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The Third-country Effect of the United States-China Trade War on Viet Nam

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Abstract: *The United States (US)–China trade war created new export opportunities for countries connected with the US and China by global value chains. We focus on the case of Vietnamese firms and examine a third-country effect by exploiting the firm-level variations in the extent of connections to the US and China with global value chains.*

Keywords: Global value chains (GVCs), Viet Nam, US–China trade war

1. Introduction

Some scholars speculate that the global economy has just entered the period of 'deglobalisation' or 'slowbalisation' – the process of reducing or reversing global integration through trade interconnectedness.[1] One of the culprits for such a reversal is the geopolitical tension between the United States (US) and China, unleashed by the imposition of tariffs during the Trump administration in 2018. Deglobalisation is a complex and multifaceted process, and its implications can vary across different countries and regions. Hence, it is important to study how trade protectionism unleashed in the US–China trade war has had global as well as regional impacts.

In this context, this paper examines the impacts of the US–China trade war that heightened in 2018–2020 on Vietnamese firms through the linkages of global value chains (GVCs). We use a set of unique survey questions about the involvement of GVCs at the firm level, cultivated from the Technology and Competitiveness Survey (TCS) and the Vietnam Enterprise Survey (VES). Using the constructed dataset, we set up difference-in-differences (DiD), which allows us to assess the evolution of relative outcomes (firm performance indicators) whilst controlling for firm-fixed unobserved and time-invariant attributes with the intervention of the US–China trade war enacted in 2018.

Our analysis reveals that those importing inputs (especially from the US) expanded in employment in the US–China trade war period compared to the control firms. We have yet to explore the mechanism behind this, but it could be related to expanded export opportunities to the US, as found in other studies (e.g. Fajgelbaum et al. (2024)).

Related Literature

Mao and Gorg (2020) conducted an analysis calculating the cumulative tariff rates for third countries interlinked with both the US and China through GVCs. Their rationale is grounded in the understanding that products imported by the US from China frequently serve as intermediate inputs in goods that are subsequently re-exported by the US. Consequently, heightened tariffs on Chinese imports have a cascading effect on third countries, driving up prices, especially for nations deeply embedded in US production chains via GVCs. Ma et al. (2021) explored the ramifications of retaliatory tariffs imposed by China on its imports from the US. Additionally, Cigna et al. (2021) not only corroborated the adverse impact of US tariffs

[1] https://www.imf.org/en/Blogs/Articles/2023/02/08/charting-globalizations-turn-to-slowbalization-after-global-financial-crisis

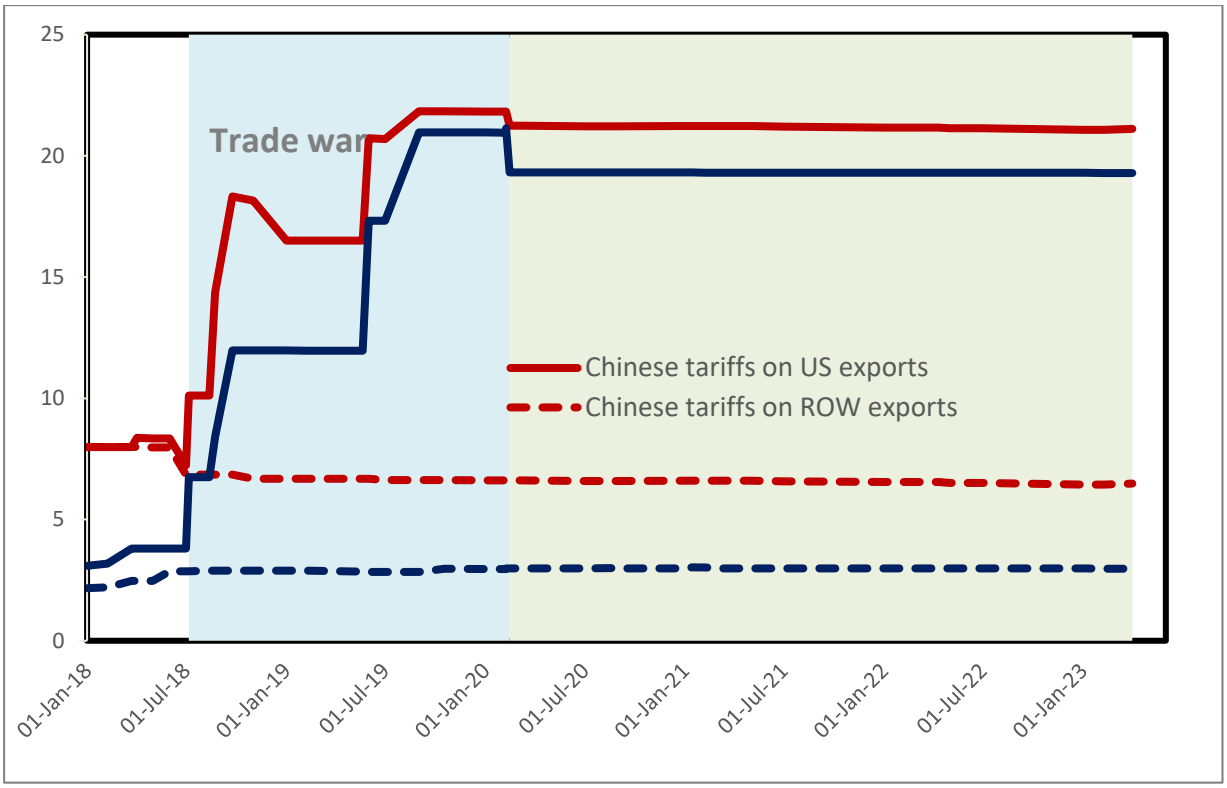
on its imports from China but also emphasised the absence of immediate trade diversion effects towards third countries following the implementation of the Trump administration's tariffs. Hayakawa et al. (2024) found evidence for the negative cascading effects on input suppliers in Taiwan in the US–China trade war. Due to the concentration of exported-oriented foreign direct investment (FDI) by Taiwanese firms, the US tariffs on Chinese exports had direct ripple effects on exports of inputs from Taiwan to China in high-tech sectors. Fajgelbaum et al. (2024) conducted a comprehensive analysis of the trade diversion effects within the global trade landscape and identified varying responses by third countries, including an upswing in global trade in products targeted by tariffs in the context of the US–China trade dispute. In a more recent paper, Fajgelbaum et al. (2024) constructed a Ricardian-Armington trade model to examine the possibilities of the reallocation of global exports unleashed by the US–China trade conflicts. They found that on average, bystanders increased their exports to the US, barely changed their exports to China, and increased their exports to the rest of the world in products with higher US–China tariffs. So, whilst the US and China taxed each other, the average country increased its global exports in targeted products relative to untargeted products. Therefore, the trade war created net trade opportunities rather than simply shifting trade across destinations. Furthermore, some countries, such as Viet Nam, Thailand, the Republic of Korea, and Mexico were among the largest export 'winners' in the sense that they better exploited trade opportunities in product markets with declining US or Chinese participation. The average export growth in taxed products across countries is 6.4% with a standard deviation across countries of 6.2%. Again, Viet Nam has been marked as a net gainer from the US–China trade conflict. Apart from Hayakawa et al. (2024), existing studies have not focused on the aspects of GVC connections with the US–China trade war. Hence, at this juncture, there is a strong need to examine this further channel for how shocks inflicted by the US–China disputes on GVCs are propagated. For this study, we take up the case of the US–China trade conflict and its impact on a third country, Viet Nam. This study is framed within the broader body of the literature focused on quantifying the repercussions of the tariff policies instated during the Trump administration, specifically examining their indirect or spillover effects within GVCs.

2. Background

Tariff Episode

Former US President Trump launched the trade war against China immediately after coming to office by imposing scheduled tariffs. During the escalated tariff war between the US and China, tariffs amounted to more than US$550 billion in Chinese products between February 2018 and May 2019, and China retaliated with tariffs on more than $185 billion of US goods. This series of trade wars was initiated with the imposition of a 30% tariff rate by the US on imports of solar panels on 22 January 2018. This was not only intended for imports from anywhere. On the same day, a tariff rate of 20% was also placed on washing machines for the first 1.2 million units imported to the US during the year, again not targeting explicitly China (Flaaen et al., 2020). On 1 March 2018, US tariffs of 25% on steel and 10% on aluminium were imposed. Whilst China was not explicitly named in these initial tariffs, China was the major exporting country to the US in the pre-tariff imposition period (Egger and Zhu, 2020). Figure 1 traces the changes in tariffs during the US‑China disputes.

Figure 1a. United States and China Tariff Changes, January 2018–January 2023



ROW = rest of world, US = United States.
Source: https://www.piie.com/research/piie-charts/US–China-trade-war-tariffs-date-chart

Figure 1b. Share of United States and China in Total Exports, January 2018–January 2023
(%)

US = United States.
Source: https://www.piie.com/research/piie-charts/US–China-trade-war-tariffs-date-chart

With tariff changes by the US against China, machinery, apparel, and transport had a larger increase. China, in contrast, put up tariffs targeted at agriculture and minerals against the US. Following the doctrine of comparative advantages, one would expect that the US has comparative advantages in capital-intensive goods, such as machinery and transport, vis-à-vis China. However, changes in China's tariffs against US exports do not follow comparative advantage.

China and the US stand as the primary export destinations for most Association of Southeast Asian Nations (ASEAN) countries, including Viet Nam. Through regional value chains, ASEAN countries have been well embedded in the system. Consequently, any trade disputes between them are likely to be propagated through ASEAN (and Viet Nam) through its regional supply chains (Fajgelbaum et al., 2024).

Even before the US–China tension was on the rise, the regional value chain was at the reformation stage, with Viet Nam benefiting from the diversion away from China . Viet Nam's share in US imports experienced a huge gain from 2.2% in 2010 to 10.5% in 2022. In parallel, China's share in US imports slid from 54% in 2010 to 43% in the same period.[2] More diversion is evident in electrical machinery and equipment (including mobile phones); whilst the share of Viet Nam in US imports jumped from 4.6% to 15.5% from 2018 through 2022, that of China decreased from its peak of 63% to 48% in the same period. It is becoming clear that Viet Nam has been a gainer, substituting the place of China along with other ASEAN countries (Hanson, 2020).

What is the connection of the rise of Viet Nam to GVCs? GVCs are broadly described as the process of breaking up the vertically integrated production process into finer stages and the relocation of each stage to the most suitable locality across borders (World Bank, 2020). Naturally, GVCs cover cross-border exchanges of parts and components in intra-firm transactions between parent firms of multinational enterprises (MNEs) and their foreign affiliates, together with international arm's-length subcontracting transactions (inter-firm trade with unaffiliated suppliers) in the extended networks. By this definition, GVCs are susceptible to the amplification of a shock to the system. For instance, Yi (2003) makes the point that even a small tariff reduction has a so-called 'magnification effect' on fragmentation trade. This is because, unlike finished products, components and unfinished products can cross international borders multiple times before reaching the final stage of the production process. Any marginal reduction in the protection scheme can significantly lower trade costs.

Antràs (2020), in contrast, argues that the existence of relationship stickiness in GVCs remains resilient to short-term external shocks. Because GVC networks depend heavily on technology-intensive components (e.g. sound displays, memory chips, microprocessors, power and mechanical components, and advanced design and development) supplied by related main suppliers, this procurement arrangement essentially blocks outside vendors from becoming involved with GVCs, especially in the short-term shocks. The advantages include adaption to volatile markets, as suppliers can respond quickly to changing market conditions by allowing for the replacement of workers and suppliers at short notice. With a study of the effects of the earthquake in northern Japan in 2011, Todo et al. (2015) present evidence that the more pre-existing extensive production networks in terms of the number of suppliers outside the affected

[2] https://www.ide.go.jp/English/ResearchColumns/Columns/2022/ian_coxhead.html

regions, the quicker the recovery process of the supplier's links is. This in turn implies the resilience of GVCs to shocks as prescribed by Antràs (2020).

3. Data

We describe two sources of microdata, the Technology and Competitiveness Survey and the Vietnam Enterprise Survey.

Technology and Competitiveness Survey

We supplement information on GVC involvement with the Technology and Competitiveness Survey (TCS). The TCS is a subset of the Vietnam Enterprise Survey (VES) that focuses on enterprise innovation and technology. The TCS re-interviews a consistent cross-section of firms each year, creating a comprehensive panel dataset. The longitudinal nature of the dataset and the level of detail in the information collected make it a rare and valuable data source, enabling the analysis of changes within individual firms over time.

The TCS is implemented as an additional part of the General Statistics Office's (GSO) annual Enterprise Survey, for which firms are sampled based on the 2005 census of all registered firms with 10 or more employees. Additionally, only registered firms with more than 30 employees in 2005 from urban areas of Ha Noi and Ho Chi Minh City were included in the survey. The survey was conducted by approximately 300 enumerators in face-to-face interviews, with enumeration completed by hand. The enumerators were guided by 75 supervisors. The data were digitised, extensively cleaned, and checked for consistency.

Using the above information, we can measure the exposure to the US–China trade war through GVC connection channels at the firm level.

Without access to firm-to-firm transaction information, such as that presented in Bems and Kikkawa (2021), our approach using the specific survey question about involvement in GVCs is less than ideal. However, we argue that this definition of GVC involvement is still an improvement compared to studies measuring GVCs in industries and regions, using international input-output tables (Fernandes et al., 2021). With the absence of an import competitive matrix in the case of Viet Nam, several strong assumptions have been imposed to elicit the degree of GVC linkage.

Furthermore, whilst Mayr-Dorn et al., (2023) do not focus on GVCs, they use the Bartik type of the shift-share approach by measuring trade war exposure at the district level as a

weighted sum of industry-specific export changes, where the weight is given by the employment shares of workers in the district across industries in the pre-trade war period.

Vietnam Enterprise Survey

The Vietnam Enterprise Survey (VES) has been conducted annually by the GSO of Viet Nam since 2000. The survey covers registered firms in all economic sectors, namely agriculture, industry construction, and services. All foreign direct investment firms and state-owned enterprises are included. As for domestic private firms, a certain firm-size threshold is applied. This threshold changes across years and has increased significantly in recent years as the population size increases. Firms whose number of employees falls below the threshold are chosen by random sampling. This sample of domestic firms is representative of the industry-province level.

The master data contain information about the industry in which a firm operates, ownership type, number of employees, sales, production costs, assets and liabilities, and investment, amongst others. In addition, there are industry-specific questionnaires depending on the sector in which firms operate. The industry is classified according to Viet Nam's Standard Industrial Classifications, which is based on ISIC, various versions.

It is worth noting that, before 2018, for non-census years the database also reports observed information on industry, revenue, and employment for domestic firms that are not surveyed, taken from tax records. Other information on listed firms is imputed by calculating the average values of the surveyed firms at the industry-province level. These imputed firms can be identified by a list provided by the GSO.

Table 1 depicts the sample construction. We started with the VES sample, which stores information about basic firm characteristics. Note that the years 2011, 2016, and 2020 are the census years. This means that the sample size is larger in the census years. The VES sample is then added with information on GVCs from the TCS survey.

Table 1: Vietnam Enterprise Survey (VES) Merged with the Technology and Competitiveness Survey (TCS)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	VES	TCS Merged	Ratio to (1)	Firms with Imported Inputs	Ratio to (1)	Firms with Imported Inputs from China	Firms with Imported Inputs from the US	Firms with Imported Inputs from Taiwan	Firms with Imported Inputs both from the US and China	Firms Have No Imported Inputs
		Count	%	Count	%	Count	Count	Count	Count	Count
2011	52,431	5,186	10	2,235	4	1,283	265	691	136	50,196
2012	27,503	5,136	19	2,230	8	1,283	263	690	136	25,273
2013	26,611	5,199	20	2,240	8	1,289	266	693	136	24,371
2014	28,222	5,196	18	2,244	8	1,290	264	690	135	25,978
2015	26,570	4,191	16	2,086	8	1,217	251	658	130	24,484
2016	75,054	5,044	7	2,242	3	1,285	267	688	137	72,812
2017	28,609	4,535	16	2,159	8	1,246	253	675	129	26,450
2018	32,195	4,481	14	2,122	7	1,223	253	669	131	30,073
2019	28,227	3,753	13	2,009	7	1,156	243	639	127	26,218
2020	132,076	4,503	3	2,102	2	1,207	250	655	130	129,974
2021	30,236	3,010	10	1,810	6	1,047	212	600	113	28,426
Total	487,734	50,234	10.3	23,479	4.8	13,526	2,787	7,348	1,440	464,255

Notes: The number of observations is the count of firms in column (1) from the Vietnam Enterprises Survey (VES), and column (2) is the Technology and Competitiveness Survey (TCS). The years, 2011, 2016 and 2020, are the census years for the VES.
Source: Vietnam Enterprises Survey (VES) and the Technology and Competitiveness Survey (TCS).

Once we extract information on imported inputs, we then assign a treatment dummy accordingly: the dummy variable equals 1 if a given firm imports inputs (in a year) before the shock from the US–China tariff war, otherwise 0. Information on imported input use is also broken down to either from the US or China (or from Taiwan as a reference). It is important to note that the comparison group (firms) is constructed from a pool of firms with no record of imported inputs. This means that in the comparison pool, we have firms that use imported inputs for processing but are not included in the VES survey. The benefit of using the VES survey is that because of the larger pool of firms, there is a higher likelihood of finding a match for treated firms (based on the observables). In what follows, all variables are measured in 2010 dong prices using the GDP deflator.

4. Empirical Approach

We examine the hypothesis by exploiting the exogenous trade policy shock in the US–China trade war to see how the shocks propagate to the performance of Vietnamese firms through GVC linkages. This renders itself a methodologically ideal setting for difference-in-differences (DiD) analysis. It is assumed that the comparison group trends will likely represent the trends of the treatment group firms in the absence of treatment scenarios (the US–China trade war); therefore, the DiD method identifies a causal treatment effect (before-and-after differences for the treatment group) by differencing the trends from the comparison group (Meyer, 1995).

The canonical DiD approach involves using a larger population sample to estimate a policy treatment's influence on the treated subset of observations. In this context, firms within the treatment group are those connected to either the US or China by GVC connections in the pre-war period. Firms within the control group were those without GVC connections. This is the most natural set of control and treatment firms. Therefore, the identification strategy relies on a cleaner comparison of the treated and control firms before and after trade policy shocks. However, because the GVC connections with the US and China are not random occurrences, the treated group firms may differ systematically from the control firms. Therefore, we constructed several firm samples to compare the treated and control firms. In order to cater for different attributes of firms, we construct the cleaner comparison (control) firms using propensity score matching. Once we establish a matching sample, then we apply the DiD approach to obtain the Average Treatment Effect of the Treated (ATT).

Firm Performance

The first empirical method is to investigate the relationship between exposure to the US–China tariff war on Vietnamese firm performance. We use the degree of international outsourcing available from the VES survey in 2016 and 2017 and set up the following two-way fixed effects difference-in-differences (DiD).

$$\log \mathrm{Y}_{it} = \alpha + \beta_1 GVC_i * Post2018_t + \mathrm{FirmFE}_i + \mathrm{TimeFE}_t + \varepsilon_{it} \quad (1)$$

A key indicator variable is *GVC*, which captures the extent of involvement in GVC participation based on the TCS questions, and *Post2018* captures the period from the onset of the US–China trade war up to 2021 (the end of the dataset). Hence, this indicator variable presents the main causal effects of being connected with either the US or China by GVC linkages on firm performance compared to the control firms in the same period. *Y* represents a set of firm performance outcomes, including the number of (full-time) employees, revenues, total wage bills, and investment.

Firm fixed effects purge any time-invariant shocks, such as the unobserved managerial techniques within firms. Year-fixed effects control for unobservable variations in patenting over time, which are common across firms and industries, including the business cycle. Standard errors are clustered at the level of the firm.

Measuring Global Value Chains

There are several approaches to capturing the modality of GVC involvement across firms over time. However, we use information about GVCs from the survey responses on the three most important imported inputs, their share in total inputs used, and countries in which inputs are imported. We then take them to construct a variable of GVC involvement at the firm level. The survey stores the distribution of countries in which firms import inputs. In the main variable, we use the indicator variable if firms import inputs. We subsequently separate out the input source countries by the US and China.

Matching

In practice, we observe non-random, systematic differences in firms using imported inputs in their production configuration. As shown, we observe that firms using imported inputs are larger than average firms and more focused on the local domestic economy. Failing to capture such attributes may lead to a positive selection bias that could ultimately inflate the Average Treatment Effect of the Treated (ATT) estimate. In the presence of strong selection into treatment,

implementing a DiD framework with matching can allow us to create the counterfactual to measure the ATT. The first step of the matching is to match firms with imported inputs and those without them in the baseline time windows (in the pre-intervention period). In the initial stage, we retain all the firms that can be identified from the VES. In the subsequent analysis, we restrict the control firms to other attributes (such as FDI firms with foreign ownership). The next step is to match the treated and control firms based on the propensity score generated by a logistic model. This is a process of matching control firms based on all observable characteristics that may predict the selection into sourcing inputs from abroad. Subsequently, we compare the performance of a treated firm with a matched non-treated firm. The idea here is that selection into the treated firms is a random occurrence.

5. Results

Table 2 reports a difference in firm characteristics between firms with imported inputs and those without. Those with imported inputs are larger along several dimensions (revenue, investment, and total wage bills). In terms of estimation issues, this could bias the results because we do not have reasonably comparative control firms to start with, as alluded to previously.

Table 2: Mean of Variables (Outcome)

	Firms with Imported Inputs						*Firms with No Imported Inputs*					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Year	Employees	Revenue	Investment	Wage Bill	Wage Rate	Wage Rate	Employees	Revenue	Investment	Wage Bill	Wage Rate	Wage Rate
	Persons	D billion	D billion	D billion	D million	US$	Persons	D billion	D billion	D billion	D million	US$
2011	460	355	33	28	61	2,435	73	51	8	4	55	2,192
2012	486	385	41	33	68	2,716	139	105	18	9	65	2,590
2013	514	406	34	37	72	2,879	148	125	20	11	74	2,973
2014	540	429	25	41	76	3,037	151	134	20	10	66	2,649
2015	593	486	27	51	86	3,440	171	164	26	13	76	3,041
2016	567	503	29	60	106	4,233	72	74	13	11	153	6,111
2017	580	531	33	61	105	4,207	187	213	33	17	91	3,636
2018	597	565	39	63	106	4,221	180	230	48	18	100	4,000
2019	597	616	41	68	114	4,556	211	287	42	164	777	31,090
2020	541	588	25	8	15	591	50	100	29	3	60	2,400
2021	585	660	28	74	126	5,060	200	315	37	26	130	5,200
TOTAL	549	497	32	48	87	3,497	113	140	25	23	204	8,142

Notes: Firms with imported inputs have been identified only for the time period of 2011-2017. We do not have the data for 2018 onwards for the TCS and hence are unable to capture new firms that started importing inputs from 2017. The variables for employees, revenue, investment, and the wage bill are derived from the VES. All variables are measured in 2010 dong prices using the GDP deflator. As of March 2024, D1 million = US$40.
Source: Vietnam Enterprises Survey (VES) and the Technology and Competitiveness Survey (TCS).

In Table 3, we conduct a formal test of the difference between the treated and comparison firms, first using the full sample (Panel A). We designate the time window before 2018 (intact of the US–China trade war) as the pre-intervention and after (2018–2021) as the post-intervention. Four variables (the number of employees, revenue, investment and total wage bills) represent firm performance (they also become the outcome variables in the DiD estimations). We point out that the difference between the treated and comparison firms remains persistently large, but a difference of the differences between the before and after periods remains less dramatic as compared to the level differences. In Panel B, we present the same t-test using the matched sample. As expected, the matching ensures that those firm attributes are quite similar. However, we note that several variables report negative values on the difference between the before and after periods. In the proceeding analysis, we take this a more formal analysis by conducting a DiD based on the matched sample (as well as the alternative comparison groups).

Table 3: T-test of the Equality of the Mean of Variables Before and After the Treatment

Full sample	2011–2017	Pre-intervention			2018–2021	Post-intervention			After - Before
		Treated firms?		Diff.		Treated firms?		Diff.		
		Yes	No	(Yes)-(No)	p-value	Yes	No	(Yes)-(No)	p-value	
Employment	Persons	534	117	417	0.00	580	108	471	0.00	54
Revenue	D billion	441	108	333	0.00	605	184	421	0.00	88
Investment	D billion	32	18	14	0.00	33	36	-3	0.83	-17
Wage bill	D billion	44	10	34	0.00	55	51	4	0.95	-30
Matched sample		Treated firms?		Diff.		Treated firms?		Diff.		
		Yes	No	(Yes)-(No)	p-value	Yes	No	(Yes)-(No)	p-value	
Employment	Persons	540	500	40	0.01	585	596	-11	0.63	-51
Revenue	D billion	446	415	32	0.09	611	683	-72	0.05	-104
Investment	D billion	32	47	-15	0.04	33	42	-9	0.00	7
Wage bill	D billion	45	46	-1	0.88	55	56	-1	0.81	0

Note: Based on the TCS-VCE matched dataset.
Source: Vietnam Enterprises Survey (VES) and the Technology and Competitiveness Survey (TCS).

Matching and Difference in Differences

Table 4 reports the benchmark results of a DiD method with the full sample in Panel (A) and the results in Panel (B) for the matched sample. The upshot of the finding is that there are no statistically significant effects detected in Panel (A) in any of the outcome measures. In contrast, we find that the positive effects of the US–China trade war surface in the matched sample in Panel (B). In particular, firms expanded relative to control firms in terms of employment (column 1) and revenues (column 3). For instance, employment in treated firms increased by 44 employees, which is about an 8% increase in the number of employees (Table 2). An inference on revenues is similar.

Table 4: Benchmark Results

Full sample	**(1)**	**(2)**	**(3)**	**(4)**
Outcome var.=	Num of employees	Wage bill	Revenue	Investment
treat=1 # post=1	-9.03	-27.49	31.21	3.70
	(13.43)	(17.73)	(22.00)	(2.55)
No. of distinctive firms	90,971	90,971	90,971	90,971
Treated	2,280	2,280	2,280	2,280
	88,691	88,691	88,691	88,691
Obs. (firm-year)	397,343	397,343	397,343	397,343
Matched sample				
Outcome var.=	Num of employees	Wage bill	Revenue	Investment
treat=1 # post=1	43.88***	3.43**	105.23***	0.94
	(14.06)	(1.71)	(20.45)	(1.62)
No. of distinctive firms	3,849	3,849	3,849	3,849
Treated	2,240	2,240	2,240	2,240
Untreated	1,609	1,609	1,609	1,609
Obs. (firm-year)	38,316	38,316	38,316	38,316

Notes: Firm and year two-way fixed effects (TWFE) with clustered standard errors at the firm level. Outcome variable in level. *** p<0.01, ** p<0.05
Source: Vietnam Enterprises Survey (VES) and the Technology and Competitiveness Survey (TCS).

Using the matched sample, we created a variable separating importing inputs either from China or the US (Table 5). An increase in employment as observed in Table 4 seems to be driven by an expansion of firms sourcing from the US (columns 1–3) in the post-intervention period. The same inferences go to revenues. We also note that some positive effects emerge in wage bills (column 4) and investment (column 10) However, they disappear once we insert imported inputs from the US (columns 6 and 12).

Table 5: Difference-in-differences Results, China and the US Separate Using the Matched Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	No. of employees			Wage bill			Revenue			Investment		
China=1 # post=1	36.86		33.65	5.18**		4.85**	74.56**		65.93**	5.60***		5.30**
	(22.00)		(22.39)	(2.23)		(2.27)	(30.10)		(30.46)	(2.15)		(2.17)
US=1 # post=1		67.91**	62.08**		7.31	6.47		178.69**	167.26**		6.86	5.94
		(28.37)	(29.25)		(4.70)	(4.78)		(74.72)	(75.42)		(5.11)	(5.13)
R-squared	.9	.9	.9	.4	.4	.4	.9	.9	.9	.3	.3	.3
F	2.81	5.73	4.73	5.41	2.42	4.08	6.14	5.72	5.75	6.78	1.80	4.09
N_clust	3,849	3,849	3,849	3,849	3,849	3,849	3,849	3,849	3,849	3,849	3,849	3,849
Observations	38,316	38,316	38,316	38,316	38,316	38,316	38,316	38,316	38,316	38,316	38,316	38,316

Notes: Firm and year two-way fixed effects (TWFE) with clustered standard errors at the firm level. Outcome variable in level. *** p<0.01, ** p<0.05
Source: Vietnam Enterprises Survey (VES) and the Technology and Competitiveness Survey (TCS).

We have used the sample from a large pool of the VES and the matched sample. We next consider how robust the results are if we use the observably similar set of the sample in priori, namely firms with foreign ownership (FDI firms). In other words, control firms constitute FDI firms, but without imported inputs. As shown in Table A2, whilst it is the dominant activity, not all FDI firms are engaged in importing inputs. This offers us a good candidate for control firms. We then set up a DiD with those treated firms with imported inputs.

The results are reported in Table 6. Even using the unmatched sample, we find a positive effect on employment and investment. In the matched sample, a positive effect also emerges for the total wage bills (labour costs).

Table 6: Difference-in-differences Results with Control Firms with Foreign Ownership with No Imported Inputs in the Pre-intervention Period

Sample	**(1)**	**(2)**	**(3)**	**(4)**
	No. of employees	Wage bill	Revenue	Investment
treat=1 # post=1	98.04***	-12.64	97.60	23.10***
	(18.08)	(19.00)	(61.21)	(6.69)
R-squared	.9	.3	.9	.3
No. of unique firms	3143	3143	3143	3143
Observations	30328	30328	30328	30328
Matched	(1)	(2)	(3)	(4)
	No. of employees	Wage bill	Revenue	Investment
treat=1 # post=1	84.21**	10.52***	82.29	1.95
	(37.12)	(2.99)	(83.28)	(8.04)
R-squared	.9	.4	.9	.3
N_clust	2267	2267	2267	2267
Observations	23434	23434	23434	23434

Notes: Firm and year two-way fixed effects (TWFE) with clustered standard errors at the firm level. Outcome variable in level. *** p<0.01, ** p<0.05
Source: Vietnam Enterprises Survey (VES) and the Technology and Competitiveness Survey (TCS).

6. Conclusion

Global impacts of the US–China trade war have garnered almost universal attention from policymakers around the world. We have taken this to examine the spillover effects on Viet Nam, which has been seen as the alternative candidate for China in GVCs. We identified those impacted by using information on the outsourcing activity (sourcing intermediate inputs or materials) using the Technology and Competitiveness Survey (TCS). Combined with the Vietnam Enterprise Survey (VES), we conducted difference-in-differences (DiD) to estimate the causal effects of the US–China trade war on Vietnamese firms. To cater for a strong selection issue, we employed propensity score matching to construct the control firms in a DiD analysis.

Our analysis reveals that those importing inputs (especially from the US) expanded in employment in the US–China trade war period as compared to the matched control firms. We have yet to explore the mechanism behind this, but it could be related to an expanded export opportunity to the US, as found in other studies (e.g. Fajgelbaum et al. (2024)).

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Appendix

Table A1: Distribution of Country Origins

Imported inputs (and materials) from	Count	%
China	2,134	25.8
Taiwan	1,462	17.7
Japan	972	11.7
Republic of Korea	937	11.3
Thailand	497	6.0
Singapore	346	4.2
United States	286	3.5
Malaysia	242	2.9
TOTAL	8,277	100

Source: Vietnam Enterprises Survey (VES) and the Technology and Competitiveness Survey (TCS).

Table A2: Number of FDI and Non-FDI Firms

	Count of FDI firms			Count of non-FDI firms		
	Imported inputs?			Imported inputs?		
Year	No	Yes	Total	No	Yes	Total
2011	3,870	1,301	5,171	46,326	934	47,260
2012	3,877	1,299	5,176	21,396	931	22,327
2013	4,249	1,302	5,551	20,122	938	21,060
2014	4,626	1,303	5,929	21,352	941	22,293
2015	5,170	1,283	6,453	19,314	803	20,117
2016	6,095	1,301	7,396	66,717	941	67,658
2017	7,006	1,289	8,295	19,444	870	20,314
Total	34,893	9,078	43,971	214,671	6,358	221,029

Notes: FDI firms with foreign ownership.
Source: Vietnam Enterprises Survey (VES) and the Technology and Competitiveness Survey (TCS).

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