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Navigating Tariffs, Growth and Investment: Panel 2SLS Analysis for FDI in ASEAN during the USA-China Trade War

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Abstract

This study aims to determine the effect of GDP annual growth, Trade Openness and China Tariff level on Foreign Direct Investment in ASEAN countries. The study used period from 2008 until 2023 period with interpolation methods and analyses used panel 2SLS regression method. This research best models were fixed effects with Robust Standard Errors. The findings of this research are GDP annual growth does not have influence on FDI in ASEAN countries, but China Tariff Level and Trade Openness affect the Foreign Direct Investment in ASEAN countries from 2008 until 2023 periods. These findings contradict the traditional international investment theories that emphasize the importance of trade liberalization and tariff shocks as FDI drivers. this research offers a novel perspective by identifying ASEAN as a strategic beneficiary of investment diversion amid trade conflicts. Additionally, the unexpected negative effect of trade openness on FDI contributes to the growing discourse on institutional constraints in developing regions and incorporating China tariff shocks as a determinant of FDI inflows in ASEAN.

Keywords: GDP Annual growth, Trade Openness, China Tariff Level, Foreign Direct Investment.

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1. Introduction

With the rise of globalization there are an event which integrate national economics to global economy There are some questions how developing countries which mostly in ASEAN countries can develop and attract the investors to that countries which are become debate in research and policy in governments include FDI, Trade openness, Tariff level and GDP Annual growth (Banday, Murugan and Maryam, 2021). Over the past three or four decades, FDI (Foreign Direct Investment) has become prominent aspect of globalization and liberalization of trade (Gammeltoft, 2008), also FDI is one of the drivers for economic development in developed and developing countries (Udemba & Keleş, 2022). According to the United Nations Corporation for Trade and Development (UNCTAD) between the year 1980 until 2017 the growth of FDI over GDP grew from 5.45% to 41.33% (UNCTAD, 2021). The impact of Foreign Direct Investment on the domestic growth of the countries could not be certain. It couldn't be predicted how far the countries advanced to high level (Hornstein, 2024). The growth of countries that needed FDI can be varied according to regulatory and governments policy that invest in their countries, also the FDI needed the approval from the other countries which invest in that country (Hornstein & Naknoi, 2023). FDI could make the investment flows to other countries especially global. However, the trade war between United States of America and China which begin in 2018 until now and the appreciation of dollar also depreciation of renminbi of China made an effect on global economy include southeast Asian Countries (Jeanne & Son, 2024). And this made the trade openness barrier to southeast

countries could be high and the FDI (Foreign Direct Investment) inflows can be reduced and many multinational companies affected by the regulatory and freedom of their operating cost (Zhao & Zemin, 2022). Also, the effect of trade war made the China tariff level increased significantly that imposed by United States of America and make the export and imports got the high cost for developing countries especially in southeast Asian countries (Liu et al., 2018).

⁴¹ There are many factors that affected FDI in some countries which are Trade Openness, Tariff level and GDP Annual growth etc. (Battat & Aykut, 2005). Trade openness according (Durma⁴² 2017) can affected the FDI in some countries. Trade openness since a long time became drivers of economic growth and development in some countries and the trade liberalization can increase the export and import for some countries to sell and buy their products to other countries that need it according to (Durongkaveroj, 2024) and also can reduce poverty in some countries by open the employment for populations in some countries.

³³ Some economists believed that countries with higher GDP per capita can increase obligations to their populations in terms of social guarantees, healthcare support and other factors and this factor must attract foreign direct investment to ensure their national interest for technological development and high performance of the national and multinational companies (Kwilinski, 2025). The countries that have higher GDP approve FDI have varied their regulatory regimes over time regarding the scale and scope of government approvals, and the frequency of disclosure of this data, the propensity of foreign investors to implement announced projects varies across time and host country and is higher in host countries with reduced economic uncertainty and stable political environments (Hornstein and Naknoi, 2023). But in Southeast Asian countries the FDI not optimally used it because the confidence from investor to their policymakers has low trust especially because corruption and other factors like gangster etc., the poor institutions made the²³ FDI seems like a tax and the effect is investor are doubt to invest in that countries because the cost doing business is high (Buchanan et al., 2012; Mengistu & Adhikary, 2011).

Southeast Asian countries have dependency to China market for export, ASEAN's dependency on China's manufacturing sector is well-documented. According to the World Bank (2024), East Asia and the Pacific accounted for 45.48% of China's total imports in 2023, with ASEAN countries—especially Vietnam, Indonesia, Thailand, and Singapore—comprising approximately 49.1%. The BRI (Belt and Road Initiative) that planned by China have a positive impact for Southeast Asian countries (ASEAN) and have a plan to docking and achieve a common prosperity for two parties. BRI project that devised by China also have 21st century maritime silk road which are export the goods from China to all countries include ASEAN by the sea (Bi, 2021).

²⁴ Although numerous studies have explored the determinants of foreign direct investment—including trade openness, economic growth, and institutional quality—most have primarily focused on internal factors within host countries. However, relatively few have examined how external trade policy shocks, such as China's tariff increases during the US–China trade war, affect FDI inflows into third-party economies like ASEAN. Despite growing interest in trade and investment flows, few studies have investigated how China's tariff policies influence FDI in ASEAN.

To address this gap, we also make an export as instrumental variable to obtain unbiased estimates of how trade openness and economic growth affect FDI in ASEAN. Based on description above, this research purpose is (1) To examine the relationship of GDP Annual growth to FDI in ASEAN countries, 2) To examine the relationship of China tariff level to FDI

in ASEAN countries and 3) ¹⁷ to examine the relationship between Trade Openness to FDI in ASEAN countries.

To clarify the purpose of this research the grand theory of this research is eclectic paradigm theory that stated the consideration of foreign investors to invest the money which are location, trade openness strengthen the location advantage and GDP offers the market situation also tariff for imports of goods and services that imposed by country's policymakers. Therefore this research purpose to strengthen the theoretical contribution and knowledge of FDI, tariff, trade openness, GDP annual growth and exports as buffers also the practical contribution for policymakers of ASEAN countries to develop and devise the economics growth and investments in that countries.

This research fills that gap by utilizing a 2SLS panel regression with exports as an instrumental variable, offering a novel empirical strategy. The findings contribute to theoretical refinement of the Eclectic Paradigm and Endogenous Growth Theory by demonstrating how institutional quality conditions the impact of openness and tariffs on FDI. This study contributes to the existing literature by examining the impact of China's tariff policy on FDI inflows into ASEAN countries—an angle that has received limited empirical scrutiny. The study also applies a panel two-stage least squares (2SLS) regression using export levels as an instrumental variable to address crucial endogeneity between tariff level and FDI. Furthermore, the research re-evaluates the applicability of Eclectic Paradigm and other international trade theory in the ASEAN context, emphasizing the moderating role of institutional quality.

This research is among the first explicit quantify the spillover effects of China's tariff adjustments—triggered by the US–China trade war—on FDI inflows into ASEAN countries. By integrating external trade policy shocks into the Eclectic Paradigm framework and other international trade theory also employing a 2SLS approach with exports as an instrumental variable, the research not only addresses an empirical gap in ASEAN investment studies but also advances methodological rigor in assessing cross-border policy spillovers.

2. Literature Review

2.1. Grand Theory

Eclectic Paradigm theory according to (Dunning, 1977, 1997, 2000) explain the level of structure of foreign firm adding level activities, it comes with 3 conditions which are: (1) unique and specific advantages than other firms (Ownership Advantages – “O”); (2) The extend of companies to sell them to other companies (Internalization Advantages – “I”); (3) The extend of companies to sell, create and innovate the “O” in foreign location (Location – “L”), from this component it made the OLI framework model which can explain the FDI and other factors. Eclectic paradigm according Dunning (1997) can attract FDI because the China tariff can be reduced to the countries which want to invest because of relocation with market seeking components, GDP annual growth can attract FDI in ASEAN because the market seeking and last Trade openness can consider the countries with market seeking from (Dunning, 1998). Eclectic paradigm in ASEAN countries which lucrative sector is in Location sector, it because ASEAN connected with global trade hub which are Malacca Strait that connected Singapore, Malaysia and Indonesia and South China Sea and many busiest port are connected to Singapore.

Institutional theory which are normative and regulatory of governments can made an attractive and increased the infrastructure of location which investors want to invest the FDI in that countries and the governments can promote or restrict FDI in countries to grow the economic development and help make the job opportunities for the young generations to work in investors companies (North, 1990; Mudambi and Navarra, 2003). In (Chaudhry,

2011) research Trade openness can attract FDI because the countries good institutional quality but in poor institutional quality made trade openness didn't attract FDI, Tariff also can be reduced especially China for attract the FDI because the quality and diplomacy strength of the countries in ASEAN and GDP can attract FDI because higher GDP can made the investment lucrative in ASEAN. Some countries in ASEAN have good institutional quality and some of them have poor institutional quality. Because this trade openness positive in some countries and negative in some countries which effects are FDI endure some bribery and others.

Neoclassical growth theory made the GDP growth sustain when accumulated the growth and capital especially FDI in some countries, so the empowerment of capital, technology and labor made the business environment in that countries sustain and grow into the maximum points (Solow, 1999). Countries which have good environments, regulations and policy made the GDP higher and attract the FDI, also can made trade openness and tariff lucrative for FDI in ASEAN countries.

Endogenous growth theory in (Mayer, 1996) made GDP annual growth attract many foreign investors to invest in countries for FDI so in can generate profit and diminishing returns for the new knowledge in GDP annual growth. GDP annual growth reflects the overall economic performance and market potential of a country. With the trade openness can attract FDI from foreign countries to ASEAN and made the innovation hub for countries in ASEAN (Frankel and Romer, 1999). And China tariff can be considered by the countries in short run benefits but generate long run cost in the countries include ASEAN regions according to (Brock and Turnovsky, 1993).

2.2. GDP Annual Growth and Foreign Direct Investments

GDP Annual growth according (Blanchard, 2017) is percentage growth of GDP from year to year. GDP Annual growth has an influence on FDI according (Durmaz, 2017). GDP Annual growth has a positive significant result on FDI stated by (Aziz & Mishra, 2016). GDP Annual growth increases the FDI in countries with developed economies (Saini & Singhanian, 2018). In endogenous growth theory from (Berthélemy and Démurger, 2000) research stated that GDP annual growth has positive effect on inflows of FDI in China during 1985-1996 in 24 provinces. In (Shah *et al.*, 2024) research GDP annual growth has positive effect on FDI inflows in India during 1970-2023 periods.

2.3. China Tariff Level and Foreign Direct Investments

China Tariff level is the taxes that applied on imported goods by Chinese governments according to (World Bank, 2015). Tariff level has an impact for micro and macroeconomics in UK, China, USA, and Europe which are FDI etc., (Ortiz Valverde and Latorre, 2020). Also, in Indonesia the reduce of tariff can increase the business and reduce the income equality according to (Vadila and Resosudarmo, 2020) findings. According to (Aisbett and Silberberger, 2021) regions or countries which tariff liberalization is higher made the foreign companies want to invest to countries firms so performs to the top of list ranking of global standard.

2.4. Trade Openness and Foreign Direct Investments

Trade Openness is a percentage of Gross Domestic Product (GDP) which is the total income earned through the production of goods and services in an economic territory during an accounting period according to (World Bank, 2015). Trade Openness according to (Aziz and Mishra, 2016; Durmaz, 2017; Saini and Singhania, 2018) have a positive significance to FDI in the countries. In Aziz and Mishra (2016) the Trade openness positively attract FDI in Arab countries during 1984-2012 periods. Saini and Singhania (2018) findings stated that trade openness can attract FDI in 11 developed countries and 9 developing countries in 2004-2013 periods. In Durmaz (2017) stated that Trade openness positively attracted FDI inflows in Turkey in 1977-2011 using yearly data. In the (Alhamran *et al.*, 2025) study found that trade openness has significant effects on boosting FDI in GCC countries. Trade openness according to findings of (Le and Kim, 2020; Ta *et al.*, 2020) have positive impact on FDI inflows in Vietnam. It also stated by (Nguyen, 2021) which FDI has improved by Trade openness in Vietnam. But some studies found that trade openness have negative relationship to FDI according to (Busse and Hefeker, 2007) research in 83 developing countries during 1984 to 2003 periods.

3. Research Methods

3.1. Population and Samples

This study utilized annual data from 2008 to 2023 period and interpolated from 131 observations to 548 observations which increased 417 observations after interpolated with quadratic match average sum method. We use interpolation method because the observation doesn't have complete data for every year and filled the gap to estimate the accurate model and form the unbalanced panel data format according (Baltagi, 2005; Wooldridge, 2018). The observations from 9 Southeast Asian countries which are: Indonesia, Singapore, Thailand, Malaysia, Vietnam, Cambodia, Philippines, Laos and Brunei. The dependent variable of this study is Foreign Direct Investment, and the independent variables is Trade Openness, China Tariff Level and GDP Annual Growth which Export are the instrumental variables for China Tariff Level. The analysis used Rstudio software with *plm* package for panel regression, *dplyr* package for data manipulation, *lmtest* for heteroskedasticity test and *AER* package for 2SLS regression (Zeileis and Hothorn, 2002; Kleiber and Zeileis, 2008; Croissant and Millo, 2018; Wickham *et al.*, 2023)

All the data obtained from world bank website which ranged from 2008-2022. A summary of data explained in Table 1.

Table 1. Variables Description and Data Sources

Indicator	Measurement	Scale	Source
Foreign Direct Investment	FDI = FDI Inflows / GDP	Ratio	World Bank (2023)
Trade Openness	TO = (Total Export + Import) / GDP	Ratio	World Bank (2023)
GDP Annual Growth	GDP = (GDPT-GDPT-1) / GDPT	Ratio	World Bank (2023)
China Tariff Level	CTL = Average of Chinese import tariff (%)	Ratio	World Bank (2023)
Export	Export = Total Export to all Countries	Ratio	World Bank (2023)

Source: Author's Investigation

3.2. Methodology

This study used panel 2SLS (Two Stage Least Squares) Method for regression³², this test according to (Gujarati & Porter, 2009) applied estimation with 3 test which are Pooled OLS (Common Effect), Fixed Effect and Random Effect. After 3 model examined, we use Hausman Test to test the appropriate effect for Fixed or Random Effect (Hausman, 1978).

Exports are used as an instrumental variable for China's tariff level to address potential endogeneity. The rationale is that while exports are correlated with China's trade policy (relevance condition), they are unlikely to affect FDI directly outside of the tariff channel (exogeneity condition), making them a valid instrument in the 2SLS framework. Exports are log-transformed to correct for skewness and heteroskedasticity in the data. The log of exports is used as an instrumental variable for China's tariff level, under the assumption that it is strongly correlated with tariff policy (relevance condition) but does not directly affect FDI inflows (exogeneity condition).

The first stage regresses China's tariff level on exports, GDP growth, and trade openness, while the second stage uses the predicted tariff level to estimate its impact on FDI.

The model for the panel 2SLS is below:

First Stage Regression

$$CTL_{it} = \pi_0 + \pi_1 * \log(Export_{it}) + \pi_2 * GDP_{it} + \pi_3 * TO_{it} + u_{it} \quad (1)$$

Second Stage Regression

$$FDI_{it} = \alpha + \beta_2 * GDP_{it} + \beta_3 * CTL_{it} + \beta_4 * TO_{it} + \varepsilon_{it} \quad (2)$$

⁴³ Where i denote country and t at time, Export is the instrument variable, CTL denote China Tariff Level, FDI is Foreign Direct Investment, TO is Trade Openness and GDP is GDP Annual Growth. β_2 , β_3 , β_4 denote coefficients of the variables GDP Annual growth, China Tariff Level and Trade openness, and ε refers to error terms.

3.3. Diagnostics Test

To ensure the model not violated BLUE (Best Linear Unbiased Estimator) assumption⁴², we test the heteroskedasticity and autocorrelation in panel 2SLS regression, use the Breusch Pagan test for heteroskedasticity and panel Breusch Godfrey Test for autocorrelation. The heteroskedasticity is the condition which are unbiased in point estimate and autocorrelation is the condition which are the correlation have connected with other. To handle heteroskedasticity and autocorrelation it could use Robust Clustered Standard errors for regress the best models that appropriate from Chow and Hausman test respectively according (Gujarati and Porter, 2009; Wooldridge, 2018). To handle the endogeneity and weak instrument it could use Wu Hausman test for detect them (Gujarati and Porter, 2009; Wooldridge, 2018)

4. Result and Discussions

Table 2. Matrix Correlation

	Foreign Direct Investments	GDP Annual Growth	China Tariff Level	Trade Openness	Exports
Foreign Direct Investments	1	0.20	0.086	0.47	0.697
GDP Annual Growth	0.20	1	0.32	-0.025	-0.015
China Tariff Level	0.086	0.257	1	-0.173	-0.018
Trade Openness	0.47	-0.025	-0.173	1	0.794
Exports	0.697	-0.015	-0.018	0.794	1

Source: Author's Calculation

²⁷ Based on the correlation matrix in table 2, it can be observed that FDI is positively correlated with exports (0.697) and trade openness (0.47), indicating that increased engagement in international trade is generally associated with higher inflows of foreign investment. However, the relatively weak correlation between FDI and GDP (0.2) or China's tariff level (0.086) suggests that these variables may require more sophisticated modeling, such as 2SLS, to capture potential indirect or lagged effects. The strong correlation between exports and trade openness (0.794) raises concerns regarding multicollinearity in the main regression model, which must be addressed through proper model specification.

²⁵ **Table 3.** Descriptive Statistics

Variable	N	Mean	SD	Min	Max	Median
China Tariff Level	548	1.0058	0.32	0.49	1.54	0.97
Trade Openness	548	34.3	23.29	7.91	112.62	30.17
GDP Annual Growth	548	1.068	0.92	-2.87	4.121	1.25
Exports	548	5.150E+10	54941524542	3.401E+08	2751E+11	4.384E+10
Foreign Direct Investments	548	1.46	1.56	-0.7548	8.27	0.89

Source: Author's Calculation

The summary or descriptive statistics show the result in table 3 that the average of Trade Openness in 7 ASEAN countries is 34.3 the minimum is 7.91 and max is 112.62 which are very lucrative in Singapore, China Tariff Level average is 1 which low trade barriers for Chinese imported goods and service across ASEAN, the minimum China Tariff is 0.49 and maximum is 1.54, GDP Annual growth is low in 1.068% which because in 2020 until 2021

suffered by global COVID 19 Pandemic , exports is 54.9 billion and it's vary between ASEAN countries ,and Foreign Direct Investment inflows is 1.46%, the minimum is -0.75% and the maximum is 8.27%.

Table 4. Choice of Best Panel Models

Test	Probability	Choice
Chow Test	0	Fixed Effect
Hausman Test	0	Fixed Effect

30

Source: Author's Calculation

In table 4 based on this research, the choice of the best panel models examined by 2 test which are Chow and Hausman test, both of the test results' probability result is below 0.05, the best choice of the panel models is fixed effect models for this research.

Table 5. First Stage Regression

	First Stage Common Effect	First Stage Fixed Effect	First Stage Random Effect
Intercept	1.815*** (0.000)	0.725*** (0.001)	2.209*** (0.000)
GDP Annual Growth	0.087*** (0.000)	0.003 (0.524)	0.094*** (0.000)
Trade Openness	0.001* (0.079)	0.000 (0.658)	0.002* (0.058)
Log(Exports)	0.040*** (0.000)	-0.019* (0.086)	- (0.000)
N	548	548	548
R2 Adjusted	0.095	0.976	0.132

2

Source: Authors' results. * Indicate significance level at 0.10 level, ** indicates significance level at 0.05 level, *** indicates significance level at 0.01 level.

The results of first stage regression in table 5. Indicating that the best models is fixed effect which exports statistically significant at 10% level. This suggests that higher exports activity depend on increase of China Tariff level, supporting the relevance of export performance as a valid instrument in table 8. This estimation adjusted R square is 0.976 which 97,6% variation can be explained by this model.

Table 6. Second Stage Panel Regression

Dependent Variable: Foreign Direct Investments			
	Common Effect	Fixed Effects	Random Effects
Intercept	-5.39* (0.085)	21.534*** (0.003)	2.802** (0.043)
GDP Annual Growth	-0.101 (0.219)	0.136** (0.022)	0.365** (0.014)
China Tariff Level	5.259*** (0.000)	20.719** (0.015)	-1.36 (0.358)
Trade Openness	0.048*** (0.000)	0.054*** (0.000)	-0.011* (0.074)
N	548	548	548
R2 Adjusted	0.571	0.785	0.042

Source: Authors' results. * Indicate significance level at 0.10 level, ** indicates significance level at 0.05 level, *** indicates significance level at 0.01 level.

In table 6 there are 3 panel regression models, this research chooses fixed effects as the best models for the panel models estimation. This study found that GDP Annual growth has positive effect on Foreign Direct Investments, Trade openness has negative effect on Foreign Direct Investments and China Tariff level has positive effect on Foreign Direct Investments. The estimation model adjusted R square is 0.785 which 78.5% variation explained by this model.

Table 7. Heteroskedasticity and Autocorrelation Tests

	Probability
Breusch Pagan Test	0
Panel Breusch Godfrey Test	12 0

Source: Author's Calculation

In table 7 this study examined the heteroskedasticity test with Breusch Pagan test, it found that the model of fixed effect in heteroskedasticity because the probability below 0.05 which above 0.05 is homoskedasticity.

Table 8. Endogeneity and Weak Instrument

Diagnostic Tests	df1	df2	F statistic	P Value
Weak Instruments	1	544	20.59	0
Wu Hausman	1	543	46.92	0

Source: Author's Calculation

In table 8 this study examined endogeneity test with Wu Hausman Test for China Tariff Level, the result found that F statistics is 46.92 indicating that the tariff variable is endogenous and justifying the use of instrumental variable estimation via 2SLS.

Table 9. Robust Clustered Standard Errors Regression

	Robust Standard Errors Regressions			
	Estimate	Standard Errors	T Statistic	Probability
Intercept	21.35396	7.2544	-2.9431	0.003**
GDP Annual Growth	0.136	0.0857	1.5897	0.1125
China Tariff Level	20.718	6.5987	3.1398	0.0017**
Trade Openness	-0.05	0.019	-2.7936	0.0054**

Source: Authors' results. * Indicate significance level at 0.10 level, ** indicates significance level at 0.05 level, *** indicates significance level at 0.01 level.

To handle the heteroskedasticity and autocorrelation this study used robust standard errors for fixed it in table 9. GDP Annual growth not significant to FDI in ASEAN countries. It contradicts the neoclassical growth theory that GDP annual growth can attract FDI, it supported by institutional theory. It is because the GDP Annual Growth can't make the investor believe the institutions. It also have lack of economic development quality in that country which depends on extractive sector like natural resources or Micro and Small Medium Enterprises (MSME) which have small effect for economical development. In Institutional theory the investors can doubt the government's ability to manage their countries because of bribery or corruption in those countries. Investors also need the stability of the countries to invest in those countries.

China Tariff level significantly affects the FDI in ASEAN countries. It supported the research of (Ortiz Valverde and Latorre, 2020; Vadila and Resosudarmo, 2020; Aisbett and Silberberger, 2021) and original model before change to robust model. It has impact on FDI in 7 ASEAN countries which related to (Fan, Guo and Hu, 2023) findings. The China Tariff level also not burden the exports and imports of Chinese goods to those countries in regions amid the trade war between China and USA. It also in eclectic paradigm theory the location in OLI which lucrative from China to shift in ASEAN countries, which are Vietnam, Indonesia and Malaysia, also many multinational firms want to relocate their business to ASEAN which are have productive labor in that regions.

Trade Openness have negative relationship with the FDI in ASEAN countries. It supported by the (Aziz and Mishra, 2016; Durmaz, 2017; Saini and Singhania, 2018). It because in (Fiona and Buntu Laulita, 2023) findings which are Trade Openness become lower the FDI became attracted by countries which need it. The cause of this because the annual change of regulations in ASEAN countries, Geopolitics rivalry between China and USA for contest the trade supremacy and politics in 7 ASEAN countries. It contradicts with the endogenous growth theory which trade openness has positive effect on FDI in 7 ASEAN countries. However trade openness in ASEAN countries supported by institutional theory, it caused by frequent annual changes of policy in that countries which come from USA or China goods and services which enter to ASEAN countries also the political regulations in those countries not stable as other regions. High variation of bureaucracy in ASEAN made the trade openness not effective and made the corruption rampant according to institutional theory which stated by Buchanan. In some countries in ASEAN like Cambodia which struggle in their political stability and logistics. Therefore, the trade openness in isolation not sufficient to increase the trade openness, Singapore due to their size does not have problems in their policy but the geography of this country smallest in ASEAN countries limit their firms to expand.

An important methodological note relates to the use of interpolation to construct a balanced panel. Specifically, missing values in variables such as China's tariff level were completed using the quadratic match average method. While this approach ensures consistency and enables the use of panel regression techniques, it may introduce measurement error or smooth over year-to-year volatility in primary indicators. Such bias could change the significance of certain variables, particularly those subject to sudden policy changes or trade shocks. However, the application of robust standard errors and fixed effects models helps mitigate this risk, although caution is still advised when interpreting variables affected by interpolation.

11 **5. Conclusions**

This study investigates the impact of GDP Annual growth, trade openness and China's tariff level on foreign direct investments in ASEAN countries during 2008-2023 using 2SLS panel regression with fixed effects and robust standard errors.

First, GDP annual growth didn't significantly influence the FDI inflows to ASEAN, it contradicts to all theory that stated sustained GDP annual growth can attract FDI to countries, but in ASEAN cases suggests that GDP annual growth does not attract FDI in some countries in ASEAN. It is caused by economic and institutions structural problems in ASEAN, but also by slow growth of global economics amid the trade war between USA and China during 2018 period.

Second, China's tariff level (CTL) significantly influence FDI inflows to ASEAN. This result implies that the expected "trade diversion effect" stemming from US-China trade tensions may not automatically translate into increased FDI for ASEAN countries. It suggests that geopolitical shocks alone are insufficient; domestic fundamentals and structural competitiveness likely play a more decisive role in attracting foreign investment. This also calls into question the assumption that tariff increases in a major partner like China directly benefit neighbouring economies.

Third, contrary to conventional wisdom, trade openness is found to have a negative and statistically significant effect on FDI inflows in the ASEAN countries. This unexpected result may reflect the structural vulnerabilities of overly liberal trade regimes, especially in countries with underdeveloped institutional frameworks or high reliance on commodity exports. It suggests that trade openness, if not accompanied by lucrative industrial like manufacturing and Research and Development sector and investment policies, may fail to generate sustainable FDI inflows and might even deter long-term investment due to market volatility and weak domestic linkages.

This research has some limitations which are: 1). Only consist countries in ASEAN region from 2008-2023 which some countries like Laos and Myanmar didn't have complete data; 2) The data used interpolation to make it unbalanced panel form which caused biased interpretation while use quadratic match average method for interpolation; 3) Use of export as instrumental variable have drawback for interpret some variables which include in FDI and Tariff; 4) This model not considered the organization variable such as regulation quality, political stability or ease of doing business in ASEAN countries. This research has some suggestions which are: 1) broadening from ASEAN to other regional example MENA (Middle East and North Africa) etc.; 2) employ the more advanced panel models such as Generalized Method of Moments (GMM) for analysis; 3) the variables can add the

institutional variables such as corruption perception index, corporate governance quality and etc.

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