

Study on the Transportation Investment Effect of the "Belt and Road" Initiative on China and ASEAN Countries

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Abstract: This article mainly studies the impact of the "Belt and Road" initiative on transportation investment in China and ASEAN countries. Using the DID model to verify the "Belt and Road" initiative on transportation investment, through a fixed effect model to verify the relationship between transportation investment and economic growth, and at the same time, a subregional regression of ASEAN countries is carried out to study the impact of transportation investment on countries with different infrastructures. The research results show that the "Belt and Road" initiative has significantly promoted China's transportation investment in ASEAN countries. The implementation of the "Belt and Road" initiative should be continued to promote transportation investment, thereby promoting economic growth. Only when investment in areas with insufficient transportation infrastructure can promote economic growth. On the contrary, investment in areas with complete transportation infrastructure it may also restrain economic growth. In addition, the country's urbanization level, institutional environment, openness level and education expenditure also promote economic growth.

Keywords: One Belt One Road; transportation investment; ASEAN; DID; economic growth

1. Introduction

1.1 Research background

The One Belt and One Road strategic initiative is an important initiative proposed in 2013. The initiative includes the connectivity of facilities. Since the initiative was put forward, China has been strengthening trade cooperation and communication with countries along the Belt and Road, jointly developing facilities construction, deepening cooperation in railways, highways and other fields, and improving the infrastructure level of all countries. The results of cooperation have exceeded expectations. Among the countries along the Belt and Road, ASEAN countries, with their superior geographical position and relatively stable political and economic system, have become increasingly close trade contacts with China, so they have become one of China's friendly trade partners. China and ASEAN countries have achieved fruitful results in the connectivity of transportation infrastructure, such as the construction of Kun-Man Highway, "Jakarta-Bandung high-speed railway" and China-Laos railway, which has further improved the level of infrastructure connectivity between China and ASEAN. At the same time, China and ASEAN are also constantly strengthening their cooperation in transportation infrastructure. By improving the level of transportation infrastructure connectivity, the trade between China and ASEAN countries can have a more solid foundation and more development opportunities. Up to now, China's infrastructure construction technology level and construction capacity are in the world's leading position can not only provide infrastructure and related products and services for the countries along the Belt and Road; but also the infrastructure upgrading along the routes can appropriately drive the local economic growth and promote the gradual expansion of trade scale.

1.2 Literature review

Some scholars have shown that the "the Belt and Road" initiative has an obvious promoting effect. Du J and Zhang Y (2018) ^[1] showed that the high-level international political cooperation, policy coordination and government support contained in the "the Belt and Road" initiative can greatly reduce the policy uncertainty and political risks of Chinese enterprises' investment in countries along the "the

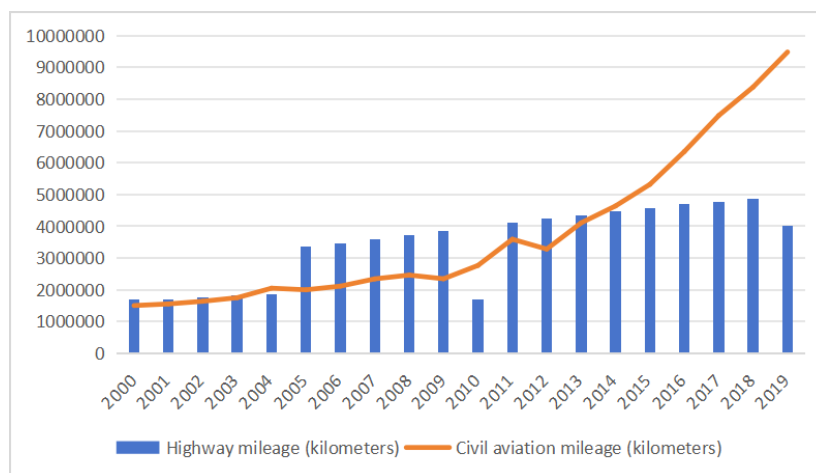
Belt and Road", thus further encouraging China's foreign direct investment in countries along the "the Belt and Road". Li J et al. (2019)^[2] showed that the "the Belt and Road" initiative has a positive formal institutional effect on the export performance of Xinjiang enterprises. Scholars have different opinions on the relationship between infrastructure and economic growth. Herranz Loncán A(2007)^[3] used cointegration and VAR techniques to show that investment in local infrastructure had a significant positive impact on Spain's economic growth between 1850 and 1935. Pradhan(2013)^[4] used autoregressive distribution lag (ARDL) and vector error correction model (VECM) to find that transportation infrastructure is cointegration with foreign direct investment and economic growth, indicating a long-term equilibrium relationship between them. Song L and van Geenhuizen M(2014)^[5] indicate that infrastructure investment has a significant positive impact on regional economic growth, but the effects vary across different regions. Banister and Berechman(2001)^[6] affirmed the positive promoting effect of infrastructure, while others hold different opinions. Among them, Bougheas (2000)^[7] found a "inverted U-shaped" relationship between infrastructure investment and economic growth, which is currently mostly in the upward part of the curve. Fedderke(2006)^[8] through a time series analysis of data from South African data from 1875 and 2001, we conclude that infrastructure leads economic growth through direct and indirect effects, but the evidence of economic growth promotes infrastructure is insufficient. Maparu(2017)^[9] By studying different sub-industries of transportation infrastructure and using the co-integration and Granger causality test method, we finally draw the conclusion that there is a long-term relationship between transportation infrastructure and economic development, but the direction of causality is, in most cases, from economic development to transportation infrastructure.

Through literature review, it has been found that scholars both domestically and internationally use the difference in differences method to explore the impact of policies, mainly focusing on their effects on direct investment, while there is relatively little research on the impact of policies on transportation investment. This article mainly focuses on China's outbound investment in the transportation industry, using data on transportation investment to analyze and demonstrate the impact of policies on investment in a single industry. By comparing the amount of China's transportation investment in ASEAN countries before and after the "the Belt and Road" initiative was put forward, the paper uses the double difference method to analyze whether the "the Belt and Road" initiative is related to transportation investment. At the same time, it also focuses on the economic growth effect caused by ASEAN's transportation infrastructure investment.

2. Status of Transportation Infrastructure

2.1 Current status of transportation infrastructure in China

As a Chinese saying goes, "If you want to be rich, build roads first". Only when the development of transportation infrastructure is gradually improved, can we promote the national economic growth in an all-round way. Since the reform and opening up, China's investment in transportation infrastructure has increased, compared with more emphasis on the development of transportation infrastructure. Figure 1 shows the road and civil aviation situation in China from 2000 to 2019.



Data source: EPS database (the same below)

Figure 1: Mileage of highways and civil aviation in China

As can be seen from the figure 1, in the time period of 2000-2019, China's highway mileage and civil aviation mileage have maintained an upward trend. Among them, the highway mileage growth trend is relatively flat, in addition to the significant growth in 2005, the rest of the year is not very significant; In terms of civil aviation mileage, between 2000-2012 it remained a steady speed growth, and after 2013, the growth trend began to grow faster, may be due to the introduction of the "Belt and Road" initiative. To facilitate China's trade with countries along the Belt and Road, causing a rise in trade volume, promoting the use of aviation, thus promote the growth trend of civil aviation mileage faster and faster.

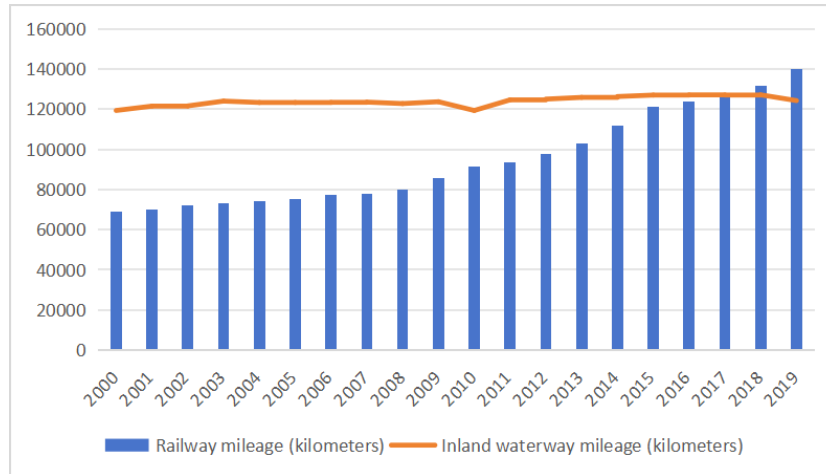
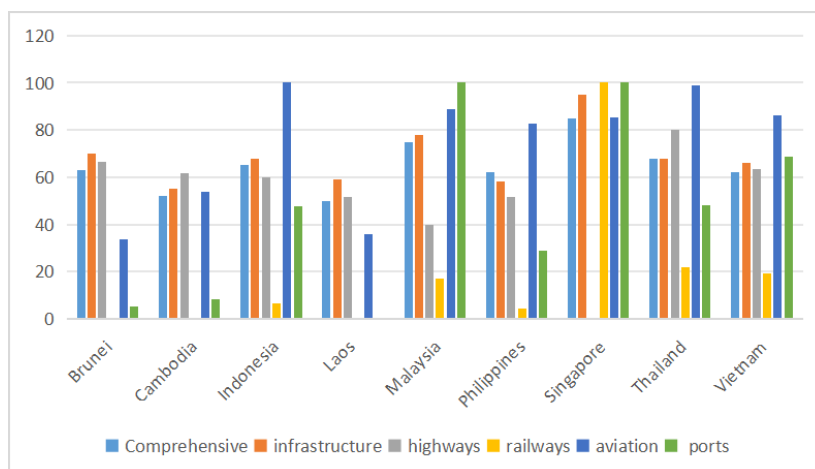


Figure 2: Operating mileage of China's railways and inland waterways

As can be seen from the figure 2, the mileage of inland waterway remains at the same level during the sample time, probably because the inland waterway is fixed and local trade has been closely linked, resulting in the mileage of inland waterway remain same; in terms of railway operating mileage, the mileage has increased year by year in the sample years. With the economic growth, the scope of the railway involved is gradually expanding, most places can be reached by the railway, so the railway operating mileage is also growing.

2.2 Current status of ASEAN transportation infrastructure

According to the transportation infrastructure level scores of ASEAN countries in the World 2019 Global Competitiveness Report, ASEAN countries can be roughly divided into three levels. Level 1: Singapore, Malaysia and Brunei (score 95, 78 and 70 respectively); Level 2: Indonesia, Thailand, Vietnam (score 68,68 and 66 respectively); Level 3: Laos (59), Philippines (58), Cambodia (55) and Myanmar. Figure 3 shows the scores of five aspects of transportation infrastructure and comprehensive scores in ASEAN countries.



Data source: World Economic Forum Global Competitiveness Report 2019, with no Myanmar data, including Brunei Railway data in Cambodia and Laos, port data in Laos, and road data in Singapore.

Figure 3: Ranking of infrastructure competitiveness of ASEAN countries

In the first level, Singapore has ranked first in the world in 2019, higher than the United States, which was ranked first before. It is also relatively comprehensive in the development of transportation infrastructure, and the overall transportation infrastructure scores are high and highly competitive. Malaysia road, railway, aviation and port scores were relatively high, which scored 100 and Singapore; Brunei, thanks to its oil resources and strong economic strength, also entered the first echelon of ASEAN in the transportation infrastructure construction.

The three countries in the second tier have their own transportation infrastructure construction, and the score gap is not very large. Thailand's advantage lies in the construction of roads and aviation infrastructure, with Thailand having a road score of 80 points and an aviation score of 98.9 points. Indonesia is relatively complete in aviation construction, while railway construction is relatively lacking, scoring only 6.5 points. With the development of economy and prosperous tourism industry, air transport in Indonesia gradually becomes busy, with routes not only in the provinces and cities, but also in remote areas, the score is 100; Vietnam is mainly through road logistics transportation, Vietnam scored the highest score for aviation infrastructure (86).

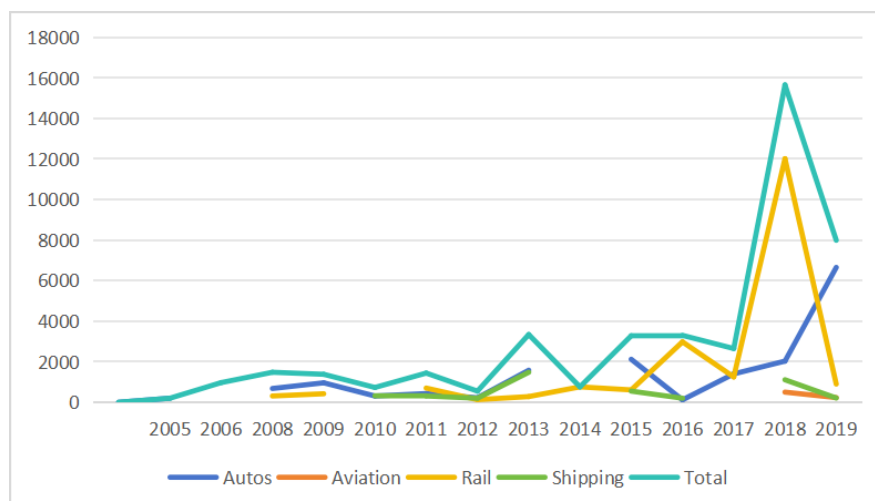
There are four countries in the third level, whose overall transportation infrastructure construction is not perfect, and they all have relatively low scores, and their infrastructure score does not reach the pass line of 60. The railway construction scores in all countries are relatively low, probably due to the old railway facilities and low operation efficiency.

In general, in addition to Singapore, Malaysia and Brunei, which score more than 70 points, the transportation infrastructure construction of the other seven ASEAN countries has not been improved, and there is still a lot of room for improvement. The imperfect transportation infrastructure construction has also blocked the economic development and the exchange of goods between countries. China's "Belt and Road" initiative, put forward the five construction, including unicom facilities unicom, through five construction, if the asean countries can make good use of this policy, actively participate in the construction of "Belt and Road", and along the trade, between its "benefit" reciprocity to each other, common development and construction, found their "disadvantages" in the process of trade, will be improper, improve construction, improve their infrastructure level is just around the corner.

2.3 Current status of transportation infrastructure connectivity between China and ASEAN

2.3.1 Status quo of transportation investment

In the course of its own development, China has always maintained sound cooperative relations with the countries along the Belt and Road routes. China has developed rapidly in transportation, and the countries along the Belt and Road still have great deficiencies in infrastructure. Therefore, China adheres to the concept of common prosperity and promotes the economic growth of the countries along the Belt and Road through investment. Figure 4 shows China's transportation investment in ASEAN countries from 2005 to 2019.



Data source: China Global investment Tracking database

Figure 4: China's investment in ASEAN transportation

The figure 4 shows China's transport investment in ASEAN to be roughly divided into four categories: shipping, railway, aviation and automobile. As can be seen from the figure 4, the overall investment trend is roughly in 2013. Before 2013, the investment trend slowly increased in 2013, and the investment increased significantly after 2013. Therefore, it is speculated that the "One Belt And One Road" initiative played a role in promoting transportation investment. Among the four types of transportation investments, the investment in railway is relatively large, which may be due to China's outstanding performance in high-speed rail. By spreading excellent technology to countries along the route, it helps the economic development of these countries,

2.3.2 Interconnectivity of cooperation mechanisms

China has actively promoted infrastructure connectivity in the Belt and Road Initiative and strengthened cooperation with ASEAN countries on transport infrastructure connectivity. China has signed many agreements, agreements and statements with them, providing important support and guidance and important guarantee and direction for bilateral cooperation and development. At present, China and ASEAN have formed a relatively comprehensive and effective linkage mechanism for transportation cooperation.

Through the signing of the cooperation agreement between China and ASEAN, both sides have made efforts for the successful implementation of the agreement. The signing of the agreement can reduce trade tariffs, eliminate trade barriers, remove trade barriers of both sides, and provide trade facilitation.

3. Model Building

3.1 Model setting

This paper mainly studies the investment effect of the Belt and Road Initiative on transportation between China and ASEAN countries.

Firstly, to study whether the "Belt and Road" initiative has a promoting role in China's transportation investment in ASEAN is an impact analysis of the policy. DID model is often used in evaluating the effect of the policy, Therefore, in terms of specific model selection, the DID method is used for empirical testing. The specific model is as follows:

$$\ln(\text{invest}_{it}) = \alpha_0 + \beta_0 \text{did} + \sum \rho X_{it} + \mu_{it} + \gamma_{it} + \varepsilon_{it} \quad (1)$$

Where i represents the country, t represents the year, $\ln(\text{invest}_{it})$, that is, the amount of Chinese transportation investment in i in t (log here), α_0 for the intercept, did is the interaction term of treat and post, ($\text{did} = \text{treat} * \text{post}$) where treat is the virtual variable indicating whether the country of China makes transportation investment is the country along the "Belt and Road", and post is the virtual variable representing time, X_{it} for a collection of other control variables that may affect transportation investment, including the host country's economic scale($\ln \text{gdp}$), per capital GDP growth rate, and the host country's institutional environment. μ_{it} represents the time-fixed effect, and the γ_{it} for the national fixed effect, the ε_{it} is the random error term. β_0 of the coefficient β_0 as the main research object of this paper. If the interaction term β_0 significant greater than 0, indicating that the Initiative significantly promotes China's transportation investment in ASEAN countries; if β_0 significant less than 0, indicating that the impact of the Belt and Road Initiative on transportation investment with ASEAN countries is suppressed; if β_0 is not significant, indicating that the "Belt and Road" initiative has no impact on China's transportation investment in ASEAN countries.

Secondly, the effect of transportation investment is analyzed, according to Previous analysis knowing that the investment in transportation infrastructure has a significant promotion effect on the economic growth, and thus studying whether China's transportation investment in ASEAN countries promotes the economic growth, the model is set as follows:

$$\ln \text{GDP}_{it} = \alpha_1 + \beta_1 \ln(\text{invest}_{it}) + \beta_2 \text{ub}_{it} + \beta_3 \ln(\text{open}_{it}) + \beta_4 \text{env}_{it} + \beta_5 \ln(\text{edu}_{it}) + \beta_6 \ln(\text{cap}_{it}) + \varepsilon_{it} \quad (2)$$

Where i , t indicates the same meaning as Model 1, GDP_{it} for the host country i at the economic level in year t , invest_{it} for China's transportation investment in the host country i in year t , ub_{it} , open_{it} , env_{it} , edu_{it} , cap_{it} are control variables, they indicate the urbanization level, the level of opening up, the institutional environment, education expenditure and fixed capital investment of the host country

respectively. ε_{it} for error terms. β_1 for the main study subjects, if the β_1 significant greater than 0, the correlation between China's transportation investment in ASEAN and ASEAN's economic growth is significant positive.

3.2 The variable description

3.2.1 Interpreted variables

In model 1, the explained variable is the amount of Chinese transportation investment in the host country, which is specifically $\ln(\text{invest})$ to eliminate the influence of heteroscedasticity. Infrastructure connectivity is an important part of the Belt and Road initiative. China and the allied countries are constantly conducting cooperation and trade between facilities. According to the above analysis of China's transportation investment in ASEAN, it is preliminarily judged that the emergence of the "Belt and Road" initiative will promote China's transportation investment in ASEAN countries, and the dean coefficient will be significantly positive. The data comes from the China Global Investment Tracking database.

The explained variable in model 2 is the GDP of the host country, expressed as $\ln(\text{GDP})$. According to the literature, investment in transportation infrastructure will promote economic growth, thus assuming β_1 is positive. Data were obtained from the EPS database.

3.2.2 Core explanatory variables

The explanatory variable in Model 1 is the impact effect of the Belt and Road Initiative, which is the interaction of time and policy, specifically expressed as $\text{did} = \text{treat} * \text{postd}$. The value of treat depends on whether the host country is the country along the Belt and Road. In the database of "China Global Investment Tracking", each outbound investment indicates whether the host country receiving the investment is a country along the "Belt and Road", which determines the national nature of the host country and determines the value of the variable treat . This paper mainly studies China's transportation investment in ASEAN countries, so the ten ASEAN countries in the screening database are the practice group, and set the corresponding treat value of 1, and screen the non- "Belt and Road" countries, and set the corresponding treat value of 0; whether the time of the "Belt and Road" initiative determines the post. Since the "Belt and Road" initiative was proposed at the end of 2013, and it takes time to prepare between the policy proposal and the specific implementation, the time difference should be considered, so this paper sets 2014 as the time for the initiative to work, that is, when the year is greater than or equal to 2014, the post value is 1, and the other years are 0. If the did coefficient is significantly greater than 0, the policy promotes.

In model 2, the explanatory variable is the amount of Chinese transportation investment in ASEAN countries, which is specifically expressed as $\ln(\text{invest})$. If the coefficient β_1 greater than 0 and significant, the transportation investment will promote the economic growth.

3.2.3 Control Variables

In the empirical analysis, in order to examine the policy effects of the "Belt and Road" initiative, control variables are also needed to control other fixed effects affecting China's transportation investment. To Model 1, the host country's economic scale ($\ln\text{gdp}$), with the per capital GDP growth rate and the institutional environment of the host country were selected as control variables.

To Model 2, the urbanization level of the host countries, the opening-up level, the institutional environment, the education expenditure and the fixed capital investment were selected as the controlling variables.

According to the analysis, it is estimated that the coefficients of control variables are positive, and the relationship between economic growth is positive. Data were obtained from the EPS database as well as from the World Bank database.

4. Empirical Analysis

4.1 Analysis of the impact of the implementation of the Belt and Road Initiative

4.1.1 Descriptive analysis

In this paper, the data were empirical analyzed by stata. First, the regression analysis for model 1,

Each variable was described and the regression results are shown in the following table below:

Table 1: Descriptive statistical results

treat = 0					
variable	sample	mean	standard error	least value	crest value
ln(invest)	119	6.407	1.199	4.605	9.470
ln(gdp)	119	26.67	2.193	22.28	30.52
Per-capital gdp growth rate	119	2.062	3.822	- 11.35	11.32
Institutional environment	119	1.297	6.244	-7.269	10.53
treat=1					
variable	sample	mean	standard error	least value	crest value
ln(invest)	98	7.169	1.230	4.605	11.87
ln(gdp)	98	25.47	1.664	22.30	27.82
Per-capita gdp growth rate	98	4.245	2.770	-3.781	12.67
Institutional environment	98	- 1.309	5.173	- 10.51	9.813

As shown in Table 1, the variables were divided into two groups by treat, and treat =0 as the control group (not "One Belt and One Road" countries), treat =1 for the experimental group (ASEAN countries). The control and experimental groups will be compared and analyzed. The difference of ln(gdp) indicates that the economic strength between the control group and the experimental group is not large, so the two can be analyzed, and the per capital gdp growth rate reflects the investment level of the host country, and the value of ASEAN countries is relatively large, which indicates that the ASEAN countries have more opportunities for investment for China, in line with the performance of the "One Belt and One Road" initiative; the institutional environment index of the experimental group is lower than the control group, indicating that the system of the experimental group still is not perfect, and the institutional support is needed. For the variable ln(invest), the mean of the control group was 6.407, while the mean of the experimental group was 7.169, which was larger than the control group, indicating that China's transportation investment in ASEAN was larger. The standard error can represent those belonging to different subjects within the same group degree of scatter. Control group ln(gdp), per capital gdp growth rate, institutional environment standard error is larger, that the control group relative to the experimental group, national economic environment, political power difference is bigger, the reason is that experimental group with belong to ASEAN countries, various aspects development and economic strength difference is not very big, while the control group with belong to the non "One Belt and One Road" countries, but the regional difference is bigger, the economic level is also different, so there is a big difference.

4.1.2 Benchmark regression results

This paper uses a DID model to examine whether the "Belt and Road" initiative invests in transportation between China and ASEAN Capital has caused a promoting effect. Table 2 shows the results of the model regression.

Table 2: Results of double differential regression

variable	(1) ln (invest)	(2) ln (invest)	(3) ln (invest)	(4) ln (invest)
	1.077***	0.797***	0.565*	0.833**
did	(0.200)	(0.284)	(0.308)	(0.361)
National control variables	no	yes	no	yes
State-fixed effects	no	no	yes	yes
Year fixed effect	no	no	yes	yes
constant	6.523***	27.61*	4.800***	28.34*
	(0.0788)	(15.51)	(0.701)	(25.43)
sample number	217	217	217	217
R2	0.137	0.167	0.5718	0.5776

Note: ***, **, * are significant at 1%, 5%, 10%, respectively, with standard error in brackets (the same below).

As shown in the Table 2, the explained variable is ln(invest). Column (1) shows the regression results when the control variables and fixed effects are not added. The regression results show that the coefficient of did is significant at 1% significant level, indicating that relationship between the implementation of the initiative and the transportation investment between China and ASEAN countries exist, which is a significant positive correlation. Column (2) on the basis of (1) added the national control variables, the regression results vs column (1), although the value from 1.077 to 0.797, but still can be at a significant level of 1%, thus concluded that although the control variable to China and ASEAN countries traffic investment amount impact, but the promotion of the policy utility can still be proved. Column (3) indicates controlling national fixed effects and time fixed effects, but no control variables were added, and the regression indicates that the coefficient of did is 0.565, while being significant at the 10% significant level and is still significant. The (4), listed as joining the national control variables, national fixed effect and year fixed effect of empirical results, and the regression results of 0.833 and significant at 1%, shows that the implementation of the "Belt and Road" initiative, the effect of China on ASEAN traffic investment increased about 83.3%, can be proved is the occurrence of the policy on the explained variables. Based on the above regression results analysis, it can be concluded that between the "Belt and Road" initiative and the transportation investment. The relationship is a positive correlation, and is a relatively significant positive correlation.

4.1.3 Parallel trend test

Considering the use conditions of the DID and avoiding the possible endogeneity problems, the experimental and control groups are applicability, including the hypothesis of randomness and parallel trend hypothesis.

First of all, China, the initiator of the Belt and Road initiative, determines the time of the initiative, while the success of the Belt and Road Initiative is determined by whether various countries can reach a consensus, and the specific time cannot be predicted. Thus, the randomness timing assumption is fit. Secondly, it is also impossible to choose whether a certain country is in the "Belt and Road" initiative, so the choice of experimental groups and control groups is also random. Therefore, the random sex selection hypothesis is met.

The parallel trend hypothesis is that the individual receiving the policy intervention should be consistent with the control group in the changing trend of the outcome without receiving the intervention. According to the above analysis, 2014 is selected as the year of policy impact. This paper sets the first three years of 2014 as virtual variables, respectively as pre_1, pre_2 and pre_3, and three years after the policy implementation also as virtual variables, respectively as post_1, post_2 and

post_3. As shown in the figure 5, in the first three years, the coefficient fluctuated around 0, but after the policy impact, the coefficient became positive and obviously significant, indicating that it has passed the parallel trend test.

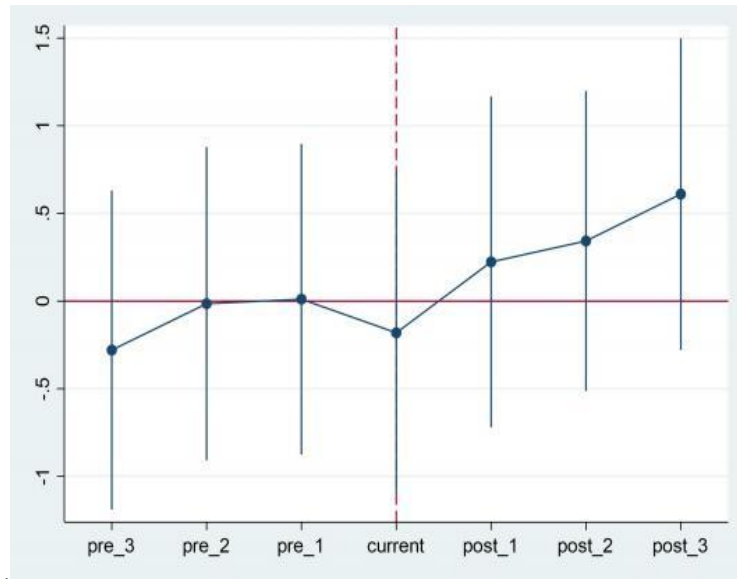


Figure 5: Parallel trend test

4.1.4 Placebo test

The DID mainly demonstrates whether the policy has an effect, and the regression results may have an error due to the existence of other factors, not the effect of the policy. In order to demonstrate the effect caused by the emergence of the policy, a placebo test was conducted. This paper assumes that the policy events for implementing the Belt and Road " initiative occurred in a period before 2014, and that the sample period was set in 2005-2014 to see if there is still an investment promotion effect. The application of the dual difference method needs to pass the balance trend test, that is, China's transportation investment will not be quite different before the policy is implemented, so if the policy event is set in a certain period before 2014, the estimated coefficient of d will not be significant. If the results are contrary to expectations, then it means that there are some other factors that have an impact on transportation investment in China, not just because the implementation of the policy promotes the growth of transportation investment. To ensure the robustness of the empirical results, 2006,2007,2008,2009,2010,202010,2011,2012 and 2013 were set as the policy impact time. Table 3 reflects the corresponding estimated results, where columns (1) - (8) correspond to the corresponding years. According to Table 3, estimates for other core variables are significant in column (2).None of the numbers were significant, so the influence of other factors on the regression results could be excluded.

Table 3: Placebo test results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
did	0.671	1.431*	-0.399	-0.771	0.502	-0.407	0.407	0.370
	(0.748)	(0.818)	(0.800)	(0.525)	(0.509)	(0.510)	(0.533)	(0.440)
controlled variable	yes	yes	yes	yes	yes	yes	yes	yes
sample number	144	144	144	144	144	144	144	144

4.2 Effect analysis of transportation investment

4.2.1 Empirical results

In this paper, a fixed-effect model was chosen to examine the impact of ASEAN transportation infrastructure investment on economic growth after passing the F test and the Houseman test. Meanwhile, to test the stability of the results, the model is estimated differently, and the estimated results are shown in Table 4:

Table 4: Results of the effect regression

	model (1)	model (2)	model (3)	model (4)	model (5)	model (6)
	0.0916***	0.0297**	0.0325***	0.0273***	0.0269***	0.0270***
ln(invest)	(0.0207)	(0.0130)	(0.0119)	(0.00987)	(0.00985)	(0.00984)
ub		0.0887***	0.0748***	0.0549***	0.0544***	0.0553***
		(0.00640)	(0.00665)	(0.00623)	(0.00622)	(0.00629)
ln(open)			0.258***	0.166***	0.173***	0.188***
			(0.0582)	(0.0500)	(0.0501)	(0.0521)
env				0.0956***	0.103***	0.0951***
				(0.0141)	(0.0151)	(0.0168)
ln(edu)					-0.0495	-0.0544
					(0.0386)	(0.0388)
ln(cap)						0.100
						(0.0947)
constant term	24.83***	20.92***	21.61***	22.76***	22.86***	22.47***
	(0.151)	(0.296)	(0.314)	(0.309)	(0.318)	(0.481)
observed value	111	111	111	111	111	111
R2	0.163	0.715	0.763	0.839	0.842	0.844

The model (1) in the table is the impact of transportation investment on economic growth without control variables. It can be concluded that the transportation investment is significant at a significant level of 1%, and the coefficient of 0.0916 indicates that for every change of transportation investment of 1%, the economic growth will change in the same direction of 0.0916% in the same direction. Models (2) to (5) add urbanization variables, opening level variables, and institutional environment variables in sequence, and the sign and significance of the transportation investment coefficient remain unchanged after the variables are added. Model (5), including the education expenditure variable, Unlike expected, Education spending has a negative and insignificant impact on economic growth, This empirical result is the same as the conclusion of Zhang Yanyan (2018), The significance of the other variables remained unchanged; Model (6) Adding the fixed capital investment variables, This variable was not significant and did not affect the significance and sign of the other variables, The empirical results after adding the control variables are still indicate transportation investment significantly promoted economic growth.

According to the analysis of the second chapter of this paper, the ASEAN countries are divided into three levels through the transportation infrastructure score. In order to understand the differences between regions, the ASEAN countries are divided separately. Table 5 are the regression results.

Table 5: Results of regional regression

	one-level	two stage	three-level
variable	ln (GDP)	ln (GDP)	ln (GDP)
ln (invest)	0.00984 (0.0181)	0.00434* (0.00667)	0.0293** (0.0136)
ub	0.0358* (0.0179)	0.0508*** (0.00472)	0.134*** (0.0161)
ln (open)	-0.386** (0.170)	0.109*** (0.0300)	-0.0560 (0.109)
env	0.185*** (0.0505)	0.0783*** (0.0162)	0.0578*** (0.0181)
ln (edu)	0.209 (0.212)	0.110* (0.0598)	0.0977*** (0.0351)
ln (cap)	-0.354 (0.290)	-0.110* (0.0609)	0.499*** (0.109)
constant term	22.90*** (1.436)	25.10*** (0.344)	18.42*** (0.704)
R2	0.761	0.981	0.944

As can be seen from Table 5, Transport investment For countries with a level of transport infrastructure index (Singapore, Malaysia, Brunei), Unsignificant impact on economic growth, The poor secondary transport infrastructure (Indonesia, Thailand, Vietnam) and tertiary countries (Laos, Cambodia, Philippines, Myanmar) were significant at the significant levels of 10% and 5%, respectively. This may be because in countries with better transport infrastructure, excessive transport investment is not much related to economic growth Transportation investment in countries with poor infrastructure conditions can improve the infrastructure environment of the host countries and promote trade among countries, thus having a significant impact on economic growth.

In addition, the degree of urbanization and institutional environment has a great influence on the national economic situation; the openness also has different effects on different countries. For the four countries with lower scores, certain education spending and fixed capital investment also had a significant impact on economic growth. This can show that for the slower developing countries, economic growth can be promoted in many ways.

4.2.2 Robustness test

Table 6: Test of robustness

variable	per capital gdp	standard error
ln (invest)	0.0176**	(0.00697)
u b	0.0427***	(0.00445)
ln (open)	0.167***	(0.0369)

e nv	0.0769***	(0.0119)
ln (edu)	0.0423	(0.0275)
ln (cap)	0.0175	(0.0670)
constant term	7.166***	(0.340)
	R2=0.869	

The economic level can be expressed by GDP or per capital GDP, so the measure of economic growth can not only be expressed by GDP. This paper adopts the method of changing the variables and replacing the explained variables to complete the robustness test. The explained variables in Table 4 are host GDP, and those in Table 6 are host gdp per capital.

As shown in the Table 6, the regression results remained significant at the 5% significant level after the change of the explained variable. The per capital gdp reflects the wealth income level of the people of a country. The increase of transportation investment in the per capital gdp of the host country will promote the economic growth of the whole country. Therefore, after the stability test, the transportation investment promotes economic growth is still established.

5. Conclusion and Implications

This paper using China's global investment tracking database of traffic investment data and the world bank index data, based on the analysis of China to asean countries traffic investment, through the panel data model to explore the "area" initiative on the influence of China to asean countries transportation investment and the effect of transportation investment economic growth, draw the following conclusions. Firstly, the relationship between the implementation of the "Belt and Road" initiative and the transportation investment between China and ASEAN countries is significantly positive correlation, which can prove that the increase of China's investment in transportation in ASEAN countries is largely achieved through the "Belt and Road" initiative; secondly, transportation investment has played a significant role in promoting economic growth. Thirdly, the transportation investment in different regions will have different growth effects. Fourthly, urbanization and the institutional environment can also significantly promote economic growth. For countries lacking in infrastructure development, education expenditure and fixed capital investment can also promote economic growth.

Based on the above conclusions and analysis, the following implications can be drawn. Firstly, continue to implement the "Belt and Road" construction initiative. Secondly, we should continue to focus on developing transportation infrastructure and further encourage Chinese enterprises to increase transportation investment in countries along the routes. Many of the "Belt and Road" routes are developing relatively slowly, and a large part of the stagnant economic growth is due to the development of imperfect transportation infrastructure. Therefore, to promote the foreign transportation investment of Chinese enterprises under the Belt and Road Initiative will help promote the long-term steady economic growth of the countries and help the countries out of economic difficulties; and the perfect infrastructure will reduce the foreign trade costs, promote foreign trade, promote China's economic growth, China and the countries along the routes can achieve common development. Thirdly, in the investment location and project selection, should focus on progressive, to avoid blind excessive. Choose different investment methods based on the level of infrastructure improvement in ASEAN countries. Fourthly, improving the level of national urbanization, enhancing the national institutional environment, and emphasizing the cultivation of human capital can all have different effects on economic growth developing their economy.

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