paper has demonstrated that there is little evidence of narrowing the development gap with respect to soft infrastructure using measures of governance, the ease of doing business and measures of competitiveness. Poor levels of this type of connectivity in CLMV countries can act as an impediment to development, threatening progress towards a reduction in the development gap. Whilst ASEAN has a policy of non-interference, it is in the interest of all AMS to ensure levels of governance are improved. A (universally) digitally literature ASEAN is also crucial to narrow the development gap agenda and to ensure a dynamic and creative population that is consistent with the ASEAN Community Vision 2045.

- **Policy recommendation 6: Labour shortages should be carefully identified in AMS and unskilled workers from CLMV countries migrating to fill these shortages should be covered by social protection schemes. Working conditions and wages of unskilled migrant workers should be monitored closely.**

Finally, labour mobility has great potential to narrowing the development gap amongst AMS. The focus of increasing labour mobility is still on that for skilled migrants. Greater attention needs to be devoted to the migration of semi-skilled and unskilled workers from CLMV countries. This is crucial for the people-centred approach embodied in the ASEAN Community Vision 2045.

References

Abeysinghe, T., K.G. Tan, and L.P.P. Nguyen (2019), 'Master Plan on ASEAN Connectivity: Assessing Growth Impacts and Interdependencies', *International Journal of Logistics Economics and Globalisation*,8(1), pp.67–89. https://api.semanticscholar.org/CorpusID:197886762

Anti, S. and Z. Zhang (2023), 'Roads, Women's Employment, and Gender Equity: Evidence from Cambodia, *World Development*, 171. https://www.sciencedirect.com/science/article/abs/pii/S0305750X23001791?via%3Dihub

Association of Southeast Asian Nations (2015), *ASEAN Economic Community Blueprint 202*5. Jakarta: ASEAN Secretariat. https://asean.org/asean-economic-community-blueprint-2025/

——— (2016a), *ASEAN Socio-Cultural Community Blueprint 2025*, Jakarta: ASEAN Secretariat. https://asean.org/book/asean-socio-cultural-community-blueprint-2/

——— (2016b), *Masterplan on ASEAN Connectivity 2025*, Jakarta: ASEAN Secretariat. https://asean.org/book/master-plan-on-asean-connectivity-2025/

——— (2017), *AEC 2025 Consolidated Strategic Action Plan*, Jakarta: ASEAN Secretariat. https://asean.org/aec-2025-consolidated-strategic-action-plan/

——— (2020a), *Initiative for ASEAN Integration & Narrowing Development Gap (IAI & NDG)*, Jakarta: ASEAN Secretariat. https://asean.org/our-communities/initiative-for-asean-integration-narrowing-development-gap-iai-ndg/

——— (2020b), *Initiative for ASEAN Integration (IAI) Work Plan IV (2021–2025)*. Jakarta: ASEAN Secretariat. https://asean.org/book/initiative-for-asean-integration-iai-work-plan-iv-2021-2025/

——— (2021), *Mid-Term Review - ASEAN Economic Community Blueprint 2025*. Jakarta: ASEAN Secretariat. https://asean.org/book/mid-term-review-report-of-the-aec-blueprint-2025/

——— (2023a), *ASEAN Leaders' Statement on Strengthening ASEAN's Capacity and Institutional Effectiveness*, Jakarta: ASEAN Secretariat. https://asean.org/asean-leaders-statement-on-strengthening-aseans-capacity-and-institutional-effectiveness/

Dalgaard, C-J. and J. Vastrup (2001), 'On the Measurement of σ-convergence, *Economics Letters*, 70(2), pp.283–87, https://doi.org/10.1016/S0165-1765(00)00368-2.

Eckstein, D, V. Künzel, and L. Shäfer (2017), 'Global Climate Risk Index 2018: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2016 and 1997 to 2016', *Germanwatch Briefing Paper. Bonn: Germanwatch*. https://www.germanwatch.org/en/node/14987

Economist (2022), *Global Food Security Index 2022,* London: The Economist, 18 November. https://impact.economist.com/sustainability/project/food-security-index/

Feeny, S. and M. McGillivray (2013), 'The Role of ASEAN Connectivity in Reducing the Development Gap', in McGillivray, M. and D. Carpenter (eds.) *Narrowing the Development Gap in ASEAN: Drivers and Policy Options*. London: Routedge. https://www.researchgate.net/publication/286152544_The_role_of_ASEAN_connectivity_in_reducing_the_development_gap

Koichi I. (2021),' The ASEAN Economic Community and ASEAN Economic Integration', *Journal of Contemporary East Asia Studies*, 10(1), pp.24–41. https://www.researchgate.net/publication/349746329_The_ASEAN_economic_community_and_ASEAN_economic_integration

Liang, Y., S. Li, J. Zeng, and T. Wu (2022), Examining the Impact of Multidimensional Accessibility on Regional Poverty in Laos', *Applied Geography*, 148. https://doi.org/10.1016/j.apgeog.2022.102789.

Machen, R., M. Jones, G. Varghese, and E. Stark (2021), *Investigation of Data Irregularities in Doing Business 2018 and Doing Business in 2020*, Washington: WilmerHale. https://thedocs.worldbank.org/en/doc/84a922cc9273b7b120d49ad3b9e9d3f9-0090012021/original/DB-Investigation-Findings-and-Report-to-the-Board-of-Executive-Directors-September-15-2021.pdf

Mah, J.S. (2017), Globalization and Economic Growth in Cambodia, T*he Singapore Economic Review*,62(2), pp.363–75. https://doi.org/10.1142/S0217590815500708

Menon, J. (2018), 'Regional Means, Global Objectives', E*ast Asia Forum Quarterly: Why ASEAN Matters*, 10(1), pp.7–8. https://search.informit.org/doi/10.3316/informit.300084020739763

——— (2021), 'Trade, FDI, and Growth in CLMV: Pre- and Post-Pandemic Evolution', in B. Chellaney and F. Kliem (2021), *The Displaced: Disrupted Trade, Labour, and Politics in the Mekong River Basin*. Tokyo: Konrad-Adenauer-Stiftung's Regional Economic Programme Asia (SOPAS). https://www.kas.de/en/web/japan/single-title/-/content/the-displaced

Nantharath, P. and E. Kang (2019), 'The Effects of Foreign Direct Investment and Economic Absorptive Capabilities on the Economic Growth of the Lao People's Democratic Republic', *Journal of Asian Finance, Economics, and Business*, 6(3), pp.151–62. https://www.researchgate.net/publication/335743613_The_Effects_of_Foreign_Direct_Investment_and_Economic_Absorptive_Capabilities_on_the_Economic_Growth_of_the_Lao_People's_Democratic_Republic

Nguyen, C.V., T.C. Phung, V.K. Ta, and D.T. Tran (2017), 'The Impact of Rural Roads and Irrigation on Household Welfare: Evidence from Vietnam', *International Review of Applied Economics*, 31(6), pp.734–53. https://www.researchgate.net/publication/317153075_The_impact_of_rural_roads_and_irrigation_on_household_welfare_evidence_from_Vietnam

Nguyen, H.H. (2020), 'Impact of Foreign Direct Investment and International Trade on Economic Growth: Empirical Study in Vietnam', *The Journal of Asian Finance, Economics, and Business*, 7(3), pp.323–31. https://www.researchgate.net/publication/340311154_Impact_of_Foreign_Direct_Investment_and_International_Trade_on_Economic_Growth_Empirical_Study_in_Vietnam

Nguyen, T.H. (2016), Impact of Export on Economic Growth in Vietnam: Empirical Research and Recommendations. *International Business and Management*, 13(3), pp.45–52. http://cscanada.net/index.php/ibm/article/view/9040/0

NTS-Asia (2023), *Climate Change and Security.* Singapore: NTS Asia: Consortium of Non-Traditional Security Studies of Asia. https://rsis-ntsasia.org/climate-change-and-security/ [accessed August 14th 2023]

Ram, R. (2018), 'Comparison of Cross-Country Measures of Sigma Convergence in Per Capita Income, 1960–2010', *Applied Economics Letters*, 25(14), 1010–14. DOI: 10.1080/13504851.2017.1391992

Sokang, K. (2018), 'The Impact of Foreign Direct Investment on the Economic Growth in Cambodia: Empirical Evidence', *International Journal of Innovation and Economic Development*, 4(5), pp.31–38. https://www.researchgate.net/publication/330506086_The_Impact_of_Foreign_Direct_Investment_on_the_Economic_Growth_in_Cambodia_Empirical_Evidence

Sugiyarto, G. and D.R. Agunias (2014),' A 'Freer' Flow of Skilled Labour within ASEAN: Aspirations, Opportunities, and Challenges in 2015 and Beyond'. *Issues in Brief a Joint Series of the IOM Regional Office for Asia and the Migration Policy Institute*, (11). https://publications.iom.int/books/iom-mpi-issue-brief-no-11-freer-flow-skilled-labour-within-asean-aspirations-opportunities

Thunt, H-O and J. Sung-Hoon (2018), 'A Study on the Interrelationships Amongst Trade, Foreign Direct Investment, Human Capital, Financial Development, and Economic Growth in Myanmar', *Journal of International Trade & Commerce*, 14(4), pp.63–84. https://www.semanticscholar.org/paper/A-Study-on-the-Interrelationships-Among-Trade%2C-and-Thunt-Jung/6c0630b66084fa0d7c70e7f3af3b12eb51a3d544

United Nations Development Programme (UNDP) (2023), *Human Development Report: Documentation and Downloads,* New York: UNDP Report. https://hdr.undp.org/data-center/documentation-and-downloads [accessed 19 June 2023]

Vineles, P. (2018), Managing Labour Mobility: Stronger ASEAN Integration? RSIS Commentary. S. Rajaratnam School of International Studies, Nanyang Technological University. https://www.semanticscholar.org/paper/Managing-Labour-Mobility-%3A-Stronger-ASEAN-Gonzales/5fb2c23acc5ca7995377fe34627072e149dd95c8

World Bank (2020) Doing Business 2020. Washington, D.C.: World Bank. https://doi.org/10.1596/978-1-4648-1440-2

——— (2021). *Climate Change Knowledge Portal: Vietnam*. Washington, D.C.: World Bank. https://climateknowledgeportal.worldbank.org/country/vietnam

——— (2023a), *World Development Indicators Online Database*, Washington D.C.: World Bank, Washington.

https://databank.worldbank.org/source/world-development-indicators [accessed 8 July 2023]

——— (2023b), *Worldwide Governance Indicators Online Database*, Washington D.C.: World Bank, Washington.

https://databank.worldbank.org/source/worldwide-governance-indicators [accessed July 16th 2023]

——— (2023b), C*onnecting to Compete 2003 – Trade Logistics in the Global Economy: The Logistics Performance Index and Its Indicators.* Washington D.C.: World Bank. https://www.researchgate.net/publication/381699307_Connecting_to_Compete_2014_Trade_Logistics_in_the_Global_Economy--The_Logistics_Performance_Index_and_Its_Indicators?_share=1

——— (n.d.) *Digital Adoption Index*. Washington D.C.: World Bank. https://www.worldbank.org/en/publication/wdr2016/Digital-Adoption-Index [accessed 2 June 2023]

World Economic Forum (WEF) (2019), *The Global Competitiveness Report 2019*, Geneva: WEF. https://www.weforum.org/publications/global-competitiveness-report-2019/

Young A.T., M.J. Higgins, and D. Levy, (2008), Sigma Convergence versus Beta Convergence: Evidence from U.S. County-Level Data. *Journal of Money, Credit and Banking*, 40, pp.1083–93. https://doi.org/10.1111/j.1538-4616.2008.00148.x

Appendix: Estimating Beta Convergence

To assess development gaps amongst countries using beta convergence, the following model is typically specified and estimated:

$$\Delta \log y_{i,t} = \alpha + \beta \log y_{i,t-1} + \mu_{i,t} \quad (1)$$

where, the average growth rate of development outcome for country i over time period t is approximated by $\Delta \log y_{i,t}$ ($\log y_{i,t}$ - $\log y_{i,t-1}$), α is an intercept term and μi,t is the error term. The coefficient β is the key parameter of interest. If β is negative and statistically significant, it suggests that there is beta convergence with development outcomes growing faster in countries in which they are lowest, indicating a tendency for development outcomes to converge over time. Two approaches are used to estimate Equation 1: (i) regressing the average annual growth rate of the development outcome (over the period for which data are available) on the value of the outcome in the base year and (ii) regressing annual growth of the development outcome on its value in the previous year. The first approach uses cross-sectional data and estimates the equation using ordinary least squares. The second approach uses annual panel data and allows for the inclusion of year and country fixed effects.

Table 9A.1. Test of Beta Convergence – Gross Domestic Product per Capita Purchasing Power Parity (constant 2017 international $), 1993–2021

	(1) OLS	(2) FE
Log GDP per capita (PPP) 1993	–0.31*** [–4.09]	
Lag of log GDP per capita (PPP)		–0.037*** [–2.86]
Constant	3.64*** [5.48]	0.39*** [3.10]
Observations	10	290
R-squared	0.68	0.27

GDP = gross domestic product, PPP = purchasing power parity.

Note: t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Source: The author using data from the World Bank (2023a).

Table 9A.2. Test of Beta Convergence – Infant Mortality (number of deaths of children under one year of age per 1,000 live births in a given year), 1990–2021

	(1) OLS	(2) FE
Log of Infant Mortality (1990)	–0.14 [–1.01]	
Lag of log of Infant Mortality		0.015 [1.42]
Constant	–0.46 [–0.88]	–0.066** [–2.38]
Observations	10	310
R-squared	0.11	0.13

FE = fixed effects, OLS = ordinary least squares.

Note: t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Source: The author using data from the World Bank (2023a).

Table 9A.3. Test of Beta Convergence – Life Expectancy (in years), 1993–2021

	(1) OLS	(2) FE
Log of Life Expectancy (1990)	–0.49*** [–3.90]	
Lag log of Life Expectancy		–0.056*** [–2.65]
Constant	2.14*** [4.10]	0.22** [2.48]
Observations	10	310
R-squared	0.65	0.23

FE = fixed effects, OLS = ordinary least squares.

Notes: t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Source: The author using data from the World Bank (2023a).

Table 9A.4. Test of Beta Convergence – Expected Years of Schooling (in years), 1990–2021

	(1) OLS	(2) FE
Log Expected Years of School (1990)	–0.51** [–3.22]	
Lag log Expected Years of School		–0.079*** [–4.01]
Constant	1.52*** [4.38]	0.20*** [3.98]
Observations	10	310
R-squared	0.56	0.22

FE = fixed effects, OLS = ordinary least squares.

Notes: t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Source: The author using data from the UNDP (2023).

Table 9A.5. Test of Beta Convergence – Governance index, 1996–2021

	(1) OLS	(2) FE
Log Governance (1996)	–0.099 [–1.04]	
Lag log Governance		–0.14*** [–3.82]
Constant	0.089 [1.29]	0.027 [0.77]
Observations	10	190
R-squared	0.12	0.21

FE = fixed effects, OLS = ordinary least squares.

Notes: t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Source: The author using data from the World Bank (2023b).

Table 9A.6. Test of Beta Convergence – Gender Development Index, 2000–2021

	(1) OLS	(2) FE
Log Gender Development Index (2000)	–0.40** [–2.57]	
Lag log Gender Development Index		–0.21*** [–4.88]
Constant	0.28** [2.81]	0.15*** [4.89]
Observations	10	210
R-squared	0.45	0.25

FE = fixed effects, OLS = ordinary least squares.

Notes: t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Source: The author using data from the UNDP (2023).

Table 9A.7. Test of Beta Convergence – Ease of Doing Business, 2015–2019

	(1) OLS	(2) FE
Log ease of doing business (2015)	–0.066 [–0.75]	
Lag log ease of doing business		–0.58*** [–5.11]
Constant	0.36 [0.98]	2.42*** [5.15]
Observations	10	40
R-squared	0.07	0.52

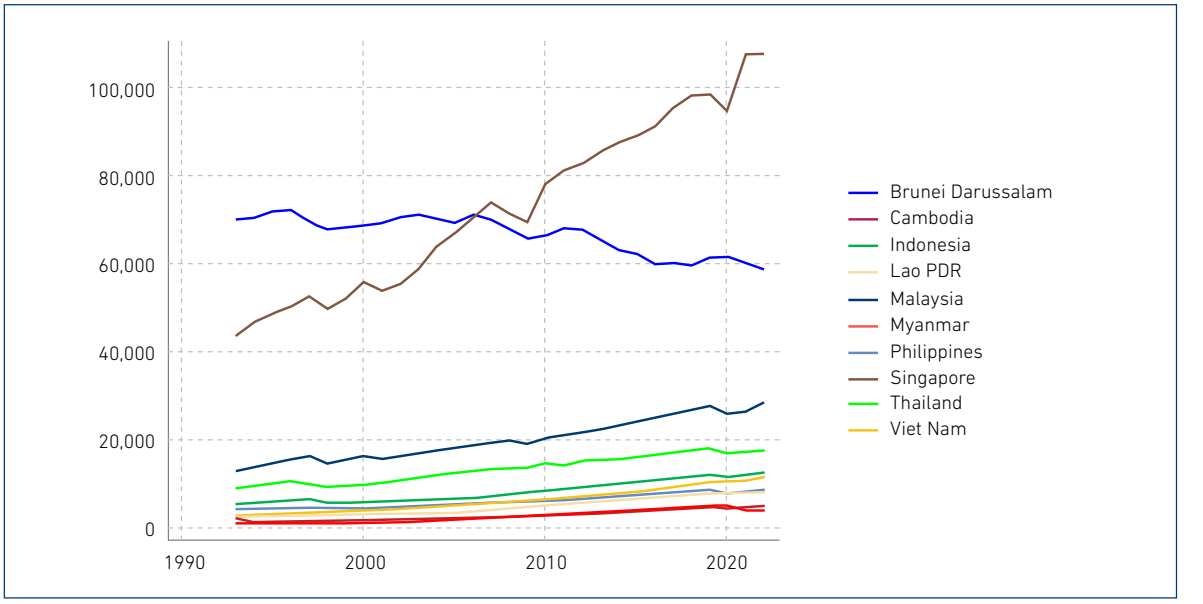
FE = fixed effects, OLS = ordinary least squares.

Notes: t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Source: The author using data from the World Bank (2020).

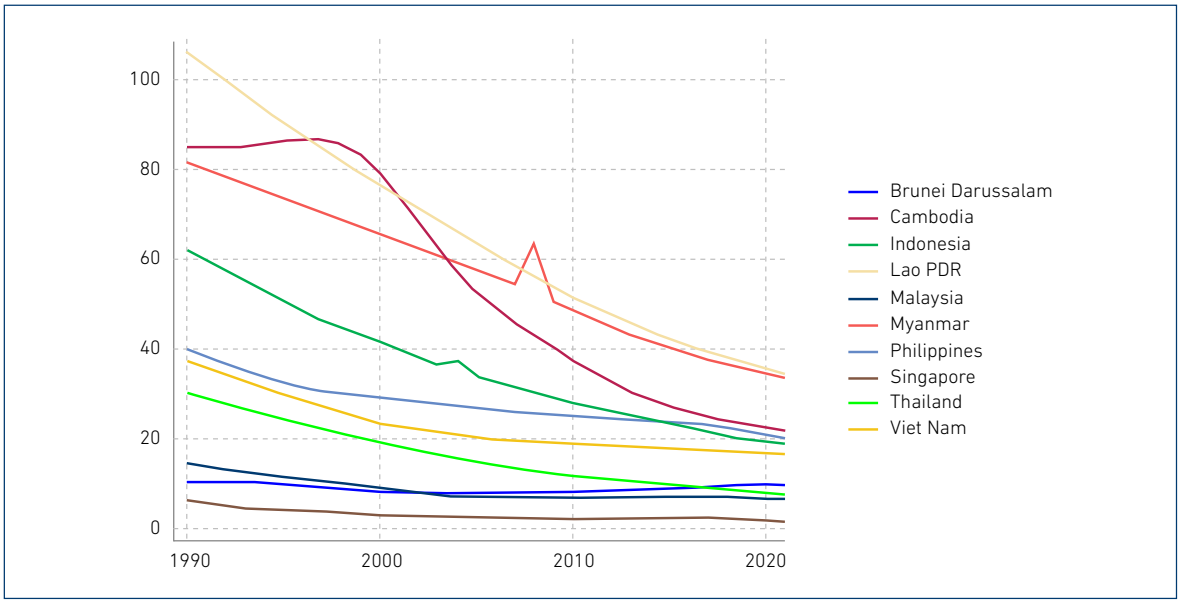
Figure 9A.1. Gross Domestic Product per Capita Purchasing Power Parity (constant 2017 international $) all ASEAN Members, 1993–2022



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

Source: The author using data from the World Bank (2023a).

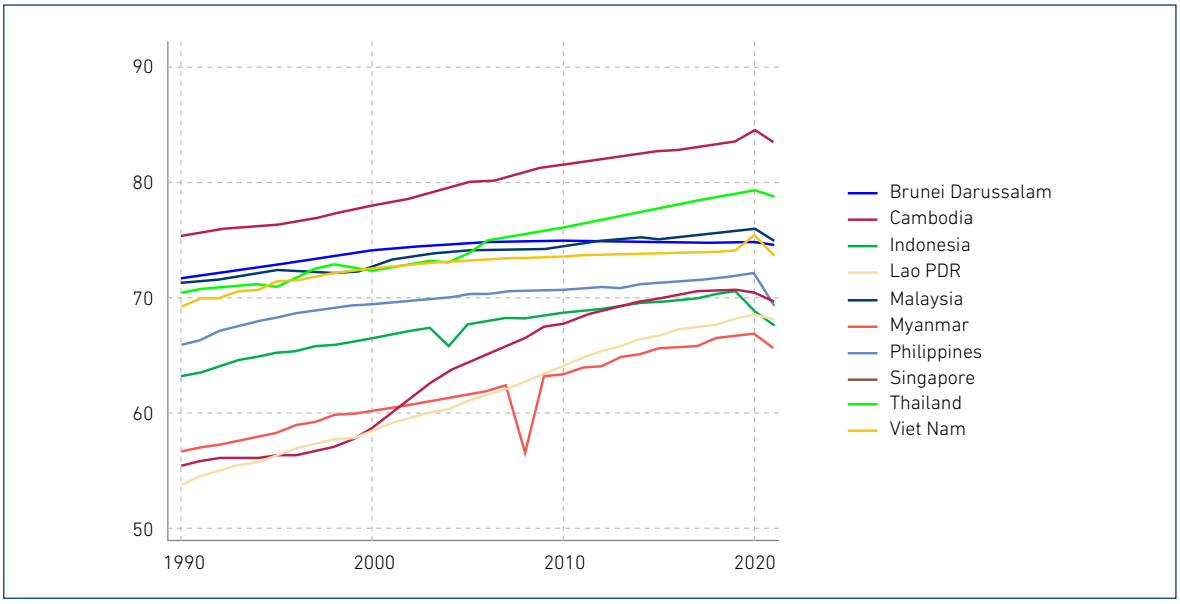
Figure 9A.2. Infant Mortality (number of deaths of children under one year of age per 1,000 live births each year) all ASEAN Member States, 1990–2021



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

Source: The author using data from the World Bank (2023a).

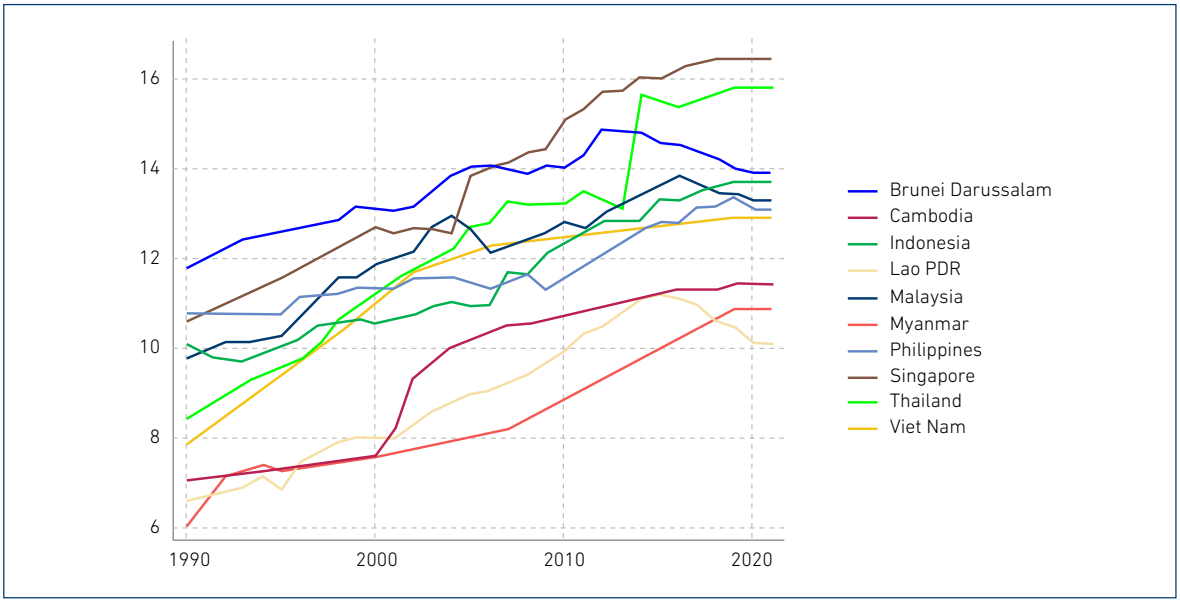
Figure 9A.3. Life Expectancy (in years) all ASEAN Member States, 1990-2021



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

Source: The author using data from the World Bank (2023a).

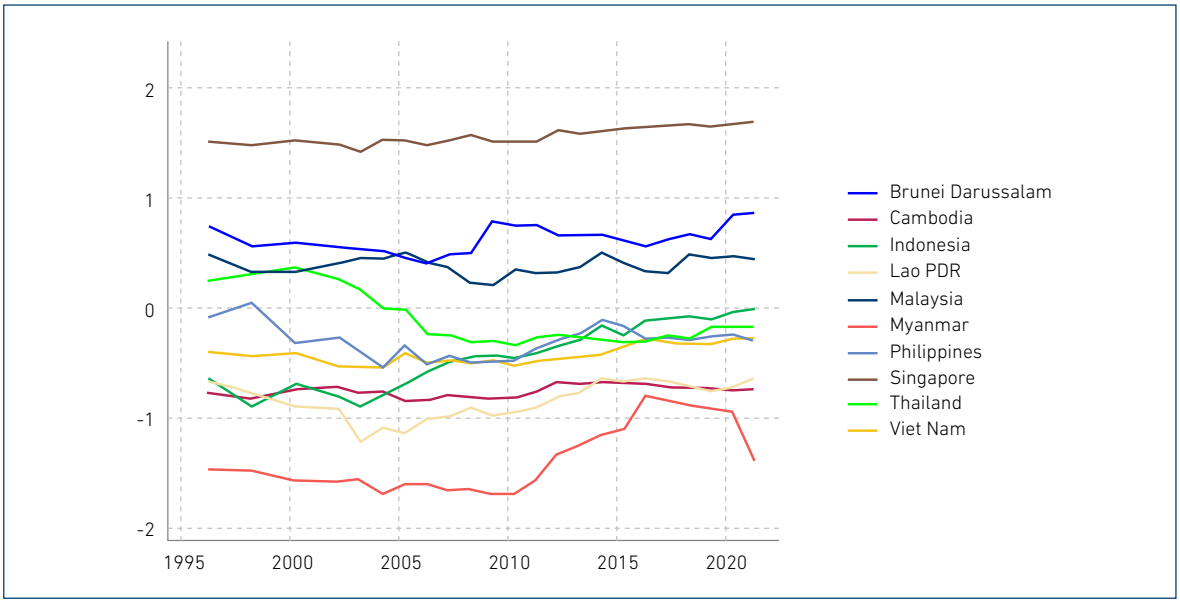
Figure 9A.4. Expected Years of Schooling (in years) all ASEAN Member States, 1990–2021



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

Source: The author using data from the UNDP (2023).

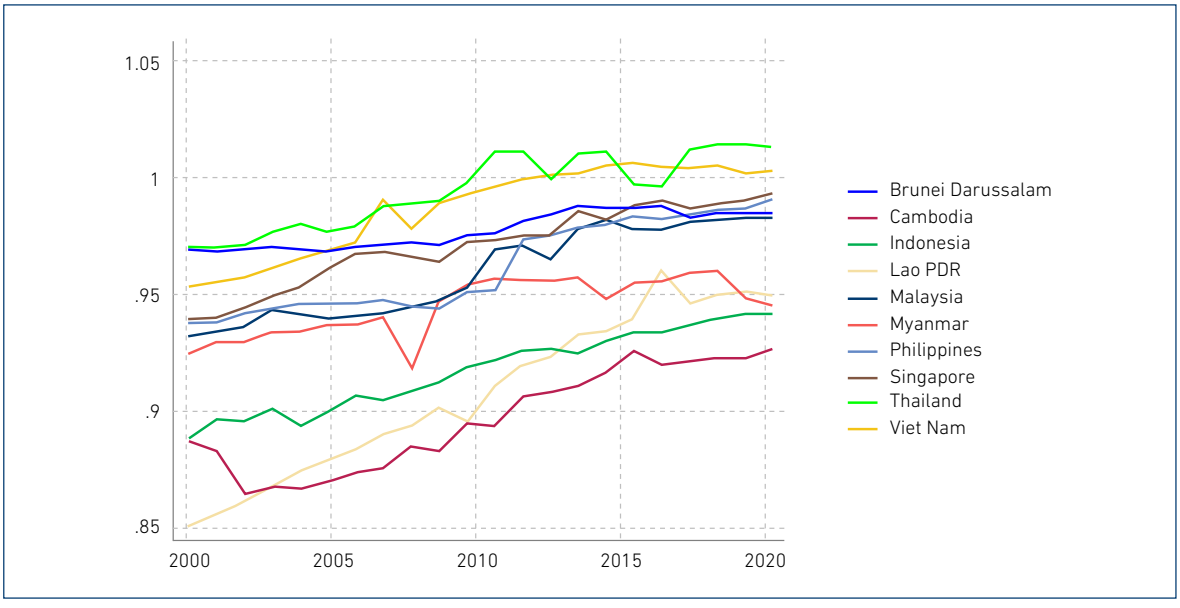
Figure 9A.5. Governance Index all ASEAN Member States, 1996–2021



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

Source: The author using data from the World Bank (2023b).

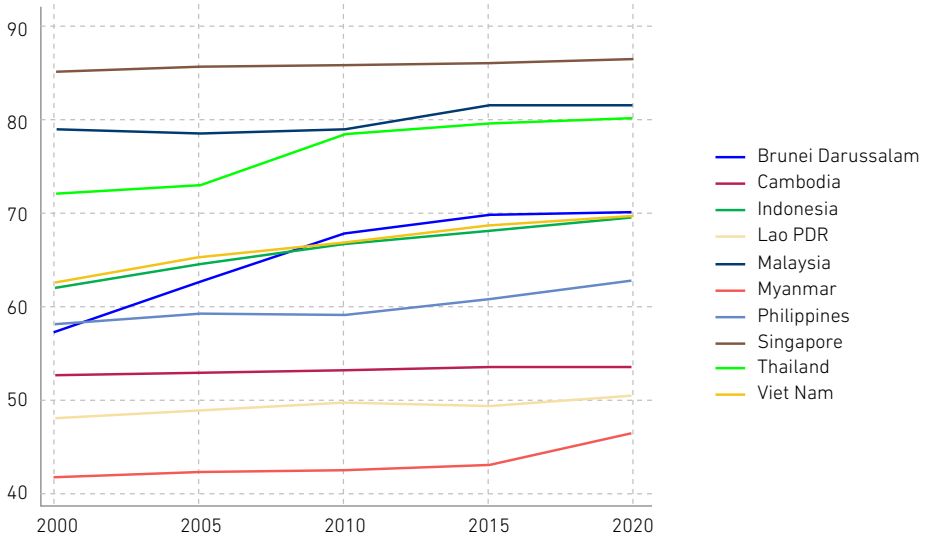
Figure 9A.6. Gender Development Index all ASEAN Member States, 2000–2021



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

Source: The author using data from the UNDP (2023).

Figure 9A.7. Ease of Doing Business all ASEAN Member States, 1996–2021



Lao PDR = the Lao People's Democratic Republic, Myanmar = the Republic of the Union of Myanmar.

Source: The author using data from the World Bank (2020).