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Daniel Kasenda*

Abstract

Korea's rapid transition from low-income status to high-income status in a few short decades is an impressive achievement. Many former low-income countries (LICs) that have transitioned to middle-income countries (MICs) shared similar situations and development patterns with Korea. However, many of these countries have remained mired in MIC status. This paper will analyze this phenomenon, known as the "middle-income trap" (MIT), with particular focus on the select ASEAN countries of Indonesia, Thailand, Malaysia and the Philippines. The paper focuses on governance and institutional quality during each country's lower and upper middle-income stages, and examines significant differences among the countries. The analysis finds that Korea's governance and institutional quality excels in many areas compared to the ASEAN countries. The paper then argues that good governance and institutions are essential for promoting effective markets and private sector development, leading to increased productivity, investments and industrialization. Furthermore, the paper observes that improvements in infrastructure, R&D and education have been important drivers enabling Korea's escape from the MIT.

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The "middle-income trap" (MIT) refers to middle-income countries (MICs) that have been unable to transition to high-income in several decades. While many developing countries have moved, in some cases rapidly, from low-income country (LIC) to MIC status, only 13 countries out of 101 categorized as MICs in 1960 have escaped the MIT, according to the World Bank (2013). This is an unfortunate situation, where economic growth stagnates or even decreases for a significant time.

Research on the MIT problem has so far been limited, according to Ghani (2013). However, research on MIT is slowly gaining traction, and several academic articles and the media have begun covering the topic. This paper attempts to contribute to the discussion by examining the case of Korea, which has moved from a LIC to MIC, and then to high-income status in a relatively short time, thus escaping the MIT. The paper will also aim to understand the conditions in Korea that enabled the country to reach high-income status, and explore if MIT-stuck ASEAN countries can apply lessons from the Korean experience. This paper will examine four ASEAN countries: Indonesia, Malaysia, Thailand and the Philippines.

This paper has five sections. The first section provides an overview of the MIT problem. This will also include insight on why countries remain in the trap, with brief case studies on the four ASEAN countries. The second section examines Korea's experience. The third section examines the New Institutional Economics (NIE) perspective, and on governance and institutional quality, which this paper argues are crucial to achieve the economic growth needed to escape the MIT. The section will also describe the methodology and data used to help measure governance and institutional quality. The fourth section will present key findings from analysis of productivity, education, population, infrastructure, governance, and institutional data, including brief observations about each ASEAN country in light of the findings. The final section will provide conclusions relevant for the MIT.

The Middle-Income Trap (MIT)

Three features define when countries are stuck in a MIT: 1) income categories (classifying countries into income status such as the World Bank[1]), 2) time, and 3) growth rates. For example, according to Felipe (2012), a country is in a lower middle-income trap if it remains there for 28 years, while a country is in an upper middle-income trap if it remains there for 14 years while experiencing growth of less than 3.5% per year. Indonesia and the Philippines appear to be caught a lower-income MIT, while Malaysia and Thailand fall into the upper-middle income category, based on the World Bank's income classifications.

Reasons Why Countries Remain Stuck in a MIT

During the 1960s, Korea produced labor-intensive products for international export markets. Clothing, for example, was one of Korea's primary exports. Korean wages eventually increased, making labor-intensive products less competitive, and Korea's low-cost labor advantage disappeared. Furthermore, Korea had exhausted easy to adopt technologies, forcing Korea to increase productivity and capability through other means. As Lee (2012) argues, failure to address capabilities, lower wage rates or price competitiveness leads to short-lived and non-sustainable growth. Countries not able to overcome these impediments would mire in the MIT. As Tran Van Tho (2013) explains, "middle-income countries are increasingly losing their comparative advantage in labor-intensive industries," and that these countries lack "high skill-intensive industries and a deeper stock of physical and human capital" needed to escape the MIT.

This paper will discuss the structural causes of MIT, borrowing an approach from New Institutional Economics (NIE), further discussed in Section 3. While NIE covers a number of societal categories such as customs and traditions, this paper will focus on governance and institutional quality, particularly on the characteristics linked with markets, as the paper argues these have been crucial components in helping Korea to escape the MIT and achieve high-income status. As Kharas and Kholi (2011) argue, "middle-income countries need to develop modern and more agile institutions for property rights, capital markets, successful venture capital, competition, and a critical mass of highly skilled people to grow through innovations as affluent countries do."

[1]As of 1 July 2015, low-income economies USD 1,045 or less in 2014; middle-income economies more than USD 1,045 but less than USD 12,736; high-income economies of USD 12,736 or more. Low and upper middle-income are separated by USD 4,125.

Brief Profile: Philippines

Although it has yet to reach the upper middle-income status after becoming a MIC in 1996, as defined by GNI per capita (World Bank "Atlas Method"[2]) data, it continues to show impressive growth momentum over the last several years. An IMF briefing in 2015 considers the Philippines to be the "exception" amidst Asia's slowing growth. Even though numerous challenges remain, including corruption and weaker export demand, economic fundamentals and productivity growth in the Philippines shows greater potential in terms of achieving the economic growth to reach high-income status. Wilson (2014) states that the Philippines, in comparison to the other ASEAN countries, "seems to be moving in the opposite direction of an MIT." As of now however, according to the World Economic Forum's GCI Global Competitiveness Index 2014-2015[3] (GCI), the Philippines is in transition from the first stage (factor-driven) to the second stage (efficiency-driven), a stage that is lower than the rest of the ASEAN countries.

Brief Profile: Thailand

In terms of industrialization and exports, Thailand is leading in terms of high-tech products and cars compared to other ASEAN countries. The economy is also heavily export-dependent, similar to Korea. Thailand experienced incredible growth during the late 1980s and early 1990s, helping the country achieve upper-middle income status by 2011. However, after the Asian financial crisis, growth rates slowed to around 5% from 2002 to 2007, in contrast with previous growth of 8-9% per year. Furthermore, the global financial crisis and political turmoil, including a military takeover in 2014, have caused significant downturn in growth. According to Wilson (2014), Thailand remains in the MIT, and if current slow growth continues, Thailand may remain an upper-middle income

[2]The World Bank uses the Atlas Method to estimate the size of economies in terms of gross national income (GNI) in U.S. dollars. A country's GNI in local (national) converted into U.S. dollars using the Atlas conversion factor—a three-year average of exchange rates, adjusted for the difference between the rate of inflation in the country (using the country's GDP deflator) and that in a number of developed countries (using a weighted average of the countries' GDP deflators). The resulting GNI in U.S. dollars divided by the country's midyear population results in GNI per capita. The World Bank uses Atlas to compare the relative size of economies, and to classify countries in low, middle and high-income categories and to set lending eligibilities.

[3]The annual WEC Global Competitiveness Report assesses the competitiveness landscape of 144 economies, providing insight into the drivers of their productivity and prosperity. The GCI defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country. GCI includes a weighted average of many different components, each measuring a different aspect of competitiveness. The components are grouped into 12 pillars of competitiveness: Institutions, Infrastructure, Macroeconomic environment, Innovation, Business sophistication, Market size, Health and Primary Education, Higher Education and Training, Goods market efficiency, Technological readiness, Financial market development, and Labor market efficiency. Countries are also divided into 5 categories in terms of stages of their development. The 5 categories are: 1) Stage 1 (Factor-driven), 2) Transition from stage 1 to stage 2, 3) Stage 2 (Efficiency-driven), 4) Transition from stage 2 to stage 3, 5) Stage 3 (Innovation-driven).

country for a significant period, even though it has one of the most established economies in the ASEAN community. As of now, according to the GCI, Thailand is in the "efficiency-driven" stage of development.

Brief Profile: Indonesia

Indonesia is another example where liberalization, investments and macroeconomic stability allowed it to progress from LIC to MIC status in the 1990s. However, Indonesia regressed to LIC status after the Asian financial crisis, requiring six years for Indonesia to return to MIC status in 2003. The economy's reliance on commodities, combined with decline in commodity prices, caused significant setback to high growth. Similar to Thailand, Indonesia is also in the GCI-measured "efficiency-driven" stage.

Brief Profile: Malaysia

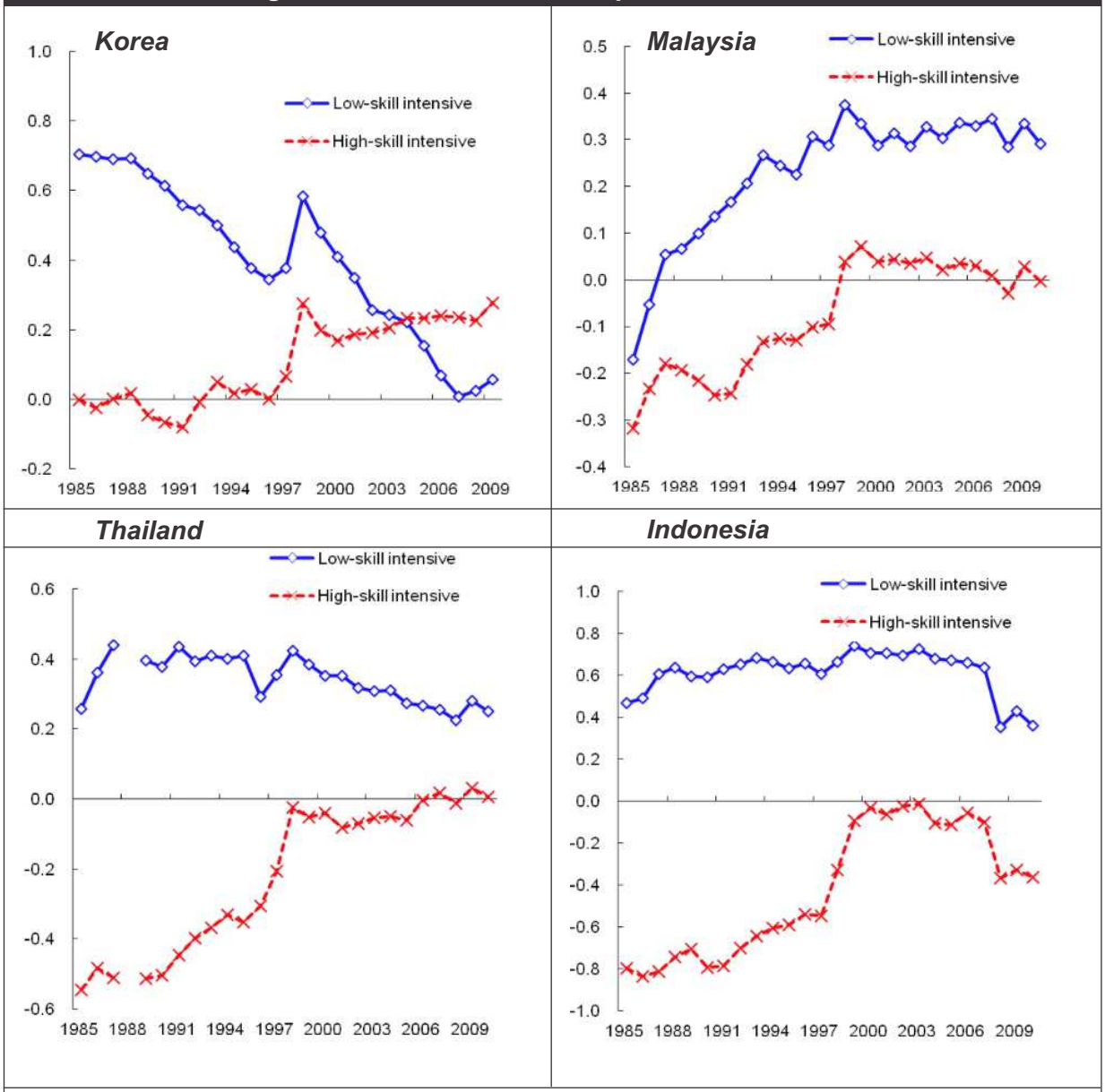
Malaysia became an upper-middle income country in 1996, but remains stuck in that status. Both Malaysia and Korea entered MIC status around 1978, as measured in GNI per capita, but unlike Korea, Malaysia required about 18 years to reach upper-middle income compared to Korea's ten years. According to Felipe's (2012) categorization, countries remaining in upper-middle income status for more than 14 years are stuck in the MIT. In the 1970s, Malaysia relied on natural resources—primarily tin, rubber and oil—but the country's economy has diversified to become an exporter of electronic parts, natural gas and palm oil. In the late 1980s and 1990s, Malaysia's production of more sophisticated products helped it to reach upper middle-income status. Malaysia recovered quickly from the global financial crisis, reaching the second highest stage according to GCI as it transitions from the "efficiency-driven" stage to the "innovation-driven" stage. Nevertheless, Malaysia still faces many challenges. Malaysia strives to achieve high-income status by 2020 through the government's "New Economic Model", which aims to address structural and institutional challenges.

Korea's Industrialization

Debate surrounds whether "export orientation [or the] investment boom" (Rodrik, 1995) drove Korean economic growth, and how much government intervention did or did not aid growth. In any case, one cannot debate the rapid growth of Korean industrialization compared to other MIT countries. Although there are similarities between Korea and the ASEAN comparator countries, differences are notable in the trend in international competitiveness of the products Korea makes.

Figure 1 demonstrates that Korea's industries have progressed from low-skill intensive industries to high-skill intensive industries, while industries in ASEAN countries have failed to do so.

Figure 1. International Competitiveness Index



Source: Tran Van Tho's calculations (2013, Figure 6 (Korea), Figure 8 (Malaysia), Figure 9 (Thailand), Figure 10 (Indonesia))

According to Chung (2011), in the 1970s to 1980s Korea began shifting to more capital and technology-intensive industries helping Korea reach lower middle-income status (1978). Korea then very rapidly moved to upper middle-income status in about ten years (1987). Subsequently, Korea progressed to high-income status in a rapid 8 years (1988-1995).

Government policies to aid industries develop and adopt technologies is an important factor cited for why Korea moved to higher technology-intensive industries. According to Chung (2011) the Korean government created R&D institutes, such as the Korea Institute of Machinery and Metals, which "worked with private industries to build a technological foundation for industrial development." However, Chung (2011) also states that starting in the 1990s, the private sector l ed the increasing and rapid growth of R&D; in 2011, private industries financed about 75% of Korea's R&D expenditure, driving R&D spending per GDP at a significantly higher rate than most ASEAN countries.

Nonetheless, considering the government's drive to develop technology and investment in R&D in the early 1980s, government assistance and drive for technological growth should receive credit for spurring technological upgrade and private sector motivation to lead R&D. As Chung (2011) argues, Korea's R&D efforts and technological competitiveness in high-tech products, such as semi-conductors and phones, is "partly the result of the government-industry collaborative R&D." Korea ranked consistently high from 1996 to 2011 on gross domestic expenditure on R&D financed by business enterprises, based on UNESCO data. In 2005, for example, Korean business enterprises financed 72.2% of gross domestic expenditures for R&D, compared to 68.6% in the Philippines, 51.5% in Malaysia, and 36.8% in Thailand's. From 2004 data, Indonesia business investment in total R&D was 14.7%.

Korea's shipbuilding industry represents a good example. According to Sohn et al. (2009), both government and firms "actively invested not only in design and shipbuilding, but also in proprietary R&D and local production of machinery and equipment." The Korean Government established the Shipbuilding and Ocean Technology Research Institute in 1968 to promote the industry and explore new technology. Hyundai Heavy Industries also invested heavily into LNG vessel technology, which allowed Korea to be one of the "very few countries that could build LNG vessels." Lee (2012) points out that the government reforms, such as easing "prior approval criterion", encouraged R&D by private firms. Easing standards helped spur the growth of industry institutes, which increased from 65 in the early 1980s to 183 by 1985. According to Lee (2012), such collaboration "led to the growth of indigenous capabilities in wireless communication," and "rise in US patents by Koreans."

Another important variable to consider is total factor productivity data, where Korea excels significantly compared to the other ASEAN countries. The higher figure shown in the Findings section suggests the better the "economy's long-term technological change or technological dynamism" (Lipsey and Carlaw, 2001), hence the rapid growth in GNI and productivity for Korea. Accumulating labor and capital, or focusing on primary industries, will only garner slow and short-lived growth, arguably such as that experienced by the ASEAN countries, especially Indonesia and the Philippines.

The question remains: how did Korea experience such impressive industrialization and productivity growth so relatively quickly? Byung-Nak Song (2003) provides insight by characterizing Korea's development strategy as that of an "outward-industry oriented" economy, which he argues is "the only correct development strategy, not only for Korea, but also for any developing country that wants to sustain economic growth over a long period of time." The paper argues that Korea's governance and institutional quality—explored further in Section 4 of this paper—helped contribute to development and industrialization to escape the MIT. We present some Korean governance and institutional characteristics below.

Korea's Governance and Institutional Quality

The Asian financial crisis adversely affected Korea's economy. The country even temporarily regressed back to upper middle-income status. Yet Korea was able to recover quickly, and by 2002 Korea had re-attained high-income status. One reason cited for why other countries did not recover as quickly is that governments failed to address governance and institutional weaknesses. It is important to note in this context that while ASEAN countries share some similarities to Korea — including prevalence of nepotism, corruption, crony and state capitalism—and they all experienced manufacturing growth (albeit on different levels of industrial success), there are significant differences.

Korea's Government pragmatism toward economic growth compared to other countries stands out. Amsden (1989) goes as far to state that, "where Korea differs from most other late industrializing countries is in the discipline its state exercises over private firms as the model of 'Korea Inc.'" The statement implies better governance. External situations such as threat from neighbors, or lack of natural resources, also contributed to Korea's economic focus by preventing rent-seeking opportunities, for example. Several notable Korean characteristics include strong investment in R&D and government imposed performance standards for private firms. Thee Kian Wie (2006) highlights that Korea government pressure on firms to meet export targets and performance quality played a crucial part in inducing manufacturing and technological growth.

While academics debate its successes, the Korean Government set explicit goals to achieve international competitiveness and sustainable economic growth. President Park himself chaired a monthly meeting with businesses on Korean industrial policies. Similar examples of intent to increase growth and create incentives were either absent or limited in other ASEAN countries.

Government decisions and actions that focus on private sector performance are rare, as governments pursuing such initiatives can be involved in rent seeking or corruption. For example, governments may collude with close private firms by imposing regulations to gain monopoly privileges for the firms. Korea's effective and pragmatic approach is perhaps a verification of government and institutional ability to implement such activities. As Park (2011) argues in regards to Korea's "coordination institutions", Korea "overcame institutions failure and succeeded in generating effective demand to spur sustainable growth." According to Schneider (2013) Korea and the institutions were able to implement "far-reaching market liberation" and reduce the "power of the state-influenced chaebol", which increased market competition, and eliminated "leniency towards bigger-scale but less efficient projects."

This is in contrast to several of the ASEAN countries, where relatively more state-influenced firms also exist. Thailand populist policies (not present in Korea) "failed to make an enduring impact on industrial and technology upgrading", according to Intarakumnerd (2011). In Indonesia, the Soeharto era demonstrated minimal sustainable technological effort and tended to focus on inefficient and ill-prepared "hi-tech" industries, such as aircraft assembly, which were often "pet projects" for political elites. The Philippines, under the Marcos regime, and Malaysia, where the prime minister faces a USD 700 million scandal, suffered from corrupt practices during the Korean growth period.

While Korea may have experienced corruption, Moran (1998) argues that corrupt practices at least "conformed to a drive for national development." In many ASEAN countries, corruption took place solely for private gain and consolidation of power. Arguably, the improved governance and institutional environment in Korea prevented the country from following this path. In examining recent data used in the Findings section on governance and institutional quality, Korea ranks higher in terms of government governance or leadership compared to other ASEAN countries, although Malaysia often ranks similarly. Korea showed significant improvement over the years while the other countries stagnated. Importantly, these results come after the Asian financial crisis, when the countries should have improved significantly. Yet the Philippines, Thailand and Indonesia stagnated in terms of improvement in government effectiveness and corruption. Data stretching back to the 1970s, during Korea's and Malaysia's middle-income stages, is unfortunately not available, but considering the "stickiness" of institutional quality and

governance, the available data implies a relatively higher capability and credibility of Korea —and arguably Malaysia— to limit rent-seeking and corruption.

Several of the aforementioned institutional and governance qualities for Korea are similar in Malaysia, and the paper argues that those qualities helped Korea, and possibly Malaysia, to progress towards high-income faster. The next section will scrutinize several characteristics and variables to provide a more complete picture, focusing on governance and institutions that promote markets and productivity. This paper argues that these are the driving forces that allow countries to avoid the MIT.

The New Institutional Economics (NIE) Framework

Aiyar et al.'s (2013) research on the MIT has motivated further focus on governance and institutions. In measuring the relationship between key variables and growth deceleration as an indicator of MIT, Aiyar et al. (2013) finds that institutional variables have the greatest explanatory power—mainly limited government, light regulation and rule of law. Limited government and light regulation, the authors argue, are important attributes enabling the private sector in MICs to expand. The paper argues that Korea holds many lessons for ASEAN countries, especially regarding governance and institutions. Comparison of Korea's and selected ASEAN countries' institutional quality and profiles during their economic history, specifically the middle-income stages, could provide insight on why the ASEAN countries remain in a MIT.

A number of studies have pointed to the quality of institutions and governance in economic growth, and some in the context of MIT. These papers review institutional quality data. Besides Aiyar et Al's (2013) research, others include Rodrik's (1995) and Acemoglu's (2005) use of settler mortality; Glaeser et al.'s (2004) argument for education variables; and Yamazawa's (2013), who looks specifically at the MIT through five variables (political, openness, gender, entrepreneurship and labor) to comprise an "institution evaluation index".

These ideas are elements of the "NIE" theory, which attempts to "discuss the process of exchange without specifying the institutional setting within which the trading takes place, since this affects the incentives to produce and the costs of transacting" (Coase, 2005). NIE theory considers almost every aspect of "institutional setting", including religion and culture. Williamson's (2000) divides institutions into four levels, for instance. This paper, however, will focus on governance and institutional quality.

Lack of historical data provides obstacles to analysis, as does the fact that NIE is not an entirely recognized field. Even Kuncic (2014) points out that within the "general research program of NIE, there still lacks a common sense of what institutions are and how can they be classified." He further explains, "this is not so much a consequence of different definitions, but a consequence of different frameworks used to study institutions, which have not yet been, to our knowledge, evaluated and discussed in relation to one another."

Nevertheless, we look at institutions that can promote markets and ensure they function effectively by creating the right incentives to produce and by limiting transaction costs. This includes promoting competition, limiting rent-seeking activities, and enforcing property rights, creating incentives for the private sector to invest and trade, and fostering long-term efficiency

and productivity. This paper argues that these institutional characteristics help contribute to the sustainable long-term growth needed to escape the MIT. Hence, the paper's attempt to compare specific types of institutional and governance quality in Korea and the other ASEAN countries.

Some countries have shown impressive growth without high institutional quality, China being the prime example (Kuncic, 2014, places China in the lowest cluster in his institutional dataset[4]). Chinese growth stems from a combination of government policies, state-led investments, structural change and other variables, including education and institutional reforms, such as China's significant market reforms. China's state-led growth and policies have indeed contributed to an increase in capital, labor, infrastructure, and high economic growth, helping the country to reach upper middle-income status. However, overinvestment, investment in inefficient projects, and lower productivity rates raise questions about whether China can sustain its high growth rates to escape the MIT. It could share the same fate as Thailand and Malaysia.

Some aspects of Korea's drive to high-income status also displayed unsustainable characteristics (Harvie and Lee 2003), especially in the 1960s and 70s, but from the early 1980s Korea began to take more market-oriented and fair competition measures to counter negative effects. This paper attempts to explore, using Korea as a reference, the significance of the institutional reforms for sustainable, long-term economic growth to escape the MIT compared to shorter-term, unsustainable state-led and policy-related growth.

Data and Methodology

Comprehensive data on governance and institutional quality has emerged in recent years. This data improves the ability to analyze economies through the NIE framework. Kuncic (2014) recent attempt to index institutional quality by scoring legal, political and economic institutions represents a positive sign for improved quantitative and empirical NIE analysis. However, historical data availability is still weak; in some cases data is not even available from the 1990s. It remains challenging to analyze and compare governance and institutional quality during the countries' middle-income stages. Korea and Malaysia achieved MIC status during the late 1970s, for instance, a period for which there is relatively little data available.

The comprehensive GCI database examines and compares infrastructure and institutions, but

[4]Kuncic (2014) computes "the latent quality of legal, political and economic institutions" of 197 countries from 1990 to 2010, to propose a World Institutional Quality Ranking which is used to find whether a country "is improving or worsening its relative institutional environment." From such methods, the author produces an Institutional Quality Dataset, which is available online.

only starting in 2005. Therefore, this paper uses such data less extensively and only as reference. The paper relies more on data from the Economic Freedom Dataset[5] (EFD) starting in 1970, but even this data has limitations since between 1970 until 2000 data collection takes place only in five-year intervals. This paper will therefore also make use of other data on certain variables to help improve insight of governance and institutional quality, such as from the Heritage Foundation.

In terms of methodology, the paper identifies when Korea and the ASEAN countries reached lower middle-income, upper middle-income and high-income status. The table below shows World Bank's GNI per capita data (Atlas Method) and classifications. This data has a subjective element, and is open to questioning, such as whether previous momentum or different measurement methods for income or data could change outcomes. The GNI Atlas Method, however, provides a useful benchmark and reference during a country's income status.

Table 1. Year When Countries Reach Different Income Status

	SK	PHI	THA	IND	MAL
LMI (USD 1,045)	1978	1996	1988	1996	1978
UMI (USD 4,125)	1988	Not Attained	2010	Not Attained	1996
Years to reach UMI	10	-	22	-	18
HI (USD 12,746)	1995	Not Attained	Not Attained	Not Attained	Not Attained
Years to reach HI	8	-	-	-	-

Given the data available, the paper analyses variables, including on governance and institutional quality, to attempt to identify and understand the ASEAN countries and Korea during their middle-income stages. This involves calculating and analyzing the averages of the data to find useful insights. As an example, comparing Korea's "Rule-of-Law index" average from 1978 to 1988 (Korea's lower middle-income stage) to the other ASEAN countries' Rule-of-Law indexes during their lower middle-income stage could provide insight on why Korea moved from lower

[5]The Economic Freedom Dataset from the Fraser Institute uses 42 data divided into 5 categories ("Size of Government," "Legal Structure and Security of Property Rights", "Access to Sound Money", "Freedom to Trade Internationally", and "Regulation of Credit, Labor, and Business") to measure economic freedom. An index of economic freedom measures "the extent to which rightly acquired property is protected and individuals are engaged in voluntary transactions."

to upper middle-income status more rapidly compared to the other countries. The tables below display the data averages in the different income stages for each country.

The paper will also use variables outside the governance and institutional quality framework to improve insight into the countries during the middle-income stages to attempt to identify important characteristics that could be important to escape MIT. The tables and explanations for each are below.

This section has three parts: Part 1 highlights the productivity and economic data, Part 2 focuses on other potential variables that could influence productivity and economic growth, and Part 3 focuses on governance and institutional quality data.

Part 1: Productivity Data

Table 2. Productivity Data Averages

		SK	PHI	THA	IND	MAL
GNI Per Capita Growth	LMI to UMI[6]	7.11	3.56	4.33	2.83	4.44
	UMI to HI[7]	7.53		3.13		2.88
	HI[8]	3.84				
Source: The World Bank, World Development Indicators (2015)						
TFP Level At Current PPPs (USA=1)	LMI to UMI	0.59	0.42	0.47	0.42	0.65
	UMI to HI	0.74		0.47		0.60
	HI	0.73				
Source: Feenstra et al., Penn World Table 8.1 (2015)						
TFP Growth (Estimated as a Tornqvist Index)	LMI to UMI		1.12	0.00	-0.44	1.99
	UMI to HI	3.59		1.24		0.27
	HI	2.25				
Source: The Conference Board, The Conference Board Total Economy Database (2015)						

[6]Lower to Upper Middle-Income or until Latest Data (Average).
[7]Upper Middle-Income to High Income or until Latest Data (Average).
[8]High Income until Latest Data (Average).

Growth in GNI per capita[9] data demonstrates the incredible sustained economic growth that Korea achieved to escape the MIT, even during political turmoil and negative growth in 1980. Growth in the other select ASEAN countries was about half of what Korea experienced. Data on productivity and product quality show that Korea excels compared to most ASEAN countries except Malaysia, although Malaysia dipped in TFP during its upper middle-income stage while Korea kept increasing to a significant high of 0.74. Moreover, TFP growth figures show that Korea had significant growth at 3.59 compared to Malaysia's 0.27. Such low figures could be due to Malaysia's slower transition of its resources sector to industrialization, and slower absorption of productivity-growth technology in its manufacturing sector. This may also explain why Malaysia's low GNI per Capita growth remained small, leaving Malaysia in the MIT.

Part 2: Education, Population and Infrastructure Data

Table 3. Education Data Averages

		SK	PHI	THA	IND	MAL
School Enrollment, Primary (% gross)	LMI to UMI	103	107	97	110	94
	UMI to HI	104		95		97
	HI	102				
Source: The World Bank, World Development Indicators (2015)						
School Enrollment, Secondary (% gross)	LMI to UMI	83	80	54	66	53
	UMI to HI	95		86		66
	HI	98				
Source: The World Bank, World Development Indicators (2015)						
School Enrollment, Tertiary (% gross)	LMI to UMI	22	29	34	18	6
	UMI to HI	40		51		30
	HI	88				
Source: The World Bank, World Development Indicators (2015)						
Human Capital[10]	LMI to UMI	2.68	2.65	2.13	1.96	2.27
	UMI to HI	2.89		2.41		2.83
	HI	3.22				
Source: Feenstra et al., Penn World Table 8.1 (2015)						

Primary enrollment data during the middle-income stages are similar, but the data starts diverging for secondary and tertiary enrollment. Averages are significantly higher in Korea for secondary, but it is interesting to note that tertiary enrollment during Korea's lower and upper-

[9]GNI per capita growth is defined as the gross national income divided by midyear population.
[10]Index of human capital per person, based on years of schooling (Barro/Lee, 2012) and returns to education (Psacharopoulos, 1994): Penn World Table 8.1.

middle income stage was relatively low. However, Korea's tertiary enrollment increased significantly starting in the 1990s, perhaps necessary for Korea to sustain high-income status. This might imply tertiary education should not be the major concern for countries in the "efficiency-driven" stage to escape MIT. Malaysia's low figures for tertiary enrollment might be a concern having achieved a more advanced stage. Lee (2009) argues that tertiary education with technological upgrading is necessary for upper middle-income countries to reach high-income, in contrast to best strategies for lower middle-income countries.

According to UNESCO data on the percentage of graduates from engineering and manufacturing, Korea and Malaysia (2000-2013: both higher than 20%) is more than Indonesia (2009: 16.1%) and the Philippines (2013: 11.0%). The human capital index (HCI) was also higher during Korea's lower middle-income stage. While the Philippines followed closely, human capital formation there appears did not progress to Korean and Malaysian upper middle-income levels. This could indicate a larger number in the value-added and productive industries and an educated workforce for Korea and Malaysia compared to the Philippines, which may have helped Korea and Malaysia achieve upper middle-income status while the Philippines remain in lower middle-income status.

Table 4. Population Data Averages

		SK	PHI	THA	IND	MAL
Total Population (in millions)	LMI to UMI	39.46	85.64	61.31	224.76	16.66
	UMI to HI	43.54		66.80		25.82
	HI	48.18				
Source: The World Bank, World Development Indicators (2015)						
Population Growth	LMI to UMI	1.33	1.91	0.93	1.39	2.63
	UMI to HI	1.00		0.28		1.98
	HI	0.58				
Source: The World Bank, World Development Indicators (2015)						
Urban Population (% of Total)	LMI to UMI	60.8	46.5	33.1	45.7	47.3
	UMI to HI	74.9		46.5		66.2
	HI	80.8				
Source: The World Bank, World Development Indicators (2015)						
Employment in Agriculture (% of Total Employment)	LMI to UMI	28.4	36.4	50.8	42.1	29.3
	UMI to HI	16.4		38.8		15.3
	HI	9.19				
Source: The World Bank, World Development Indicators (2015)						

The other ASEAN countries show relatively similar growth to Korea's, with Thailand even reaching significant figures during its upper-middle income stage. As Thailand moves to higher-income status and people move increasingly to cities, growth rates will take on similar patterns to developed countries. However, some research (Wilson 2014) points to unfavorable demographics in Thailand, such as the potential for a lower working-age population, which would limit economic growth.

The data may highlight the need for workforces to move to higher value-added activities in cities and non-agricultural sectors. This conclusion is difficult to prove, and may even be the result of reverse causation. However, the data at least demonstrates that decreasing agricultural employment correlates with increased economic productivity and increase in higher value-added industries. This also implies that the Philippines and Indonesia could achieve economic and productivity growth to escape the MIT if employment shifts from agriculture. Korea had a high concentration in the urban and non-agricultural sector, which could reflect Korea's higher productivity and ability to escape the MIT.

Table 5. Infrastructure Data Averages

		SK	PHI	THA	IND	MAL
Electricity Consumption (Kwh per capita)	LMI to UMI	1,146	546	1,404	471	1,031
	UMI to HI	2,785		2,326		3,037
	HI	7,091				
Source: The World Bank, World Development Indicators (2015)						
Fixed Telephone Subscriptions (per 100 people)	LMI to UMI	11.9	3.8	7.4	7.9	7.3
	UMI to HI	34.0		9.5		17.4
	HI	53.5				
Source: The World Bank, World Development Indicators (2015)						

Korea's data related to electricity generation during its middle-income stage is similar to the relatively advanced ASEAN countries, Thailand and Malaysia. Lack of infrastructure, which limits opportunities for businesses to expand and grow, could explain Indonesia's and the Philippines' inability to escape the MIT, or to at minimum reach the levels of the other countries. In electricity, geographic challenges to building infrastructure —in the Philippines due to its isolated islands, and in Indonesia due to its large size —contributed to significantly low power subscriptions and power generation. However, Korea reached high income in eight years with average electricity generation of 2,783 Kwh per capita, but Thailand and Malaysia are still middle-income after 20 years despite generating similar power capacity.

As pointed out in frequent studies from the World Bank, and from other researchers, such as Aiyar et al. (2013), countries must still focus significant attention on closing the "infrastructure gap" to overcome the MIT. The gap sometimes exists because government and institutions cannot remove obstacles to increasing and improving infrastructure. While a good foundation for property rights may exist, institutions in Indonesia and the Philippines for example sometimes fail to enforce property rights, inhibiting infrastructure growth. Countries with poor governance and intuitional quality may suffer from inefficient investment and implementation of infrastructure projects.

Numerous causes can slow productivity growth. The main causes, this paper argues, are lack of governance and institutional quality. At minimum, countries need proper infrastructure to increase productivity and economic growth. Existing and potential businesses need power, for example, to expand and grow, and business needs proper transportation networks to increase trade. Korea's significantly high electricity consumption during its high-income stage strongly supports this conclusion.

Part 3: Governance and Institutional Quality Data

Kuncic's (2014) Institutional Quality Dataset is a useful reference. Although the dataset starting in 1990 does not cover Korea and Malaysia's institutional situation during their middle-income stages, we can still make some useful observations.

Table 6. Kuncic's Institution Indexes Data Averages

		SK	PHI	THA	IND	MAL
Kuncic's Political Institution Index[11]	LMI to UMI		-0.06	0.026	-0.574	0.266
	UMI to HI	0.657		0.530		0.023
	HI	0.717				
Kuncic's Legal Institution Index[12]	LMI to UMI		-0.384	0.103	-0.837	-0.605
	UMI to HI	0.510		0.390		0.032
	HI	0.718				
Kuncic's Economic Institution Index[13]	LMI to UMI		-0.326	-0.126	-0.783	0.805
	UMI to HI	0.403		0.120		-0.117
	HI	0.262				
Source: Aljaz Kuncic, 1990-2010 (Korea from 1990) (2015)						

[11]Components include Checks and balances, Democratic accountability, Military in politics, Control of corruption, Corruption perceptions index, Political terror scale.
[12]Components include Index of economic freedom: property rights, Freedom of the press: legal environment, Freedom in the world: civil liberties Law and order, Religion in politics, Rule of law.
[13]Components include Regulatory quality, EFW index: regulation of credit, labor, and business: business regulations, EFW index: foreign ownership/investment restrictions EFW index: capital controls, Investment profile.

Table 7. (1990-1995) Kuncic's Institutional Indexes Data Averages

Country	Political Institution	Legal Institution	Economic Institution
Korea	0.66	0.51	0.40
Philippines	-0.30	-0.28	0.07
Thailand	0.16	0.04	0.21
Indonesia	-1.05	-0.72	0.12
Malaysia	0.27	-0.61	0.81
Source: Aljaz Kuncic, 1990-1995 (2015)			

The available data implies that Korea had relatively superior institutions. Apart from one exception, where Malaysia excelled in economic institution scores compared to other countries, Korea enjoyed the highest institutional scores during its upper middle-income stage. Averaging 1990-1995 data (before Korea's high- income stage) demonstrates that Korea's political and legal institution scores far exceeded the other ASEAN countries. Although Malaysia had higher averages from 1990-995, it suffered a huge decrease during its upper middle-income stage, obtaining an average of -0.117 compared to Korea's 0.403 during its upper-income stage. This could hint at an explanation for why Malaysia has been unable to escape the MIT. Thailand's upper middle-income stage scores are significantly higher than Malaysia's, which coincides with Thailand's higher GNI per capita and TFP growth rates.

The paper emphasizes Kuncic's (2014) variables focusing on governance and institutions that help promote productivity, markets, investments, and lower transaction costs. While there are many variables, this paper spotlights legal and economic institutions most related to private sector incentives to produce and to lowering transaction costs. To explain, consider Korea's lack of democratic norms during its period of rapid economic growth. This has fueled debate on how much institutions supporting democracy or increased "checks and balances" spur economic growth and productivity. However, institutions that enforce property rights, decrease corruption, increase incentives to produce, and limit transaction costs have a clearer positive relationship to sustainable and long-term growth.

The paper will attempt to use comparison variables from other datasets to decrease bias and provide a clearer picture. For example, the Index of Economic Freedom[14] (IEF) from The Heritage Foundation has similar measures used by the EFN, such as those measuring property rights. The complete IEF data from 1995 to 2015 has no intervals. The paper will also use data from the World Bank's Worldwide Governance Indicator. However, regarding the Korean and Malaysian lower middle-income years, a similar data problem exists, with data starting only from 1996. Likewise, data for Korea and Malaysia during their middle-income stage, and important data from the Transformation Index BTI[16] before 2006, are not available.

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Table 8. Governance Effectiveness Data Averages

		SK	PHI	THA	IND	MAL
Government Effectiveness	LMI to UMI		-0.03	0.303	-0.34	
	UMI to HI			0.205		1.059
	HI	0.979				
Regulatory Quality	LMI to UMI		-0.048	0.270	-0.359	
	UMI to HI			0.210		0.539
	HI	0.772				
Source: World Bank, Worldwide Governance Indicator 1996-2013 (2015)						
Regulatory Quality	LMI to UMI		55.19	70.67	52.88	
	UMI to HI			71.70		76.40
	HI	79.88				
Source: The Heritage Foundation, Index of Economic Freedom, 1995-2015						

[14]The Heritage Foundation "Economic Freedom Index" aims to be an objective tool for analyzing 186 economies throughout the world. Each country page is a resource for in-depth analysis of a country's political and economic developments, comprised of ten measurable economic freedoms and accompanying historical data.

[15]The Bertelsmann Stiftung's Transformation Index analyzes the quality of democracy, market economy and government management in 129 countries, by collecting surveys answers based on a total of 17 criteria subdivided into 49 questions.

The data continue to support the hypothesis that Korea's government effectiveness has been superior to all the ASEAN countries except Malaysia. Data for the three other countries were very low throughout their middle-income stages, even compared to Korea's figures in 1996. Based on historical analysis, and averaging Korean scores from 1996 to 2002, Korea's governance effectiveness during its middle-income stage rates are significantly higher than the three ASEAN countries. Korea's population density was also significantly higher than all the other countries, implying either better, or rather easier, organization and governance capability (depending on the order of causation). Furthermore, assuming little long-run change in the data, we can extrapolate that Korea would have similarly high figures, for example, around the average of 0.54 for "Regulatory Quality" and 0.56 for "Government Effectiveness" from 1996 to 2000. Finally, "Transformation Index BTI's" variable of the Government "Use of Available Resources-Efficient Use of Assets"—which measures the ability of the government to use human, financial and organizational resources—shows that Korea and Malaysia maintain high scores (average 8/10 and 7/10 respectively from 2006-2014) compared to the other countries.

Korea's Management scores for "Structural Constraints" and for "Conflict Intensity" have always been fairly high compared to the other ASEAN countries. For example, Korea had the best score in managing structural constraints —included extreme poverty, disadvantageous geographical location and lack of educated force—compared to other countries. Similar patterns emerge in the "Transformation Index BTI" scores of the countries' ability in "Steering capability-Prioritization" (the ability of government to set strategic priorities and maintain them) and "Implementation" (ability of government to implement its policies). Korea reached almost maximum scores in these areas, while the other countries gained medium or lower scores. Korea's score in 2014 for "Implementation" was 8/10, for example, compared to the other countries' 5/10. Korea's favorable conditions and income and ethnic equality may have helped it to achieve the relatively better scores.

Malaysia's "Government Effectiveness" and "Business Freedom" score during its upper-middle income stage was similar to Korea's, although other data implies a large discrepancy between Korea and Malaysia especially in "Steering Capability –Prioritization and Implementation". This implies that countries including Malaysia may not necessarily need to reach the level of Korea in terms of "Government Effectiveness" and "Business Freedom" to escape the upper middle-income stage. It also implies that "Governance Effectiveness" alone does not explain why Korea progressed from upper middle-income quicker than Malaysia, which remains in an upper middle-income stage despite improving scores. Data is unavailable for Korea during its middle-income stage, but lessons relevant to Indonesia and the Philippines may include that these countries should at least aim to obtain scores similar to Malaysia and Korea to accelerate

progress toward upper middle-income status. This could also verify Lee's argument (2009) that good institutions are more crucial for lower middle-income countries than for upper middle-income countries such as Malaysia.

Further consideration regarding income and ethnic equality may help in considering the level of difficulty in governing different countries. Different governments and institutions facing lower obstacles are likely to be more effective in promoting growth and markets. Rodrik (1995) argues that in Korea "an exceptional degree of income and wealth" allowed government involvement in the economy to be more "effective and keeping it free of rent seeking." Furthermore, Korea had high social equality and ethnic homogeneity, while other Asian countries had minority or ethnic groups. Such characteristics allow for an "extraordinary degree of insulation from pressure groups, and with leadership capability over them," according to Rodrik (1995). Inequality was higher in the Asian countries compared to Korea, and this continues to be the case.

Table 9. Corruption Data Averages

		SK	PHI	THA	IND	MAL
Control of Corruption	LMI to UMI		-0.565	-0.222	-0.79	
	UMI to HI			-0.319		0.276
	HI	0.417				
Source: Worldwide Governance Indicator, World Bank (1996-2013)						
Freedom from Corruption	LMI to UMI		27.66	37.33	22.75	
	UMI to HI			34.43		50.42
	HI	49.05				
Source: The Heritage Foundation, Index of Economic Freedom, 1995-2015						

Malaysia and Korea have better limits to corruption compared to the other ASEAN countries. Unfortunately, data is lacking indicating the level of corruption in Korea during its middle-income stage. Looking at the earliest data available, Korea's "Control of Corruption" score is 0.27 in 1996 and "Freedom from Corruption" is 70 in 1995. Those figures are significantly better than other ASEAN countries including Malaysia. Data from Korea during its middle-income stage could have provided useful insights for Malaysia to tackle corruption to escape the MIT.

Some difference in governance and Korea's pragmatic approach in handling corruption are evident. Let us consider the differing fates of Korea's heavy industries and Indonesia's aviation industry: while both received strategic financial and technical assistance by their governments, Korea's industry succeeded while Indonesia's did not. Even accounting for

structural differences—such as the availability of markets, rising costs and technological issues—a probable important reason for Korean industry success is the degree and effectiveness of government involvement. Korea approached the issue with a business-minded view, and a "more [facilitating] role towards technological upgrading during the 1980s," according to Harvie and Lee (2003). The Korean Government supported Hyundai's shipbuilding division, for instance, by guaranteeing markets and financial incentives to ensure growth and performance. At the same time, Korea imposed strict standards for companies, such as export targets. As Evans (1995) defines it, these were "long-term productivity enhancing projects." In Indonesia's case, as the *Economis*t put it, the projects were rather "subsidized white elephants." Korea allowed bankruptcies before and after the Asian financial crisis for their non-performing "white elephants", demonstrating relative Korean faith and security in economic growth and efficiency.

Table 10. Rule of Law Data

		SK	PHI	THA	IND	MAL
Kuncic's Legal Institution Index	LMI to UMI		-0.384	0.103	-0.837	-0.605
	UMI to HI	0.510		0.390		0.032
	HI	0.718				
Source: Aljaz Kuncic, 1990-2010 (Korea from 1990) (2015)						
Legal System & Property Rights	LMI to UMI	5.18	4.49	6.03	4.05	6.14
	UMI to HI	5.53		5.35		6.41
	HI	6.72				
Source: The Fraser Institute, Economic Freedom Network, 1970-2010 (2014)						
Rule of Law	LMI to UMI		-0.43	0.17	-0.69	
	UMI to HI			-0.18		0.50
	HI	0.90				
Source: World Bank, Worldwide Governance Indicator 1996-2013 (2015)						
Property rights	LMI to UMI		43	66	35	
	UMI to HI			44		56
	HI	77				
Source: The Heritage Foundation, Index of Economic Freedom, 1995-2015 (2015)						

It is unfortunate that data for Korea's middle-income stage is not available for most "Rule-of-Law" variables as this is likely the area with the greatest discrepancy between Korea and the other ASEAN countries. A country's ability to encourage wealth creation is strongest where rule of law and property rights are strong, as this gives businesses incentive to increase productivity, income and investment, as demonstrated in countries such as Singapore and Hong Kong. Extrapolating for Korea based on historical analysis and available data indicates that Korea

deserves high scores in "Rule-of-Law" during the middle-income stages. Even from the 1960s, Acemoglu et al., (2005) in analyzing institutions as causes for long-term economic growth, stated that Korea, after the rise of Park Chung Hee, has always "maintained a system of private property." Compared to other ASEAN countries, during its middle-income stage Korea's institutional ability to enact rule of law helped it to reform for a longer period despite political turmoil and the Asian financial crisis.

We can observe other variables related to rule of law. An average of the World Bank's (Doing Business database[16]) "Enforcing Contracts" data from 2004-2014 shows Korea at 80.6/100 compared to Indonesia's 37.5 and the Philippines' 53.6. Malaysia and Thailand had strong results at 69.2 and 68.4 respectively, perhaps also reflecting their ability to reach upper-middle income. Furthermore, BTI's "Rule-of-Law" variables from 2006-2014—"Separation of Powers"," Independent Judiciary", "Prosecution of Office Abuse", and "Civil Rights"—also demonstrate relatively better scores in Korea compared to the other countries. For example, Korea's" Independent Judiciary" and "Prosecution of Office Abuse" scores have always been higher, but other countries (apart from the Philippines' score of 7/10 in "Independent Judiciary"), including Malaysia, have always hovered below 6/10. Some of the low scores in the ASEAN countries result from a lack of awareness and understanding of the judicial and legal system. Other reasons are more specific, including low democratic norms in Malaysia, and especially in Thailand, or Indonesia's lack of prosecution of office abuse due to rampant corruption and constant undermining of its anti-corruption agency, including recent attempts to reduce its power and the arrests of its chief and deputy chief.

Observation: Malaysia

Malaysia and Korea reached middle-income in about the same time, making comparisons between the two countries very interesting. The data is similar for both countries, and in some cases Malaysia has had better scores. Malaysia's "Freedom from Corruption" average during its upper-middle income stage was 50.45 versus Korea's high-income stage average of 49.05, for instance, and Malaysia's "Government Effectiveness" during the upper-middle income stage was 1.059 versus Korea's high-income stage average of 0.979.

[16]The World Bank's Doing Business gives scores on 189 economies' business regulations and their enforcement. It compiles quantitative data to compare business regulation environments in countries and over time. The categories used include "Starting a Business," "Dealing with Construction Permits," "Getting Electricity," "Registering Property," and "Enforcing Contracts."

This does not prove that countries do not need good governance and institutions to escape the MIT, but it may indicate that once a country like Malaysia reaches the upper middle-income stage for a period of time, it reaches a suitable level of governance and institutions. Other factors may require consideration, as suggested by several academics, such as Lee (2009) and Schneider (2013). Insight from GCI could be helpful. GCI classification of stages shows that Malaysia is in transition from "efficiency-driven stage" (where Thailand and Indonesia are) to an "innovation-driven stage" (where Korea is). Within different stages, countries need to focus on different areas, and GCI implies that Malaysia should focus its attention on "Business Sophistication" and "Innovation".

Nevertheless, most of Malaysia's rule-of-law scores are lower than Korea's, although not compared at the same income stages. Kuncic's (2014) data shows that for his three institutional indexes, Korean rule-of-law at its upper middle-income stage was significantly higher than Malaysia's at its upper middle-income stage. This implies that Korea's economic growth through higher investment and productivity stems from this high level of institutional quality, while Malaysia's inability to escape the upper MIT is due to not reaching similar levels. As mentioned, some of Malaysia's challenges include low investment in technology and declining productivity growth, which rule-of-law variables could help to address. Better rule of law limits harmful interference by governments, which undermines private sector efforts to increase productivity and innovation.

Observations: Thailand, The Philippines and Indonesia

In nearly all the variables examined, Thailand excels compared to the Philippines and Indonesia, although it does not reach similar levels to Malaysia. All the institutional data shows that Thailand is superior in both the lower and upper middle-income stage, supporting Lee's (2009) argument that Thailand should look to other factors after achieving respectable institutional levels. Although it took Thailand 22 years to reach upper middle-income status, the data implies that for Indonesia and the Philippines to reach upper middle-income status, they should aim to achieve similar levels as Thailand. However, after exploring and comparing institutional trends, Thailand still has room to improve to reach the high standards of Malaysia and Korea to accelerate growth and attain high-income status.

ASEAN developing countries can learn by understanding the gaps between Korea and themselves, especially in regards to the quality of governance and institutions. Lack of quality in governance and institutions are serious impediments, which as many academics and this paper argue, hampers transition to becoming a high-income country. This paper finds that poor quality governance and institutions is a more serious obstacle for lower middle-income countries. For upper middle-income countries like Thailand and Malaysia, perhaps other factors are more important, such as technological upgrading and tertiary education (Lee, 2012).

Analyzing the comparative country data from Section 3 during their middle-income stages explains why some ASEAN countries remain mired in the middle-income trap. Korea's lower and upper middle-income stages data related to governance and institutional quality are far superior to the ASEAN countries, with the possible exception of Malaysia. Non-governance and institutional quality data show that Korea's average in the middle-income stages for infrastructure, urban population, agricultural employment, productivity growth and education also were higher than the other ASEAN countries. While reverse causation may play an explanatory role, such as whether higher income drove Korean's to urban areas or whether urbanization caused incomes to rise, this analysis demonstrates significant difference in Korea's position during its middle-income stage.

Data is often not available for Korea's and Malaysia's middle-income stage of development. However, based on extrapolation from available data, and assuming that the quality of governance and institutions are "sticky", Korea excels compared to all the ASEAN countries, again with the possible exception of Malaysia. Kuncic's (2014) data from his three institutional indexes, with data preceding 1990, imply significantly greater institutional development in Korea during its upper middle-income stage compared to Malaysia's during its upper middle-income stage.

The paper concludes that the difference in ASEAN countries' governance and institutional quality data —based on averages during their long middle-income status compared to Korea's higher averages during its comparatively short middle-income stage—explain important differences between the countries. While improving the level of governance and institutions is not easy, countries stuck in the MIT, whether lower middle-income or upper-middle income, can benchmark their progress to Korea. ASEAN countries may be able to use these benchmarks to learn from regional neighbor Korea's experience and success in escaping the middle-income trap.

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