HAVE BYSTANDERS IN THE US-CHINA TRADE WAR GAINED LARGE BENEFITS? EVIDENCE FROM ASEAN'S TRADE BALANCE

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ABSTRACT

Under the setting of the US-China Trade War, which happened in 2018, many bystander countries have risen as "winners" as they better exploited the economic and international trade opportunities that were brought about by the event. Among the bystanders which have been benefitting from the trade opportunities, ASEAN countries are of interest. This paper focuses on investigating the impacts of the US-China Trade War on the ASEAN's trade relationship with the US and China through their trade balance (in goods). By applying the fixed-effects model on the panel data of 10 ASEAN countries' trade balance (in goods) with both the US and China in the period of 2008 – 2022, the paper demonstrates how the trade balance of ASEAN countries with the US and China changed, for the period before and after the US-China Trade War. The main findings present that the happening of the US-China Trade War increases ASEAN's trade surplus with the US and their trade deficit with China. This proposes more evidence to the shift of the global supply chain network and sheds light on the strategic policies for ASEAN to hedge for such disruptive events in the future and continue exploiting the opportunities created by the US-China Trade War.

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LIST OF ABBREVIATIONS

Abbreviations	Definition
AEC	ASEAN Economic Community
AFTA	ASEAN Free Trade Area
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CEP	Closer Economic Partnership
UN COMTRADE	United Nations Comtrade Database
COVID-19	Coronavirus Disease
EPZ	Export Processing Zone
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GFC	Global Financial Crisis
GVC	Global Value Chain
IMF	International Monetary Fund
MNE	Multinational Enterprise
RCEP	Regional Comprehensive Economic Partnership
SEZ	Special Economic Zone
SMART	Single Market Partial Equilibrium Simulation Tool
TV	Television
UNCTAD	United Nations Conference on Trade and Development
UNCTADSTAT	UNCTAD Statistics
USD	United States Dollar
WDI	World Development Indicators

CHAPTER 1 – INTRODUCTION

Over the past few decades, with the successive rounds of trade liberalization, international investment agreements, and innovation in information, communication, financial and logistics technologies, the growth of global value chains (GVCs) has been stimulated greatly. One of the major drivers for the growth of GVCs is the operation expansion of multinational enterprises (MNEs) through foreign direct investment (FDI), as they can source materials from one country, assemble the products in another country, and distribute the end products anywhere (Sturgeon, 2013). Since the trade costs have been reducing greatly throughout this period, the global supply chains and international trade have become more and more fragmented, since each region or country can only focus on industries in which it has comparative advantages. For example, if a country's comparative advantage is cheap labour, then it is not surprising for that country to focus on manufacturing and exporting labour-intensive products, as can be seen in the cases of textile industries in Vietnam and Bangladesh. Some countries can favourably serve both as the platform for production and the market for the final products since they can offer both competitive production costs and a giant consumption market. One of these countries is China, as it has emerged as the world's sole manufacturing superpower, and has been benefiting greatly from the growth of GVCs (Baldwin, 2024). It is hard to deny that China has integrated deeply into the global economy and the GVCs, and that MNEs have had a strong dependency on China, specifically in the manufacturing sector (Berthold et al., 2023).

However, globalization and the integration of deeply interconnected supply chains have been greatly affected by the US-China Trade War, which started in 2018. Such event along with the COVID-19 pandemic and the Russian invasion of Ukraine further pushes forward the trend of de-globalization, which has been argued that it has started since 2008 (Witt, 2019). The

increasing tariffs and trade tensions between two of the largest economies, the US and China have motivated multinational corporations to reevaluate their manufacturing and supply chain strategies. Mary Amiti, Stephen Redding, and David Weinstein (2019) found that the tariffs imposed by the Trump administration had raised the prices of US-made intermediate and final goods in the sectors affected by the tariffs relative to unaffected ones and that USA economy's supply chain network experienced large changes (Amiti et al., 2019). MNEs had to incur fixed costs in reorganizing their supply chains and implement strategies to protect their competitive advantages.

Freund et al. (2023) have provided signs of US and China decoupling, which is predicted to continue even if it is not a political priority of the US government. Depending on the types of US companies in China, the negative effects of this US-China decoupling are different and the strategies that they pursue in order to mitigate these impacts will be different (Freund et al., 2023). According to Agatha Kratz and Camille Boullenois (2023), corporation leaders have been putting efforts to diversify the manufacturing bases and look for different sourcing options, in order to lower their corporations' reliance on China (Kratz & Boullenois, 2023). In the case study of washing machines, Flaaen, Hortacsu and Tintelnot (2020) found that firms in short-term would utilize their existing production networks for the manufacturing relocation, and whether and when relocation occurs depended on the magnitude, the time of implementation, and the expected length of the import duties (Flaaen et al., 2020). Since it is deemed impossible for foreign companies to totally end their dependence on China, one of the well-known strategies among the MNEs is the "China + 1", in which companies avoid investing only in China and diversify business into alternatives, or channel investments into manufacturing in other promising developing countries such as India, Thailand, Vietnam, etc… Such strategies of the MNEs are doubted to give rise to what is known as the "bystander effect",

which refers to the bystander countries benefiting from the US-China decoupling through gaining in exports.

Recent FDI data and business cases such as semiconductor giants opening new facilities for chip testing, fabricating and packaging in Malaysia, car giants investing in a mines-to-manufacturing electric vehicle supply chain in Indonesia, and consumer electronics giants opening new facilities for TV, computer screens and mobile phones production in Vietnam have shown the rising importance of ASEAN region as a "China + 1" destination (Maciejewska & Alifandi, 2023). ASEAN countries are among the bystanders in the US-China Trade War, and given its important strategic and geopolitical location, along with its economic ties with China and the US, international businesses which are not able to avoid dependency on China can minimize their manufacturing costs and avoid US-China Trade War tariffs. Samsung, LG, and Nike are some of the most well-known enterprises that have had the transition from largely depending on China manufacturing plants to having diversified manufacturing locations spanning widely across Asia, especially ASEAN. There has long been empirical evidence showing that FDI generally has positive effects on trade flows of a country, both directly and indirectly. For an origin location, both inward FDI from a foreign region and outward FDI to a foreign region are positively associated with the exports between the two locations (Carril-Caccia & Pavlova, 2018). In the case of China, inward FDI from a foreign region was found to give rise to China's exports to that foreign region (Liu et al., 2001). In addition, FDI brings about spillovers in technology, management skills and expertise, which potentially and indirectly strengthen the domestic firms' productivity, leading to their capabilities to become more competitive in the international market and export their products. The magnitude of these spillovers depends on the degree of foreign organizations' technology leakage and the domestic firms' absorptive capacity level (Marin & Bell, 2006).

ASEAN members are among the interested countries in this research because of many distinctive features that make it favourable for MNEs as "China + 1" destinations, as compared to other Asian countries. ASEAN has developed close economic ties with both the US and China over the years, with a network of free trade agreements (FTAs) with China, India, Japan, Korea, Australia, and New Zealand… and strategic treaties such as Regional Comprehensive Economic Partnership (RCEP), ASEAN Free Trade Area (AFTA), and Asia-Pacific Economic Cooperation (APEC). Some goals of these agreements and treaties are to attract more FDI into ASEAN and stimulate trade flows by reducing the costs of establishing production bases, liberalizing investment rules and promoting free trade between the member states with the elimination of tariffs on most products. Trade costs and nontariff barriers were found to have substantial impacts on trade (Ray, 1981). This indirectly affects the investment decisions of MNEs which want the most cost-effective methods for their supply chain integration. Finally, ASEAN's most important aim is to build the ASEAN Economic Community (AEC) which seeks to establish ASEAN as a single market and product base, a highly competitive region, with equitable economic development, and a fully integrated part of the global economy (*Economic Community - ASEAN Main Portal*, n.d.).

With much consideration about the "bystander effects" and the "China + 1" strategy; this research is dedicated to examining if the trade and investment liberalization policies that ASEAN countries have been pursuing really have significant economic impacts. Specifically, the paper focuses on examining how ASEAN countries' trade balance (in goods) with the US and China changed before and after the US-China Trade War. The belief that the characteristics of ASEAN and its adopted policies make it a more attractive alternative to China for manufacturing goods import should be reflected by its trade situation with China and the US, under a disruptive event of the US-China Trade War. Ideally, if after the happening of US-China Trade War, both the trade balance (in goods) of ASEAN with the US experiences a gain

in trade surplus and the ASEAN-China trade balance (in goods) experiences a larger deficit as compared to the period before, then it provides strong evidence for the previous belief.

The results of this research were achieved by applying a panel data fixed-effects model to the trade balance (in goods) of ASEAN members, with either the USA or China from 2008 to 2022, taking into consideration of a US-China Trade War dummy variable. The main findings were that for the period after the US-China Trade War, ASEAN's trade balance (in goods) with the US increased by approximately 5.06 billion USD, on average, while with China, ASEAN's trade balance (in goods) decreased by approximately 4.08 billion USD, on average, as compared to the period before the happening of the event. This further contributes to the existing literature on the shift in global chain values, by exploring the gains in trade balance (in goods) of the bystander countries during the US-China Trade War. The results shed light on the policy implications at the end of the research.

The rest of the paper is arranged as follows. Chapter 2 will provide reviews of the relevant literature concerning the backgrounds and theories for this paper. Next, Chapter 3 illustrates the paper's conceptual framework. In the following Chapter 4, the process of data collection and processing, and the methodology will be described. Chapter 5 will present the main findings of the research and discussions, and conclusions will be drawn in Chapter 6. Finally, Chapter 7 offers insights into the policy implications.

CHAPTER 2 – LITERATURE REVIEW

2.1. The US-China Trade War Economic Impacts and the "Bystander Effects"

According to Brandon M. Boylan, Jerry McBeath, and Bo Wang (2021), in early 2018, the US-China Trade War started with the US imposing tariffs on solar panels, washing machines, steel and aluminum. Though Chinese products were not the only ones to which the tariffs applied, they were deemed as the main targets. Later, in a tit-for-tat fashion, China also imposed tariffs on US products (Boylan et al., 2021). As one would anticipate, both China and the US were trading rounds of tariffs with each other up until late 2019 when both countries successfully negotiated the "phase-one deal" which was signed in January 2020. Yang Zhou (2023) estimated that at the height of the tariffs tit-for-tat exchange, the US and China's weighted average tariffs on each other were around 21% before the "phase-one deal", in which around $500 billion worth of products were targeted (Zhou, 2023).

Pablo Fagejbaum, Pinelopi Goldberg, Patrick Kennedy, Amit Khandelwal, and Daria Taglioni (2023) implemented an empirical analysis guided by the Ricardian-Armington trade model allowing substitution elasticities to be country-pair specific and downward-sloping supply elasticities for country- and sector-specific. They found that the US-China Trade War did not only shift trade across destinations, but also created new trade opportunities for bystander countries. On average, bystander countries increased their exports to both the US and the rest of the world, while they hardly changed with China. Another takeaway was that the cross-country heterogeneity in export growth of products targeted by the tariffs compared to non-targeted ones was considerable. Vietnam and Thailand were among the largest export "winners", as they better exploited the trade opportunities in markets with decreasing US and China engagement. The increases in exports of targeted relative to untargeted products across countries were 6.4% on average, with a standard deviation of 6.2% (Fajgelbaum et al., 2021).

Xinquan Tu, Yingxin Du, Yue Lu & Chengrong Lou (2020) applied the Single Market Partial Equilibrium Simulation Tool (SMART) model, developed by the World Bank and UNCTAD, in estimating the trade effects, including the trade creation and diversion effects of, so as to assess the impact of specific tariff changes. According to the SMART simulation results, a total of $36.783 billion of US imports from China and $17.207 billion of China imports from the US could be diverted to other sources (or countries) (Tu et al., 2020). Abdul Abiad et al. (2018) utilized scenarios analysis and input-output analysis to estimate and analyse the direct impact of the US-China trade conflict on all tariff-affected products, the indirect effects of the tariffs on exports, and the impacts of trade redirection toward other producers. It was found that for sectors such as electronics, textiles and chemicals, exports of some developing Asian economies such as Vietnam, Cambodia, and Malaysia… gained a small net positive impact (Abiad et al., 2018).

In general, the previous literature's results provided empirical evidence that there is a trade redirection and substitution for Chinese products in the US, and some of the largest "winners" in export gain are among the members of ASEAN.

2.2. The "China + 1" Strategy and ASEAN's Backgrounds

Though has not been receiving large attention in the academic world, the "China + 1" strategy or phenomenon has been widely discussed in business circles and practiced by many MNEs including Nike, Samsung, LG, Apple, and even the Chinese MNEs like Xiaomi… Keisuke Iida (2015) pointed out that "China + 1" is a corporate diversification strategy, having the same principles as portfolio risk diversification in finance. Corporates, with the presence of a large number of business risks, can diversify either their product lines or internationally investing in a set of appropriate foreign countries (Iida, 2015). Peter Enderwick (2011) identified some motives behind the decision-making process of firms when adopting the "China + 1" strategy. Some of the main motives are that China's rising costs, mainly labour costs, make China

become less competitive as compared to that in the early days of foreign investments into the country and other countries such as Vietnam, Cambodia, and Laos, and that MNEs desire to avoid overdependence on China as either a manufacturing location or a market (Enderwick, 2011). It is favourable for MNEs to diversify their manufacturing bases to countries having proximity in both distance and economic ties with China when adopting the "China + 1" strategy, since it optimizes the business costs when the reliance on China remains strong. It is true that even long before the US-China Trade War, the business risks of engaging with China were recognized and that any disruptive event could lead to an acceleration of the "China + 1" adoption.

Over the past few decades, the ASEAN Economic Community has been adopting policies which liberalize and promote free trade not just among the members but also with important economies in the world, including both the US and China. They put efforts into establishing FTAs and Closer Economic Partnership (CEP), growing their internal market with a population of around 670 million persons as of 2022, giving incentives such as import duty exemptions, tax holidays, accelerated depreciation allowances… for FDI, and developing industrial real estates, export processing zones (EPZs) or special economic zones (SEZs). ASEAN Investment Report 2023 presented that in 2022, the ASEAN region registered a record $224 billion in FDI inflows, which took up more than 17 percent of FDI inflows of the world (Wee & Paulino, 2023). With the shift of GVCs, ASEAN countries are deemed to be the largest "winners". Yoo Sun Jung and Yohan Park (2024) adopted a dynamic compositional approach with firm-level greenfield FDI data to investigate the extensive effects of US-China trade disputes on the transformation of international investments and supply chain dynamics. Their findings indicated that an upsurge in trade disputes between the US and China led to an increase of approximately 12 percentage points in the US firms' market share in the manufacturing sectors of Southeast Asia, both in the short-term and long-term. In addition, MNEs from the European

Union, though they employed a different strategy as compared to those from the US, still maintained a stable engagement in Southeast Asia and treated Southeast Asia as an alternative manufacturing hub to China (Jung & Park, 2024). The belief that MNEs from the US actively consider the Southeast Asian region as a promising alternative market to diversify the risks linked with trade disputes involving China was confirmed by the study.

In general, the fact that ASEAN has become more and more attractive for FDI, along with the rising popularity of the "China + 1" strategy following the US-China Trade War gave rise to the question if ASEAN, given their economic characteristics and their long-pursuing policies, under a disruptive event for the GVCs, have a larger change in trade balance (in goods) with either China or the US, as compared to the period before the event.

2.3. FDI Impacts on Trade

Throughout historical empirical evidence and research, FDI has been discovered to have a tangled relationship with trade. The causality links between FDI and trade are genuinely case-by-case specific. Xiaming Liu, Chengang Wang, and Yingqi Wei (2001) applied a panel data approach to the evaluation of substitutive-complementary causation between FDI inflows and trade in the case of China. Their results indicated that for China, FDI inflows had a bi-directional causality with trade. More specifically, FDI inflows into China from a home country/region were caused by China's import growth, and those FDI inflows caused China's growth of exports to the home country/region (Liu et al., 2001).

Kyoshi Kojima (1973), by employing Vernon's Product Life Cycle model at industry level data, suggested that FDI inflows brought about spillovers in technology and management knowledge and should be based upon the host country's comparative advantage. More specifically, his findings were that the kind of FDI flows to a host country having comparative advantages as compared to the home country, caused the host country's exports to increase (Kojima, 1973).

On the contrary, in the case of India, Zafar Ahmad Sultan (2013) utilized the multivariate vector error correction model on the annual real export and FDI data in the period of 1980-2010 from UNCTADSTAT and found that there was a unidirectional causality from export to FDI direction and not the other way around (Sultan, 2013).

In summary, since the relationship between FDI and trade is quite complicated, and the fact that ASEAN countries have been receiving a large share of FDI since the start of the US-China Trade War, FDI should be included as a covariate. Otherwise, the effects of the US-China Trade War on ASEAN countries may be overestimated.

2.4. Gravity Model of Trade

With its powerful intuitive appeal, the gravity equation has been a workhorse model of trade for more than 50 years. According to Bergstrand (1989), gross bilateral trade flows across countries pairs are commonly explained by the equation:

$$PX_{ij} = \Psi_0 (Y_i)^{\Psi_1} (Y_i/L_i)^{\Psi_2} (Y_j)^{\Psi_3} (Y_j/L_j)^{\Psi_4} (D_{ij})^{\Psi_5} (A_{ij})^{\Psi_6} e_{ij},$$

where PX_{ij} represents the value of the flow from country i to country j in USD, Y_i and Y_j are the USD value of nominal GDP in country i and j, L_i and L_j are the population in country i and j, D_{ij} is the distance between the economic centres of country i and j, A_{ij} represents any other factor(s) either supporting or resisting trade between country i and j, and e_{ij} is a log-normally distributed error term. Ψ_1, Ψ_2, Ψ_3, and Ψ_4 were typically estimated to be positive (Bergstrand, 1989).

As explained by the gravity equation, the bilateral trade flow of two trading partners has a positive correlation with GDP and a negative correlation with the population of the two trading partners. Both the multiples of GDP and population of the two trading partners can be considered as features of their combined economic size.

2.5. Inflation and Trade

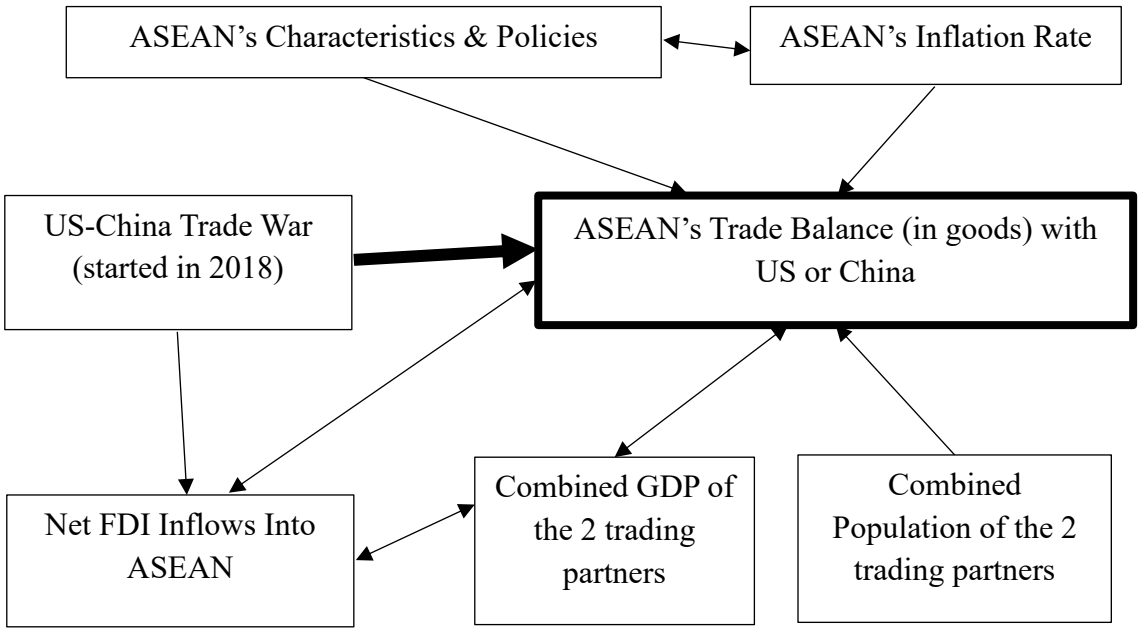
Graeme S. Dorrance (1965) explained the effect of inflation on international trade simply as when prices and costs in a country rose rapidly, goods produced in that country became more expensive than similar goods produced abroad. If the exchange rate does not change, then high inflation in a country encourages imports and discourages exports (Dorrance, 1965). Naptania Ilmas, Mia Amelia, and Rafli Risandi (2022) applied the method of panel data regression to examine the effects of inflation and the exchange rate of five ASEAN countries on their exports. They found that inflation had a negative effect on exports, which is consistent with Graeme's description (Ilmas et al., 2022).

CHAPTER 3 – CONCEPTUAL FRAMEWORK

The US-China Trade War and its "bystander effects", which can be viewed simply as the substitution of importing destinations, the "China + 1" strategy, the noticeable jump in the amount of FDI flooded into ASEAN and some other country-specific factors such as population, GDP and inflation rate are expected to have effects on the trade balance (in goods) of the ASEAN members. This study examines the change in the trade balance (in goods) of the ASEAN member states with either the US or China, before and after the US-China Trade War, with a goal to shed light on whether ASEAN is being considered as an attractive alternative source for manufacturing goods. Under the setting of a disruptive event for the global economy like the US-China Trade War, in which MNEs had to rethink and adapt their business strategies and business risk management practice, ASEAN's characteristics, along with its long-pursuing policies and goals should offer valuable insights into the practice of international trade in relation with development and GVCs participation.

The reason why trade balance (in goods) was chosen to be examined is that when compared with its alternative indicator of trade, the total trade volume, trade balance (in goods) has the advantage of indicating the dominant direction of trade between two trading partners. For example, when one country experiences a trade surplus with its trading partner, it indicates that the country exports more to its trading partner than spending on imports from its partner. While the total trade volume between two trading partners can only present how active the two partners engage in trade, the lack of a dominant direction of trade makes it less useful in providing evidence for the shift of international trade. In addition, trade balance (in goods) can also indicate the comparative advantage of one trading partner over the other, as both sides stand to gain from trade when goods are produced where costs are lower (Titievskaia & Pietsch, 2019).

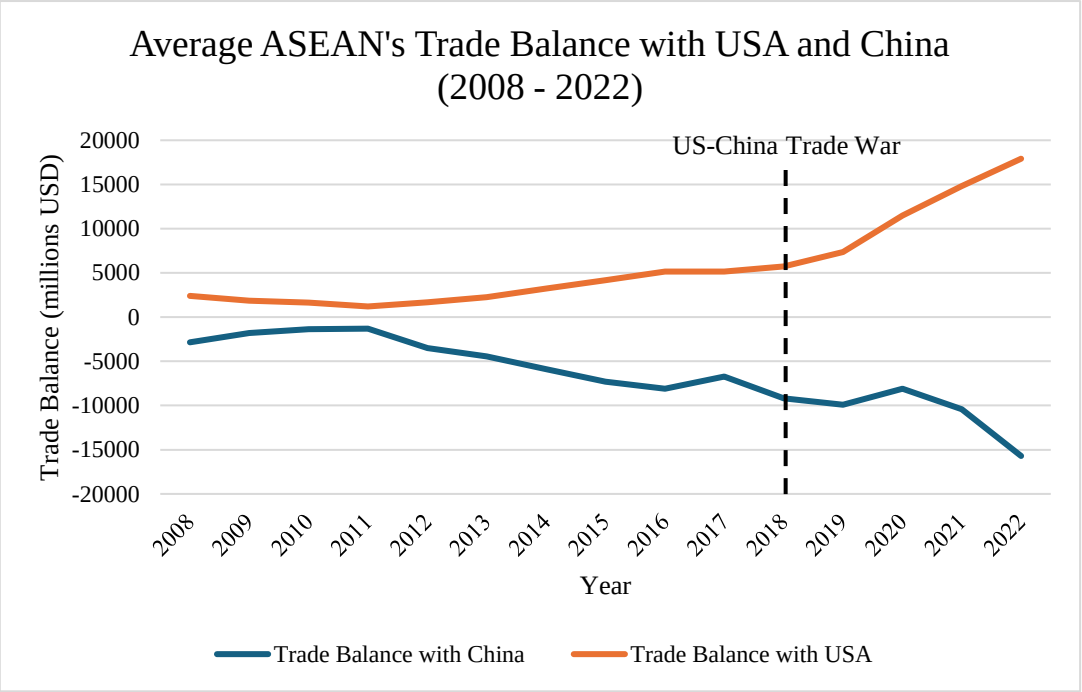
Figure 1. Factors Affecting ASEAN's Trade Balance (in goods) with the US or China



Source: The author's concept

Figure 1 presents only the association, and not causality, between the factors which are examined in this study. The dependent variable to be examined is the ASEAN's trade balance (in goods) with either the USA or China, which is shown inside the box with the thickest borders. The double-headed arrows represent that both factors may have direct effects on one another in the long-term, while the one-head arrows represent that there may exist only one-way effects. For example, ASEAN's population may have direct effects on ASEAN's trade balance (in goods) in the long-term, but it is unlikely for the other way around, mostly because of a lack of theoretical background or empirical evidence. The largest arrow demonstrates the most important effect, which is the effect of the US-China Trade War on the ASEAN's trade balance (in goods) with either the US or China. The factors affecting ASEAN's trade balance (in goods) with the US or China surely have complicated relationships with each other, especially the FDI net inflows. Therefore, the correlation between all the confounders should be examined, by adapting the Pearson correlation matrix method on the explanatory variables, to assure that multicollinearity is not problematic for the results of the study.

Figure 2. ASEAN's Average Trade Balance (in goods) with the US and China (2008 – 2022)

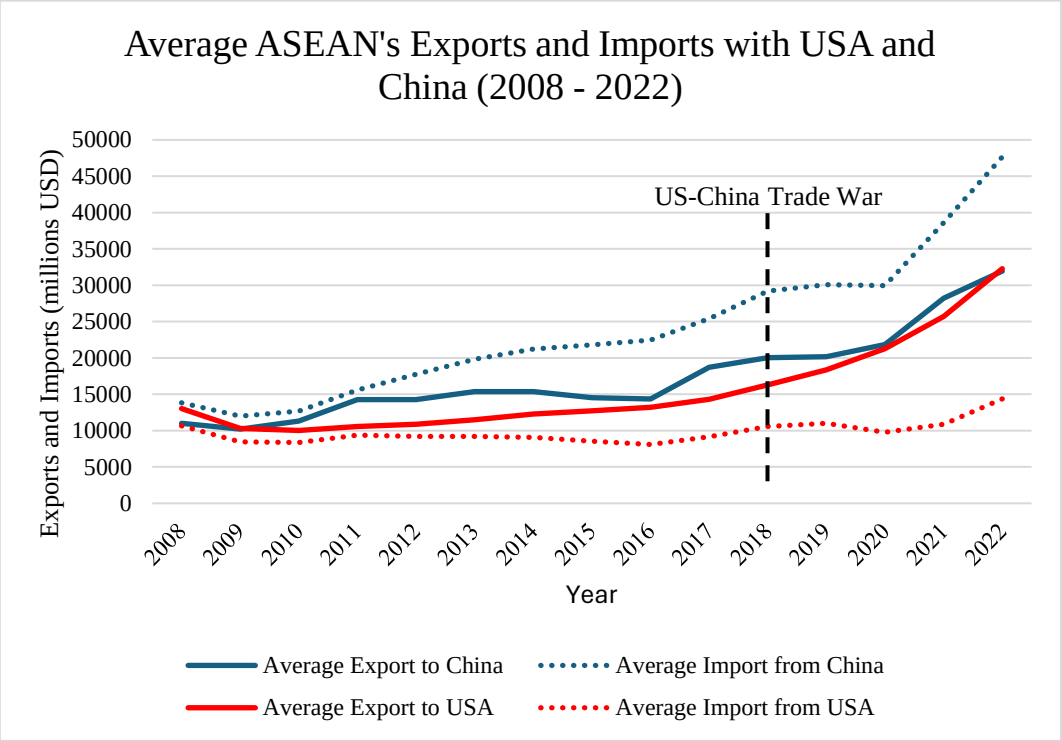


Source: The author's estimation with data obtained from UN COMTRADE

Figure 2 presents the ASEAN's relationships with the US and China through its trade balance (in goods). As has been shown, ASEAN members have an average trade surplus with the US and an average trade deficit with China throughout the period of 2008 – 2022, which was 15 years. The long-term ASEAN's trade surpluses with the US and trade deficits with China are therefore assumed to remain unchanged throughout time, indicating that they will continue in the future.

Though mathematically, when the trade balance (in goods) increases or decreases, it can be due to the export and import both decreasing, but one of them decreases more than the other one. Both export and import, in reality, tend to grow, and trade balance (in goods) can result in a positive or a negative number depending on whether export or import grows faster. ASEAN countries' exports and imports with either the US or China have been growing throughout the years in the period 2008 – 2022. Figure 3 presents the ASEAN's average exports and imports with both USA and China for the period of 2008 – 2022.

Figure 3. ASEAN's Average Exports and Imports with the USA and China (2008 – 2022)



Source: The author's estimation with data obtained from UN COMTRADE

Since both ASEAN's average exports and imports increased over the years, when the trade balance (in goods) of ASEAN increased or decreased, it was because their exports increased more than their imports, or that their imports increased more than their exports.

Ideally, if the happening of US-China Trade War has a positive and negative impact, respectively on the ASEAN's trade balance (in goods) with the US and China, then evidence for the shift of USA's importing destinations, or the "bystander effects" are provided, which implies that ASEAN is becoming more and more attractive as a substitute for China in being a manufacturing goods source. The effects of the US-China Trade War on ASEAN's trade balance (in goods) with either the USA or China can provide proof for the fact that ASEAN may have become intermediate suppliers of manufacturing goods.

Furthermore, if the effects of FDI inflows into ASEAN and the US-China Trade War on ASEAN's trade balance (in goods) with China and USA are positively correlated and

statistically significant, along with the fact that MNEs still depend on Chinese suppliers, then there is evidence for the claim that ASEAN is becoming an attractive manufacturing location. It is assumed that MNEs seeking to diversify their manufacturing bases in ASEAN will have to import inputs from Chinese suppliers to manufacture the products for end customers and then export them to the US.

In summary, the US-China Trade War is expected to have positive impacts on the ASEAN's trade balance (in goods) with the US, and negative impacts on the ASEAN's trade balance (in goods) with China. The expectations for the impacts of FDI net inflows on ASEAN's trade balance (in goods) with the US and China are the same as those of the US-China Trade War. The US-China Trade War's impacts are the most important for the scope of this research, while the relationships of other variables are not of concerns.

CHAPTER 4 – DATA AND METHODOLOGY

4.1. Data and Descriptive Statistics

All of ASEAN's official 10 member countries were chosen for the scope of the study. ASEAN, by serving as an economic and political union which presents the collective will and joint efforts of the nations of Southeast Asia to bind themselves together for peace, freedom, and prosperity, gives out regulations and rules which the members must abide by. The rules and regulations which was assigned by ASEAN provide a common ground for the establishment of strategic planning for its members. Therefore, it is not unreasonable to assume that ASEAN members have enough similarities to generally experience the effects of a global disruptive economic event like the US-China Trade War in the same manner.

The period of 2008 – 2022 was chosen for the data collection process, since most of the countries have enough data throughout the period, and it is the period after the happening of Global Financial Crisis (GFC) 2007 – 2008. Therefore, by choosing the 2008 – 2022 period, the effects of the US-China Trade War can be clearly estimated without the need to control for the effects of GFC, since the 2008 – 2022 period can be divided into two periods, which are the pre and post US-China Trade War periods.

The research data for this study was extracted from three sources, which are the UN Comtrade Database (United Nations, 2024), the World Development Indicators (WDI) (World Bank, 2024), and the International Monetary Fund (IMF) (International Monetary Fund, 2024). The collected data does not contain enough information for the econometric models of the study, yet all the variables to be implemented into the models can be computed from there. The four computed variables are Trade Balance (in goods), GDPMass, PopMass, and a US-China Trade War dummy. Table 1 describes the collected data and the variables utilized in this study, and the computation method for the additional four variables.

Table 1. Data and Variables Description

		Variables	Measurement	Source
Implemented into the Empirical Model	**Available from the Collected Data**	Year	The year of the recorded data	UN COMTRADE
		Country	The country from which the data was recorded	UN COMTRADE
		Export (to USA or China)	The total value of all goods exported from the reporter country to USA or China (in USD)	UN COMTRADE
		Import (from USA or China)	The total value of all goods imported from USA or China to the reporter country (in USD)	UN COMTRADE
		GDP (in current USD)	The GDP of the country, converted to current USD using single official exchange rates	WDI
		FDI Net Inflows (in current USD)	The amount of FDI net inflows which the country received	WDI
		Population, total	The total count of the country's residents	WDI
		Inflation, consumer prices (%)	The annual inflation rate of the country, measured by consumer prices method	WDI, IMF
	Computed from the Collected Data	Trade Balance (in goods) (with USA or China)	The trade surplus or deficit of the country with the USA or China, computed by the formula: Export – Import	The author's computation
		GDPMass (with USA or China)	GDP of either USA or China × GDP of the ASEAN country (in the same year)	The author's computation
		PopMass (with USA or China)	USA or China's Population × ASEAN country's Population (in the same year)	The author's computation
		USChinaTradeWar	A dummy variable of pre and post US-China Trade War periods, taking the value of 0 for the years before 2018, and 1 for the years from 2018	The author's definition

Source: UN COMTRADE, WDI, IMF, and the author's estimation

The GDPMass and PopMass variables can be implied as features of the two trading partners combined economic size.

There will be one panel dataset for the trade balance (in goods) between ASEAN and the US, and another one for the trade balance (in goods) between ASEAN and China. Each dataset contains 145 country-year observations, and each observation contains information of Year, Country, Trade balance (in goods) with the USA or China, a US-China Trade War dummy, GDPMass, PopMass, and Inflation Rate (consumer prices). The datasets are unbalanced panel data because there are missing observations in some countries at the beginning or the end of the 2008 – 2022 period. Table 2 presents the summary statistics of ASEAN countries' characteristics.

Table 2. Summary Statistics

Variables	**Mean**	**Std. dev.**	**Min**	**Max**
Trade Balance (in goods) with USA (billion USD)	5.75	14.4	-16.8	95
Trade Balance (in goods) with China (billion USD)	-6.48	11	-60	13.1
FDI Net Inflows (billion USD)	13.9	24.3	-4.95	141
ASEAN's GDP (billion USD)	272	280	7.13	1320
ASEAN's Population (million people)	64.8	75	0.384	276
Inflation, Consumer Prices (%)	3.61803	3.851941	-1.260506	24.09685

Source: The author's estimation from collected data

Since there are two datasets, there are two values for the trade balance (in goods). The mean of ASEAN country's trade balance (in goods) with the US is approximately 5.75 billion USD, while the mean of ASEAN country's trade balance (in goods) with China is around -6.48 billion

USD. For the value of ASEAN's FDI net inflows, the mean is around 13.9 billion USD. All the variables have a large standard deviation, which indicates that ASEAN countries have large differences between themselves, and between each year, considering their characteristics.

4.2. Methodology

Pearson correlation matrices were applied to uncover the preliminary relationship between the independent variables. Table 3 presents the results for Pearson correlation matrices.

Table 3. Pearson Correlation Matrices

a) Pearson Correlation Matrices for the ASEAN's Trade Balance with the USA dataset

	US-China Trade War	FDI Net Inflows	GDPMass (with USA)	PopMass (with USA)	Inflation Rate
US-China Trade War	1.0000				
FDI Net Inflows	0.1378 (0.0983)	1.0000			
GDPMass (with USA)	0.2784 (0.0007)	0.3162 (0.0001)	1.0000		
PopMass (with USA)	0.0507 (0.5450)	-0.0398 (0.6348)	0.8076 (0.0000)	1.0000	
Inflation Rate	-0.0912 (0.2753)	-0.1118 (0.1805)	-0.0796 (0.3412)	0.1637 (0.0491)	1.0000

b) Pearson Correlation Matrices for the ASEAN's Trade Balance with China dataset

	US-China Trade War	FDI Net Inflows	GDPMass (with China)	PopMass (with China)	Inflation Rate
US-China Trade War	1.0000				
FDI Net Inflows	0.1378 (0.0983)	1.0000			
GDPMass (with China)	0.3665 (0.0000)	0.3184 (0.0001)	1.0000		
PopMass (with China)	0.0458 (0.5846)	-0.0404 (0.6295)	0.7391 (0.0000)	1.0000	
Inflation Rate	-0.0912 (0.2753)	-0.1118 (0.1805)	-0.1049 (0.2094)	0.1657 (0.0464)	1.0000

Notes: Significance level in parentheses

Source: The author's estimation

The linear correlations between the US-China Trade War variable and other independent variables range from -0.0912 to 0.3665, indicating that multicollinearity is not a concern for

the empirical model. Though the correlations between the GDPMass and PopMass variables are more than 0.7 for both datasets, the effects of these variables on the dependent variable, which is the trade balance (in goods), are not important for the scope of this study. All other values for the linear correlation between independent variables remain small, with the maximum being 0.3184, once again implying that multicollinearity is not problematic for the empirical model.

The empirical model was developed by applying the fixed-effects model, based on the gravity equation incorporating more independent variables as follows:

$$TradeBalance_{it}^{j} = \alpha + \beta_1 USChinaTradeWar + \beta_2 FDINetInflows_{it} + \beta_3 PopMass_{it}^{j} + \beta_4 GDPMass_{it}^{j} + \beta_5 InlationRate_{it} + u_i^j + \varepsilon_{it}^j,$$

where *i* represents individual ASEAN countries, *j* represents the US or China, *t* represents the time period, u_i^j is the unobserved country-specific effect, and ε_{it}^j is the error term. The fixed-effects model is applied to the two datasets separately. To be clearer, the dependent variable is the trade balance (in goods) of each ASEAN country with US or China per year, and the independent variables include the US-China Trade War dummy, the amount of FDI net inflows each ASEAN county received per year, the GDPMass and PopMass of each ASEAN country with either US or China each year, and the inflation rate of each ASEAN country per year.

The unobserved time-specific effect was not included in the model because of two main reasons. The first reason is that the US-China Trade War dummy variable, by its definition, taking the value of 1 for the period from 2018 to 2022, correlates greatly with time. Next, the time-specific fixed effect captures the variation in the trade balance (in goods) caused by unobservable factors that change over time but are constant over countries. Therefore, to capture the effects of the US-China Trade War relatively precisely, which is a factor that changes with time, the time-specific effects should not be present in the empirical model.

The advantage of the fixed-effects model when including only the country-specific effect allows the capture of variation in the trade balance (in goods) caused by unobservable factors that are different across countries but fixed over time, such as the distance between the two trading partners, which may not simply be the geographical distance. Yet, this is also the disadvantage of the fixed-effects model because it may not be able to account for the variation in the trade balance (in goods) caused by all unobservable factors which vary across both countries and time. Such factors can include the changes in individual countries' policies, in the middle of the 2008 – 2022 period, with the aim to capture the benefits brought about by the US-China Trade War for bystanders. The conventional standard errors for generalized least-squares regression are implemented. In the presence of heteroskedasticity, the results' interpretability may be less compelling. Further studies are recommended to precisely account for the factors which vary both across individual countries and across time.

CHAPTER 5 – RESULTS AND DISCUSSION

In this section, the empirical results of the fixed-effects model are presented and discussed. Table 4 presents the empirical results for the ASEAN's trade balance (in goods) with the US.

Table 4. Fixed-effects Regression Results for ASEAN's Trade Balance (in goods) with the US

Fixed-effects (within) regression			Number of Observations = 145	
Group variable: Country			Number of Groups = 10	
R-squared:			Within = 0.3347 Between = 0.1646 Overall = 0.0465	
Trade Balance (in goods) with the US	Coefficient	Standard Error	t	P > |t|
USChinaTradeWar	5,060,000,000	1,700,000,000	2.98	0.003
FDI Net Inflows	-0.0492	0.0672	-0.73	0.465
GDPMass (with the US)	1.82e-15	6.04e-16	3.02	0.003
PopMass (with the US)	-1.16e-06	6.37e-07	-1.81	0.072
Inflation Rate (Consumer Prices)	-648,000,000	202,000,000	-3.21	0.002
Constant	21,500,000,000	11,100,000,000	1.93	0.056
σ_u	28,080,000,000			
σ_e	7,754,000,000			

Source: The author's estimation

The within R-squared is 0.3347, which indicates that around 33% of the variation in the trade balance (in goods) with the US, within each ASEAN country, is accounted for by the model. The between R-squared is 0.1646, which indicates that around 16% of the variation in the trade balance (in goods) with the US, between ASEAN countries, is captured by the model. The coefficient of the US-China Trade War dummy variable is around 5,060,000,000, indicating that for the period of post US-China Trade War, the ASEAN's trade balance (in goods) with the

US is around 5.06 billion USD higher, on average, than that of the period before the US-China Trade War happened. This coefficient is statistically significant at the 5% level, with a p-value of 0.003, and has standard errors of around 1.7 billion.

Next, table 5 presents the empirical results for the ASEAN's trade balance (in goods) with China.

Table 5. Fixed-effects Regression Results for ASEAN's Trade Balance (in goods) with China

Fixed-effects (within) regression		Number of Observations = 145		
Group variable: Country		Number of Groups = 10		
R-squared:		Within = 0.3177 Between = 0.1985 Overall = 0.1810		
Trade Balance (in goods) with China	Coefficient	Standard Error	t	P > |t|
USChinaTradeWar	-4,080,000,000	1,290,000,000	-3.17	0.002
FDI Net Inflows	0.0881	0.0497	1.77	0.078
GDPMass (with China)	-4.03e-16	5.08e-16	-0.79	0.428
PopMass (with China)	-1.26e-07	1.19e-07	-1.06	0.291
Inflation Rate (Consumer Prices)	307,000,000	152,000,000	2.02	0.045
Constant	5,150,000,000	9,670,000,000	0.53	0.595
σ_u	13,380,000,000			
σ_e	5,827,000,000			

Source: The author's estimation

The within R-squared is 0.3177, which indicates that around 32% of the variation in the trade balance (in goods) with China, within each ASEAN country, is accounted for by the model. The between R-squared is 0.1985, which indicates that around 20% of the variation in the trade balance (in goods) with China, between ASEAN countries, is captured by the model. The coefficient of the US-China Trade War dummy variable is around -4,080,000,000, indicating

that for the period of post US-China Trade War, the ASEAN's trade balance (in goods) with China is around -4.08 billion USD lower, on average, than that of the period before the US-China Trade War happened. This coefficient is statistically significant at the 5% level, with a p-value of 0.002, and has standard errors of around 1.29 billion.

The empirical results are consistent with the expectation that the happening of the US-China Trade War has a positive impact on ASEAN's trade balance (in goods) with the US, and a negative impact on ASEAN's trade balance (in goods) with China. The US-China Trade War amplified the dominant direction of trade of ASEAN countries with either the US or China. With the USA, the ASEAN's dominant direction of trade is export, while with China, this direction is import. Furthermore, the results implied that for the period after the US-China Trade War, the USA imported, on average, a substantial amount of more goods from ASEAN, while China exported, on average, a substantial amount of more goods to ASEAN, compared to the period before the event. The average increase in ASEAN's trade balance (in goods) with the USA exceeded the average decrease in their trade balance (in goods) with China. Along with the fact that trade balance (in goods) can indicate comparative advantages in certain goods of one trading partner over the other, this implies that evidence for the shift of USA's importing destinations is provided, suggesting that ASEAN is becoming more attractive as an alternative to China in being a manufacturing goods source. Considering the collected datasets, however, there are only four years within the period of post US-China Trade War, which is more than two times less than that within the period before the happening of US-China Trade War. This may mean that further research should be conducted to examine the long-term effects of the US-China Trade War.

From the obtained coefficients results of the FDI net inflows variable, their p-values are both more than 0.07, which indicates that FDI net inflows may not have impacts on the trade balance (in goods). This may be due to the FDI net inflows data containing the net inflows of all kinds

of FDI, not just the green-field FDI, in which companies establish or expand their business operations abroad and create new facilities from scratch, or the export-oriented FDI. More importantly, considering that the FDI net inflows received by ASEAN countries may have no effect on their trade balance (in goods) with either the USA or China, there is not enough evidence for the belief that ASEAN is becoming an attractive manufacturing location.

In summary, the US-China Trade War was more likely to create opportunities for ASEAN countries to gain in their net exports to the US, and further enlarge their trade deficits with China. Evidence for the belief that ASEAN is becoming a substitute manufacturing goods source, for China, is provided. Nevertheless, the results did not provide enough persuasive evidence to conclude that ASEAN is becoming an attractive manufacturing location.

With the opportunities and setbacks generated by the US-China Trade War, ASEAN countries and the MNEs which had already established manufacturing plants in the region gained benefits in many ways. ASEAN region's position and integration in the GVCs clearly has been elevated, as it can be confirmed that ASEAN is not far behind China, in terms of their comparative advantages in the manufacturing goods sectors. The long-term effects of the US-China Trade War may remain a mystery, but if the ASEAN countries effectively exploit, sustain, and enhance their comparative advantages and trade openness, then it is expectable to observe their deeper integration into the GVCs. While for the MNEs which had established manufacturing plants in ASEAN, the disruptive US-China Trade War offered them a chance to rely less on China, both as a manufacturing location and a market. In addition, all MNEs had to reconsider their business risk diversification strategy to prepare for unpredictable economic and political shocks in the future. However, for the MNEs which only started to adopt the "China + 1" strategy and chose ASEAN as their alternative locations, whether they could reap any benefit from the US-China Trade War remains ambiguous.

CHAPTER 6 – CONCLUSION

This research focused on investigating how the trade balance (in goods) of ASEAN countries with either USA or China, before and after the happening of the US-China Trade War, by applying the fixed-effects approach. Under the setting of the US-China Trade War, which created the environment for the winnings of bystander countries, ASEAN has reaped great benefits with the substantial increase in their trade balance (in goods) with the US. As demonstrated by the results of this paper, ASEAN experienced, on average, a larger trade surplus in goods with the US and a larger trade deficit in goods with China after the happening of the US-China Trade War, which indicates that ASEAN may have become intermediate suppliers for manufacturing goods. Along with the dependency of MNEs on China and the famous "China + 1" business risk diversification strategy, ASEAN, given their social and economic characteristics and their long-pursuing policies of trade liberalization, were confirmed to become an alternative source to China in manufacturing goods. Nevertheless, there is not enough evidence to conclude that ASEAN is becoming an attractive manufacturing location. The paper's results have contributed more evidence to the existing literature on the "bystander effects", the shift of the GVCs, and the importance of its integration.

The methods implemented in this paper, however, have several limitations. One of the major limitations was that the fixed-effects model did not account for all unobservable factors which change both through time and across ASEAN countries, in the concerned period of 2008 – 2022. Next, the datasets utilized in the paper only contain four years of the post US-China Trade War period, making it ambiguous for interpreting the long-term effects of the event. Lastly, examining the total trade balance (in goods) of certain countries may not give a clear sign of which sectors those countries have comparative advantages in. Further studies are recommended to explore these limitations and provide clearer details on the shift of GVCs and the rising importance of the ASEAN region in the global supply chain networks.

CHAPTER 7 – POLICY IMPLICATIONS

The US-China Trade War may only be one of the global economic disruptive events, but its suddenness and adverse effects have brought upon the environment for the ASEAN governments to reconsider their long-term economic strategies. Even if ASEAN countries were not anticipating how much they have gained from the US-China Trade War, it is still reasonable for ASEAN's governments to keep an eye open for such events in the future.

Based on the results of this study and previous literature, ASEAN's governments are recommended to seize the economic opportunities created by the shift of the GVCs to develop deeper intra-region and global economic integration. Sustaining and enhancing the trade openness that ASEAN has been pursuing, which can be achieved through the elimination of trade barriers including both tariff and non-tariff measures, is one of the most important suggestions. Additionally, ASEAN governments can push for the establishment of new FTAs with more countries and regions external to ASEAN, strategically focusing on the goods in which ASEAN has comparative advantages over the others. Going together with this are the tailored policies such as tax exemptions and subsidies in certain sectors for attracting export-oriented FDI and green-field FDI.

Finally, the strengths of ASEAN economy and politics should not be neglected in the process of deeper integrating into the GVCs, since they can determine both the comparative advantages and the market size supporting ASEAN's internal and international trade. Exploiting the knowledge and technology spillovers from FDI, preserving political stability within and between individual ASEAN countries, and developing sustainable manufacturing processes in certain goods are some of the goals which should be aimed at.

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