Challenges in Escaping Middle-Income Trap in Selected Asian Countries

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Middle Income Trap (MIT) refers to a phenomenon in which middle –income countries fail to transition to high-income level and experience sustained growth slowdowns or long-term economic stagnation. Using panel data from 1980-2017 for 10 Asian countries, the current study examines the economic and institutional factors affecting the level of GNI per capita. A Fixed Effects Model is selected for the estimation purpose. The findings suggest that high tech exports and tertiary school enrollment exert statistically significant effect on the level of GNI per capita. Very few studies have analyzed the effect of financial liberalization in the context of MIT. The study finds that financial liberalisation , measured by M2/GDP has a strong and robust effect on growth. Similarly, life expectancy-an overall health indicator-is a significant variable in explaining the level of GNI Per Capita. The study finds that government effectiveness indicator has a positive and strong effect on the level of GNI Per Capita. The research provides an additional evidence on the existing debate, using the most recent data.

Keywords: middle-income trap, growth slow-downs, Asia

INTRODUCTION

According to World Bank, out of 101 Middle-Income countries in 1960's, only 13 countries were able to transition to High-Income status in 2008. Many countries were stuck in what is called Middle Income Trap (MIT). The Asian Development Bank defines MIT "as the phenomenon where rapidly growing economies stagnate at middle-income level and fail to transition into high-income economies". In Asia, countries like China, Thailand and Malaysia developed from Low-income level to Middle-income level leveraging low-cost labor and labor-intensive industrialization. However, they could no longer compete globally in labor-intensive goods as wages were rising in these countries. In addition, they could not compete in high-value added goods with the advanced countries due to low levels of productivity. On the other hand, countries like S. Korea, Taiwan, Hong Kong and Singapore were able to shift their growth trajectories to High- Income levels with skill formation, export diversification, technology and innovation. Thus, countries stuck in the MIT reach a development stage in which they are squeezed between 'low-cost producers' and 'high value-added innovators. (Felipe, Abdon, et al (2012).

A graph shown below is found in Tran Van Tho (2013). It illustrates the divergent paths taken by the countries that graduated straight to High-Income level and the countries that are stuck in the MIT.

GDP per capita
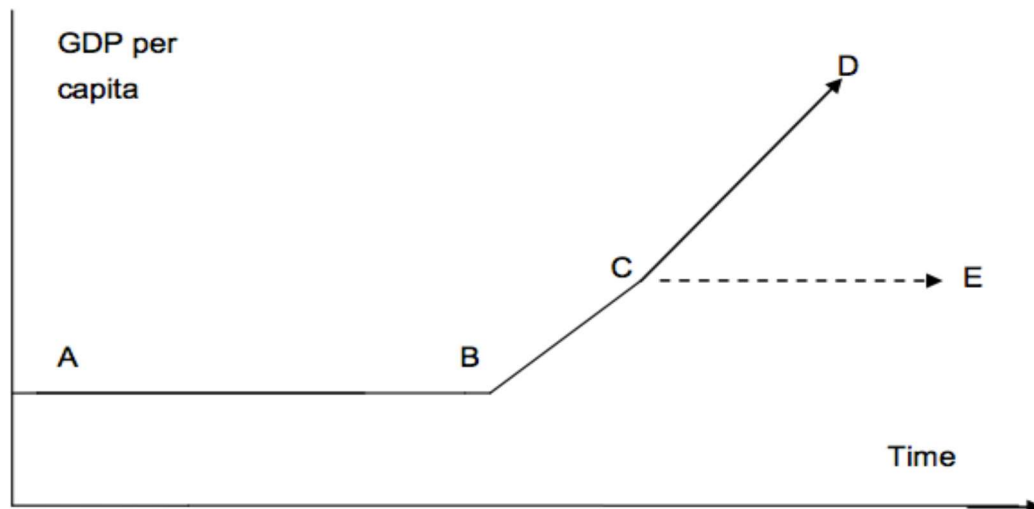
A–B: Traditional society, underdevelopment, facing poverty trap.

B–C: Initial development stage, escape from poverty trap, initial development of markets.

C: Middle-income level.

C–D: Continuing sustained growth to high-income level (D).

C–E: Stagnation or low growth—the middle-income trap.

The research objective of this paper is to study the demographic, economic and institutional factors that help or hinder a country's ability to escape the MIT. Some of the research questions addressed in the paper are - what policy lessons can we learn from the successful countries like S. Korea? Can Middle countries replicate the models used by High-Income countries?

The paper is organized as follows: Section II provides a review of current research on the MIT. Section III describes the experience of Asian countries with respect to the trap and the success or failure of the growth policies to escape the trap. Section IV describes the data, estimation model and the methodology. In Section V, the empirical results are discussed. Section VI provides conclusions, limitations and the recommendations for future research.

REVIEW OF LITERATURE

A growing body of literature has addressed the issue of MIT. According to World Bank Country Classification for 2018, the countries with GNI Per Capita between $996-$3895 are classified as Lower Middle-Income countries and the countries with GNI Per Capita of $3896-12,055 are called Upper Middle-Income countries. Gill and Kharas first coined the term 'Middle-Income Trap' in 2007. A trap, according to most of the researchers in the field, implies a self-perpetuating mechanism, stable steady state or a long period of economic stagnation. A review of current research suggests that researchers have employed a wide variety of definitions of MIT based on fixed income thresholds, time spent in economic stagnation or a process of catching up. According to Felipe (2012), the MIT period is 42 years (14 years in Lower Middle-Income stage and 28 years in Upper Middle-Income stage). On the other hand, Woo et al (2012) define MIT period as a period longer than 50 years.

Another strand of research interprets MIT as 'growth slow-down". (Eichengreen et al 2012, Ayiar et al 2013, Felipe 2012). Eichengreen et al (2013) defines growth slow-down as one in which the following three conditions are satisfied: 1. Growth in preceding years is at least 3.5% 2. The difference in growth in the current and previous period is greater than or equal to 2 percentage points. 3. Country's Per Capita Income exceeds $10,000. They identified two peaks at which growth slow-down is more likely-$10,000-$11,000 and $15,000-$16,000.Aiyer et al (2013) also considered MIT as a special case of growth slow-downs or sudden and sustained deviations from the growth path.

A third group of researchers uses a relative approach using U.S. as a benchmark country. MIT is viewed as catching up process. The World Bank report on China (2030) report, states that a country is stuck in the MIT if its GDP Per Capita is in the range of 5%-45% of the US GDP Per Capita. Agenor and Cantuto (2012) used the same threshold with the data for 2012. Bukowski (2013), in a study of Poland, set up a threshold of 50%-70% of US GDP Per Capita as MIT range. Woo et al (2012) constructed a Catch-up Index and defined countries stuck in the trap as the countries with GDP Per Capita between 20% and 55% of US GDP Per Capita.

Thus, there is no consensus in current research on the definition of or the concept of MIT. The definitions and threshold criteria have important effect on the identification of countries as stuck in the trap.

Equally diverse are the empirical findings on the causes of MIT. In a study of 138 countries from 1955 to 2009, Ayiar et al (2013) finds that demography, output structure, trade structure, infrastructure and macroeconomic stability are among the trigger factors that explain MIT. Tho, (2013) studied four Asian countries- Indonesia, Thailand, Malaysia and Philippines. According to him, these countries need to strengthen R & D activities and institution: improve the quality of human resources and provide incentives to private sector in order to escape the MIT. Yiping et al (2014) studied 80 countries from 1980-2010 and concluded that financial repression has a negative and significant effect on economic growth. TUGCU (2015) uses a binary model for a sample of 26 high- and middle-income countries. His findings indicate that the countries that spend more on secondary education, health and R & D: countries with educated labor force and high-tech exports are more likely to graduate to the high-income status. Egawa (2013) emphasized the role of equal distribution of income. Kuznets inverted U-shaped curve assumes that at a low level of development, as per capita income increases, income inequalities also increase. In his study of Asian countries, Egawa concludes that the rising inequalities in the Middle –Income countries may lead to slower growth as income inequalities may lead to urbanization problems, delayed human development and social unrest. In a study of 117 countries over the period of 1970-2014, Ahmad (2017) also concluded that income inequality might be an underlying factor for growth slow-down. Economic liberalization and democratic political regime are found to have positive effect on income distribution in his study. Kanchoochat (2015) in a survey of East Asian countries classifies the literature on the causes of MIT in three categories: 1. Getting education and institutions right, 2. Changing export composition through comparative advantage and 3. Industrial upgrading through state intervention. Based on the successful experiences of S. Korea, Taiwan, Hong Kong and Singapore, he observes that 'structural transformation rather than education and institutions is a key driver of long term growth" ((P.56). Heritage Foundation Report(2014) discusses 13 different factors in the context of S. East Asian Middle-Income countries that help escape the trap. Increasing productivity growth, moving from imitation to innovation, avoiding inflation, regulatory efficiency and good institutions are among the factors emphasized by the report. Felipe (2012), emphasized the role of 'diversified and sophisticated' exports, institutions and the level of human and physical capital. Eichengreen (2013) estimated that 80% of growth slow-down is due to total factor productivity. In addition, undervalued currency, low proportion of high-tech exports and high investment rates were among the factors that keep countries stuck in MIT. Using Global Competitiveness Index pillars, Pruchnik and Zowczak (2017) consider unfavorable demographics, low level of economic diversification, inefficient financial and labor markets, weak institutions and poor infrastructure as the underlying causes for the MIT. Glawe and Wagner (2016) outline a survey of literature and provide theoretical foundations for the MIT. The mechanism of the MIT can be understood in terms of two approaches:

1. The Lewis model, which discusses structural transformation of the economy with the transfer of labor from agriculture to industry.

2. Trade/ Immitation argument, which states that countries need to move from imitating the technologies of advanced countries to developing innovative technologies and increase the proportion of high tech exports. This approach is in line with Schumpeterian model of innovation.

Initially, countries may be able to grow with labor-intensive, low wage industrialization and imitation of foreign technologies. However, when a country reaches Middle-Income status, returns to trade imitation will decline. Additionally, the structural transfer from agriculture to industry will face limitations. These developments will result in growth slow-downs. Countries may remain in stagnation for 40-50 years. Middle-Income countries need to find new sources of growth such as R & D expenditures, High-tech exports and human capital. To devise new growth strategies, effective governance and strong institutions are required.

The proposed research uses Panel Data Analysis to study the factors leading to the MIT in a sample of 10 Asian countries over a period of 1980-2017. It provides an additional data and the most recent evidence on the existing debate.

MIDDLE- INCOME TRAP IN ASIA

In Asia, countries like S. Korea, Hong Kong, Singapore and Taiwan were successful in reaching High-Income status without being stuck in the MIT. On the other hand, more than a dozen countries like Thailand, Malaysia, Indonesia, China, India, Philippines and Vietnam are stuck in long term growth slowdowns. Figure 1 shows GDP Per Capita for the sample countries from 1980-2017. Figures 2-4 in the Appendix show the GDP Per Capita by country classification.

The research objective of this paper is to study the demographic, economic and institutional factors that help or hinder a country's ability to escape the MIT. Some of the research questions addressed in the paper are - what policy lessons can we learn from the successful countries like S. Korea? Can Middle countries replicate the models used by High-Income countries?
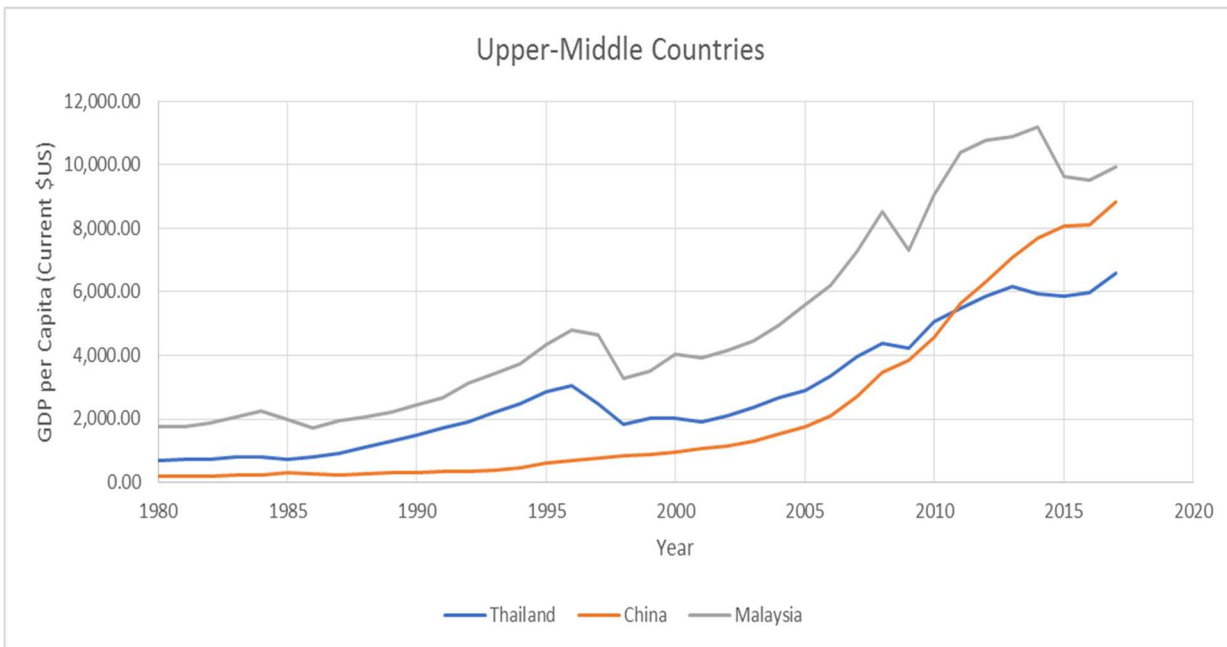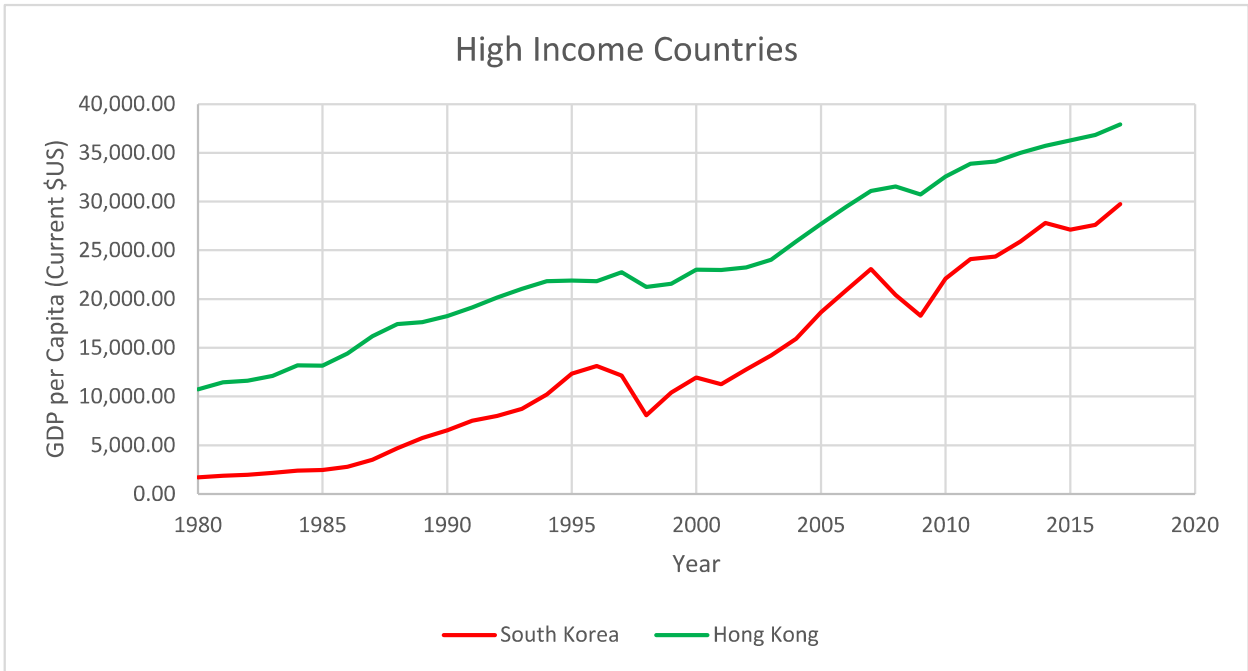
FIGURE 1
GDP PER CAPITA IN SELECTED ASIAN COUNTRIES

FIGURE 2
GDP PER CAPITA

Low-Middle Income Countries

FIGURE 3
GDP PER CAPITA

Upper-Middle Countries
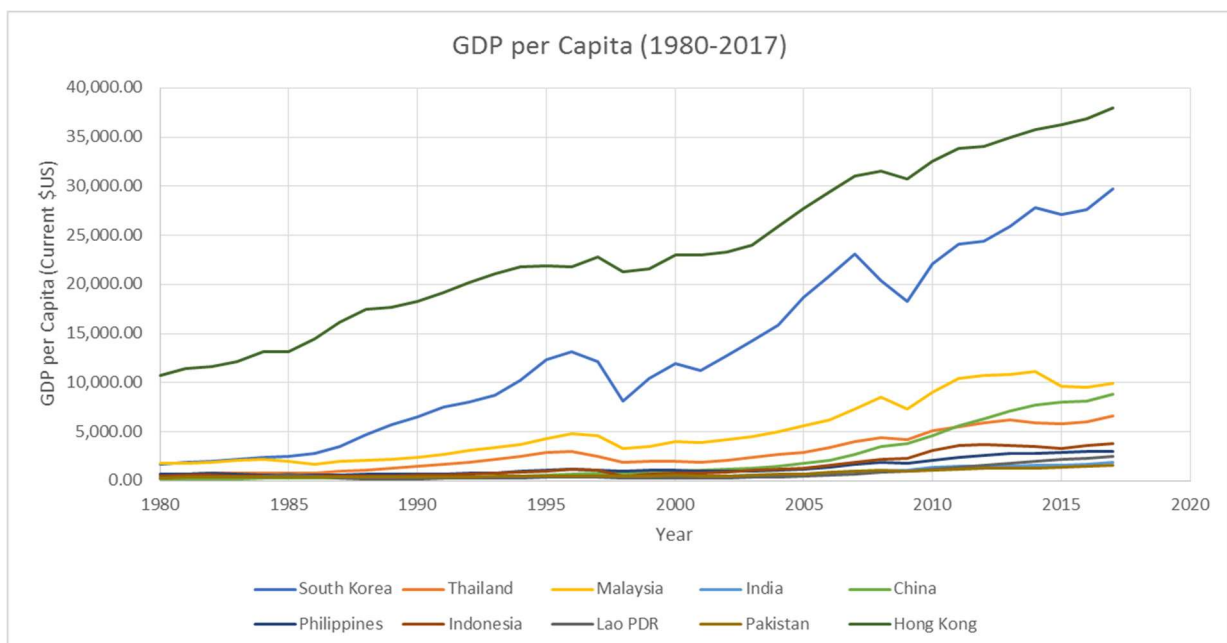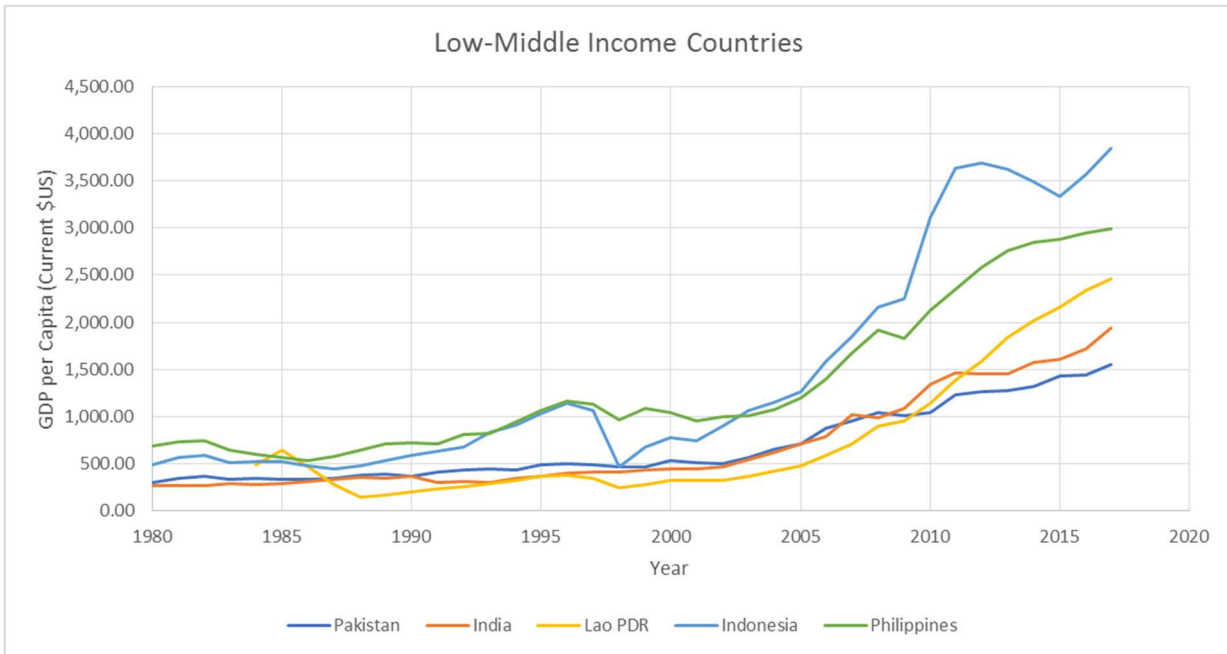
FIGURE 4
GDP PER CAPITA

FIGURE 4
GDP PER CAPITA

In Figure 5 below, I have shown the time it took for various countries to reach High-Income level ($12,000) or their current levels of Income, starting with GDP Per Capita of $3000. This is a crude approximation of the Middle-Income Trap. (World Bank classification is based on GNI Per Capita and the cutoff income level changes every year).

FIGURE 5
TIME TO REACH HIGH-INCOME STATUS
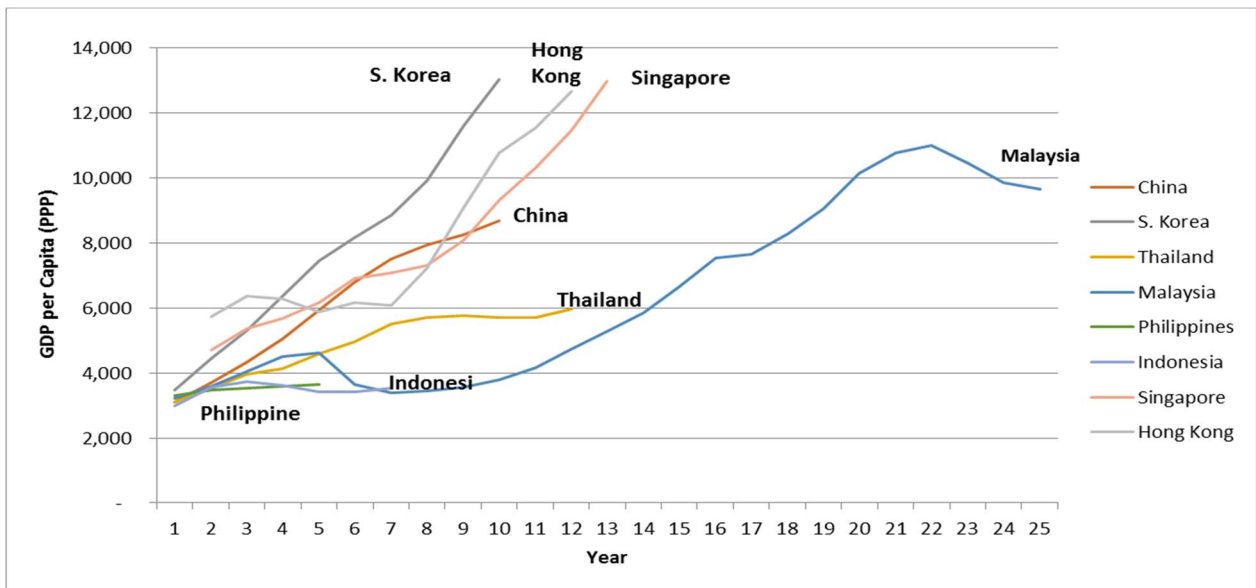
As shown in Figure 5, it took only 10 years for S. Korea, 13 years for Singapore, and 12 years for Hong Kong to reach or cross $12,000 mark. These countries followed a steep growth trajectory (path C-D as shown earlier). In contrast, Malaysia, although close to the High-Income level, has remained in the trap for 25 years (not counting Lower Middle-Income stage). China has followed a steep 10-year trajectory, but its current Level of income is $8950. Similarly, Thailand has been in the MIT for 12 years and is halfway from the High-Income level mark. These countries have followed the path C-E as shown earlier. Philippines, Indonesia have entered the Upper-Middle stage since last 5 and 7 years respectively and are hovering around GDP Per Capita of approximately $3600. The objective of the current research is to explain these divergent growth paths and identify the economic and institutional factors that will help the policymakers to escape the sustained and stable stagnation.

MODEL AND METHODOLOGY

This research analyzes demographic, economic and institutional factors affecting the level of GNI Per Capita for a sample of 10 countries for a period of 1980-2017, using Panel Data Estimation. Table 1 shows the summary statistics and Table 2 provides a list of countries included in the sample. Due to the data gaps, some countries like Singapore and Vietnam were dropped from the initial sample. Out of 10 countries in the final sample, 8 countries represent either Lower Middle-Income or Upper Middle-Income level. S. Korea and Hong Kong represent High-Income countries.

Based on the Hausman test, the Fixed Effects Model was selected. It represents country-specific and time-specific fixed effects. Based on the survey of literature, a variety of explanatory variables were tried-for example, export composition, R & D expenditures, value added in manufacturing and service, education and health, FDI, employment, financial liberalization and government effectiveness. Variables such as Gini coefficient could not be used due to the gaps in data. The results of the Best Model are reported here.

The explanatory variables used for the estimation include: High- tech exports as a % of total exports, Secondary school enrollment ratio, Tertiary school enrollment, Government expenditures on education (% of GDP), Life expectancy, M2/GDP and Government effectiveness as a measure of institutional quality. Table 4 gives the detailed definitions of these variables.

The data on all the variables except government effectiveness is collected from World Development Indicators (2018). The data on government effectiveness is collected from the Worldwide Governance Indicators Project- World Bank.

TABLE 1
SUMMARY STATISTICS TABLES

	GNIpc Atlas	Hi Tech Export	Secondary School Enrollment	Tertiary School Enrollment	Govt Exp Education(% GDP)	M2/GDP	Life Expectancy	Govt Effectiveness
Mean	6676.349206	52.26855865	35.15130128	56.48728282	2.365092247	86.37765904	69.40197367	60.66691283
Standard Error	525.7415708	1.616928629	1.474240758	1.842065362	0.059397503	3.250121481	0.350664651	1.548469651
Median	1760	63.58799934	27.93710995	49.69045263	2.448384035	65.03285214	69.437	56.83428383
Mode	390	78.0759964	#N/A	#N/A	#N/A	#N/A	82.37560976	100
Standard Deviation	11040.57299	28.46896624	26.942733	35.9084645	0.892940269	63.93741542	7.397278906	23.38137899
Sample Variance	121894251.9	810.4820391	725.9108617	1289.417823	0.797342325	4087.99309	54.71973522	546.6888836
Kurtosis	5.369364064	-0.970534073	0.008442565	-1.233326956	-0.635483654	4.800473174	-0.20331644	-0.825955725
Skewness	2.361802782	-0.72591848	0.907188553	0.372526607	-0.004487851	1.915179288	-0.257679229	0.061463165
Range	56260	98.70448761	106.9886769	119.7800741	3.847325131	369.4150937	35.21804878	89.70588207
Minimum	110	0.024563038	1.141739964	3.945298226	0.71163483	7.109310023	49.06	10.29411793
Maximum	56370	98.72905065	108.1304169	123.7253723	4.558959961	376.5244037	84.27804878	100
Count	441	310	334	380	226	387	445	228

Table 2 Sample Countries by Income Classification		
Lower Middle Income ($996-3,895)	Middle Income ($3,896 - 12,055)	High Income (> $12,055)
India	China	Hong Kong
Indonesia	Malaysia	South Korea
Laos PDR	Thailand	
Pakistan		
Philippines		

EMPIRICAL FINDINGS

As discussed earlier, Hausman specification test was employed for the Random Effects Model. The null hypothesis that random effects are uncorrelated with explanatory variables was rejected at 1% level of significance. Therefore, the Fixed Effects model was identified as the appropriate specification.

Table 3 presents the results for the best model. R SQ. is 66.50 percent. All the variables, except SECSchoolEnrol and GovtExpEdu are statistically significant in explaining the variations in GNI PC.

TABLE 3
REGRESSION RESULTS

Fixed-effects (within) regression				
Group Variable: Country				
No. obs	116		R = 0.6650	
No. of countries	10		F(7,99)= 73.37	
Dependent Variable:	GNIpcAtlas		Prob > F 0.000	
Variable Name	**Coefficient**	**Std. Error**	**t-value**	**P> |t|**
HiTechExports	150.5839	70.4696	2.14	0.035
SecSchoolEnrol	24.5555	26.8770	0.91	0.363
TertSchoolEnrol	49.3576	22.9482	2.15	0.034
GovExpEdu	305.7806	400.5889	0.76	0.447
M2/GDP	76.9668	9.8561	7.81	0.000
Life Expectancy	700.9007	161.5847	4.34	0.000
GovEff	71.30176	30.1025	2.37	0.020
Constant	-67334.16	11820.07	-5.70	0.000

TABLE 4
VARIABLE DEFINITIONS

Source	Variable		Description
World Bank	(Current US $)(Thousands)	**GDP PC**	GDP per capita is gross domestic product divided by midyear population. Data are in current U.S. dollars.
World Bank	(% of manufactured exports)	**High-technology exports**	High-technology exports are products with high R&D intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery.
World Bank	(% Gross)	**School Enrollment (Secondary)**	Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.
World Bank	(% Gross)	**School Enrollment (Tertiary)**	Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.
World Bank	(% of GDP)	**Government expenditure on education, total**	General government expenditure on education (current, capital, and transfers) is expressed as a percentage of GDP. General government usually refers to local, regional and central governments.
World Bank	total (years)	**Life Expectancy**	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
World Governance Indicators		**Government Effectiveness Indicator**	Government effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
World Bank	Atlas Method (Current $US)	**GNI per Capita**	GNI per capita (formerly GNP per capita) is the gross national income, converted to U.S. dollars using the World Bank Atlas method, divided by the midyear population. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. GNI, calculated in national currency, is usually converted to U.S. dollars at official exchange rates for comparisons across economies. To smooth fluctuations in prices and exchange rates, a special Atlas method of conversion is used by the World Bank
World Bank	(M2 as % of GDP)	**Broad Money**	Broad money is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper.

As demonstrated in the review of literature, structural transformation from agriculture to industry, industrial upgrading, sophisticated high tech exports play an important role in helping countries escape the MIT. To capture these factors, variables such as value-added in manufacturing and service sector, R & D expenditures and high-tech exports were considered. R & D expenditures and high tech exports were highly correlated.so, in the best model, only high tech exports is included. The variable is significant at 95% confidence interval. The result is consistent with the findings of Felipe (2012), TUGSU (2015), Bulman (2014) and others.

The next set of variables relates to education and human capital. Most of the research studies have observed that when a country reaches Middle-Income level, it has to go beyond primary education build higher levels of skill and human capital formation. The probability of escaping the MIT is higher for the countries that invest more in secondary and especially in tertiary education. In this study, tertiary school enrollment ratio is statistically significant at 95% level. Secondary school enrollment and government expenditures on education are not significant in this model.

Very few studies have explored the role of financial liberalization in the context of the MIT. M2/GDP is entered as a proxy for financial liberalization and access to credit. According to Agenor and Canuto (2014), inadequate access to finance and financial repression adversely affect R & D expenditures, innovation and growth rates. In this model, M2/GDP is significant at 99% confidence level. The variable has shown its robustness in various models.

Similarly, life expectancy has remained a robust and statistically significant variable in different variants of this model. However, its magnitude is unusually high. Life expectancy is entered here as a proxy for a country's health infrastructure. Like education, it is an important pillar of human capital and is correlated with higher productivity. May be the coefficient is picking up the effects of productivity. Some changes need to be made-for example, trying a quadratic or a log form. The variable is significant at 99% confidence level.

To escape the MIT, Middle-Income countries need to increase human capital, change its export structure and create conducive macro environment and stability. The Middle-Income countries need to build strong institutions. This requires state intervention and a government that implements proper macroeconomic policies. It requires political will, vision and effectiveness demonstrated by four Asian tigers-S. Korea, Hong Kong, Singapore and Taiwan.

The variable- government effectiveness indicator- is included here to capture institutional factors, quality of government and political governance. The indicator as developed by World Bank represents several dimensions of governance. "Government effectiveness captures perceptions of the quality of public service, the quality of civil service, and the degree of its independence from political pressures, quality of policy formation and interpretation and the credibility of the government's commitment to such policies." (World Bank, 2018b).

Overall, model fares well. But, the specification needs to be improved to address the problem of multicollinearity and to increase predictive power of the model. I am working on these refinements.

Next, let us look at Asian experience in the light of these findings. S. Korea successfully transitioned from Upper Middle-Income level to High-Income level in about 10 years. It was able to compete globally in high value-added industry such as heavy machinery, semiconductor and shipbuilding in the 80's. The government supported big businesses with access to credit, financial liberalization and incentives to build export houses. While countries like Thailand, Malaysia and Philippines could not develop new industries or significantly increase high-tech exports. S. Korea's R&D expenditure as a percentage GDP, was relatively higher among Asian countries- ranging from 2% in 1988 to above 4% in 2017. In contrast, Thailand and Malaysia spent from approximately 0.12 to 1.3% on R&D activities and Philippines barely spent 0.011% without much improvement. S. Korea emphasized the role of high-skilled workers to bring about structural transformation and shift from imitation to innovation. S. Korea's science and engineering graduates constitute 40% of the graduates in tertiary education. While in Philippines, Malaysia, and Thailand, science and engineering graduates represent only 10% of the total. S. Korea was at a frontier even when it was in Upper Middle-Income in terms of shifting to high-value added manufacturing and innovation. China and Malaysia have fared better compared to their peers. Regarding, the life expectancy, S. Korea

ranks 11th with the life expectancy level of 83 years. Thailand and Malaysia stand at 75 years, while Philippines ranks 125th with life expectancy of 68 years.

S. Korea gave priority to growth over income distribution. It followed a path of developing big businesses or Chaebols. With expansionary monetary policy, government enterprises provided them ample credit and concessions to targeted industries. S. Korea successfully increased the international competitiveness of Chaebols with financial liberalization Malaysia, with its emphasis on pro-poor policies, directed much of the credit to Bhumiputras. Financial policy remained an instrument for redistribution of wealth until recently. Middle-Income countries need to seek a balance between growth and equity. Financial liberalization policy can channel the resources to productive investments and development of new technology.

Asian tigers have led their growth with heavy state intervention and support to industry with appropriate incentives and policies. Government Effectiveness Indicator for Hong Kong ranged from 88 to 97.6 over 1996-2017. S. Korea showed a steady increase in from 67 to 83 over the same period. China also showed improvement over time in government effectiveness. Thailand remained in the range of 60-66, while Malaysia experienced frequent fluctuations (52 to 61 to 51) in this indicator, probably due to the regime changes. Malaysia's New Economic policy of 1970 focused on ethnic equity and redistribution of wealth. However, in 2010, President Razak unveiled New Economic Model that emphasizes economic growth to graduate to High-Income level, shifting to quality-driven growth and incentives for innovation and technology.

Overall, Middle-Income countries have realized that drivers of growth are much different to reach High-Income level and they need to take qualitatively a different path from that they followed to move from Low-Income to Middle-Income level with good governance and quality institutions.

CONCLUSION

Using Panel Data Estimation for 10 Asian countries for a period of 1980-2017, the study provided additional evidence on the factors affecting the MIT. Most of the results are consistent with the mainstream findings. Very few studies have explored the role of financial liberalization in the context MIT. In this study, the variable has demonstrated a strong and robust effect on GNI Per Capita. The findings of this research has important implications for policymakers.

Regarding the limitations of the study, first, the study used the level of per capita income as a dependent variable. However, using growth rates, as in many studies, may provide deeper insight into the steady state stagnation that most of the Middle-Income countries have experienced. Second, increasing inequalities of income with higher stages of development can adversely affect the growth rates. Due the gaps in data on Gini coefficient, the variable was dropped. Third, the sample included only two High-Income countries as Singapore and Taiwan could not be included due to the data restraints. Fourth, separate regressions for Middle -Income countries and High-Income countries could not be run due to insufficient observations. For drawing meaningful conclusions and gaining comparative insight, a larger sample will be helpful. Future research can also focus on individual country studies.

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