

Political-Economic Suboptimization of China's Belt and Road Initiative

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## ORIGINAL RESEARCH ARTICLE

# Political-Economic Suboptimization of China's Belt and Road Initiative The Case of Infrastructure Investments in Southeast Asia

Jan P. Voon, Chung Chien-peng and Chan Sze Nam

*This paper shows that the Association of Southeast Asian Nations (ASEAN) benefits significantly from investments in transport infrastructure such as road, railway and port, but not as much from investments in non-transport infrastructure such as real estate. However, using data collected from several sources, including secondary data on the number of infrastructure projects already invested and earmarked to be invested as well as China's direct foreign investment to Southeast Asia, this analysis shows that non-transport infrastructure constitutes a substantially higher proportion of the total infrastructure investments in Southeast Asia than transport infrastructure since the launch of the Belt and Road Initiative (BRI). This points to a suboptimization polemic emanating from the mismatch between the inflows of the different types of infrastructure investments and ASEAN's need for these inputs for sustainable economic growth. Domestic disharmony, regional rivalry and political conflicts between China and ASEAN as well as other obstacles such as the debt-trap worries reduce the total investment flows to Southeast Asia, exacerbating the suboptimization problem.*

**Keywords:** ASEAN, China, BRI, infrastructure investments, suboptimization

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## 1. Introduction

One of the major developments in international relations this century is China's "Belt and Road Initiative" (hereafter BRI). It is probably seen as the single-most grandiose global development strategy undertaken by China this century. Announced by President Xi Jinping in November 2013, BRI focuses on bringing together China, Asia, Russia, Middle East, Africa and Europe, linking China with the Persian Gulf and the Mediterranean Sea through Central Asia and West Asia, connecting China with Southeast Asia and the Indian Ocean, encompassing both the land route and the sea route (Du and Zhang 2017). BRI covers as many as 150 countries, a total population of over 4 billion and a lion's share of global production. It is a grand public diplomacy plan for China to integrate with many countries and regions around the world.

Primarily, China has this ambitious plan to build infrastructure for its cooperating partners, including the constructions of roads, railways, ports, power plants, energy pipelines, production facilities, and so on, as well as to foster bilateral trade. Hence, BRI, from the viewpoint of the populace in most countries outside China, is largely perceived as a framework or institution set up by China to build connectivity through trade and investment expansion. Building infrastructure is of paramount importance as it enlarges international trade and enhances global GDP (gross domestic product) growth.

This paper aims to examine, first, via econometric growth models, to what extent the different types of infrastructure investment, namely transport versus non-transport infrastructure, affect the long-run economic growth of the ten individual ASEAN countries. The economic literature so far has reported that ASEAN countries will benefit immensely from BRI-driven inflows of infrastructure investments (Chung and Voon 2017). Previous studies, however, did not explore the relative importance of the contributions of the different types of infrastructure to ASEAN's sustainable economic growth. This paper closes this gap. In this paper, we first examine and compare the disaggregate effects of the two major types of infrastructure on the Association's economic growth. After controlling for factors that may influence output growth, the econometric results show that transport infrastructure contributes positively and very significantly to the long-run GDP growth of most of the ASEAN economies. By contrast, the scale of the benefits from the investments in non-transport infrastructure is either insignificant or significantly smaller than that from the investments in transport infrastructure.

We then collect data to explore the extent of BRI's various types of infrastructure investment in each of the Southeast Asian countries. Several data sources are used. Firstly, we hand-collected data on the number of the different infrastructure projects from BRI through at least 400 news articles via an online search engine. Surprisingly, the results reveal that most of the actual and planned infrastructure investments from BRI are concentrated in non-transport infrastructure, including fixed structures such as real estate and energy-related projects. According to the survey above, the number of types of infrastructure projects, however, does not reflect the actual expenditures on the transport and non-transport sectors. Hence, we collected additional data on China's infrastructure investment flows in the form of its direct foreign investment (DFI) to ASEAN countries. These figures were expressed in total US dollar amounts rather than project numbers. The data reveal that the flows of DFI from China to ASEAN countries have quadrupled since the start of BRI in late 2013 (hereafter post-BRI). The results show that the actual and committed amounts of non-transport infrastructure such as real estate, hydroelectric plants, energy pipelines, inter alia, invested in Southeast Asian countries are significantly larger than the amounts invested in transport infrastructure such as roads, railways and ports. This is the case in Brunei, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Thailand and Vietnam. The bilateral DFI data (on dollar amounts) support the hand-collected data (on project numbers), pointing to the robustness of our empirical finding that BRI's investments are skewed towards non-transport infrastructure. This is very much against the conventional perception that BRI is predominantly transport-oriented.

Since ASEAN's economic growth is largely driven by transport infrastructure, the principal inflows of non-transport infrastructure to Southeast Asia post-BRI, therefore, result in suboptimization, meaning that ASEAN's needs for GDP growth may not be met efficiently by adequate inflows of the right type of production inputs. In contrast to previous literature pointing to the huge potential economic benefits accruable from BRI, this paper reveals that long-term economic growth benefits could be overestimated due to the economic suboptimization polemic arising from the mismatch of the types of infrastructure investment needed by ASEAN countries to enhance their long-run GDP growth. This potential suboptimization is evidenced by the results from our statistical analysis, which shows that ASEAN countries' growth is mainly driven by transport infrastructure. However, the infrastructure investment flowing from BRI since its inception in 2013 appears to be concentrated in the non-transport sector.

This study also identifies several political setbacks that may either aggravate the economic suboptimization problem or reduce the potential regional benefits derivable from the infrastructure investments. For instance, the debt-trap theory advanced recently by Western countries in the European Union and the United States might work to reduce the total investments in physical infrastructure, as some ASEAN countries such as Myanmar, Thailand and Malaysia have either cancelled the construction of several infrastructure projects or reduced the scale of these investments. Other possible political setbacks, such as domestic antagonism within an ASEAN country and regional disharmony across member states brought by diplomatic rivalries, sovereignty concerns and leadership changes, which may impede BRI's total investments in infrastructure in Southeast Asia, are also outlined in this paper. The suboptimization emanates from at least two sources: first, the potential underinvestment in transport infrastructure coupled with the potential overinvestment in non-transport infrastructure; and second, the reduced inflows of the aggregate physical infrastructure and, as a result, the lower growth benefits accruable. Our analysis aims to examine how the economic and political suboptimizations could be mitigated so that ASEAN's long-term economic growth benefits could be enhanced.

## **2. Theoretical and Empirical Background**

### *2.1 Link between Infrastructure and Economic Growth*

This paper first uses a growth model to show the extent to which different types of infrastructure (or physical capital) contribute to GDP growth of the ten ASEAN economies. A simple Solow growth model is sufficient for this purpose. Solow's growth model argues that physical capital, labour (human capital) and technological progress (total factor productivity) contribute to long-run economic growth. Economic growth comes from adding more physical capital and labour inputs. Physical capital in the context of this paper is represented by the various types of infrastructure such as machinery, transport equipment and building structure. Infrastructure, as form or constituent of physical capital, gives rise to economic growth (Munnell 1992; Pradhan 2019; Zhang and Graham 2020).

Frankel and Romer (1999) employed a new strain of Solow's model by including population and country size/area into their growth model. The rationale behind this is that population and country size control for the cross-country differences in growth should be accounted for. Larger countries experiencing relatively higher population growth would give rise to higher economic growth.

The relative importance of the different types of infrastructure is measured in this paper by: (a) the statistical level of significance of the regression coefficients; and (b) the size of the coefficients. We demarcate the aggregate infrastructure into two types: transport and non-transport (using the available Penn World and BRI data). We then compare which one of these two types of infrastructure is more important in terms of their relative contribution to ASEAN's economic growth.

## 2.2 The Suboptimization Proposition

A suboptimal outcome simply means less than optimal level of outcome. In the context of this study and according to the BRI data we have collected from secondary sources, there are two broad types of infrastructure, transport versus non-transport. The regression results using the methodology outlined above show that the transport infrastructure contributes more to ASEAN's GDP growth than non-transport infrastructure given that both the significance level and the scale of coefficient of the transport infrastructure are larger. Moreover, the results are true across most of the ASEAN countries. Our empirical results computed from the growth model therefore point to an optimal (or the best possible) outcome if the transport infrastructure constitutes a higher proportion of the total BRI investment. However, the BRI investment data we have collected show that non-transport infrastructure (a smaller contributor to growth) constitutes a much higher proportion in total investment than the transport type (a larger contributor to growth). This inadvertently leads to a suboptimal outcome.

## 3. Effects of Different Types of Infrastructure Investment on ASEAN's Economic Growth

### 3.1 The Econometric Growth Model and Data

To examine the differential effects of the different types of fixed capital inputs on output growth, we use Frankel and Romer's income growth model in which the dependent variable is real per capita GDP. The key independent variables are the different types of fixed inputs (physical capital/infrastructure and labour), and country size/area. The rationale for including physical labour as a control variable is that labour is an output growth determinant in Solow-type growth model: the higher the labour growth, the higher the output growth. Country size/area is a proxy for differential resources across the ASEAN countries: larger countries have more land resource than smaller countries.

Following Xu, Voon and Shang (2020), we use "rule of law" and "regulatory quality" as the instrumental variables to control for any potential endogeneity that may arise. Rule of law and regulatory quality affect FDI (or in the context of this paper, fixed capital or infrastructure) flows but not growth (as postulated in the Solow model). In the two-stage least squares (2SLS) regression, we include physical labour as an additional control variable, consistent with the Solow's strain of the long-run growth model, which includes both physical capital and physical labour as the key inputs to growth.

To measure the differential impact of the types of infrastructure on economic growth, we use the disaggregated investment/input data categorized as transport and non-transport infrastructure. The data for the empirical analysis are obtained from several sources. The fixed capital/infrastructure data on transport and non-transport inputs were obtained from the Penn World Table. Transport infrastructure includes road, railway ports and transportation equipment whereas non-transport infrastructure includes machinery, factories, warehouses and buildings. The non-transport infrastructure is, in our view, reflective proxy of the non-transport infrastructure investments of BRI.

The data on ASEAN's GDP are taken from the United Nations database. The DFI data have been extracted from the International Monetary Fund (IMF) and CEIC database. The data on country size are taken from CEPII. The data on regulatory quality and rule of law are derived from the World Bank. The transport, non-transport, total capital investment and physical labour figures are retrieved from the Penn World Table. We merge the above data to form a panel data set comprising the ten ASEAN countries over twenty-nine years (1989–2017) and examine how different infrastructure input types in each ASEAN country affect its long-run economic growth. All variables are expressed in logarithmic form.

### 3.2 Empirical Results

The regression results computed using the Frankel-Romer variant of Solow's input-output growth model are presented in Table 1. We first run the ordinary least squared (OLS) regressions to test, using separate regressions, how the different types of physical infrastructure affect ASEAN's long-run per capital real GDP growth. Following Frankel and Romer (1999), we control for ASEAN countries' areas but in contrast to Frankel and Romer (1999), we replace population by physical labour as an additional control variable, consistent with the Solow growth model.

Judging from the size of the coefficients (see Table 1A column 2 for the non-transport infrastructure and column 3 for the transport infrastructure), we find that (a) the transport infrastructure in most ASEAN economies is statistically significant and (b) the scale of the transport infrastructure coefficients in most cases is larger than that of the non-transport sector. Judging from criteria (a) and (b), we deduce that the transport infrastructure is more important than the non-transport infrastructure in most of the ASEAN countries (see Table 1B for the result summary). Some of the infrastructure coefficients are reported to be negative, implying that physical capital, especially in smaller countries, exhibits diminishing return in the long run.

To control for the potential simultaneity, we run a panel regression for ASEAN as a whole using the 2SLS method. Two instruments are required as we have two key variables—regulatory quality and rule of law. One rationale for choosing these instruments is that they affect infrastructure or FDI flows across countries but not real GDP (see Xu, Voon and Shang 2020). The 2SLS results (computed and shown in Table 2) support our baseline OLS results, pointing to the relative importance of the contribution of the transport infrastructure (but not the non-transport type) to ASEAN's economic growth.

Our empirical results can be used for future forecasts to show that any relative decrease in the ratio of transport to non-transport infrastructure due to BRI would diminish the long-run economic growth of the ASEAN economies, pointing to the validity of our suboptimization hypothesis proposed in this paper.

## 4. Scale of Different BRI Infrastructure Investments in ASEAN

### 4.1 Number of Actual and Planned Projects

To measure if the flows of physical infrastructure capital to ASEAN countries spurred by BRI match the growth aspiration of the ASEAN countries, we collected data on the number of different types of infrastructure projects both before and after the implementation of BRI over the 2010 to 2018 period. The data were hand-collected from over 400 non-overlapping news articles (both newspapers and magazines) that published periodically the types of projects that had been invested in and those that were scheduled or earmarked to be invested in ASEAN through the BRI initiative.

Table 3A presents the number of the different types of projects already invested in and scheduled to be invested in each of the ASEAN countries. First, we observe that the total number of projects has, indeed, increased considerably since the implementation of BRI. Additionally, the investments in non-transport infrastructure such as energy pipelines, hydroelectric power stations, telecommunications and industrial parks greatly exceed those in transport infrastructure such as roads, railways, seaports and airports. The transport and non-transport projects include the planned or earmarked constructions up to 2025 (Table 3B).

TABLE 1A  
ASEAN Countries' Per Capita GDP Growth from Transport and Non-transport Infrastructure

	(1) <i>Per Capita GDP</i>	(2) <i>Per Capita GDP</i>	(3) <i>Per Capita GDP</i>
ln_area	-0.661*** (-9.52)	-0.671*** (-8.78)	-0.565*** (-10.34)
Physical labour	3.168*** (22.20)	3.147*** (22.15)	2.990*** (17.48)
Brunei	-0.0277 (-0.69)	-0.0342 (-0.78)	0.108*** (2.63)
Cambodia	-0.0491** (-2.52)	-0.0531*** (-2.69)	0.0198 (1.05)
Indonesia	0.131*** (7.63)	0.133*** (7.57)	0.205*** (11.09)
Lao PDR	0.000182 (0.01)	-0.00265 (-0.14)	0.0702*** (4.92)
Malaysia	0.0945*** (5.80)	0.0954*** (5.83)	0.166*** (11.01)
Myanmar	0.159*** (8.89)	0.162*** (8.89)	0.231*** (17.18)
The Philippines	-0.0224 (-1.39)	-0.0239 (-1.48)	0.0190 (1.38)
Singapore	-0.151*** (-3.59)	-0.158*** (-3.40)	-0.0727* (-1.92)
Thailand	0.0993*** (6.44)	0.101*** (6.50)	0.151*** (11.76)
Vietnam	-0.0378** (-2.47)	-0.0397** (-2.60)	-0.00494 (-0.34)
Constant	13.19*** (15.43)	13.34*** (14.07)	11.74*** (17.34)
Observations	290	290	290
R <sup>2</sup>	0.9940	0.9940	0.9920

NOTES: *t* statistics in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Column 1 presents the OLS regression results of country-specific total investment on GDP. Columns 2 and 3 show the OLS results of country-specific non-transport type and transport infrastructure investment on GDP, respectively. The control variables are physical labour and country size (area).

SOURCES: The data on ASEAN's GDP and population (for constructing per capita GDP) are taken from the World Bank database. The data on country size/area are derived from the CEPII. Transport and non-transport data and physical labour data are from the Penn World Table.

TABLE 1B  
Contribution of Transport and Non-transport Infrastructure to ASEAN's Per Capita GDP Growth

	<i>Transport</i>	<i>Non-transport</i>	<i>Is Transport More Important Than Non-transport?</i>
Brunei	+ve sig	insig	Yes
Cambodia	+ve insig	-ve sig	Yes
Indonesia	+ve sig	+ve sig	Yes
Laos	+ve sig	+ve sig	Yes
Malaysia	+ve sig	+ve sig	Yes
Myanmar	+ve sig	+ve sig	Yes
The Philippines	+ve insig	-ve sig	Yes
Singapore	-ve sig	-ve sig	Yes
Thailand	+ve sig	+ve sig	Yes
Vietnam	-ve insig	-ve sig	Yes

NOTES: "+ve sig" denotes positively significant, "-ve sig" denotes negatively significant and "insig" denotes insignificant. Whether or not transport is more important than non-transport infrastructure depends on both their relative significance level and the scale of their coefficients.

SOURCES: See Table 1A.

TABLE 2  
ASEAN Countries' Per Capita GDP Growth from Transport and Non-transport Infrastructure:  
Two Stage Least Squares (2SLS) Results

	(1) <i>Per Capita GDP</i>	(2) <i>Per Capita GDP</i>
Non-transport	0.126 (0.83)	
Transport	0.202** (2.07)	
Investment		0.315** (2.55)
Area	-0.450*** (-7.87)	-0.440*** (-7.32)
Physical labour	1.330 (1.50)	1.689* (1.90)
Constant	9.752*** (16.03)	8.917*** (20.89)
Observations	290	290
$R^2$	0.8051	0.7890

NOTES:  $t$  statistics in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Column 1 shows the Two Stage Least Squares results of Non-transport and Transport Infrastructure whereas column 2 shows the Two Stage Least Squares results of Total Investment. The regulatory quality and the rule of law are used as the instrumental variables in both regressions.

SOURCES: The data on ASEAN country's GDP and population (for constructing per capita GDP) are taken from the World Bank database. The data on country size/area are from the CEPII. Transport and non-transport data and physical labour data are from the Penn World Table. The data on rule of law and regulatory quality are taken from World Bank.



TABLE 3A  
 Number of Different Infrastructure Projects in ASEAN Before (Pre) and After (Post) Commencement of BRI

	Malaysia		Cambodia		Thailand		Singapore		Vietnam		Brunei		Indonesia		Laos		Myanmar		The Philippines	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Road	0	2	0	0	0	3	1	2	1	1	0	0	0	1	0	0	2	1	0	2
Railway	0	2	0	4	0	8	0	3	0	1	0	0	0	2	0	4	1	2	0	0
Ports	0	1	0	1	0	2	0	1	0	0	0	0	0	1	0	3	0	3	0	0
Energy	1	6	0	1	1	5	0	0	0	2	0	1	0	9	0	1	0	5	0	1
Hydro Power	1	1	0	1	0	0	0	0	0	1	0	0	0	2	0	8	0	2	0	1
Telecom	0	0	0	1	0	1	0	1	0	1	0	0	0	2	0	1	0	0	0	1
Industrial Park	1	2	0	1	0	4	2	2	1	1	0	4	0	6	0	1	0	2	0	0
Others	1	9	1	6	0	7	1	5	0	7	0	2	2	6	0	3	0	11	0	3
Total	4	23	1	15	1	30	4	14	2	14	0	7	2	29	0	21	3	26	0	8

NOTES: (1) The data are hand-collected and tabulated from published information provided in over 400 articles of newspapers and magazines; (2) "Pre" indicates before BRI implementation in 2013; "Post" indicates after BRI. "Others" encompass all the other non-transport projects such as real estate and industrial park developments.

TABLE 3B  
Total Number of Actual and Earmarked Projects After Commencement of BRI

	<i>Transport</i>	<i>Non-transport</i>
Brunei	0	7
Cambodia	4	11
Indonesia	3	26
Laos	4	17
Malaysia	4	19
Myanmar	3	23
The Philippines	2	6
Singapore	5	9
Thailand	11	19
Vietnam	2	12

NOTES: The above figures are summarized from Table 3A. Transport includes road, railway, bridges, port, waterways, etc., and non-transport includes real properties, energy-related and other non-transport infrastructure.

#### 4.2 Dollar Amounts of BRI-Related Infrastructure Flows to ASEAN

The data above cannot reveal the actual dollar amounts of the transport and non-transport projects emanating from BRI. However, a large number of a particular type of project does not necessarily mean that a large sum of money has been invested—due to differences in the scale of construction. To allay this concern, we extracted the dollar figures of investments in both transport and non-transport infrastructure from the data on the flows of China's direct foreign investments to Southeast Asia. The data once again show that China's DFI flows to the ASEAN countries has strongly increased since inception of BRI in 2014.

Table 4A shows that, after the implementation of BRI (2014–18), the dollar amount of non-transport infrastructure projects was larger than that invested in transport infrastructure in the case of Brunei, Indonesia, Laos, Malaysia, Myanmar, the Philippines and Vietnam, relative to before the commencement of BRI (2010–13). Only in Cambodia, Singapore and Thailand is the trend reversed. Overall, the flows of non-transport infrastructure to Southeast Asia are found to be much larger than the flows of transport infrastructure.

Combining and summarizing the two data sets above, it is clear that the number of projects on transportation post BRI is substantially lower than the number of projects in non-transport related fixed structure in all the ASEAN economies, whereas the dollar amount of DFI flows on transport infrastructure to Southeast Asia as a whole is predominantly smaller than that of DFI flows on non-transport infrastructure (Table 4B).

Extant literature and news media publications reveal that the core objective of the BRI is to invest in transport projects that help address ASEAN's transport deficiencies, infrastructure shortages, lack of good roads, railway and ports (Chung and Voon 2017; Voon and Xu 2020). However, our secondary data show that the transport projects are likely to be considerably lower, both in number and in amount, than the non-transport projects. Hence the future of BRI's core objective remains very uncertain. This finding is in contrast to the conventional wisdom of most researchers involved in analysing the mega-project.

It appears that BRI has concentrated more in building infrastructure related to fixed structures such as real estate, telecommunication and energy-related sectors, which may not contribute as effectively to the

TABLE 4A  
China's Direct Foreign Investments in ASEAN: 2010–18 (in US\$ million)

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Vietnam	Agriculture	\$5,390							
	Transport	\$170	\$280	\$300	\$140	\$450		\$250	
	Real Estate		\$140					\$340	
	Energy		\$3,260	\$100	\$870	\$3,070	\$420		\$1,010
	Metals Technology	\$340		\$2,290	\$110				\$100
Brunei	Transport	\$140				\$530			
	Energy				\$3,440				
Laos	Agriculture	\$1,500							
	Transport						\$880	\$2,560	\$1,230
	Real Estate			\$1,520		\$220		\$210	\$1,380
	Energy	\$2,950		\$740	\$1,080	\$250	\$4,330	\$2,910	\$110
The Philippines	Transport						\$200		
	Real Estate						\$150	\$110	
	Energy	\$1,060			\$600	\$1,210	\$1,140	\$3,320	
	Technology			\$350					
Malaysia	Agriculture								
	Transport			\$130	\$1,900	\$1,300	\$6,500	\$280	
	Real Estate	\$140	\$790	\$1,750	\$1,370	\$360	\$1,190	\$410	\$170
	Energy	\$770	\$1,160	\$200	\$960	\$1,570	\$6,060	\$600	\$390
	Metals Technology	\$1,250	\$1,140				\$1,610		
Cambodia	Agriculture						\$360		
	Transport			\$120	\$250	\$130			\$3,410
	Real Estate					\$630	\$410	\$250	\$170
	Energy	\$350		\$1,150	\$410		\$220	\$820	
	Metals Technology		\$500		\$1,600				

*continued on next page*

TABLE 4A — *cont'd*

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Myanmar									
Transport	\$100	\$210					\$120		\$150
Real Estate				\$200			\$200		
Energy					\$370		\$2,330		\$180
Metals	\$1,480			\$100					
Technology									\$380
Indonesia									
Transport		\$370		\$900		\$380	\$200	\$3610	
Real Estate		\$1,540	\$410	\$120	\$670	\$100	\$470	\$1,240	\$130
Energy	\$830	\$1,400	\$2,120	\$360	\$2030	\$6,700	\$2,750		\$210
Metals		\$1,200	\$1,680	\$600	\$1,830	\$740	\$230	\$350	\$980
Thailand									
Agriculture		\$100					\$540		
Transport	\$170		\$270				\$280	\$2860	
Real Estate	\$500								
Energy			\$100			\$510	\$110	\$190	
Technology					\$1,000		\$210		
Singapore									
Agriculture							\$180		
Transport		\$1,110		\$150	\$1,170	\$250	\$970	\$1,1090	\$200
Real Estate			\$400	\$1,380	\$670	\$440	\$1,060	\$1,360	\$130
Energy						\$730		\$720	
Technology						\$1,660	\$990		

NOTES: "Transport" includes road, railway, shipping, and aviation. "Real estate" includes property and construction while "Energy" includes gas, oil, coal, hydroelectric power, and utilities. "Metals" covers steel and aluminium.

SOURCE: The above figures are retrieved from the American Enterprise Institute database.

TABLE 4B  
Amount of DFI Flows to ASEAN After Commencement of BRI (in US\$ million)

	<i>Transport</i>	<i>Non-transport</i>
Brunei	530	3,440
Cambodia	3,540	2,500
Indonesia	4,190	11,600
Laos	4,670	12,520
Malaysia	11,160	11,300
Myanmar	270	2,710
The Philippines	200	2,720
Singapore	13,680	5,110
Thailand	3,140	810
Vietnam	700	4,940

NOTES: Figures above are summarized from Table 4A.

SOURCE: The above figures are retrieved from the American Enterprise Institute database.

sustainable long-run economic growth of ASEAN countries. The flows of non-transport fixed structures also give an impression that China is trying to offload its excess capacity of raw materials (such as iron and steel) to protect its energy security and to acquire the fixed assets (such as the real estate) of ASEAN countries, which may work to reduce their long-term benefits and hence the future ASEAN's participation rates in BRI. This could consequently dilute China's ambitious aspiration to foster connectivity.

The huge economic benefits derivable from BRI, as reported in previous studies, could be reduced by the mismatch between ASEAN's insatiable needs for transport infrastructure and the increasing flows of non-transport infrastructure to Southeast Asia. In addition to the economic factors elucidated above, there are possibly political factors impeding the efficient flows of physical infrastructure to ASEAN, which either aggravate the suboptimization problem or diminish the regional benefits potentially accruable from BRI. These political setbacks are analysed in the next section.

## 5. Political Suboptimization

Changes in the attitude of Southeast Asian countries towards BRI, arising from the debt-trap worries, diplomatic rivalry, sovereignty concerns, public opinion, leadership transformations and Chinese appeals for support from co-ethnics, will influence the degree of success in the implementation of the BRI initiative.

### 5.1 Debt-Trap Consideration

Poverty and a lack of infrastructure are among the main concerns of several Southeast Asian countries. Borrowing money from China to build up railways and other facilities could directly alleviate these problems since that could provide job opportunities and spur the local economies. However, the International Monetary Funds (IMF) has warned that many ASEAN countries could be pushed into debts by accepting too much loan for infrastructure construction which they would later have difficulties repaying (Glenn 2018). The debt level could also be aggravated by: the sheer size of the loan for mega-

project investments; the political risks inherent in some ASEAN countries; and the worsening terms of trade between China and ASEAN.

Even ardent supporters of China's BRI initiative in the region are wary of being ensnared by the debt-trap diplomacy that involvement may very well entail. Since 2015, Myanmar has been cooperating with China's state-owned CITIC group to develop a port city project at Kyaukpyu in Myanmar's Rakhine State to connect southwestern China with the Indian Ocean. However, due to public and official concerns regarding the high cost of borrowing from China for the infrastructure project, which could reach US\$7.5 billion (Koutsoukis 2018), both countries renegotiated China's initial 85 per cent stake in the project down to something closer to 70 per cent, with 30 per cent accruing to Myanmar (Wheeler 2018). Likewise, plans for a Chinese oil company to build a US\$3 billion refinery were cancelled in November 2017 due to financing difficulties on the part of Myanmar (Associated Press 2018).

Meanwhile in Thailand, work on a China-backed US\$15 billion high-speed railway was suspended in 2016 following local complaints that too little business had gone to Thai companies (Associated Press 2018). No country in Southeast Asia would like to be a second Sri Lanka, whose government had borrowed money for developing the Hambantota port, but after finding itself unable to pay back the loans to China, had to lease the port to the Chinese for ninety-nine years (Koutsoukis 2018). The US\$6 billion 150-kilometres Jakarta-Bandung high-speed rail project to be built by the China Railway Corp and four Indonesian state enterprises was scheduled to be completed in three years from the end of 2015. However, the project has been repeatedly delayed on account of the Indonesian government facing difficulties in securing the 35 per cent of the land needed for its construction (Hutton 2018) over the acceptable amount of compensation to the landowners. The prospect of a debt-trap and the future risk of payment default have made some ASEAN countries question the motives of BRI. This shows that, even in the realm of economics, as shown in this paper, BRI has not been an unmitigated plus. The subsequent reductions in the flows of infrastructure, especially transport infrastructure, to some of the ASEAN economies due to cancellations and scaling down of certain projects wrought by debt concerns create a possible distortion or suboptimization that diminishes the growth prospects of these countries.

## *5.2 Diplomatic Rivalry*

China's BRI strategy is also likely to cause diplomatic rivalry among ASEAN countries due to the resentment by certain countries disadvantaged by China against those favourably targeted by the initiative. China may try to isolate the ASEAN member states that have voiced suspicion of its claims and intentions over the South China Sea while it purchases acquiescence from those willing to accept Chinese assurance, aid, loans and investments. Doing so will weaken the solidarity of the bloc and diminish its likelihood of taking any joint stance against China. In other words, as China's influence in Southeast Asia gets more established, domestic political forces in the region may vie with one another to obtain Beijing's support.

If the local populations, governments and news media believe that this is the case, it will lead to a decline in China's soft power over Southeast Asia, reducing the flow of physical capital investments into the region. Besides, the diplomatic rivalry among ASEAN countries potentially reduces the connectivity and, therefore, the transport network among these nations. For example, if the government of Thailand were to cut a canal across its Kra Isthmus, it would divert some shipping business from the ports of Malaysia and Singapore. Recognizing that the flows of transport infrastructure to ASEAN countries that have more territorial disputes with China were remarkably lower than those flowing to other ASEAN economies (see Table 2), the diplomatic rivalry exacerbates the regional disparity or the suboptimization process. Furthermore, to gain China's favour, some ASEAN countries would accept the types of infrastructure building that China proposes, such as energy pipelines and military structures that may

enhance China's security. This generates suboptimality in the flows of the transport versus the non-transport infrastructure.

### 5.3 Sovereignty Concerns

Vietnam is concerned about what it considers to be the military build-up of China in the South China Sea, with which it has the most extensive land and maritime territorial disputes. Vietnam not only claims all the Spratly islands with China, but also the Paracel group, which Hanoi considers China's People's Liberation Army navy to have illegally seized from the Saigon regime of South Vietnam in January 1974. In May 2014, factories across Vietnam with Chinese characters on their signboards were attacked, vandalized, looted and torched, and Chinese factory personnel assaulted in the most serious anti-Chinese incident to occur in Vietnam in a quarter century. The protests were ignited by a decision of the China National Offshore Oil Corporation (CNOOC) to park an oil rig (*Haiyang Shiyou 981*) 120 nautical miles off the Vietnamese coast and 17 nautical miles off from the southwestern edge of the Paracels, in waters claimed by both China and Vietnam, such that when the Vietnamese sent ships and boats to disrupt its operation, they were rammed by Chinese vessels (Miller 2017). China has since tried to interest Vietnam in building its railroads and refurbishing its ports by being involved in BRI, and is financing the construction of a metro line in Hanoi. But, Vietnam is worried that closer cooperation may entail Beijing demanding concessions from Hanoi on the South China Sea territorial claims. When China sent an oil survey vessel (*Haiyang Dizhi 8*) to conduct seismic surveys in waters off Vietnam in July 2019, the Vietnamese Foreign Ministry accused China of violating Vietnam's sovereignty, resulting in a protest outside the PRC embassy in Hanoi and a tense stand-off between the vessel and Vietnamese naval ships for three months, until the vessel left Vietnamese waters (Reuters 2019). This appears to have diminished the potential for transport infrastructure building, which has not hitherto been kicked off yet.

In Singapore, some local scholars and diplomats worry that their multiracial island nation could be an especially tantalizing target for the Chinese government's efforts in reaching out to people on the basis of ethnicity, undermining Singaporeans' sense of national identity and its racial and religious harmony. An example of this came to light in 2017, when the Singaporean government expelled Huang Jing, a China-born American academic, for what it said were his covert efforts to influence Singapore's foreign policy on behalf of an unnamed foreign government, widely believed to be China (Qin 2018).

Malaysia, under Prime Minister Najib Razak, made a determined effort to align itself with China's BRI, assigning Chinese construction companies to take charge of the construction of the East Coast Rail Link (ECRL) after quickly signing related agreements with China. Amidst rising fears over Beijing's use of the BRI to gain political leverage in Malaysia, its biggest trading partner in Southeast Asia, the political opposition under Mahathir Mohamad won the general election of May 2018 and ousted Najib and his government from power. Prime Minister Mahathir then announced in August 2018 that the proposed US\$20 billion ECRL—which would connect Malaysia's undeveloped east coast to the capital Kuala Lumpur—was perceived as a means to turn Malaysia into China's ally (Wong and Lo 2017). The Forest City project, a US\$100 billion mixed housing-commercial development built on four reclaimed islands in the state of Johor, is another China-backed project that went into hiatus.

Some Malaysians have accused former Prime Minister Najib of pleasing Beijing at Malaysia's expense, by waiving the unpopular goods and services tax for the China Communications Construction Company, the East Coast Rail Link's developer; while others have criticized Forest City, built by the Chinese real estate company Country Garden and a local partner to attract home buyers from China, as a form of neocolonialism (Liu 2018). Prime Minister Mahathir alluded to this concern on his trip to Beijing, when he said: "We do not want a situation where there is a new version of colonialism happening because poor countries are unable to compete with rich countries..." (McGregor 2018). Although the

Chief Minister of Johor, Osman Sapian, said that the Forest City project would create more than 9,000 construction jobs in his state, the targeted buyers are not Malaysians but Chinese nationals who have bought up 80 per cent of the Forest City residences (*Today*, 12 September 2018) under the “Malaysia, My Second Home” ten-year multiple-entry social pass scheme (of which the largest number of applicants are Chinese). Mahathir then said that foreigners can buy the property, but they would not be issued residency visas (*Today*, 12 September 2018). This may weaken Malaysia’s foreign relations with Beijing and the prospect of infrastructure investments and direct foreign investment inflows.

#### 5.4 Public Opinion

The Kra Canal project, in which both Thailand and China are interested, will cut a canal between the Gulf of Thailand and Bay of Bengal through the Kra Isthmus in southern Thailand. The canal, first proposed some 200 years ago, would cut the travel distance for ships moving between the Andaman Sea and the South China Sea by 1,200 kilometres and allow cargo ships from China to avoid the potential chokepoint of the Malacca Straits (which could be sealed by US warships in the event of hostilities). Although the transport project—if and when completed—is expected to provide economic benefits to Thailand, it has drawn its fair share of controversy among the Thai public. The 30,000 Chinese workers proposed to be brought in for the construction negatively affect expectations of job creation for locals (Mahajan 2018). Also, environmental studies have found that division of the isthmus will adversely affect the flora and fauna in that region. Furthermore, since the canal would pass through some tourist areas such as Phuket and Krabi, its construction would be a concern for tourists. Thailand’s *Nation* newspaper mentioned that around 40 per cent of the public in the country had expressed concerns regarding the project and its possible consequences (Panyaarvudh 2018). The potential cancellation of such a mega transport infrastructure project in Thailand will inadvertently lead to the suboptimization elucidated in this paper.

In May 2018, Indonesian tour guides on the resort island of Bali staged a protest against a surge in the number of Chinese nationals working in the same profession there, amidst government reports that following on the heels of Chinese investment, Chinese nationals working in Indonesia have multiplied fivefold over the past decade to more than 24,000 (Hutton 2018), some of whom are illegal immigrants. In Cambodia, the rapid inflow of Chinese to its southwestern coastal city of Sihanoukville, where the Chinese were given control of a Special Economic Zone to run factories and casinos, is generating loud complaints from the local poor and businesses for bidding up the rentals and prices of residential, office and property spaces (Kyodo 2018).

In 2007, soon after the construction of the Myitsone Dam in Myanmar by the Chinese state-owned China Power Investment began, the dam became a focus of local protests. Not only did the dam deliver 90 per cent of the 100 billion kilowatt-hours of power to be generated to China, but it also flooded an area of the Irrawaddy River regarded by the Burmans, the country’s ethnic majority, as the cradle of their civilization, and submerged historic temples and churches of the local Kachin people, in addition to relocating nearly 12,000 people away from their homes (Miller 2017). Initially, China Power and Chinese officials in Myanmar simply shrugged off these concerns, but after the civilian government, which took over power from the military in the parliamentary elections of 2011, relaxed its grip on censorship, protestors appealed to nationalist sentiments with the support of the local media, which led to such nationwide popular resentment that President Thein Sein had to issue an order on 11 September 2011 to suspend work on the dam indefinitely. After the suspension, Chinese direct investments to Myanmar fell from US\$8.56 billion in 2011 to US\$2 billion in 2018 (Slow 2019). According to Miller (2017), the dream that Myanmar could become a proxy Chinese province giving China unimpeded direct access to the Indian Ocean seems to have been put on hold.



When President Xi made his first state visit to the Philippines in November 2018 and signed a memorandum of understanding with President Duterte on joint oil and gas exploration between China and the Philippines in the South China Sea, the decision was met with howls of protests by environmental groups and Filipino fishermen (Zheng 2018). The protests and hostilities, if they get more serious and persistent, may well impede the building of infrastructure network in the country, resulting not only in suboptimization within a country but also regional suboptimization.

### 5.5 Leadership Changes

A different national leader of a ruling party is expected to have different policy priorities for the country. As described, when Thein Sein was elected to power in Myanmar, he ordered work on the Myitsone Dam under the previous pro-China military junta to be stopped immediately. In Malaysia, Prime Minister Najib Razak fully supported Xi Jinping's BRI, stating that in his country "... One Belt One Road and Maritime Silk Road has not only been accepted, but implemented" (Mansor 2016). After Mahathir Mohamad's coalition came to power in the May 2018 general elections, he announced a postponement of the BRI projects in Malaysia. Mahathir then vowed to discuss the renegotiation of the deals in his visit to China in August 2018, stating that, to avoid incurring unrepayable debts, "where we can drop the project, we will" (Reuters 2018). The result of the visit was that all the Chinese projects in Malaysia, except for the Melaka Gateway ferry cruise terminal, were halted. But in April 2019, the ECRL was revived when Malaysia requested and received a reduction in its construction cost of one-third, from US\$16 billion to US\$10.68 billion, and the right to contribute up to 70 per cent of raw materials and labour for its construction (Rocknifard 2019). These changes in policy direction with the national leadership changes in Myanmar and Malaysia demonstrate the pitfalls for China of putting all its foreign economic policy eggs in one political or personal basket, which it could do well to avoid in the future. A somewhat different trend has been observed in the Philippines. Upon being elected as president of the country in 2016, and irked by US criticisms of his no-holds-barred campaign against illegal drugs, President Duterte changed the confrontation policy towards China adopted by his pro-American predecessor by choosing China for his first state visit. Even so, the Philippines under Duterte has not rescinded its claims to the South China Sea.

### 5.6 The Ethnic Chinese Card

One pitch by China to extend its influence in Southeast Asia on the backs of the BRI is to call on ethnic Chinese affinity in the region for their ancestral land. Southeast Asia has about 32 million ethnic Chinese, who play key roles in the region's production and trading networks. Confident of its fast-growing political and economic clout, China has become increasingly assertive in its appeal to the Chinese diaspora to serve its interests and gain influence abroad. In 2017, President Xi himself extolled the need to bring together people of Chinese descent worldwide to realize national rejuvenation and enjoy the "China Dream" (Qin 2018). The task of targeting overseas Chinese in Southeast Asia was given to the Overseas Chinese Affairs Office (OCAO). Individuals of special interest to this agency include those holding or running for public office and those who have good relations with politicians in their own countries by virtue of being campaign contributors (Kynge, Hornby and Anderlini 2017).

In January 2018, former Foreign Minister and current CCP Politburo member Yang Jiechi called for strengthening and expanding "overseas Chinese patriotic friendly forces" in the service of the great rejuvenation of the Chinese nation; in other words, to identify their interests with China's (Kausikan 2018). In March of the same year, the OCAO was incorporated into the CCP's United Front Work Department

(UFWD), no less than its Third Bureau that is responsible for Macao, Hong Kong and Taiwan (Kynge, Hornby and Anderlini 2017) for more direct and effective political management by the party.

In recent years, UFWD officials have been making trips to Singapore, whose population is 75 per cent ethnic Chinese, with the aim of strengthening ties with local Chinese associations. In fact, the OCAO has organized conferences in Singapore to bring together overseas Chinese, arranged visits for Chinese Singaporeans to their ancestral villages, and paid for “roots-seeking camps” for young Chinese Singaporeans, which included lessons in Chinese calligraphy, history, martial arts, and singing Communist “red” songs (Qin 2018).

During the May 2018 Malaysian general elections, the Chinese ambassador to Malaysia Bai Tian campaigned with Malaysian Chinese Association (MCA) president Liow Tiong Lai, the MCA being a component party of the erstwhile ruling National Front government. Similarly, in 2015, the previous Chinese ambassador to Malaysia made an appearance in Kuala Lumpur’s Chinatown shortly after an anti-Chinese demonstration by the country’s majority Malays and read out a statement that implied that China would not stand idly by if overseas Chinese were threatened (Kausikan 2018).

Undoubtedly, Southeast Asian Chinese and recent immigrants from China could facilitate both Chinese investments and diplomacy in regional states. However, their middlemen role could also rekindle past doubts by the local populations of their loyalty. China’s growing and potential influence on the political allegiance of the local ethnic Chinese populations have sparked concerns on the part of indigenous ethnic groups and their national governments in Southeast Asian countries (Hong 2016) that the Chinese in the region might serve as a “fifth column” in inviting, welcoming and collaborating with China’s interests at the expense and to the detriment of local ones.

For the Chinese thus, the geopolitical values of the BRI projects seem to be as much as their economic values, if not more. However, if China’s geopolitical strategy through BRI causes domestic political discontent in Southeast Asia against Chinese nationals or their countries’ relations with the Chinese government, then this can only mean that China has yet to succeed in cultivating strategic and political trust in ASEAN. This distrust and domestic divisions may impede the efficient investment and development of needed infrastructure from China in the region.

## 6. Conclusion and Implications

In this paper, we examine both the economic and political setbacks of BRI. The flows of all types of infrastructure investments may benefit ASEAN countries in the short run, brought by the short-term economic stimulations from the multiplier effects of the asset investments and job creations. However, the long-run beneficial effects via the enhancement of ASEAN’s sustainable economic growth could be reduced due to political-economic suboptimization emanating from reduced flows of overall infrastructure into Southeast Asia, coupled with excessive inflows of the relatively non-productive non-transport-related input factors and inadequate inflows of the relatively productive transport-related factors. Our econometric extrapolation demonstrates that transport infrastructure is the more important type of infrastructure required by ASEAN for sustainable growth. Moreover, several political setbacks could further dilute the positive long-run propitious growth effects of the ASEAN countries.

There are other possible adverse effects associated with the BRI-motivated differential infrastructure flows to Southeast Asia. The excessive or suboptimal building and acquisition of the non-transport fixed infrastructure may be seen as politically manipulative. For example, ASEAN countries being used as bases for construction of power plants and energy pipelines for securing China’s energy needs but neither really fulfilling the grouping’s need for more productive growth inputs could be particularly detrimental.

The novelty of this paper lies in the contribution of the suboptimization hypothesis to the BRI literature. This study alerts domestic and regional policymakers to the potential suboptimal inflows of the

various types of infrastructure projects under BRI to Southeast Asia. In order to enhance the prospect of the mega project, China is urged to contribute to the long-run sustainable growth of ASEAN economies by constructing more transport networks and building more trade linkages across the region and between Southeast Asia and China. Initiatives that may streamline such developments, including policies to allay the debt-trap worry, sovereignty concerns, domestic discontent, regional rivalry, anti-dumping of raw materials, inter alia, which then help to maximize the economic benefits from BRI, should be encouraged and implemented.

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