Trade Policy and Jobs in Vietnam:
The Unintended Consequences of Trump's Trade War

Lorenzo Rotunno[†]
Sanchari Roy[‡]
Anri Sakakibara[§]
Pierre-Louis Vézina[¶]

April 27, 2023

Abstract

We use the US-China trade war as an exogenous shock to export opportunities in Vietnam and examine its effect on Vietnam's exports and labor markets. We find that Vietnamese exports to the US were around 40 percent higher in 2020 relative to 2017 in sectors hit by US tariffs on Chinese products. This increase is driven by both new export product varieties and increased exports in existing categories. This expansion in export opportunities led to job creation and increased working hours in affected sectors relative to non-affected ones. It also led to an increase in wages, even more so for women workers.

JEL classification: F14, F16
Key Words: Tariffs, Vietnam, US-China trade war, exports, employment, wages, skills

[*]We thank Richard Baldwin, Jason Garred, Brian McCaig, Sang Hyun Park, Nina Pavcnik, and seminar participants at the 2022 Hitotsubashi-Gakushuin workshop, at UCL (SSEES), and at the Geneva Trade and Development Workshop (GTDW) for helpful suggestions. This paper was supported by a British Academy/Leverhulme Small Research Grant. We thank Anthony Senior at King's for all his help.
[†]Aix-Marseille School of Economics. Email: lorenzo.rotunno@univ-amu.fr.
[‡]King's College London and CAGE, Warwick. Email: sanchari.roy@kcl.ac.uk.
[§]King's College London. Email: anri.sakakibara@kcl.ac.uk.
[¶]King's College London. Email: pierre-louis.vezina@kcl.ac.uk.

1 Introduction

One of the focal points of recent research in international trade has been to study the overall and distributional implications of trade policy (Caliendo and Parro, 2022). Understanding the effects of trade policy is of particular importance in developing economies, where exposure to international markets can shape livelihoods through shifts in prices and labor market opportunities. Empirically, identifying the impact of trade policy is challenging, as policies affecting openness are typically endogenous – e.g., they often target specific sectors or regions likely to benefit from trade. Free Trade Agreements (FTAs), for instance, are the result of negotiations, lobbying by special interest groups and multinationals, and their effects can be anticipated. In this paper, we use the US-China trade war as an exogenous shock to export opportunities in Vietnam. We estimate the impact of US-China tariffs in 2018 and 2019 on Vietnam exports to the US and the induced labor market adjustments.

The tariff hikes imposed by the US on China in 2018 and 2019, following President Trump's decision to start a trade war, covered $250 billion of Chinese goods (Amiti et al., 2019), or around 13% of US imports (Fajgelbaum et al., 2019), and affected about two thirds of all 19,000 possible products. Trump's tariffs caused large declines in US imports, raised domestic prices and lowered US real income by 0.27% of GDP according to Fajgelbaum et al. (2019).[1] As a result, the US became relatively more open to exports from other countries, especially in targeted sectors. We use the tariff changes due to the US-China trade war as quasi-experimental variation in Vietnam's export opportunities to analyze their consequent impact on Vietnam's exports and labor market. Since Trump's trade war was targeted at China and not at Vietnam, we argue that this constitutes a natural experiment from the perspective of Vietnam's trade policy. Put differently, we can assume that the timing and the sectoral composition of the tariffs imposed by the US on China provide exogenous variation in

[1] It also led to political tariff retaliations by China and the EU (Fetzer and Schwarz, 2021).

Vietnam's export opportunities.

Existing evidence confirms that the US-China trade war caused US importers to substitute Chinese goods with similar goods from other countries. Fajgelbaum et al. (2021) suggests that many countries increased exports to the US after Trump's tariffs, identifying Vietnam as among the largest export *winners*.[2] Anecdotal evidence also suggests Vietnam may have been a winner of Trump's trade war. The Financial Times for example ran the headline "US-China trade war gives Vietnam a winning streak"[3]; the New York Times suggested that "Your next iPhone might be made in Vietnam. Thank the Trade War."[4]; Bloomberg argued that "Vietnam Tops list of Biggest Winners from US-China trade war"[5]; and the Wall Street Journal asks "Who Won the US-China trade war? [and answers]... Vietnam and others who stepped into the breach".[6] Bown (2022) also provide product-level evidence that Vietnam is now exporting more to the US in response to the US-China trade war. Against this backdrop, we first revisit the evidence on whether Vietnam indeed benefited from Trump's trade war with China, examining carefully the response at both the intensive and extensive margins, and using the latest difference-in-differences methods. We then go one step further to understand the effects of Trump's trade war on domestic labor market outcomes in Vietnam and gender differences therein.

Our empirical analysis is composed of two parts. First, we estimate the impact of US import tariffs targeted at China on Vietnamese exports using a difference-in-differences approach. We compare Vietnam's exports to the US across products, targeted or not by Trump's trade war on China, before and after the tariff hikes.

[2]This is in line with what was predicted by Cali (2018), who noted that Vietnam already exported many of the targeted products, including chairs, insulated ignition, shrimp and prawns, travel bags, parts of seats, television cameras, wooden furniture and handbag, worth 10.9% of Vietnam's GDP, and was thus likely to benefit from the trade war.

[3]https://www.ft.com/content/4bce1f3c-8dda-11e9-a1c1-51bf8f989972

[4]https://www.nytimes.com/2019/07/30/technology/trump-trade-war-vietnam.html

[5]https://www.bloomberg.com/news/articles/2019-06-03/vietnam-tops-list-of-biggest-winners-from-u-s-china-trade-war

[6]https://www.wsj.com/articles/who-won-the-u-s-china-trade-war-11653059611

We find that tariff hikes on Chinese goods following Trump's trade war with China led to an expansion of Vietnam's exports to the US. In particular, the value of Vietnamese exports to the US grew by 40% between 2017 and 2020 as a result of Trump's tariffs on China. This is driven by both increased exports in products Vietnam already exported to the US, and by an increased likelihood of new exports in Trump-affected products relative to non-affected ones. Previously exported products were also less likely to exit from the US market. This indicates that the adjustment for Vietnamese exporters to the Trump-induced trade shock occurred at both the intensive and extensive margins. Importantly, our results suggest that Trump's trade war led to an acceleration of the shift of manufacturing exports away from China and towards other emerging economies, first documented by Hanson (2020).

In the second part of our empirical analysis, we investigate whether the increase in Vietnam's export opportunities due to the US-China trade war had labor market effects. Our analysis of the labor market adjustment to new export opportunities contributes to our understanding of the role of trade and trade policy in job creation and poverty alleviation. In particular, we estimate the impact of US-China tariff hikes on domestic employment, working hours, wages and occupation structure, exploiting variation across sectors ($\approx$ 400 ISIC 4-digit) and over time using monthly data from Vietnam labor Force Survey (LFS) from 2015 to 2020. The monthly LFS contains a nationally representative sample of approximately 68,000 individuals, with details about workers' industry of employment and occupation (ISCO 4-digit). We focus on the total number of workers across industries, i.e. those who report working in an industry and receive a wage in the last 7 days, as well as the average weekly hours worked and average hourly wages. We also match occupations to skill levels using the International Labor Organization's classification to check whether Trump's tariffs affected occupational structure and the skill intensity of production. We apply the same difference-in-differences approach as when looking at trade effects, using a dummy variable to indicate whether any product within an ISIC-4 digit industry was targeted by Trump's tariffs.[7]

We also explore heterogeneous treatment effects by gender in order to understand whether women were differently affected compared to men by the trade war. Recent reports by the World Trade Organization and World Bank (2021) and Organisation for Economic Co-operation and Development (OECD) (2019) suggest that international trade affects men and women differently and put gender aspects at the forefront of policy work on trade, notably to help governments foster trade opportunities that boost women's economic empowerment. In addition to equity reasons, such trade policies may have important efficiency implications through female empowerment for education and children's outcomes (Duflo, 2012). In Vietnam, although female labor force participation is quite high at 70%, women are still likely to earn lower wages, work longer hours and are less educated (Ha and Francois, 2019). Hence, it is important to analyse whether these new export opportunities in the wake of Trump's trade war contributed to gender convergence or divergence in local labor market outcomes in Vietnam.

Our results indicate that the US-China trade war yielded positive labor market outcomes for Vietnamese workers. Employment increased in sectors that were affected by Trump's tariffs compared to non-affected sectors, as did the number of hours worked. We find that the number of jobs was as much as 15% higher in 2019-2020 in sectors hit by Trump's tariffs, while individuals worked on average an extra 50 minutes per week as a result of US tariffs on Chinese products. While these employment gains were mostly for men, women enjoyed higher wage gains, indicating that increased trade between Vietnam and US ensuing from the US-China trade war may have helped close Vietnam's gender wage gap. We find no evidence that the expansion in exports to the US led to occupational upgrading. If anything, the skill intensity of production may have decreased in targeted sectors, possibility due to increased production activities.

[7] To capture the extent to which sectors were exposed to Trump's tariffs we also use the average of the tariffs applied on 10-digit products or the share of HS 10-digit products affected within each ISIC 4-digit industries in robustness checks.

Our paper contributes to three strands of the literature on trade policy and labor market outcomes in developing countries. First, it extends a nascent but growing literature on the impacts of the US-China trade war. In contrast to the existing studies that focus on the implications of the trade war on Chinese and US consumers and firms (see Fajgelbaum and Khandelwal (2022) for a review of the literature), our paper provides novel evidence on the unintended consequences of the trade war on workers, and in a third country, Vietnam. While Fajgelbaum et al. (2021) and Mao and Görg (2020) investigate empirically third-country trade effects of the US-China trade war across countries, we focus on one country, which allows us to understand further how the trade responses translate into labor market effects.[8]

Second, our paper contributes to the literature analysing the causal impact of trade on labor market outcomes. Several studies have documented high adjustment costs borne by workers in response to trade liberalisation. For example, Dix-Carneiro and Kovak (2019) find that trade-displaced workers spend years being unemployed following liberalisation in Brazil. These adjustment costs exemplify the distortions that affect the efficient allocation of resources in developing countries (Atkin and Donaldson, 2022). Many studies have also looked at the effect of FTAs. For example, Gaston and Trefler (1997) documented important job losses in Canada after the Canada-US FTA, Hakobyan and McLaren (2016) showed that US blue-collar wages were also severely affected by the North American Free Trade Agreement (NAFTA), while Hanson (2003) documented wage gains in Mexico for more-educated workers living close to the US in Mexico following NAFTA. In the case of Vietnam, McCaig (2011), McCaig and Pavcnik (2018), and (McCaig et al., 2022) use the US-Vietnam Bilateral Trade Agreement in 2001 as a shock to the Vietnamese exporting sector. They find that greater export

[8] Our paper is also similar to studies that looked at the third-country effects of trade policies affecting China. For example, studies have shown that China's entry into the WTO in 2001 squeezed out small firms in Mexico (Iacovone et al., 2013), and induced manufacturing job losses and increased cocaine violence (Dell et al., 2019). Medina (2022) suggest that China's entry into the WTO pushed Peruvian apparel firms to produce high-quality varieties for high-income countries. Another example is Rotunno et al. (2013) who show that African exporters benefited from the textile and apparel import quotas on China under the multi-fibre agreement.

opportunities led to increased foreign direct investment (FDI) and formal manufacturing jobs, moving people out of poverty and out of the informal sector. We extend this body of research by estimating the effects of a more recent trade policy shock, and one that did not target Vietnam directly, allowing us to further establish the causal interpretation of the trade policy effects.

Finally, our paper also ties into the literature on trade and gender inequality where the evidence is mixed, especially for emerging economies. Existing studies have shown that trade can improve gender equality by increasing competition between firms and reducing gender-based discrimination (Black and Brainerd, 2004; Ederington et al., 2009; Juhn et al., 2013; Aguayo-Tellez et al., 2014), as well as by encouraging firms to undertake technological upgrading (Juhn et al., 2014) that favours female workers with comparative advantage in brain-based work. Pham and Jinjarak (2023) suggests that integration in global value chains is correlated with higher female employment across small and medium firms in Vietnam, but that this is driven by unskilled workers. Using firm-level data from 64 developing countries, Rocha and Winkler (2019) find that firms participating in international markets have higher female labor share than other firms. In contrast, Berik et al. (2004) and Menon and Rodgers (2009) provide evidence suggesting that greater exposure to trade has increased gender-based discrimination and the wage gap in Taiwan, South Korea, and India. Busse and Spielmann (2006) further find that increased exports in labor-intensive goods is associated with higher gender inequality across countries, while Gaddis and Pieters (2017) show that female employment failed to benefit from trade liberalization in Brazil. Mansour et al. (2022) also show that import competition from China pushed women workers in Peru out of the tradable sector and out of the labor force. Our paper thus adds to this growing body of evidence on how trade may have differential effect by gender on job opportunities and conditions.

The rest of the paper is organized in two main sections. Section 2 establishes the magnitude of the effect of Trump's tariffs on export creation in Vietnam. Section 3 discusses the labor market implications for Vietnamese workers. Section 4 concludes.

2 Vietnamese exports

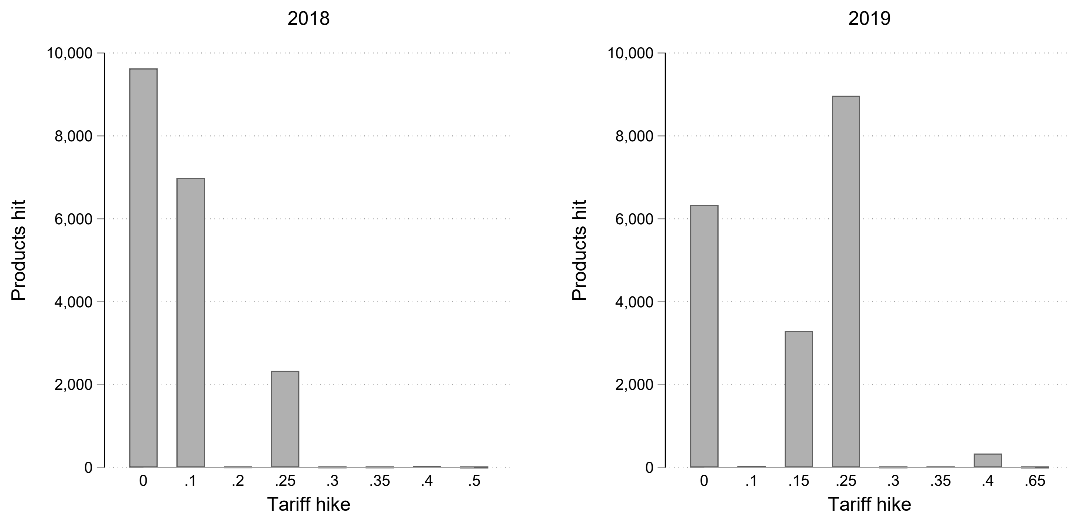
This section examines how the US-China trade war has affected Vietnam's exports to the US. We look at how Vietnam export performance differed across products depending on whether these were hit or not by Trump's tariffs on China. We examine both the intensive and extensive margins of exports – i.e., the increase in export values of existing export products and the introduction, or drop, of export varieties, respectively.

2.1 Data

To estimate the impact of the tariff changes resulting from the US-China trade war on Vietnam exports, we use data on US-Vietnam trade flows and US tariffs imposed on China for the years preceding and following the trade war, specifically from 2015 to 2020. We use data on the value of US imports from Vietnam at the 10-digit level of the Harmonized System (HS) classification from Schott (2008), originally from the US International Trade Commission (USITC). To further assess the effects on Vietnam exports to other destinations than the US, we exploit information on the values of imports by other countries from Vietnam at the HS 6-digit level, sourced from UN Comtrade. To gauge the extent to which goods were affected by the trade war, we use data on US tariff hikes in 2018 and 2019 for each 10-digit product from Fajgelbaum et al. (2019).

Figure 1 shows the number of products hit by Trump's tariffs on China in 2018 and 2019. The US tariff hikes on Chinese imported products were pervasive. By 2019, two thirds of the 19,000 product lines were affected by tariff hikes of 15% or 25%.

Figure 1: Distribution of US-China trade war tariff changes

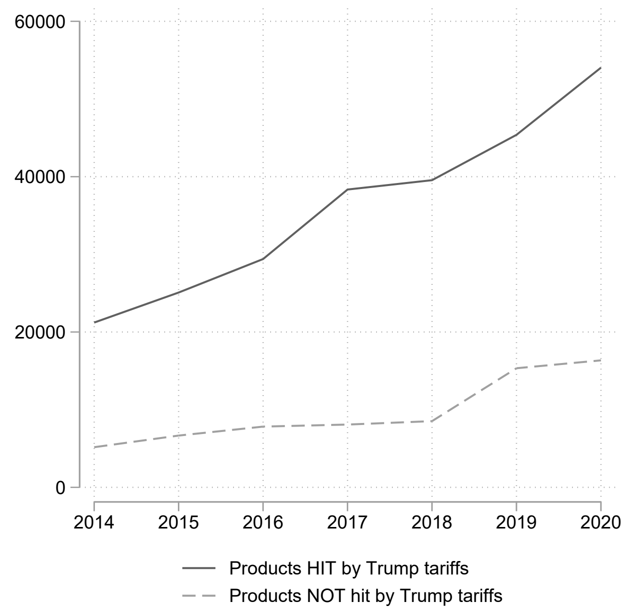


Notes: Products are defined at the 10-digit level of the Harmonized System (HS) classification. Tariff hikes are relative to 2017. Source: Fajgelbaum et al. (2019).

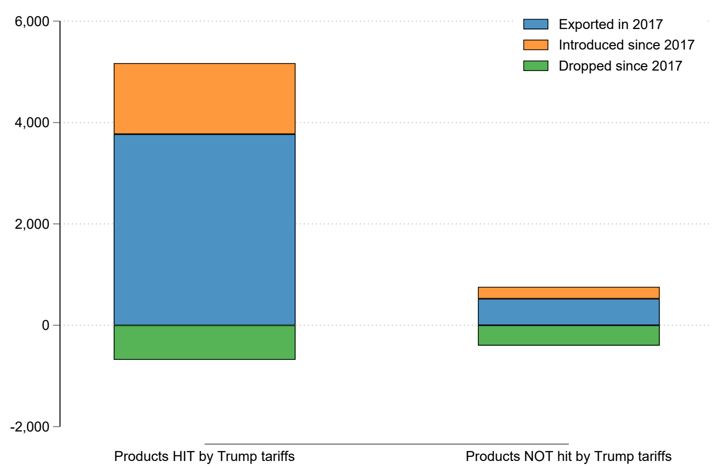
Figure 2 shows total US imports from Vietnam between 2014 and 2020 for two groups of products, i.e. those hit by tariffs during Trump's trade war and other products. While products hit by Trump's tariffs account for a much bigger value of exports (panel A), we observe an increased divergence after 2019 between products that were hit by the Trump's tariffs compared to those that were not, indicating a possible response to the tariffs. Panel (b) displays the evolution of the extensive margin of US imports of Vietnamese products between 2017 and 2020. Among the $\approx$ 5,000 products exported by Vietnam to the US in 2020, about 4,000 were of products hit by Trump's tariffs. More than 1,000 of these targeted products were introduced during Trump's trade war, more than twice the number of targeted products dropped. Among the hundreds of products that were not hit by Trump's tariffs, less were introduced than dropped during the trade war. These numbers suggest that Trump's tariffs may have led to increased net product introductions. We investigate this pattern further in the next sub-section. Table A.1 in the Appendix reports summary statistics for Vietnam export outcome variables and US tariff hikes across 10-digit products.

Figure 2: Total US imports from Vietnam

(a) ($ millions)



(b) (# products - 2020)



Notes: Data on US imports from Schott (2008). Product groups based on tariff data from Fajgelbaum et al. (2019).

2.2 Empirical Strategy and Results

Our empirical setting is that of a standard difference-in-differences model. The treatment is defined, at the product level, as being hit by increases in US tariffs on Chinese imports. The treatment period starts in 2018 or 2019, when Trump's tariffs were implemented, and extends until 2020. We use annual data from 2015 to 2020, and we take into account the latest developments in the estimation of dynamic event-study specification with staggered treatment and potential heterogeneous effects across cohorts (Sun and Abraham, 2021; Callaway and Sant'Anna, 2021; Borusyak et al., 2021; De Chaisemartin and d'Haultfoeuille, 2020).In a second approach, we implement a long-difference specification where 2019-2017 and 2020-2017 differences in trade outcomes are regressed on treatment variables (similar to the specification of Fajgelbaum et al. (2021)). We estimate the following event-study regression:

$$(1) \quad X_{pt} = \sum_{j=-5}^{-2} \beta_j D_{pt}^j + \sum_{j=0}^{2} \beta_j D_{pt}^j + \mu_p + \lambda_t + \epsilon_{pt}$$

where X_{pt} are Vietnam exports of product p to the US in year t. The D_{pt} terms are dummies for leads and lags of the treatment (i.e., being hit by Trump's tariffs) – e.g., D_{pt}^{-4} is a dummy equal to 1 if the product is hit by a tariff 4 years later. The terms μ_p and λ_t are product and year fixed effects, and ϵ_{pt} is the error term. We thus exploit differences across products p (targeted vs. non-targeted) and differences across years t (before vs. after Trump's trade war). We look at the effects on the value of US imports from Vietnam by adopting an inverse hyperbolic sine transformation that keeps both zero and positive trade flows in the estimation sample, as well as on the intensive margin of exports, by taking logs of positive trade flows for products that were exported by Vietnam to the US. We also look at the effects on the extensive margin by using a dummy variable indicating whether Vietnam exports the product p

(defined at the HS-10 digit level) to the US in year t.

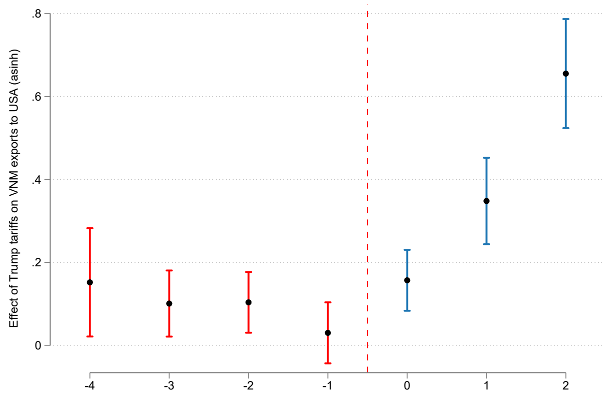
The results of the event study specification in (1) are illustrated in Figure 3. The blue bars show the treatment effects in the year of the treatment (at time zero, which corresponds to 2018 or 2019) as well as in the following years. This captures the difference-in-differences in exports compared to the pre-treatment year (-1). We find positive and significant effects whether we measure exports using the asinh transformation, taking logs, or using an indicator dummy. The size of the impact increases over time. The red bars are placebo treatment effects, showing the year-on-year difference-in-differences in pre-treatment years.[9]

The recent literature on difference-in-difference models with two-way (unit and time) fixed effects has shown that OLS estimates can be biased when effects are heterogeneous across units and over time, and treatment is staggered (see de Chaisemartin and D'Haultfoeuille (2022) and Roth et al. (2022) for surveys of the literature).[10] We thus estimate specification (1) using different estimators that correct the TWFE one from biases and interpretation issues. As we show in section B of the Appendix, the estimates from these alternative estimators are similar to the ones reported in Figure 3, suggesting little bias in the TWFE estimates. Only the post-treatment effects on the intensive margin (Figure A.3) are smaller than the TWFE estimates.

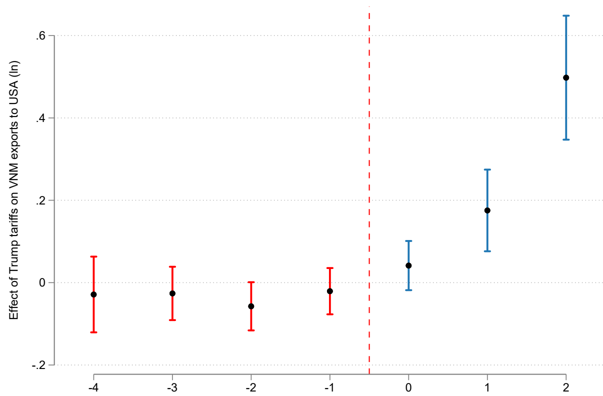
[9]In terms of the regression equation (1) where period -1 is the reference one, each bar in the pre-treatment years shows the difference in the effect between time $-t$ and time $-t-1$ – e.g., the dot at -4 equals $\beta_{-4} - \beta_{-5}$, and the one at -1 equals $-\beta_{-2}$. The estimated pre-treatment effects suggest small differences in trends between treated and control products in the years before the Trump's tariffs were introduced, which can affect identification in difference-in-differences models. We look into this possibility carefully in Section C in the Appendix.

[10]In our event-study specification (1), there are two treatment groups: one is made of products that were targeted for by Trump's tariffs for the first time in 2018, and the other includes the products that were treated for the first time in 2019.

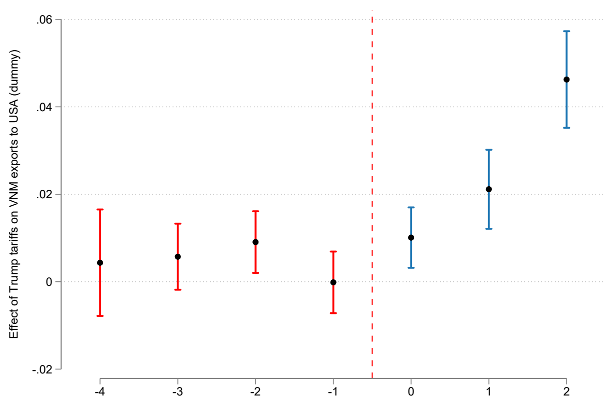
Figure 3: The effect of Trump's tariffs on Vietnam's exports



(a) asinh



(b) ln



(c) dummy

Notes: The dots show TWFE diff-in-diff estimates of the effect of tariff hikes on Vietnam exports to the US across years and products. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Blue bars are for treatment effects relative to the year before treatment. Data on US imports at the 10 digit level from Schott (2008). Data on tariff hikes from Fajgelbaum et al. (2019).

These results are confirmed when we assess the magnitude of the average treatment effect on the treated (ATT, computed as the average across the post-treatment effects in Figure 3). The TWFE estimates reported in column (1) of Table 1 imply that Vietnam exports to the US increased $\approx 47\%$ more for targeted products, and that the probability of exporting increased by ≈ 2.6 percentage point.[11] These effects are slightly larger when we use alternative estimators to the TWFE, from Sun and Abraham (2021) (S&A), Callaway and Sant'Anna (2021) (C&S), Borusyak et al. (2021) (BJS), and De Chaisemartin and d'Haultfoeuille (2020) (DC&DH), whereas they are lower and less precisely estimated on the intensive margin (middle panel of Table 1). The Table also shows that the treatment effect is unaltered when we add to our specification dummies for the increase of US tariffs on Vietnam and on the rest of the world (RoW) (countries other than China and Vietnam).[12]

[11] To compute the effect on export values from the top panel ('asinh'-transformed outcome variable), we take the exponential of the estimated coefficient in column (1), like in a standard log specification. This approach is approximately correct with large enough values of the outcome variable (the average value of US imports from Vietnam between 2015 and 2020 is 3.9 millions US$, see Table A.1 in the Appendix.

[12] As shown in Table A.1 in the Appendix, US tariff increases on other countries were on average considerably lower than on China (0.2 percentage points on Vietnam and 0.1 percentage points on average across other countries). Only 0.9% of the 1-digit tariff lines were hit by US tariffs on Vietnam, and 5.4% of products were concerned by some tariffs increases on other countries (than Vietnam or China).

Table 1: The effect of Trump's tariffs on Vietnam exports - Diff-in-diff estimates

	TWFE (1)	S&A (3)	C&S (3)	BJS (4)	DC&DH (5)
			asinh(X)		
w/o controls	0.387	0.424	0.415	0.470	0.415
	(0.052)	(0.055)	(0.054)	(0.050)	(0.052)
w/. controls	0.367	0.401	0.409	0.462	0.398
	(0.052)	(0.055)	(0.054)	(0.051)	(0.054)
			ln(X)		
w/o controls	0.238	0.090	0.106	0.166	0.106
	(0.057)	(0.072)	(0.069)	(0.066)	(0.065)
w/. controls	0.250	0.096	0.098	0.189	0.122
	(0.058)	(0.072)	(0.069)	(0.065)	(0.066)
			Export dummy		
w/o controls	0.026	0.030	0.029	0.031	0.029
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)
w/. controls	0.024	0.028	0.028	0.030	0.027
	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)

Note: Panel estimates with product and year fixed effects. Standard errors in parenthesis are clustered at the 8-digit level. Exports are in inverse-hyperbolic sines (asinh), logs (ln), or as dummies (export dummy). Control variables are dummies for tariff increases by the US on Vietnam and on the rest of the world during the trade war period (2018-2020). Dynamic two-way fixed effects (TWFE), Sun and Abraham (2021) (S&A), Callaway and Sant'Anna (2021) (C&S), Borusyak et al. (2021) (BJS) and De Chaisemartin and d'Haultfoeuille (2020) (DC&DH).

In section D of the Appendix, we provide evidence suggesting that Vietnam is the country whose exports to the US grew the most as a result of US tariffs on Chinese products. We add US imports from countries other than China and Vietnam and extend specification (1) by allowing the pre- and post-treatment effects to vary by exporter. Importantly, we can also control for a rich set of fixed effects (origin-product, product-year, and origin-year), absorbing, e.g., the influence of product-specific shocks that could interact with changes in US tariffs. The average effect is largest on Vietnam whether we take the asinh transformation or use an export dummy. Other countries that have seen large export growth in treated products include Malaysia, Thailand, Poland, and Turkey, confirming the results of Fajgelbaum et al. (2021).

Identification of the export effects in the difference-in-difference model (1) relies on the assumption that Vietnam export growth rate after the Trump tariff hikes – i.e. between 2017 and 2020 – would have been the same as in the pre-treatment period absent the increase in tariffs on Chinese products by the US. The pre-treatment effects reported in Figure 3 suggests that Vietnam exports of targeted products may have been increasing slightly faster, even before Trump's tariffs hit. While this increase is smaller than those in 2019 and 2020 (1 or 2 years after the first tariff increases), it may violate the parallel trends assumption underlying the interpretation of the diff-in-diff estimates.

We address this issue by adopting the method in Rambachan and Roth (2023) to bound the effect to violations of the parallel trends assumption. Section C in the Appendix discusses this application and its results. We find that the positive average effect on Vietnam exports as estimated in the TWFE model (1) remains significant to product-specific linear trends and deviations from them of up to 5%. We also find that our results are robust to allowing for violations of parallel trends as big as the maximum violation in the pre-treatment period.

While this approach provides support to our annual diff-in-diff estimates, another way to capture the extent to which US imports from China were replaced by Vietnamese substitutes while dealing with non-parallel trends is to estimate a first-differenced model that explicitly controls for lagged export changes. This is similar to the empirical analysis of Fajgelbaum et al. (2021), who implement a theory-based empirical specification for the intensive margin responses to the US-China trade war tariffs. The results from estimating this specification are in Table A.4 in Section E in the Appendix. They provide further evidence that Trump's tariffs on Chinese products had a positive effect on the value of imports from Vietnam, even after controlling for lagged changes in imports.

Besides its effects on exports to the US, the increase in US tariffs on China might have triggered a response in Vietnam exports to other destinations. To gauge the overall trade effect on Vietnam, in Section E of the Appendix we estimate the impact on Vietnam exports to the US and to the RoW, using data on the values of trade flows at the HS 6-digit product level from the UN Comtrade database. The results in Table A.8 suggest that US tariff hikes on Chinese products led to higher Vietnam exports also to the RoW, which confirms the evidence from Fajgelbaum et al. (2021). Yet, the effect on Vietnam exports to the US is larger than that on exports to the RoW. Predictions from estimates in Table A.8 reveal that total Vietnam exports increased 27% as a result of US tariff hikes on Chinese products (or 73% of the observed increase in Vietnam exports between 2017 and 2020). Exports to the US went up by 58%, whereas exports to the RoW increased by 19%.

In the next section we examine whether the export creation effect of US tariffs on Chinese imports translated into job creation and other labor market outcomes in Vietnam.

3 Labor Market Outcomes

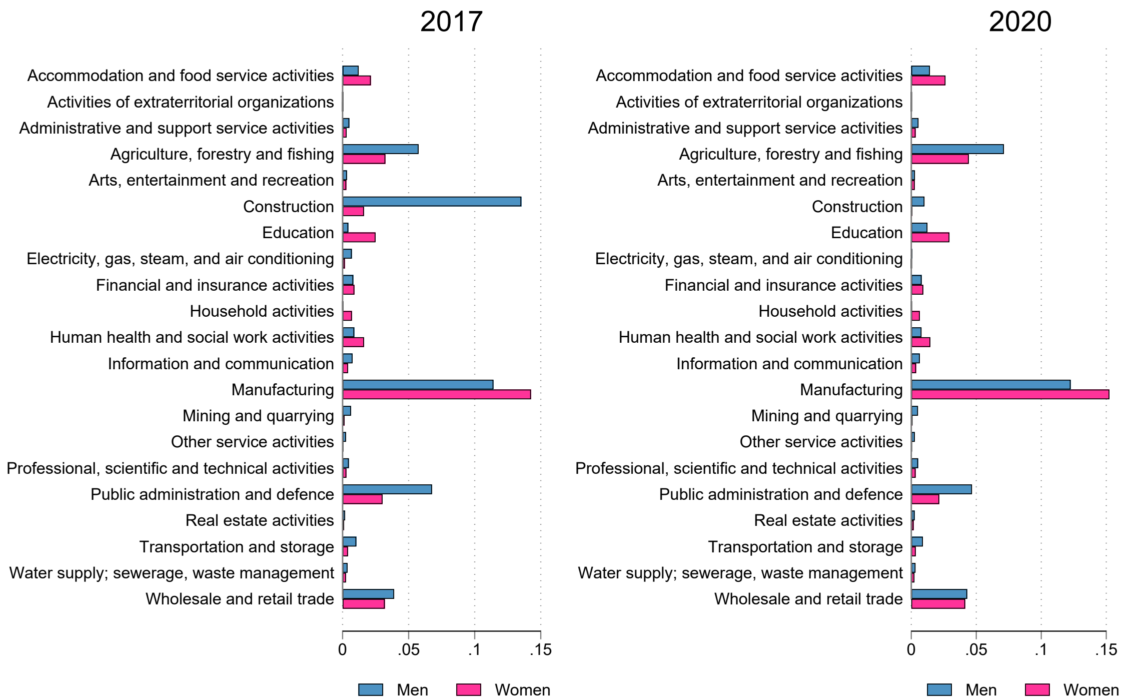
In this section, we explore the effect of Trump's trade war on Vietnam's labor market. A possible concern about the trade results is that the export creation was simply due to Chinese firms rerouting their exports via Vietnam, which would not lead to employment gains. Hence, our aim is to understand whether these exports led to the expansion of production activities in Vietnam and translated into higher employment, wages, and occupational changes. In addition, we examine gender differences in the labor market response to these new export opportunities.

3.1 Data

In order to examine the impact of the tariff hikes on job creation, hours worked, wages, and occupational upgrading across industries in Vietnam, we use monthly data from the Vietnamese Labor Force Survey (LFS), containing a nationally representative sample of approximately 68,000 individuals for each survey wave. We use data from the LFS from 2015 to 2020 (inclusive), covering 3 years before the occurrence of the first tariff hike and 2 years after. The LFS contains individual-level details about workers including their gender, wages, industry of employment ($\approx$ 400 ISIC 4-digit), weekly hours worked, and occupation ($\approx$ 390 ISCO 4-digit occupations across 10 major groups). ISCO occupations can be matched to 4 skill levels using the International labor Organization classification (Table A.3 in the Appendix).

Figure 4 shows the distribution of male and female workers across major sectors in 2017 and 2020. A large share of both men and women worked in manufacturing as well as agriculture in 2017 and in 2020, the main two sectors hit by Trump's tariffs. While agriculture has more male workers than female, manufacturing has more female workers. In 2020, 15% of workers were women working in manufacturing. In 2017, close to 14% of workers were men working in construction. This share was highly reduced in 2020.

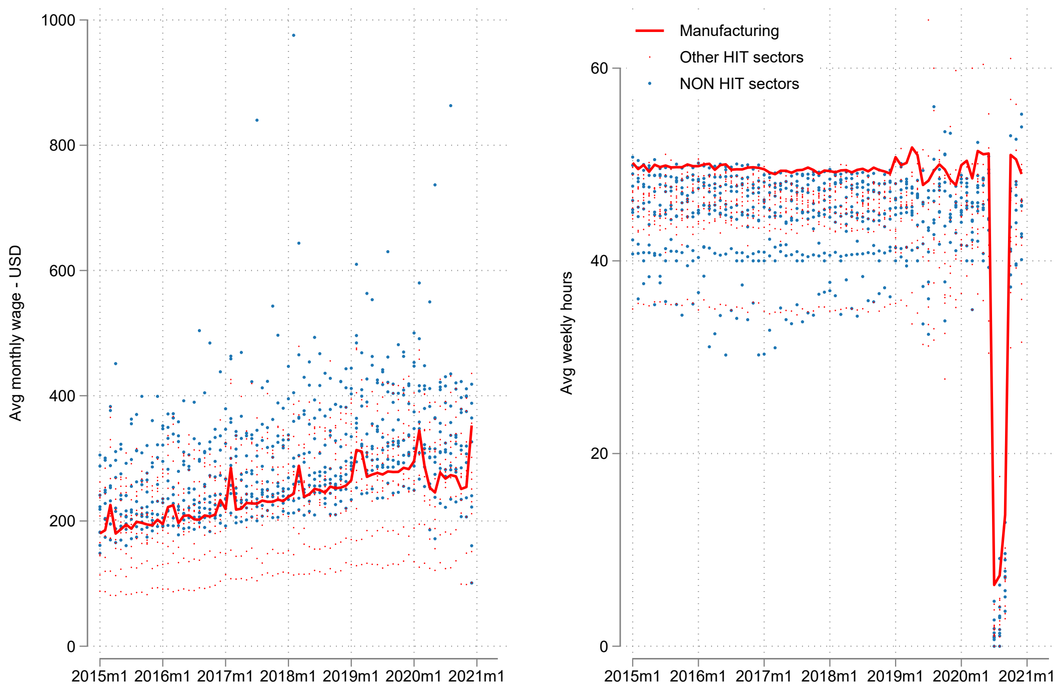
Figure 4: Share of workers across sectors



Notes: Data are from Vietnam's Labor Force Survey. The sectors are ISIC (Rev. 4) major level headings.

Figure 5 shows the evolution of wages and hours worked throughout our sample period. It shows that manufacturing wages, at about $300 a month in 2019, are not higher than in other sectors on average, and if anything the sectors hit by Trump's tariffs are sectors with lower wages on average. The figure also reveals the seasonality of the wage data, with bonuses in the first months of the year. This is something we take into account in our regression by looking at year-on-year changes in labor market outcomes, for every month, rather than looking at month-on-month changes. The right panel shows the longest working hours are in manufacturing on average, at about 50 hours per week. We also see that working hours are longer in sectors hit by Trump's tariffs on average. Most strikingly, we see the major drop in working hours that corresponds to the COVID lockdowns in Vietnam during 2020. We take this into account when interpreting the effects of the trade war on working hours.

Figure 5: Wages and hours worked over time



Notes: Data are from Vietnam's Labor Force Survey and based on self-reported wages and hours worked.

Table A.2 in the Appendix reports summary statistics for the main tariff and labor market variables used in the empirical analysis for the years 2017 (i.e., before the US started increasing tariffs on Chinese products) and 2019, and for men and women separately. By 2019, around one third of the industries were treated (i.e., at least one product within the industry was hit by Trump's tariffs), and on average 17 percent of tariff lines within an industry were hit by US tariff increases on China. Men work 45.85 hours per week on average, 2 hours more than women. Men and women have similar average skill levels around 2.3, which corresponds to production occupations such as machine operators or sales workers (see Table A.3).

3.2 Empirical Strategy and Results

Our identification strategy in this section relies on comparing changes in the number of jobs, hours worked, hourly wages, and occupational skills, in industries exposed to the exogenous trade policy shock relative to industries that were not exposed. We use an event-study specification similar to that in the first part of the paper (see eq (1)):

$$(2) \quad Y_{imt} = \sum_{j=-5}^{-2} \beta_j D_{imt}^{j} + \sum_{j=0}^{2} \beta_j D_{imt}^{j} + \mu_{im} + \lambda_t + \epsilon_{imt}$$

where Y_{imt} captures labor market outcomes such as the total number of jobs, or hourly wages, hours worked, and skills, averaged across individuals working in industry i, month m and year t . μ_{im} and λ_t are industry-month and year fixed effects, j are the numbers of included yearly leads and lags of the event indicator of an industry being hit by Trump's tariffs, D_{imt}, which takes the value of 1 if sector i had at least 1 product that was hit in month m in year t. ϵ_{imt} is the error term clustered at the industry level. We thus exploit differences across industries i (targeted vs non-targeted) and differences across years t (before vs. after being hit by Trump's tariffs). After matching HS-10 product code to ISIC4 4-digit industries, we define an industry as treated if at least one product within the industry has been hit by a US tariff increase on Chinese products.[13] The inclusion of industry-month fixed effects allows us to look at year-on-year changes in labor market outcomes in every industry for every month of the year. This approach nets out the influence of seasonality patterns, which are particularly strong for wages as shown in Figure 5. The monthly data allows us to take into account that different industries were hit by tariffs in different months in 2018 and 2019 (see Figure A.1 in the Appendix). In addition, we explore heterogeneous treatment effects by gender in

[13] Because of this empirical definition, a few service industries (17 out of 329) are classified as treated. Out of the 233 goods industries (agriculture, mining and manufacturing sectors), 169 were hit by US tariffs on China.

order to understand whether women and men were affected differently by the tariff shock. For this we use industry-month panels for both men and women.

As in our trade analysis, we estimate eq (2) with a standard TWFE estimator – the industry-month and year fixed effects, and test for the robustness of our labor market outcome results to the latest developments in the difference-in-difference estimation models (Sun and Abraham, 2021; Callaway and Sant'Anna, 2021; Borusyak et al., 2021; De Chaisemartin and d'Haultfoeuille, 2020).

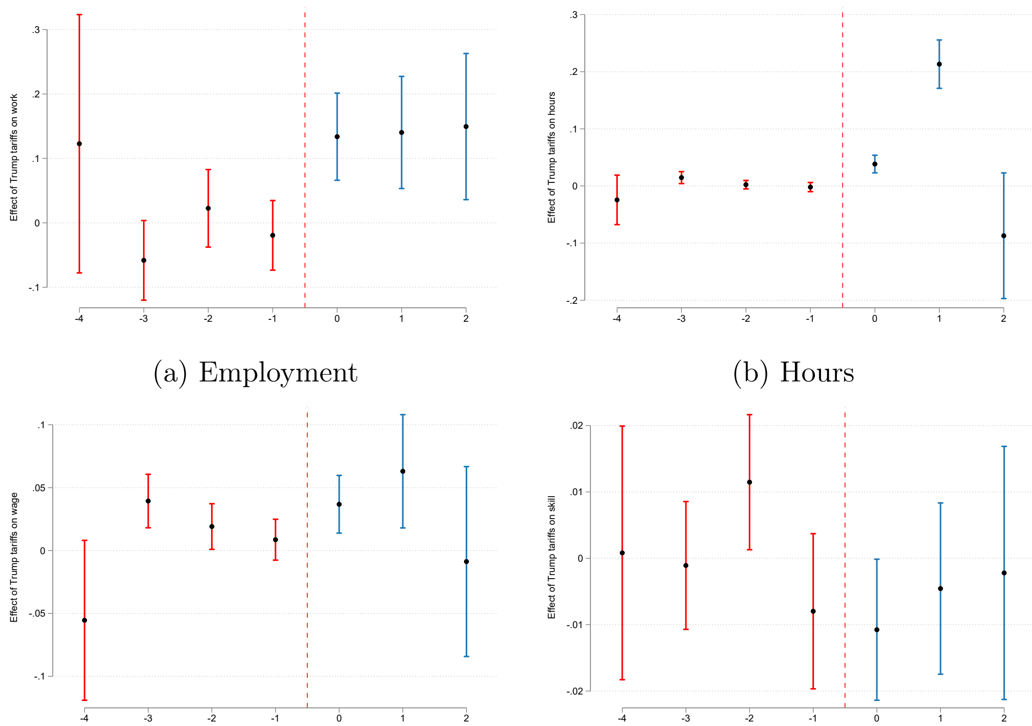
The estimates from eq (2) are shown in Figure 6. The number of jobs increased by as much as 15% more in industries affected by the US-China trade war. Weekly working hours increased by 20% (4.5 hours) in the year after the tariff hit, and wages went up by around 7% (about $20 a month on average) one year after the industry was hit by Trump's tariffs. The effects on wages and working hours disappear two years after treatment, in 2020, possibly due to a return to more normal working hours after a rush to meet new orders in 2019 and by COVID – if targeted industries were more likely to be affected by lockdowns. The effect on average skill levels across industries is slightly negative, but not statistically significant. The results using new diff-in-diff methods are similar, as shown in Figures A.5, A.6, A.7, and A.8, section B, in the Appendix.[14] We also show in Figure A.19 that the effects go in the same direction if we estimate a diff-in-diff model using the month-on-month variation instead of the year-on-year one. Most strikingly, we find higher job numbers and working hours in targeted industries in many post-treatment months, when compared to the average in the pre-treatment year.

The results from the event-study specification point to significant pre-treatment effects (see the dots and associated red bars in Figures 6). This suggests that the parallel trend assumption needed for identification of causal effects in our difference-

[14] Because tariff changes apply to goods only, most of the control group in our difference-in-difference design is composed of service industries (e.g., 82 % of the industries that are never treated). As a robustness check on our results, we replicate the estimation of the diff-in-diff model (TWFE) by dropping services industries. Figure A.18 in the Appendix shows that the effects on working hours go in the same direction as in the full sample. the efefcts on jobs and wages are different however.

in-difference model might not hold. Following the strategy adopted for the import diversion analysis, we check the robustness of the average effects in Table 2 to violations of the parallel trends assumption, applying the methods introduced by Rambachan and Roth (2023). The results, shown in Figures A.13 in the Appendix, indicate that the average effects on wages and skills remain statistically insignificant, while the ones on employment and hours appear robust to slight deviations from the parallel trend assumption. Since the effects on working hours vary between $t = 1$ and $t = 2$, we check whether the positive treatment effect in $t = 1$ (rather than the average effect across $t = 0$, $t = 1$ and $t = 2$) is robust to violation of the assumption and find that it is indeed the case.

Figure 6: The effect of Trump's tariffs on Vietnam's labor markets



(a) Employment

(b) Hours

(c) Wages

(d) Skills

Notes: The dots show TWFE diff-in-diff estimates of the effect of tariff hikes on jobs, hours worked, wages, and skills across years and sectors. Blue bars are c.i. for treatment effects relative to the year before treatment. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2019).

Table 2 reports the average across the post-treatment coefficients from eq (2) under the TWFE and alternative estimators. For each labor market outcome and estimator, it also shows the results of a specification where we add controls for the industry being hit by US tariffs on Vietnam and ROW (countries other than China and Vietnam). The results suggest that employment increased by $\approx 15\%$ more in industries hit by Trump's tariffs, which corresponds to around 1,000 extra jobs in each treated industry starting from the average employment in the sample. We find no statistically significant effect on average on hours worked, hourly wages, nor on average skill levels (no occupational upgrading). The sign of the coefficients suggests however slightly increased working hours, wages, and decreased average occupational skills. The results are consistent across the different estimators, and are robust to controlling for changes in US tariffs on goods coming from Vietnam and other countries.

Table 2: The effect of Trump's tariffs on Vietnam's labor market to the US

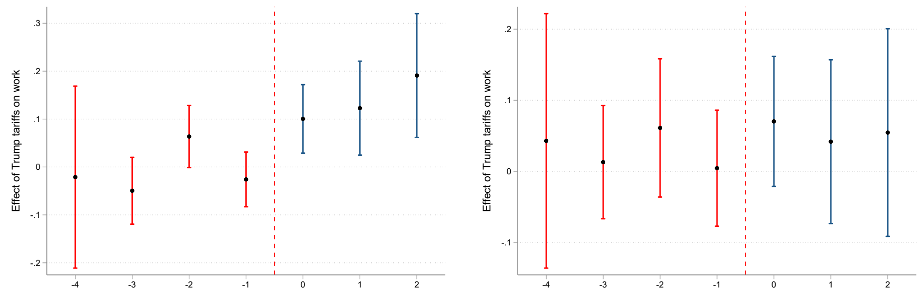
	(1) TWFE	(2) S&A	(3) C&S	(4) BJS	(5) DC&DH
Workers					
w/o controls	0.141	0.127	0.121	0.131	0.120
	(0.049)	(0.055)	(0.054)	(0.046)	(0.047)
w/. control	0.133	0.116	0.121	0.131	0.120
	(0.050)	(0.054)	(0.054)	(0.046)	(0.047)
Hours					
w/o controls	0.055	0.054	0.055	0.049	0.041
	(0.027)	(0.028)	(0.027)	(0.027)	(0.028)
w/. control	0.053	0.048	0.055	0.049	0.002
	(0.030)	(0.031)	(0.027	(0.027)	(0.028)
Wages					
w/o controls	0.030	0.032	0.041	0.045	0.041
	(0.024)	(0.025)	(0.024)	(0.024)	(0.023
w/. control	0.034	0.032	0.041	0.045	0.041
	(0.026)	(0.026)	(0.024)	(0.024)	(0.023)
Skills					
w/o controls	-0.006	-0.004	-0.002	-0.009	-0.003
	(0.007)	(0.008)	(0.007)	(0.006)	(0.007)
w/. control	-0.005	-0.005	-0.002	-0.009	-0.003
	(0.008)	(0.008)	(0.007)	(0.006)	(0.007)

Note: Diff-in-diff estimates of the effect of Trump tariff on Vietnam's labor market. All regressions include industry-month and year fixed effects. Standard errors in parenthesis are clustered by sector. Workers is the log number of workers in a sector. Hours (weekly), wages (per weekly hours), and skills are in log. Control variables are dummies equal to 1 for sectors with products hit by US tariffs on Vietnam and on the rest of the world. The columns are for dynamic two-way fixed effects (TWFE), Sun and Abraham (2021) (S&A), Callaway and Sant'Anna (2021) (C&S), Borusyak et al. (2021) (BJS) and De Chaisemartin and d'Haultfoeuille (2020) (DC&DH).

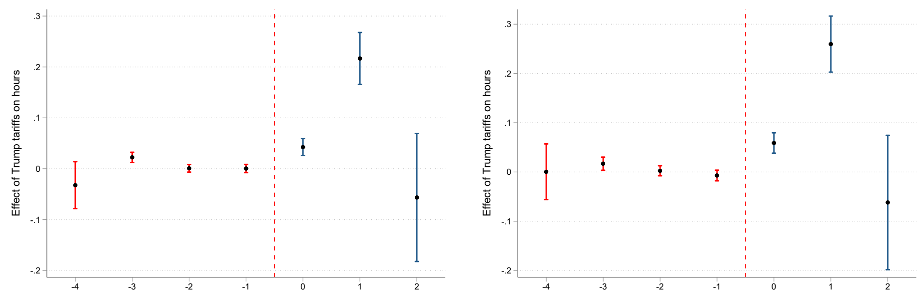
The results of the dynamic specification in eq (2) by gender are in Figure 7. The graphs along the left-hand side column are for males, and the ones on the right-hand side column are for females. We compute total employment, average weekly hours worked, hourly wages and occupational skill level by industry and gender and estimate (2) separately for males and females. We observe increases in hours worked for both men and women in industries affected by US tariffs on Chinese products one year after the hits. We find however that the the number of jobs increase mostly for men, while average wages increased more for women, by close to 8% one year after treatment, while that of men workers has increased by around 5%. We find no effect on average occupational skills for either. These findings are confirmed when gender gap measures are employed as dependent variables (see Figure A.20 in the Appendix). The gender wage gap has decreased significantly in industries hit by Trump's tariffs relative to other industries. The results are consistent with greater export opportunities increasing the bargaining power of working women and decreasing discrimination (Ederington et al., 2009; Oostendorp, 2009). The estimates obtained using new diff-in-diff methods are similar and are shown in Figures A.9, A.10, and A.11, section B, of the Appendix.

Figure 7: The effect of Trump's tariffs on labor markets, by gender

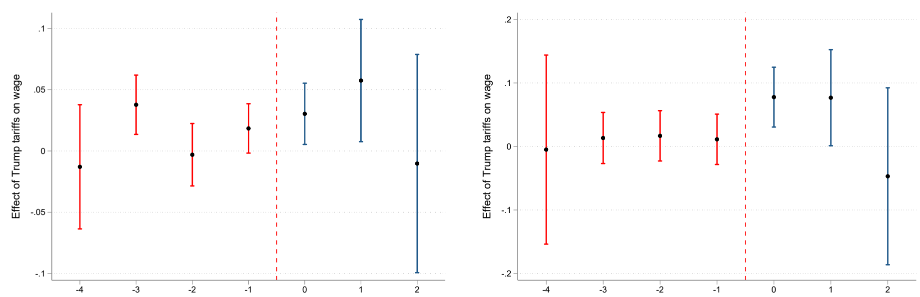
(a) Employment



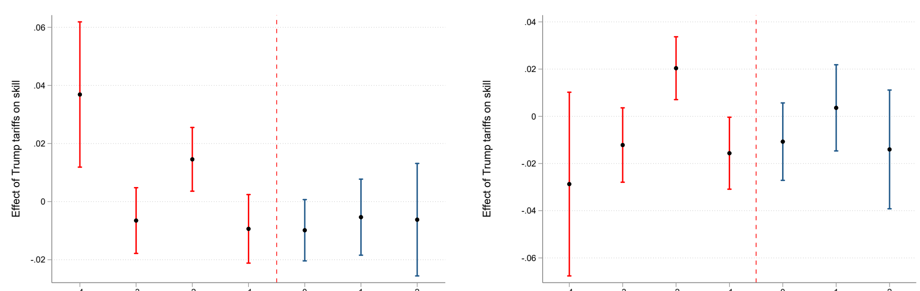
(b) Hours



(c) Wages



(d) Skills



Men Women

Notes: The dots show TWFE diff-in-diff estimates of the effect of tariff hikes on jobs, hours worked, wages, and skills across years and sectors. Blue bars are c.i. for treatment effects relative to the year before treatment. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2019).

We also estimate a first-differenced model where we control for lagged changes in labor market outcomes (similarly to what we did for Vietnam exports to the US in section 2). The results go in the same direction as the diff-in-dff estimates and confirm that tariff hikes on China led to positive employment effects in Vietnam, both in terms of job creation and hours worked.

4 Conclusion

In this paper, we examine how the US-China trade war, which caused tariff hikes on numerous Chinese products, found an unintended beneficiary in Vietnam. We show that the US-China trade war caused significant increases in Vietnam exports to the US in products impacted by Trump's tariffs. In addition, products were more likely to be introduced and existing products were less likely to exit in Trump-affected sectors, confirming the creation of new export opportunities for Vietnam.

We also show that new export opportunities arising from Trump's trade war affected Vietnam's labor market. Employment in industries that were targeted by Trump increased, as did the number of hours worked and wages. However, we find that the expansion in export to the US did not entail occupational upgrading in Vietnam, possibly due to the fact that the jobs created were predominantly in low-skilled sectors.

In assessing the differential effects of export expansion on male and female workers, we find that Trump's tariffs created jobs mostly for male workers. However, we find that the mean wages of workers in Trump-affected sectors increased more for female workers. Vietnam faces large gender inequality. Women are not only more likely to live below the poverty line, they also earn lower wages, work longer hours, and are less educated. These new export opportunities created in Vietnam's manufacturing sector in the wake of the Trump trade wars may have helped reduce the gender wage gap in the affected sectors.

References

Aguayo-Tellez, E., J. Airola, C. Juhn, and C. Villegas-Sanchez (2014). Did trade liberalization help women? the case of mexico in the 1990s. In *New analyses of worker well-being*. Emerald Group Publishing Limited.

Amiti, M., S. J. Redding, and D. E. Weinstein (2019). The impact of the 2018 tariffs on prices and welfare. *Journal of Economic Perspectives 33*(4), 187–210.

Atkin, D. and D. Donaldson (2022). The role of trade in economic development. In G. Gopinath, E. Helpman, and K. Rogoff (Eds.), *Handbook of International Economics: International Trade, Volume 5*, Volume 5 of *Handbook of International Economics*, pp. 1–59.

Bellemare, M. F. and C. J. Wichman (2020). Elasticities and the Inverse Hyperbolic Sine Transformation. *Oxford Bulletin of Economics and Statistics 82*(1), 50–61.

Berik, G., Y. v. d. M. Rodgers, and J. E. Zveglich (2004). International trade and gender wage discrimination: Evidence from east asia. *Review of Development Economics 8*(2), 237–254.

Black, S. E. and E. Brainerd (2004). Importing equality? the impact of globalization on gender discrimination. *ILR Review 57*(4), 540–559.

Borusyak, K., X. Jaravel, and J. Spiess (2021). Revisiting event study designs: Robust and efficient estimation. *arXiv preprint arXiv:2108.12419*.

Bown, C. P. (2022). Four years into the trade war, are the us and china decoupling? Peterson Institute for International Economics.

Bravo, M. C., J. Roth, and A. Rambachan (2022). Honestdid: Stata module implementing the honestdid r package.

Busse, M. and C. Spielmann (2006). Gender inequality and trade. *Review of International Economics 14*(3), 362–379.

Cali, M. (2018). The impact of the us-china trade war on east asia. *CEPR Policy Portal Article.*.

Caliendo, L. and F. Parro (2022). Chapter 4 - trade policy. In G. Gopinath, E. Helpman, and K. Rogoff (Eds.), *Handbook of International Economics: International Trade, Volume 5*, Volume 5 of *Handbook of International Economics*, pp. 219–295. Elsevier.

Callaway, B. and P. H. Sant'Anna (2021). Difference-in-Differences with multiple time periods. *Journal of Econometrics 225*(2), 200–230.

De Chaisemartin, C. and X. d'Haultfoeuille (2020). Two-way fixed effects estimators with heterogeneous treatment effects. *American Economic Review 110*(9), 2964–96.

Dell, M., B. Feigenberg, and K. Teshima (2019, June). The violent consequences of trade-induced worker displacement in mexico. *American Economic Review: Insights 1*(1), 43–58.

de Chaisemartin, C. and X. D'Haultfoeuille (2022). Two-way fixed effects and differences-in-differences with heterogeneous treatment effects: a survey. *The Econometrics Journal*.

Dix-Carneiro, R. and B. K. Kovak (2019). Margins of labor market adjustment to trade. *Journal of International Economics 117*, 125–142.

Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic Literature 50*(4), 1051–79.

Ederington, J., J. Minier, and K. Troske (2009). Where the Girls Are: Trade and Labor Market Segregation in Colombia. IZA Discussion Papers 4131, Institute of Labor Economics (IZA).

Fajgelbaum, P., P. K. Goldberg, P. J. Kennedy, A. Khandelwal, and D. Taglioni (2021). The US-China Trade War and Global Reallocations. NBER Working Papers 29562, National Bureau of Economic Research, Inc.

Fajgelbaum, P. D., P. K. Goldberg, P. J. Kennedy, and A. K. Khandelwal (2019). The Return to Protectionism. *The Quarterly Journal of Economics 135*(1), 1–55.

Fajgelbaum, P. D. and A. K. Khandelwal (2022). The Economic Impacts of the US–China Trade War. *Annual Review of Economics 14*(1), 205–228.

Fetzer, T. and C. Schwarz (2021). Tariffs and politics: Evidence from trump's trade wars. *The Economic Journal 131*(636), 1717–1741.

Gaddis, I. and J. Pieters (2017). The gendered labor market impacts of trade liberalization: Evidence from brazil. *Journal of Human Resources 52*(2), 457–490.

Gaston, N. and D. Trefler (1997). The labour market consequences of the canada-u.s. free trade agreement. *The Canadian Journal of Economics / Revue canadienne d'Economique 30*(1), 18–41.

Ha, T. and M. Francois (2019). Advancing gender equality in vietnam: A crucial balancing act.

Hakobyan, S. and J. McLaren (2016, 10). Looking for Local Labor Market Effects of NAFTA. *The Review of Economics and Statistics 98*(4), 728–741.

Hanson, G. H. (2003). What has happened to wages in mexico since nafta?

Hanson, G. H. (2020, December). Who will fill china's shoes? the global evolution of labor-intensive manufacturing. Working Paper 28313, National Bureau of Economic Research.

Iacovone, L., F. Rauch, and L. A. Winters (2013). Trade as an engine of creative destruction: Mexican experience with Chinese competition. *Journal of International Economics 89*(2), 379–392.

Juhn, C., G. Ujhelyi, and C. Villegas-Sanchez (2013). Trade liberalization and gender inequality. *American Economic Review 103*(3), 269–73.

Juhn, C., G. Ujhelyi, and C. Villegas-Sanchez (2014). Men, women, and machines: How trade impacts gender inequality. *Journal of Development Economics 106*, 179–193.

Mansour, H., P. Medina, and A. Velásquez (2022). Import competition and gender differences in labor reallocation. *Labour Economics 76*, 102149.

Mao, H. and H. Görg (2020). Friends like this: The impact of the us–china trade war on global value chains. *The World Economy 43*(7), 1776–1791.

McCaig, B. (2011, September). Exporting out of poverty: Provincial poverty in vietnam and u.s. market access. *Journal of International Economics 85*(1), 102–113.

McCaig, B. and N. Pavcnik (2018, July). Export markets and labor allocation in a low-income country. *American Economic Review 108*(7), 1899–1941.

McCaig, B., N. Pavcnik, and W. F. Wong (2022, December). Fdi inflows and domestic firms: Adjustments to new export opportunities. Working Paper 30729, National Bureau of Economic Research.

Medina, P. (2022, 07). Import Competition, Quality Upgrading, and Exporting: Evidence from the Peruvian Apparel Industry. *The Review of Economics and Statistics*, 1–45.

Menon, N. and Y. v. d. M. Rodgers (2009). International trade and the gender wage gap: New evidence from india's manufacturing sector. *World Development 37*(5), 965–981.

Oostendorp, R. H. (2009). Globalization and the Gender Wage Gap. *The World Bank Economic Review 23*(1), 141–161.

Organisation for Economic Co-operation and Development (OECD) (2019). Making trade work for gender equality. Technical report.

Pham, L. T. and Y. Jinjarak (2023). Global value chains and female employment: The evidence from vietnam. *The World Economy 46*(3), 726–757.

Rambachan, A. and J. Roth (2023, 02). A More Credible Approach to Parallel Trends*. *The Review of Economic Studies*. rdad018.

Rocha, N. and D. E. Winkler (2019). Trade and Female Labor Participation : Stylized Facts Using a Global Dataset. Policy Research Working Paper Series 9098, The World Bank.

Roth, J., P. H. C. Sant'Anna, A. Bilinski, and J. Poe (2022). What's Trending in Difference-in-Differences? A Synthesis of the Recent Econometrics Literature.

Rotunno, L., P.-L. Vézina, and Z. Wang (2013). The rise and fall of (chinese) african apparel exports. *Journal of Development Economics 105*(C), 152–163.

Schott, P. K. (2008). The relative sophistication of Chinese exports. *Economic Policy 23*(53), 6–49.

Sun, L. and S. Abraham (2021). Estimating dynamic treatment effects in event studies with heterogeneous treatment effects. *Journal of Econometrics 225*(2), 175–199.

World Trade Organization and World Bank (2021). Women and trade: The role of trade in promoting women's equality.

ONLINE APPENDIX

A Descriptive statistics

Table A.1: Summary statistics for variables used in the trade analysis

	Obs	Mean	25th perc.	75th perc.	Min	Max
$\text{asinh}(X_p)$	104524	3.819	0.00	9.61	0.00	23.77
$\ln(X_p)$	31450	12.001	9.76	14.14	5.53	23.08
$1(X_p > 0)$	104524	0.301	0.00	1.00	0.00	1.00
$\Delta_{2019}\,\text{asinh}\,(X_p)$	17336	0.507	0.00	0.00	-19.49	19.17
$\Delta_{2020}\,\text{asinh}\,(X_p)$	17207	0.744	0.00	0.06	-19.49	20.35
$\Delta_{2019}\ln(X_p)$	4325	0.469	-0.31	1.15	-8.48	9.16
$\Delta_{2020}\ln(X_p)$	4305	0.661	-0.34	1.52	-7.57	10.48
$1(Entry_{2019})$	12204	0.115	0.00	0.00	0.00	1.00
$1(Exit_{2019})$	5132	0.157	0.00	0.00	0.00	1.00
$1(Entry_{2020})$	12097	0.136	0.00	0.00	0.00	1.00
$1(Exit_{2020})$	5110	0.158	0.00	0.00	0.00	1.00
$\Delta\tau_p^{USA,CHN}$	18982	0.152	0.00	0.25	0.00	0.65
$\Delta\tau_p^{USA,VNM}$	18982	0.002	0.00	0.00	0.00	0.50
$\Delta\tau_p^{USA,ROW}$	18982	0.001	0.00	0.00	0.00	0.16
$1(\Delta t^{USA,CHN} > 0)$	18982	0.666	0.00	1.00	0.00	1.00
$1(\Delta t^{USA,VNM} > 0)$	18982	0.009	0.00	0.00	0.00	1.00
$1(\Delta t^{USA,ROW} > 0)$	18982	0.054	0.00	0.00	0.00	1.00

Note: Summary statistics for variables used in the differenced model (A.3) – see Table A.4 for the results. Each observation correspond to a HS-10 digit tariff line. $\Delta_t\,\text{asinh}\,(X_p)$ are differences in *asinh* of US imports from Vietnam between 2019 and 2017 (for $t = 2019$) and between 2020 and 2017 (for $t = 2020$). $\Delta_t \ln(X_p)$ are differences in the ln of US imports from Vietnam between 2019 and 2017 (for $t = 2019$) and between 2020 and 2017 (for $t = 2020$). $1(Entry_t)$ is a dummy equal to 1 for products that were exported in t and not in 2017 (with $t = \{2019, 2020\}$), and zero for products that were not exported in t and 2017. $1(Exit_t)$ is a dummy equal to 1 for products that were not exported in t and were exported in 2017 (with $t = \{2019, 2020\}$), and zero for products that were exported in t and 2017. $\Delta\tau_p^{USA,o}$ is the change in the tariff imposed by the US on products from $o = \{CHN, VNM, ROW\}$ between 2018 and the end of 2019 as a result the US-China trade war. $1(\Delta t^{USA,o} > 0)$ are dummies for the existence of increases in US tariffs to products from $o = \{CHN, VNM, ROW\}$. The trade data is from Schott (2008) and the tariff data from Fajgelbaum et al. (2019).

Table A.2: Summary statistics for variables used in the labor market analysis

	Men					Women				
	N	mean	sd	min	max	N	mean	sd	min	max
2017										
Tariff on China = 1	379	0	0	0	0	353	0	0	0	0
Avg tariff on China	379	0	0	0	0	353	0	0	0	0
Share of tariff lines hit	379	0	0	0	0	353	0	0	0	0
Workers	355	6.818	1.462	3.134	12.50	326	6.458	1.501	2.590	11.57
Hours	379	3.836	0.138	3.211	4.248	353	3.785	0.178	2.824	4.431
Wage	379	8.721	0.466	4.568	10.44	345	8.379	0.597	5.725	10.30
Skill level	366	0.819	0.282	0	1.386	339	0.814	0.333	0	1.386
2019										
Tariff on China = 1	378	0.386	0.488	0	1	339	0.369	0.483	0	1
Avg tariff on China	378	0.0231	0.0405	0	0.208	339	0.0203	0.0372	0	0.194
Share of tariff lines hit	378	0.175	0.272	0	1	339	0.161	0.259	0	1
Workers	360	6.753	1.548	2.800	12.49	316	6.493	1.561	2.549	11.82
Hours	378	3.826	0.160	2.708	4.248	339	3.780	0.170	2.773	4.094
Wage	377	8.804	0.429	6.486	10.17	334	8.469	0.629	5.225	10.60
Skill level	364	0.800	0.280	0	1.386	325	0.796	0.324	0	1.386

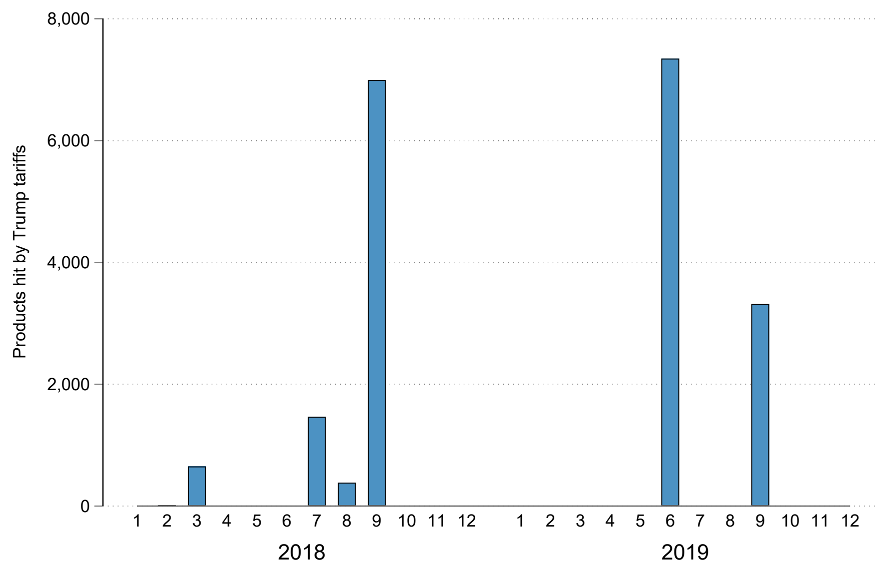
Note: Summary statistics for variables used in the labor market section. Workers, hours, wages, and skill levels are in logs. The tariff data is from Fajgelbaum et al. (2019) and the labor market data is from Vietnam's labor force sruvey (LFS).

Table A.3: Skill level of ISCO-major groups according to the 2012 ILO classification

ISCO-major group		Skill level
1	Managers[1]	3 & 4
2	Professionals	4
3	Technicians and Associate Professionals	3
4	Clerical Support Workers	2
5	Services and Sales Workers	2
6	Skilled Agricultural / Forestry / Fishery Workers	2
7	Craft and Related Trades Workers	2
8	Plant and Machine Operators and Assemblers	2
9	Elementary Occupations	1

[1] Managers who are in submajor group 14 (Hospitality, Retail and Other Services) are Skill Level 3. Skill level 1 consist of workers who perform routine physical tasks which requires no formal education. Skill level 2 correspond to medium-low-skilled workers who complete physical and socio-cognitive work and have a secondary education or vocation-specific education. Skill level 3 workers complete technical and complex work and have 1-3 years of higher education. Finally, Skill level 4 workers are high-skilled workers whose job is to problem-solve or undertake creative thinking.

Figure A.1: US-China trade war tariff hikes by month in 2018 and 2019



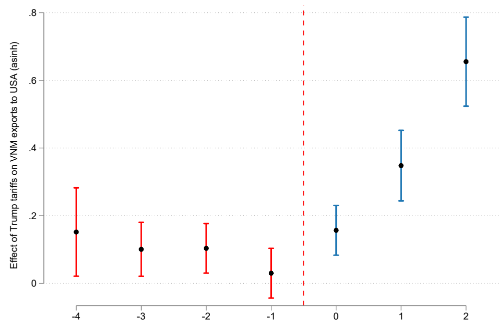
Notes: The numbers 1 to 12 are for months from Jan to Dec. Tariff hikes are relative to 2017. The hikes in June 2019 are additional hikes (from .10 to .25) on products hit in 2018. The hikes in September 2019 are on additional product lines. Source: Fajgelbaum et al. (2021)

B Alternative difference-in-difference estimators

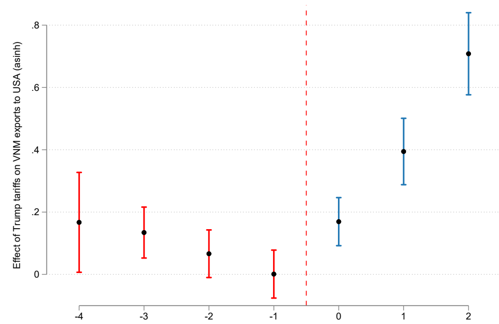
In this section, we report the results of the dynamic difference-in-difference specifications in eqs (1) and (2) (in the full sample and by gender) estimated through other estimators than the two-way fixed effects (TWFE). A recent literature has shown that TWFE estimates can be biased and difficult to interpret when the effects are heterogeneous across units depending on when they enter into treatment. For each of our trade outcomes (*asinh* and log transformed values, and a dummy for strictly positive exports) and labor outcomes (jobs, hours worked, average wages and average skill level), we report the pre-treatment and post-treatment effects of the TWFE (also shown in Figures 3 for trade and 6 for labor outcomes) and three alternative estimators: Sun and Abraham (2021); Callaway and Sant'Anna (2021) and Borusyak et al. (2021). Essentially, these estimators differ in the construction of the control group and in the parallel trend assumptions that they make – see the reviews by de Chaisemartin and D'Haultfoeuille (2022) and Roth et al. (2022) for detailed comparisons. As shown in Figures A.2 to A.8, the results under these alternative estimators are broadly similar to the TWFE ones. This similarity is confirmed when looking at labor market outcomes by gender (TWFE estimates shown in Figure 7 in the paper and the estimates with the alternative methods in Figures A.9 to A.11). For the export outcomes, some differences emerge in the treatment effects on the intensive margin (Figure A.3), which are lower and less precisely estimated with the alternative estimators. The pre-treatment effects are also similar across estimators – the difference between the ones estimated by Borusyak et al. (2021) and the other estimators is related to differences in the reference group.[15] Tables 1 and 2 in the paper report the average across post-treatment effects also for the estimator proposed by De Chaisemartin and d'Haultfoeuille (2020). The period-specific coefficients are missing for this estimator because it requires the number of pre-treatment periods to be smaller than the number of post-treatment ones – a condition that is not satisfied in our setting.

[15] Borusyak et al. (2021) estimate pre-treatment effects relative to never-treated units and leads of treatment that are further away than $-t$ (e.g., the treatment at -2 is relative to never-treated units and treatments at $t-3$, $t-4$ and $t-5$). The pre-treatment coefficients reported in the Figures for the other estimators are instead relative to the previous period (e.g., $t-3$ only is the reference group for the effect at $t-2$).

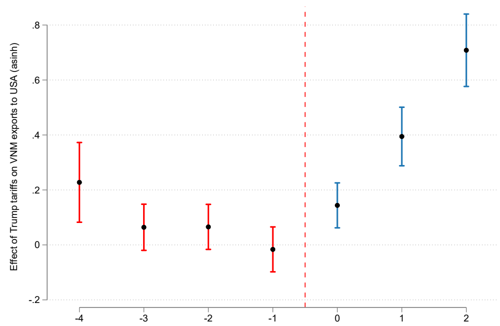
Figure A.2: The effect of Trump tariffs on exports (asinh)



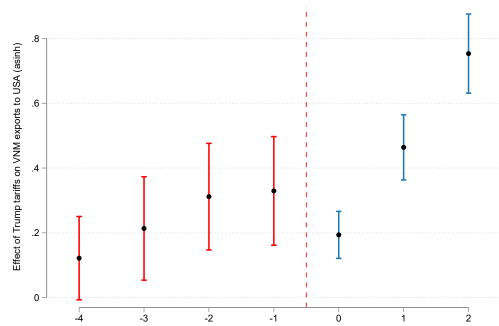
(a) TWFE



(b) Sun & Abraham



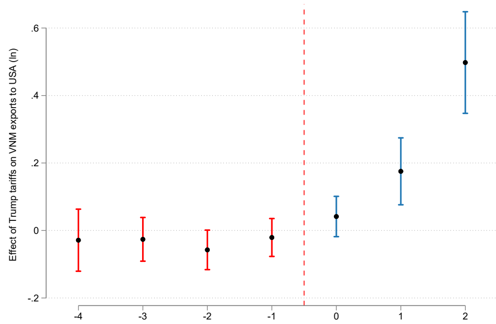
(c) Callaway & Sant'Anna



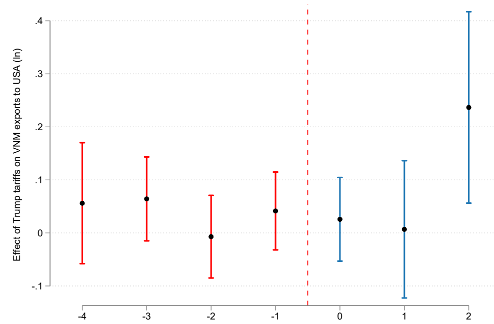
(d) Borusyak et al.

Notes: The dots show diff-in-diff estimates of the effect of tariff hikes on Vietnam exports (asinh) to the US across years and products. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects (except for the Borusyak et al. estimator – see footnote 15). Blue bars are for treatment effects relative to the year before treatment (or the avg of the pre-treatment period in the case of Borusyak et al.). Data on US imports at the 10 digit level from Schott (2008). Data on tariff hikes from Fajgelbaum et al. (2021).

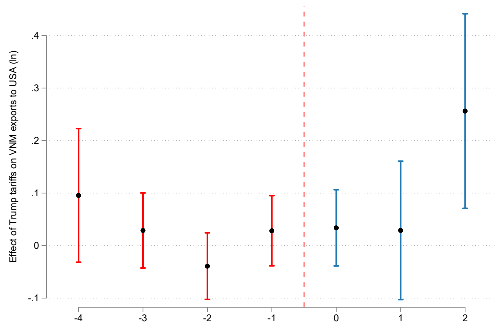
Figure A.3: The effect of Trump tariffs on exports (ln)



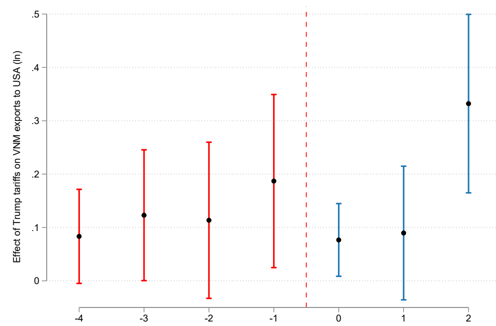
(a) TWFE



(b) Sun & Abraham



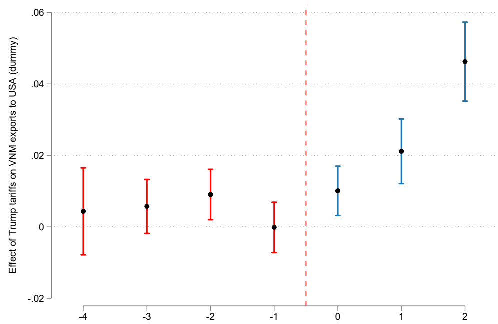
(c) Callaway & Sant'Anna



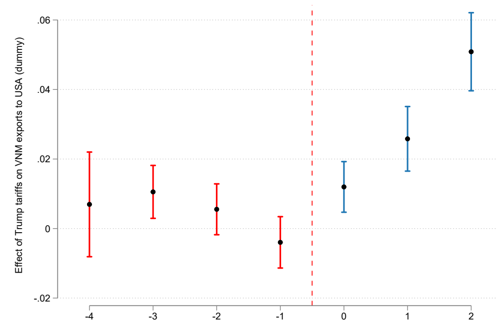
(d) Borusyak et al.

Notes: The dots show diff-in-diff estimates of the effect of tariff hikes on Vietnam exports (ln) to the US across years and products. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects (except for the Borusyak et al. estimator – see footnote 15). Blue bars are for treatment effects relative to the year before treatment (or the avg of the pre-treatment period in the case of Borusyak et al.). Data on US imports at the 10 digit level from Schott (2008). Data on tariff hikes from Fajgelbaum et al. (2021).

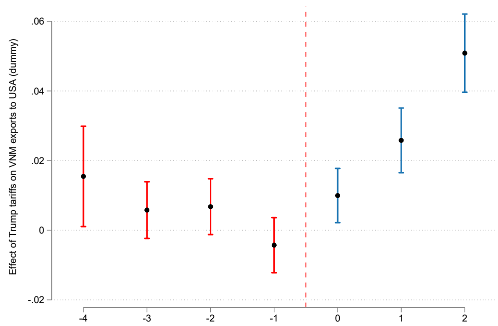
Figure A.4: The effect of Trump tariffs on exports (dummy)



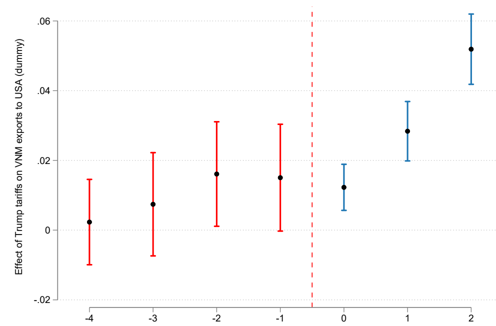
(a) TWFE



(b) Sun & Abraham



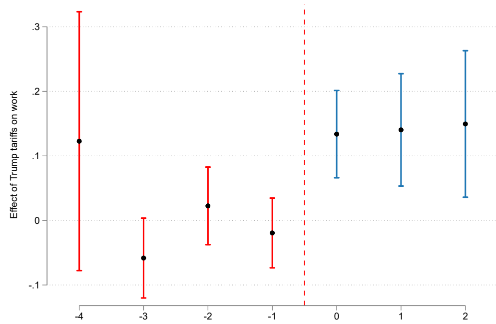
(c) Callaway & Sant'Anna



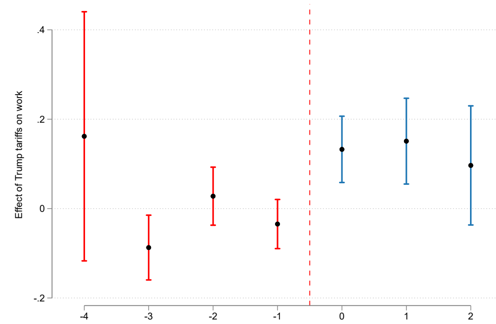
(d) Borusyak et al.

Notes: The dots show diff-in-diff estimates of the effect of tariff hikes on Vietnam exports (export dummy) to the US across years and products. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects (except for the Borusyak et al. estimator – see footnote 15). Blue bars are for treatment effects relative to the year before treatment (or the avg of the pre-treatment period in the case of Borusyak et al.). Data on US imports at the 10 digit level from Schott (2008). Data on tariff hikes from Fajgelbaum et al. (2021).

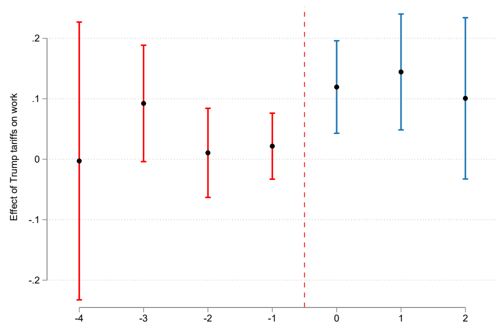
Figure A.5: The effect of Trump tariffs on employment



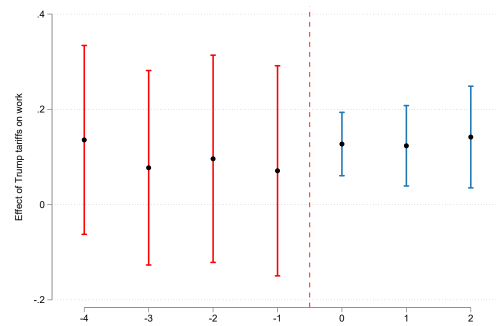
(a) TWFE



(b) Sun & Abraham



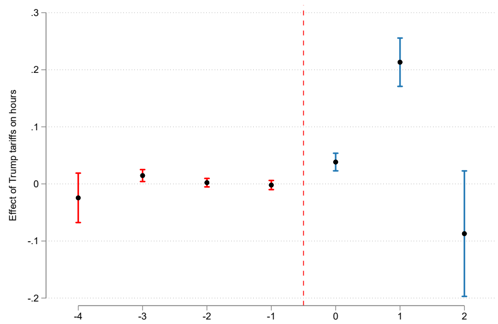
(c) Callaway & Sant'Anna



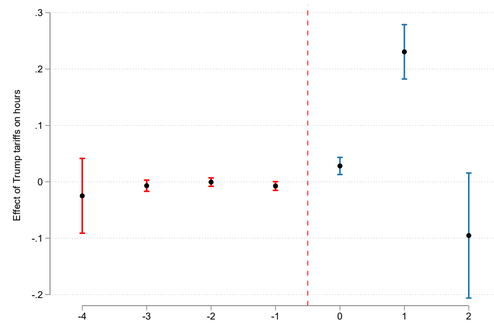
(d) Borusyak et al.

Notes: The dots show diff-in-diff estimates of the effect of tariff hikes on jobs across years and sectors. Blue bars are c.i. for treatment effects relative to the year before treatment, or the avg pre-treatment period in the case of Borusyak et al. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2021).

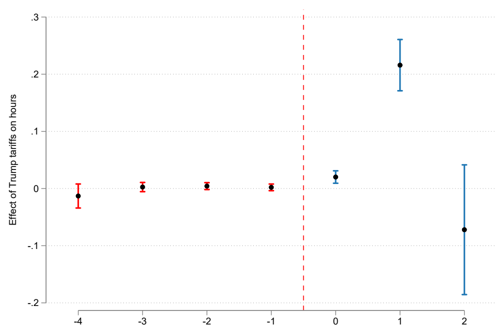
Figure A.6: The effect of Trump tariffs on working hours



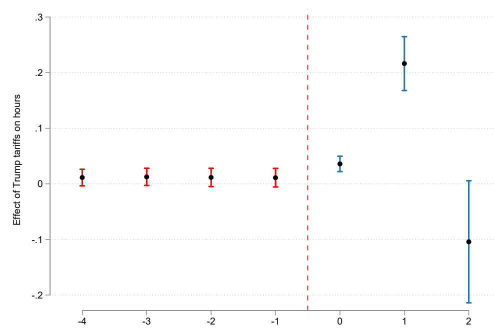
(a) TWFE



(b) Sun & Abraham



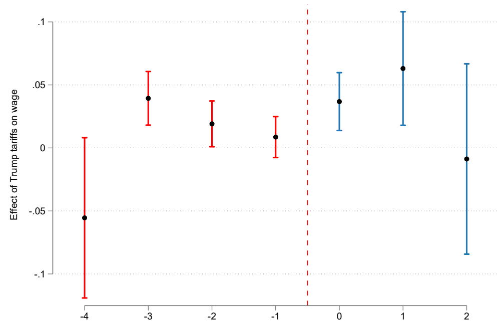
(c) Callaway & Sant'Anna



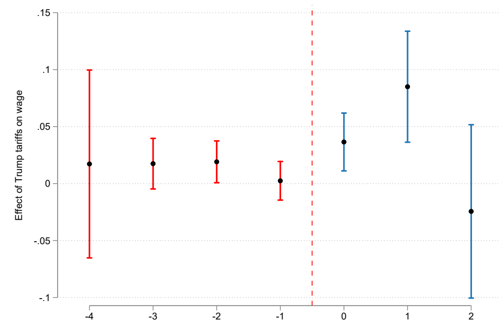
(d) Borusyak et al.

Notes: The dots show diff-in-diff estimates of the effect of tariff hikes on hours worked across years and sectors. Blue bars are c.i. for treatment effects relative to the year before treatment, or the avg pre-treatment period in the case of Borusyak et al. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2021).

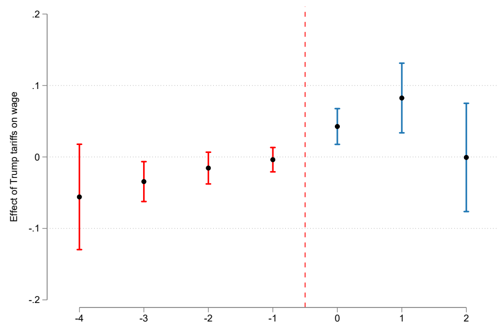
Figure A.7: The effect of Trump tariffs on wages



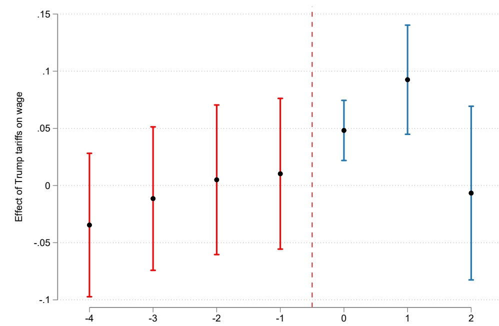
(a) TWFE



(b) Sun & Abraham



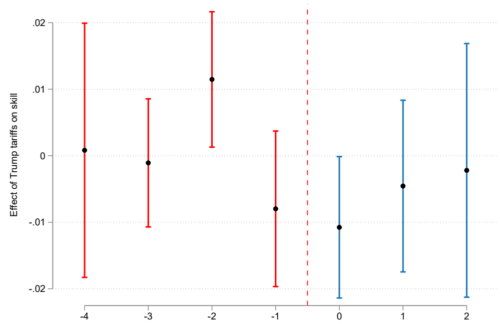
(c) Callaway & Sant'Anna



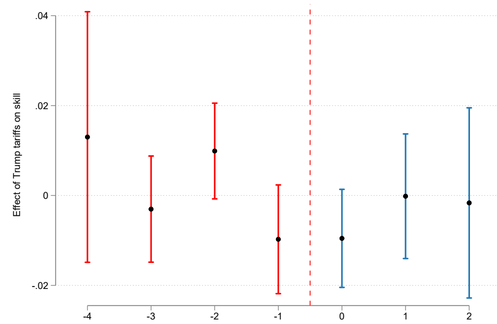
(d) Borusyak et al.

Notes: The dots show diff-in-diff estimates of the effect of tariff hikes on wages across years and sectors. Blue bars are c.i. for treatment effects relative to the year before treatment, or the avg pre-treatment period in the case of Borusyak et al. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2021).

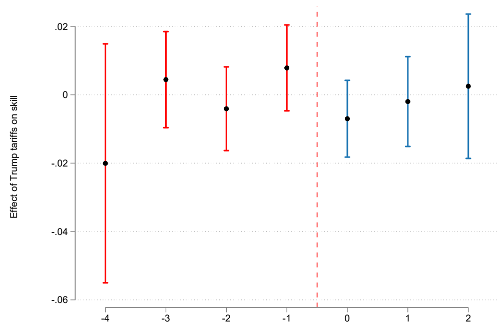
Figure A.8: The effect of Trump tariffs on skills



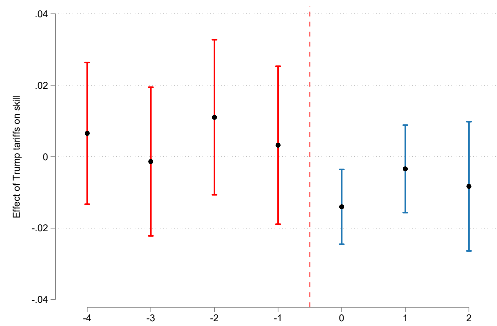
(a) TWFE



(b) Sun & Abraham



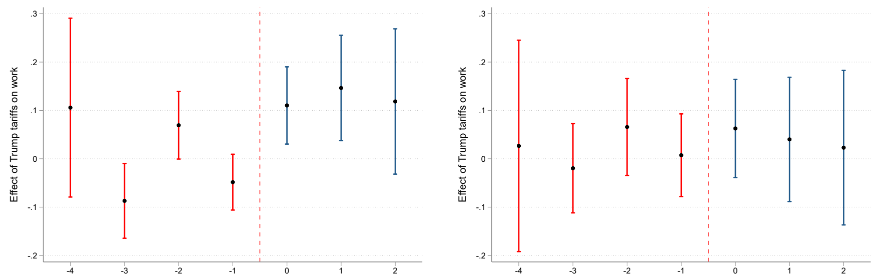
(c) Callaway & Sant'Anna



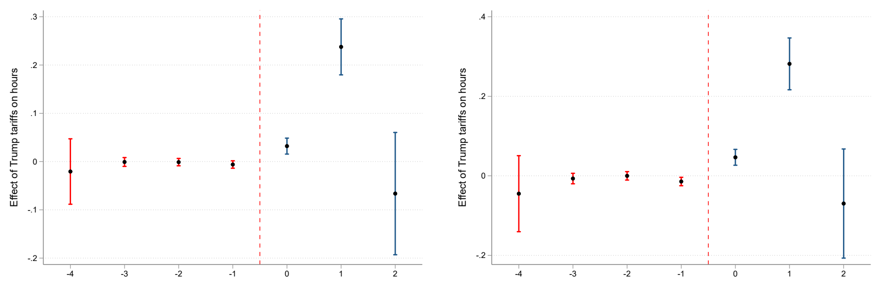
(d) Borusyak et al.

Notes: The dots show diff-in-diff estimates of the effect of tariff hikes on skills across years and sectors. Blue bars are c.i. for treatment effects relative to the year before treatment, or the avg pre-treatment period in the case of Borusyak et al. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2021).

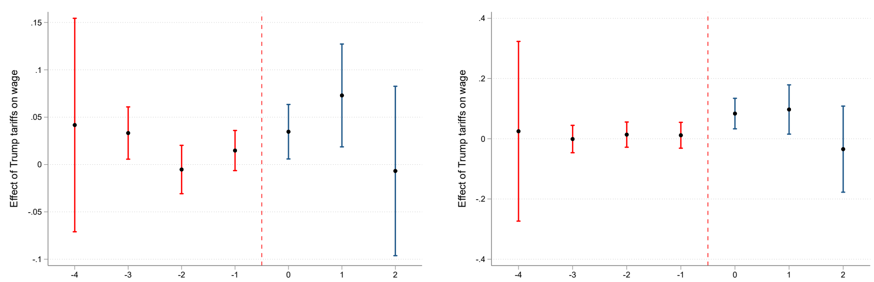
Figure A.9: The effect of Trump tariffs on labor markets using the Sun and Abraham (2021) estimator, by gender



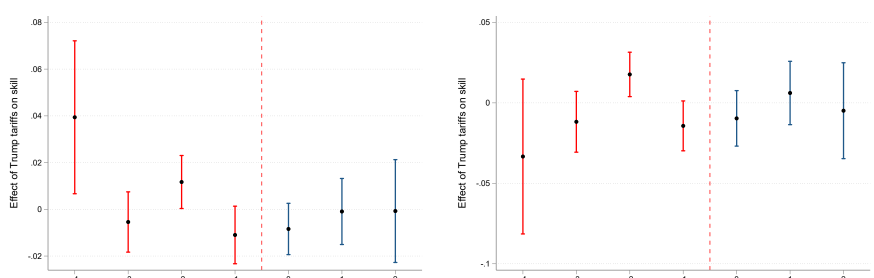
(a) Employment



(b) Hours



(c) Wages

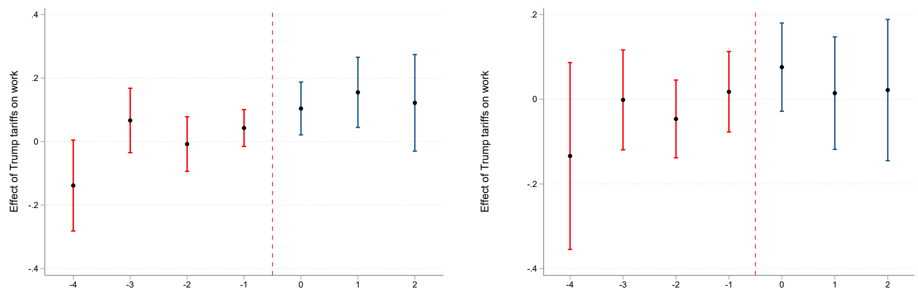


(d) Skills

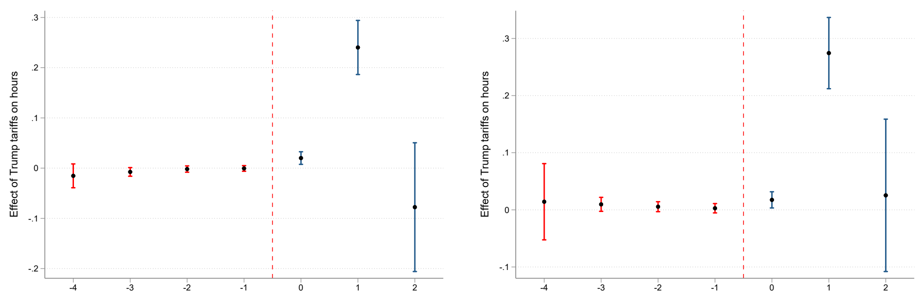
Men Women

Notes: The dots show diff-in-diff estimates of the effect of tariff hikes on labor market outcomes across years and sectors. Left column graphs are for men, right ones for women. Blue bars are c.i. for treatment effects relative to the year before treatment. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2021).

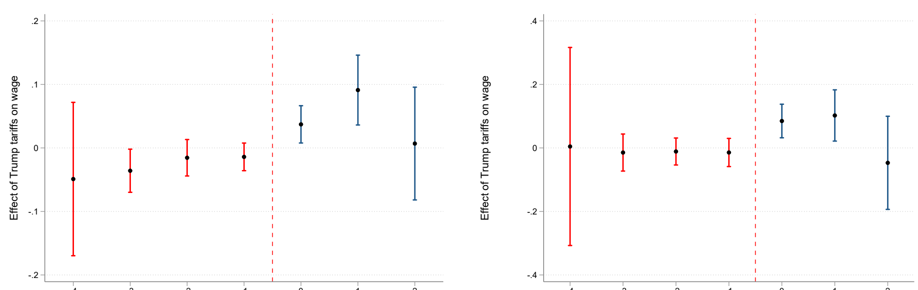
Figure A.10: The effect of Trump tariffs on labor markets using the Callaway and Sant'Anna (2021) estimator, by gender



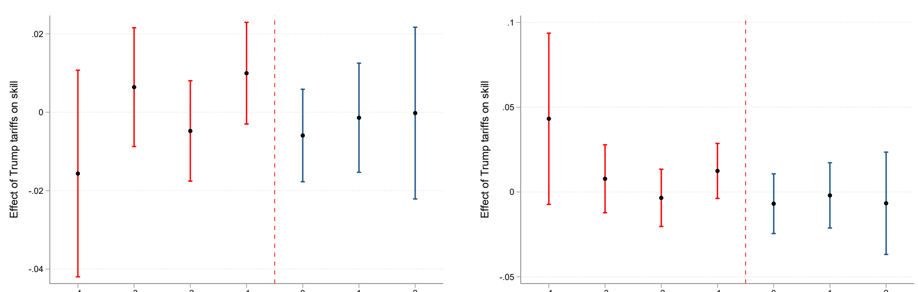
(a) Employment



(b) Hours



(c) Wages

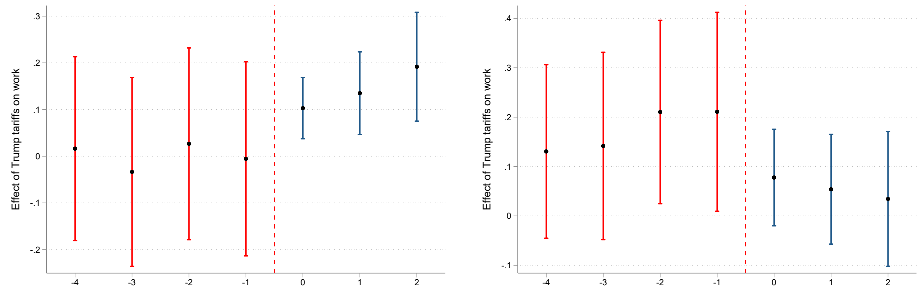


(d) Skills

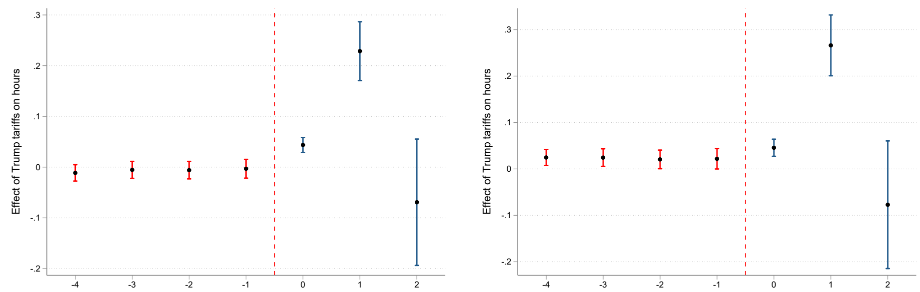
Men Women

Notes: The dots show diff-in-diff estimates of the effect of tariff hikes on labor market outcomes across years and sectors. Left column graphs are for men, right ones for women. Blue bars are c.i. for treatment effects relative to the year before treatment. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2021).

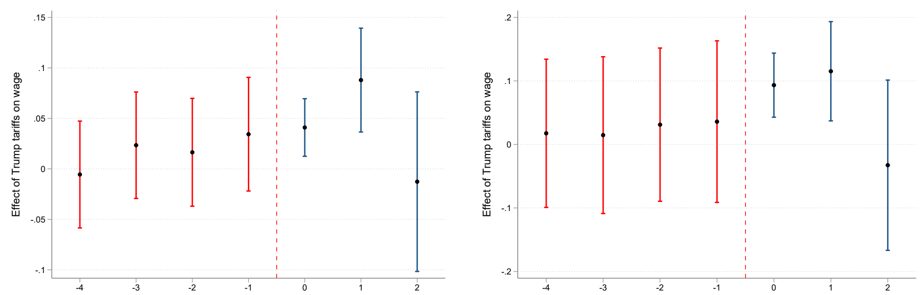
Figure A.11: The effect of Trump tariffs on labor markets using the Borusyak et al. (2021) estimator, by gender



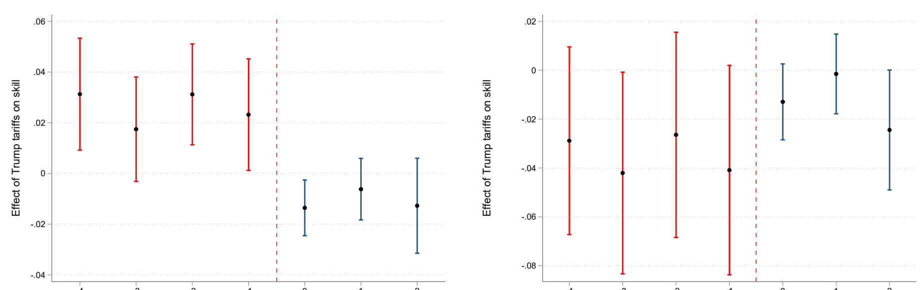
(a) Employment



(b) Hours



(c) Wages



(d) Skills

Men Women

Notes: Notes: The dots show diff-in-diff estimates of the effect of tariff hikes on labor market outcomes across years and sectors. Left column graphs are for men, right ones for women. Blue bars are c.i. for treatment effects relative to the avg pre-treatment period. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2021).

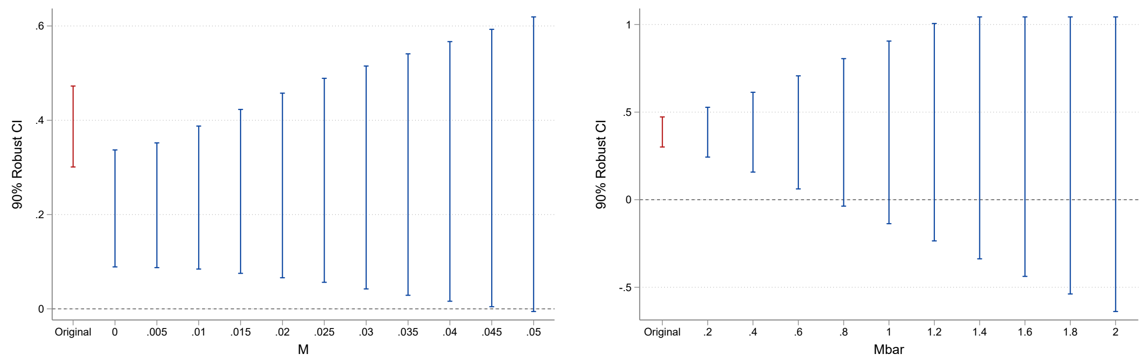
C Allowing for violations of the parallel trends assumption

In this section, we implement the bounding method proposed by Rambachan and Roth (2023). It consist in estimating bounds to the treatment effect (we focus on the average of the post-treatment effects) as we allow for violations of the parallel trends assumptions. We can either assume that the post-treatment violation of parallel trends is no more than some constant $\overline{M}$ larger than the maximum violation of parallel trends in the pre-treatment period, or assume that the post-treatment violations of parallel trends cannot deviate too much – i.e. by no more than M, from a linear extrapolation of the difference in trends in the pre-treatment period. Figures A.12 and A.13 shows how our TWFE estimates of the effect of Trump tariffs on the value of exports and on labor market outcomes and their confidence intervals change as we deviate from the parallel trends assumption using both types of deviations. In both sets of Figures, we show the "trend" deviations (M) in the left-hand side column, and the "shock" deviations ($\overline{M}$) in the right-hand side one. In the export specification (from eq (1)), the effect is robust to large values of M, which allow for non-linear counterfactual differences in trends as big as a deviation of 5% from the linear trend. Our results are also robust to a level of $\overline{M}$ around 1 – i.e., when the post-treatment violation of parallel trends is as bad as the worst pre-treatment violation of parallel trends. The effects on the probability of exporting appear more to be more sensitive to violations of the parallel trend assumption when considering extrapolations of the pre-trend (M). Note however that it is less obvious to identify and measure trends in probabilities of exporting, as opposed to export values.

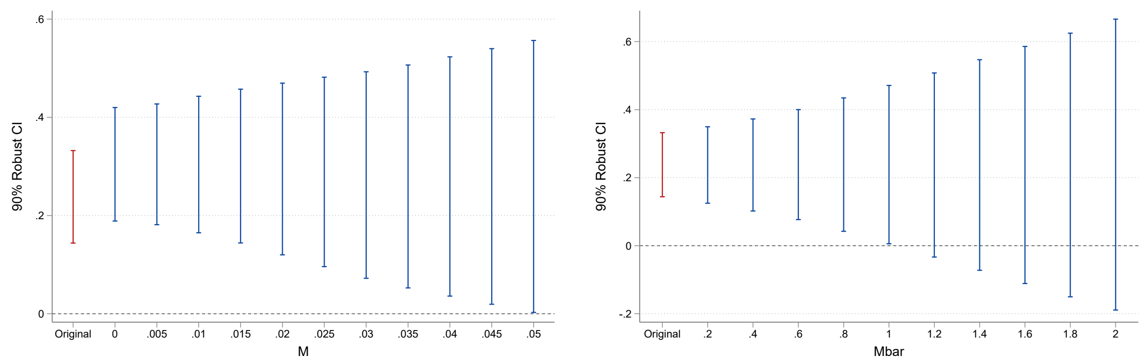
When it comes to the labor market specification (eq (2)), Figure A.13 shows that the average treatment effects on hours worked, wages and average skill become more imprecise as we move away from the parallel trend assumption. The positive and significant effect on employment appears to be sensitive to deviations from parallel trends – e.g., it becomes insignificant when ($M = 0.015$) and ($\overline{M}$ is above .2) .

As the estimated effect on hours worked varies significantly between the first and second year after treatment, Figure A.14 displays the results of applying the method of Rambachan and Roth (2023) only to the positive treatment effect at $t = 1$. The coefficient remains positive to important deviations from the parallel trend assumption (e.g., by allowing post-treatment violations to be twice as large as the maximum pre-treatment violation).

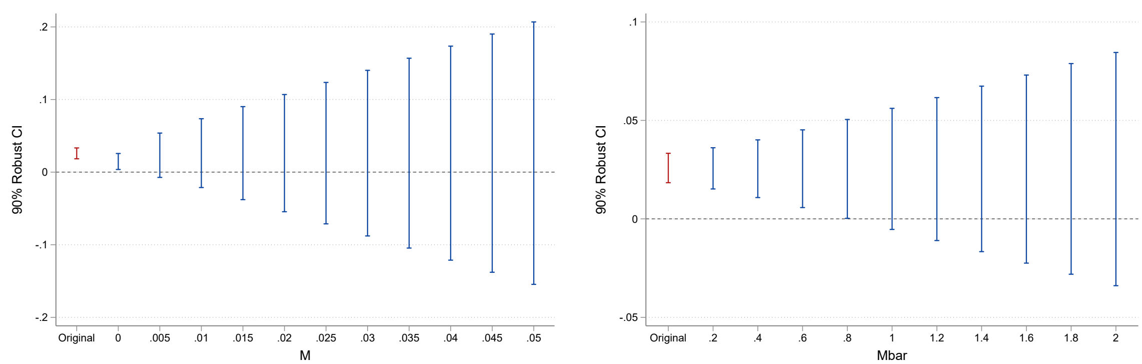
Figure A.12: The effect of Trump tariffs on exports - Robustness to violation of the parallel trends assumption



(a) asinh



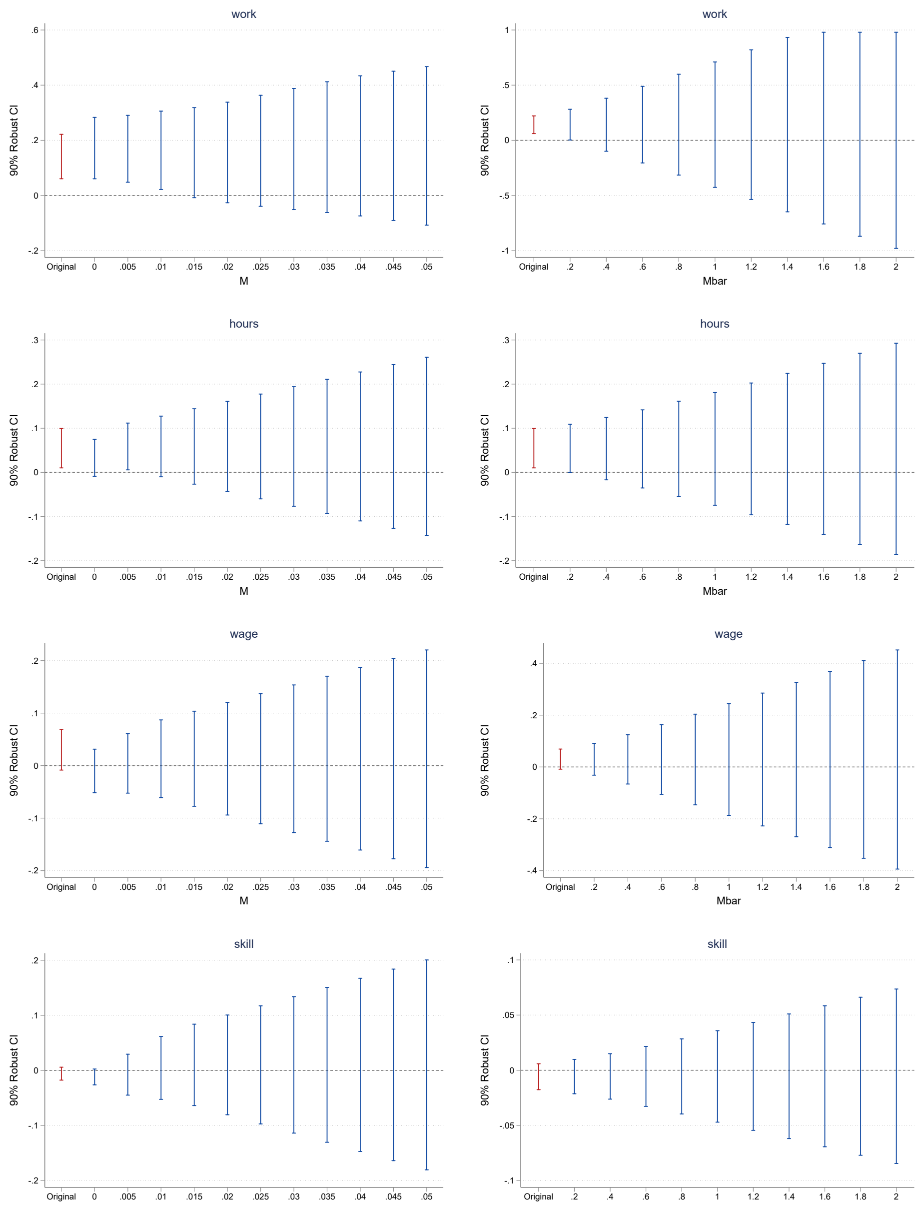
(b) ln



(c) dummy

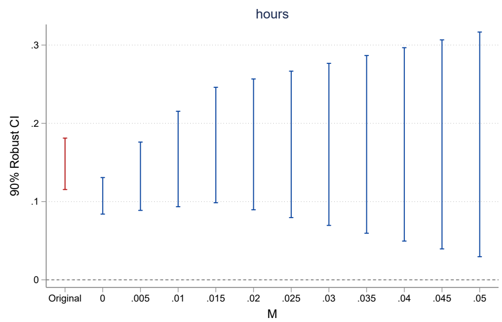
Notes: The figure shows how our TWFE estimates (column 1 in table 1) of the effect of Trump tariffs on exports change as we deviate from the parallel trends assumption. This is based on Rambachan and Roth (2023) and the honestdid stata command (Bravo et al., 2022). Here we can either assume that the post-treatment violation of parallel trends is no more than some constant $\overline{M}$ larger than the maximum violation of parallel trends in the pre-treatment period, or that the post-treatment violations of parallel trends cannot deviate too much, i.e. by no more than M of a linear extrapolation of the pre-trend.

Figure A.13: The effect of Trump tariffs on labor markets - Robustness to violation of the parallel trends assumption

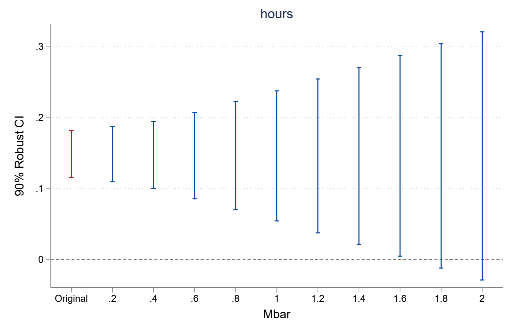


Notes: The figure shows how our TWFE estimates (column 1 in table 2 of the effect of Trump tariffs on labor market outcomes and their confidence intervals change as we deviate from the parallel trends assumption. This is based on Rambachan and Roth (2023) and the honestdid stata command (Bravo et al., 2022). Here we can either assume that the post-treatment violation of parallel trends is no more than some constant Mbar larger than the maximum violation of parallel trends in the pre-treatment period, or that the post-treatment violations of parallel trends cannot deviate too much, i.e. by no more than M, from a linear extrapolation of the pre-trend.

Figure A.14: The effect of Trump tariffs on working hours one year after treatment - Robustness to violation of the parallel trends assumption



(a) Trend



(b) Shock

Notes: The figure shows how our TWFE estimates of the effect of Trump tariffs on working hours one year after treatment change as we deviate from the parallel trends assumption. This is based on Rambachan and Roth (2023) and the honestdid stata command (Bravo et al., 2022). Here we can either assume that the post-treatment violation of parallel trends is no more than some constant Mbar larger than the maximum violation of parallel trends in the pre-treatment period, or that the post-treatment violations of parallel trends cannot deviate too much, i.e. by no more than M, from a linear extrapolation of the pre-trend..

D Effects of Trump tariffs across countries

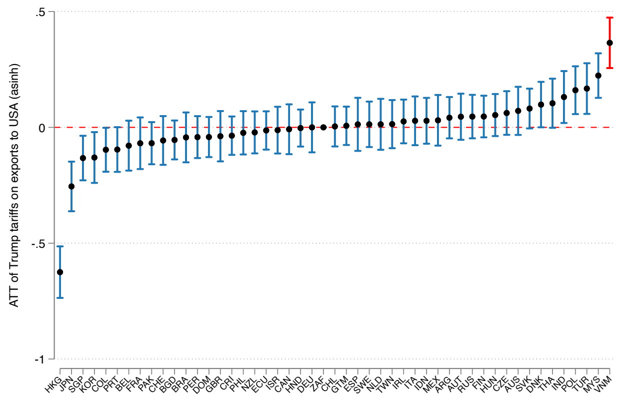
In this section, we examine how the effect of Trump tariffs on Vietnam exports to the US that we document in Tables 1 and A.4 compares with the effect on exports from other countries (excluding China). Our objective is to verify that Vietnam was one of the main beneficiaries of the US tariffs on China as anecdotal evidence suggests (cited in the section 1 of the paper) and Fajgelbaum et al. (2021) find in their structural empirical analysis. Our exercise consists in estimating the following extension of our baseline event-study specification (see eq (1) in the main text:

$$X_{pct} = \sum_{c=1}^{49} \sum_{j=-5}^{-2} \beta_{jc} \left(D_{pt}^{j} \times \alpha_c \right) + \sum_{c=1}^{49} \sum_{j=0}^{2} \beta_{jc} \left(D_{pt}^{j} \times \alpha_c \right) + \mu_{pc} + \lambda_{pt} + \gamma_{ct} + \epsilon_{pct} \tag{A.1}$$

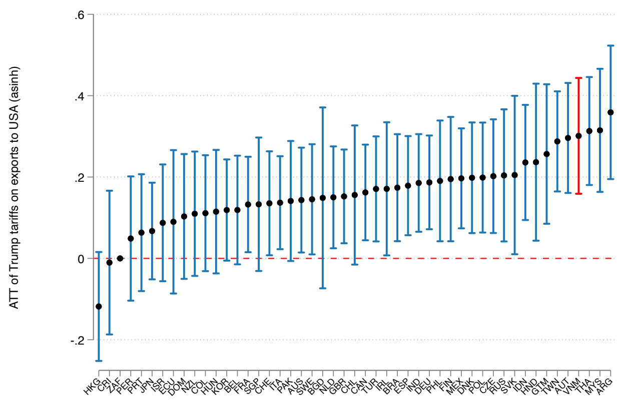
where the dependent variable is an export outcome ('asinh'- or log-transformed, or an export dummy) from country c to the US in product p (defined at the 10-digit HS level) and year t. We restrict the sample to the 50 largest exporters to the US (excluding China and oil-exporting economies, and including Vietnam) over the 2014-2020 period. Crucially, the pre- and post-treatment effects are allowed to vary by exporter. Our focus is on the β_{jc} coefficients on the interactions between pre- and post-treatment dummies (D_{pt}) and export dummies (α_c). We control for the most exhaustive list of fixed effects: product-exporter, product-year, and exporter-year fixed effects. The product-year fixed effects are of particular importance. A concern with our baseline results is that the effect of the US tariffs on China in our Vietnam-only baseline specification in (1) might overlap with that of global shifts that happen to vary by product and year (e.g., productivity changes, adjustments in global supply chains). The product-year fixed effects absorb these confounding effects. Because of the set of fixed-effects, the β_{jc} are identified relative to a reference category – we exclude the interactions with the exporter dummy for South Africa.

Figure A.15 shows the average across the post-treatment effects (β_{0c}, β_{1c} and β_{2c} in eq (A.1)) and the associated confidence interval by country. Vietnam is the country whose exports to the US increased the most as a result of US tariffs on China. This differential effect is most visible when we include (and focus on) the extensive margin.

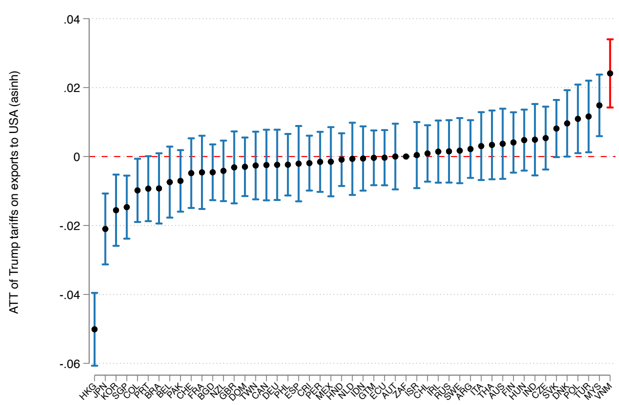
Figure A.15: The effect of Trump tariffs on exports across countries



(a) asinh



(b) ln



(c) Export dummy

Notes: The dots show TWFE diff-in-diff ATT estimates of the effect of tariff hikes on exports (asinh) to the US by country, across years and products and relative to South Africa (the β_{jc}'s from eq (A.1)). Standard errors are clustered at the HS 8-digit level. Data on US imports at the 10 digit level from Schott (2008). Data on tariff hikes from Fajgelbaum et al. (2021).

The exceptional Vietnam response is also found in the following 'exporter-augmented' version of a differenced model (see eq (A.3)):

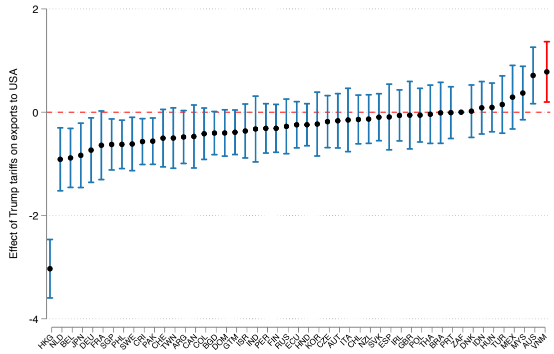
$$\Delta X_{pc} = \sum_{c=1}^{49} \beta_c \left(\Delta\tau_p^{USA,CHN} \times \alpha_c\right) + \beta\Delta X_{pc,t-1} + \mu_p + \sigma_{sc} + \epsilon_{pc} \quad \text{(A.2)}$$

where the outcome variable is the change in the asinh or log of exports from country c to the US for a product p over the 2017 - 2019 or 2017 - 2020 periods. In the extensive margin specification, the dependent variable is a dummy for products exported in the last year but not in the first year (entry) or a dummy for products not exported in the last year but exported in the first year.[16] As in the annual difference-in-difference specification, we are interested in comparing the effect of US tariffs on Chinese products across exporters – the β_c coefficients. Following the addition of the exporter dimension, we can include product (HS-10 digit) fixed effects μ_p, in our differenced specification, controlling for product-specific time trends. We further absorb the influence of exporter-sector (HS 1-digit) effects in the term σ_{sc}.

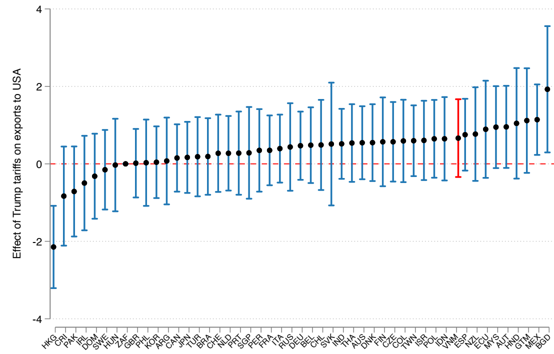
Figures A.16 and A.17 plot the β_c coefficients and their confidence intervals for the 2019-2017 and 2020-2017 differences respectively. The patterns confirm the findings from the annual diff-in-diff specification: Vietnam is among the countries whose exports had the strongest increase due to US tariffs on Chinese products. The impact is pronounced if we include both extensive and intensive margin adjustments (i.e., the 'asinh' specification), and is more important on the entry than on the exit margin.

[16]As for our baseline specification, the samples for the extensive margin regressions are selected on the basis of the product export status for each exporting country in the first year. For the entry regression, for each country we include only the products that were not exported to the US in 2017. For the exit regression, for each country we include only the products that were exported to the US in 2017.

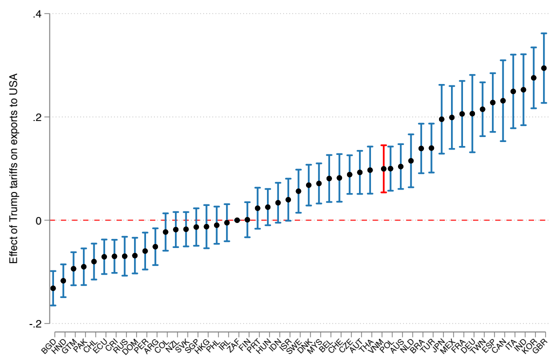
Figure A.16: The effect of Trump tariffs on 2019-2017 changes in exports across countries



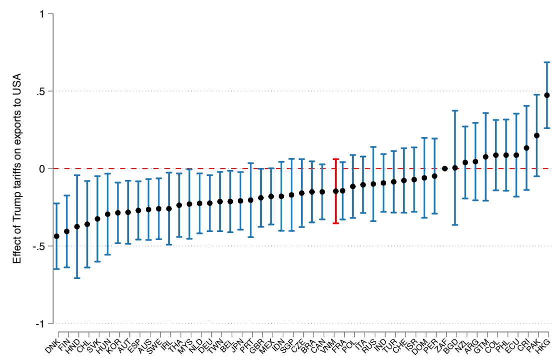
(a) asinh



(b) ln



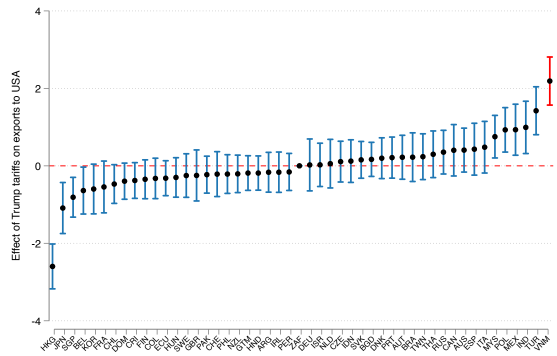
(c) Entry



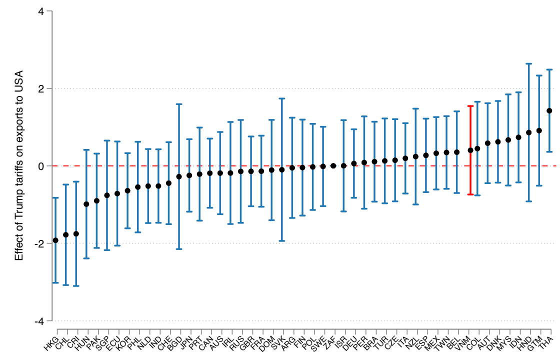
(d) Exit

Notes: The dots show estimates of the β_c coefficients from a regression like eq (A.2) that controls further for changes in US tariffs on products from exporter c (the top 50 exporters to the US except China). In the 'asinh' panel, the outcome variable equals differences in the asinh of export values to the US between 2019 and 2017. In the 'ln' panel, the outcome variable equals differences in the log of export values to the US between 2019 and 2017. In the 'entry' panel, the outcome variable is a dummy equal to 1 if country c exported the product to the US in 2019 but not in 2017. In the 'exit' panel, the outcome variable is a dummy equal to 1 if country c exported the product to the US in 2017 but not in 2019. Standard errors are clustered at the HS 8-digit level. Data on US imports at the 10 digit level from Schott (2008). Data on tariff hikes from Fajgelbaum et al. (2021).

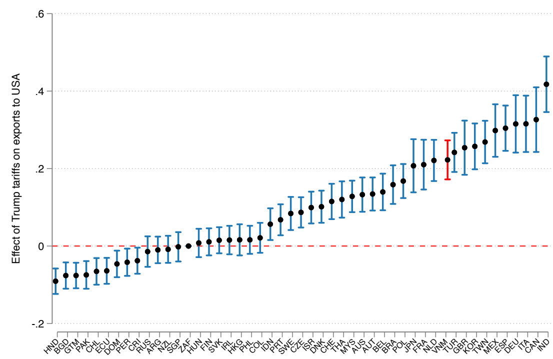
Figure A.17: The effect of Trump tariffs on 2020-2017 changes in exports across countries



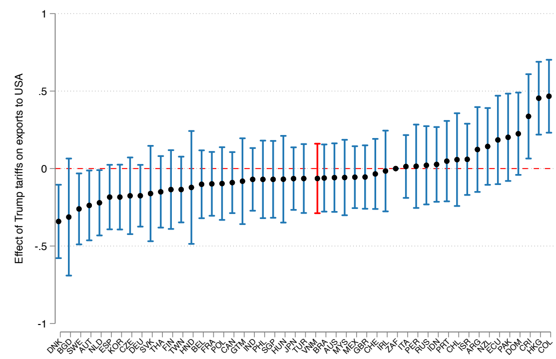
(a) asinh



(b) ln



(c) Entry



(d) Exit

Notes: The dots show estimates of the β_c coefficients from a regression like eq (A.2) that controls further for changes in US tariffs on products from exporter c (the top 50 exporters to the US except China). In the 'asinh' panel, the outcome variable equals differences in the asinh of export values to the US between 2020 and 2017. In the 'ln' panel, the outcome variable equals differences in the log of export values to the US between 2020 and 2017. In the 'entry' panel, the outcome variable is a dummy equal to 1 if country c exported the product to the US in 2020 but not in 2017. In the 'exit' panel, the outcome variable is a dummy equal to 1 if country c exported the product to the US in 2017 but not in 2020. Standard errors are clustered at the HS 8-digit level. Data on US imports at the 10 digit level from Schott (2008). Data on tariff hikes from Fajgelbaum et al. (2021).

E Specification in first differences

We check the robustness of both our trade and labor market results to using a first-difference model instead of a difference-in-differences event study. This is also a way to deal with non-parallel trends by explicitly controlling for pre-treatment trends.

For trade effects, we estimate the following regression model:

$$\Delta X_p = \beta_1 \Delta \tau_p^{USA,CHN} + \beta_2 \Delta X_{p_{t-1}} + \sigma_s + \epsilon_p \tag{A.3}$$

where Δ indicates changes between 2019 and 2017 or between 2020 and 2017 (i.e. the year before the first Trump tariffs).[17] The dependent variable X is the dollar value of US imports from Vietnam for product p. To assess the impact of Trump's tariffs at both the intensive (i.e., for non-zero trade flows both in 2017 and 2019 or 2020) and extensive margin (i.e., for zero trade flows in the initial or final year), ΔX_p takes the form of a differenced inverse hyperbolic sine transformation ($X_p \equiv \text{asinh}\,(X_p)$). We also use log differences as a measure of changes happening at the intensive margin only (i.e., $X_p \equiv \ln(X_p)$). To evaluate the importance of the extensive margin, i.e. at how product entry and exit was affected by Trump tariffs, we instead use dummies for new (entry=1) and disappearing (exit=1) products on the left-hand side. When looking at the probability of entry, we limit the sample of products to those that were not exported by Vietnam to the US in 2017. When looking at the probability of exit, we limit the sample of products to those that were exported by Vietnam to the US in 2017.

[17] While the US and China agreed to implement the Phase One deal, aimed at ameliorating trade tensions between the two countries, in May 2019 and June 2019 respectively, we posit that some of the effects of the tariff hikes in late 2018 and early 2019 may only be visible in 2020. However, the COVID crisis and the concomitant drop in world trade that occurred in 2020 can dwarf the effects of trade war tariffs on Vietnam exports. For this reason, we present results for the period 2017-2019 in the top panel of each table, and extend it to 2017-2020 in the bottom panel. Consistent with this extension of the 'treatment' period, lagged changes in Vietnam exports are taken from 2014 to 2017.

The term $\Delta t_p^{USA,CHN}$ denotes the change in tariff rate imposed by the US on Chinese product p during the US-China trade war. Here we use both dummies to indicate a product has been hit, as well as the actual tariff hikes, in separate regressions. We control for lagged export changes in our regressions, i.e. $\Delta X_{p_{t-1}}$, changes in exports from 2015 to 2017, or 2014 and 2017.[18] Finally, we include broad sector s dummies (HS 1-digit). As for the annual diff-in diff (see Table 1), in alternate specifications we also control for changes in tariffs applied by the US on Vietnam and the rest of the world. The first-differenced model that explicitly controls for lagged export changes is similar to the empirical analysis of Fajgelbaum et al. (2021), who implement a theory-based empirical specification for the intensive margin responses to the US-China trade war tariffs.

The results from estimating specification (A.3) are in Table A.4. They provide further evidence that Trump's tariffs on Chinese products had a positive effect on the value of imports from Vietnam, even after controlling for lagged changes in imports.[19] The main parameter of interest, $\beta_{USA,CHN}$, is positive and statistically significant for the asinh transformation (columns 1 and 2) in both periods and whether we use tariff hikes or tariff dummies. Using the estimates that control for US tariffs on Vietnam and other countries in column (2), our results imply that the average increase in US tariffs on China of 15.2 percentage points (see Table A.1 in the Appendix) led to a 22 percent average increase in imports from Vietnam between 2017 and 2019 (or 44 percent of the average increase in product-level Vietnam exports to US between 2017 and 2019).

The results reported in columns (5) to (8) of Table A.4 confirm strong responses

[18] In the extensive margin regressions, we control for the lagged differenced asinh Vietnam exports.

[19] The estimates in the asinh and log specifications when we measure tariff hikes in percentage points can be interpreted as semi-elasticities. This interpretation is approximately valid for the specification where the dependent variable is asinh-transformed for large enough values (Bellemare and Wichman, 2020). In a asinh-linear model like ours the partial derivative with respect of the explanatory variable equals (using the notation of our baseline regression (A.3)): $\beta_1\sqrt{1+X^2}$. Dividing by X gives the semi-elasticity: $\beta_1\sqrt{1+\frac{1}{X^2}}$, which tends to zero for large values of X. In our data, the smallest non-zero value of Vietnam exports to US is \$251, which makes $\sqrt{1+\frac{1}{X^2}} \approx 1$.

along the extensive margin. Tariffs imposed by the US on China increased the probability of new products being exported by Vietnam. According to the estimates of column (6), the average increase in the US-China tariff led to a 3 percentage point increase in the probability of exporting to the US in 2019 (33 percent of the average probability; and 4 percentage point increase in the likelihood of exporting to the US in 2020). At the same time, products more affected by Trump tariffs were also less likely to stop being exported to the US between 2017 and 2019 or 2020 (columns (7) to (8)). Using the estimates in column (8), we obtain a 4 percentage point (one fourth of the average exit rate) decrease in the exit rate following the average increase in US-China tariffs.[20]

Besides its effects on exports to the US, the increase in US tariffs on China might trigger a response in Vietnam exports to other destinations. To gauge the overall trade effect on Vietnam, we jointly estimate the impact on Vietnam exports to the US and the RoW, using data on the values of trade flows at the HS 6-digit product level from the UN Comtrade database. Two main findings emerge from the results reported in Table A.8. First, US tariff hikes on Chinese products led to higher Vietnam exports also to RoW, which confirms the evidence from Fajgelbaum et al. (2021). This correlation between the responses in Vietnam exports to US and RoW is consistent with firms operating along downward-sloping supply curve and with adjustments through global supply chains.[21] Second, the effect on Vietnam exports to the US is larger than that on exports to RoW. Predictions from estimates in Table A.8 reveal that total Vietnam exports increased 27% as a result of US tariff hikes on Chinese products (or 73% of the observed increase in Vietnam exports between 2017 and 2020). Exports to the US went up by 58%, whereas exports to RoW increased by 19%. This difference is driven

[20]The findings from Table A.4 are robust to the exclusion of the pre-trend control or of sector fixed effects. Extensive margin results are robust to using a logit instead of the linear probability model in Table A.4.

[21]The supply chain channel is relevant to a situation where Vietnamese products are used as input varieties (classified in the same 6-digit product) by RoW exporters to US. Since US tariffs on China divert imports towards RoW products (as it does towards Vietnamese ones), they can increase RoW demand for imported input varieties from Vietnam.

by adjustments at the extensive margin. When we consider only exports in continuing products (through a log specification), the predicted effect on Vietnam exports to US is small and lower than that on Vietnam exports to ROW. In the next section we examine whether this export creation effect of US tariffs on Chinese imports translated into job creation and other labor market outcomes in Vietnam.

Table A.4: The effect of Trump tariffs on Vietnam's export growth to the US

2017-2019

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ asinh (X)	Δ asinh (X)	$\Delta \ln (X)$	$\Delta \ln (X)$	Entry	Entry	Exit	Exit
$\Delta t^{USA,CHN}$	1.330***	1.471***	0.495	0.631*	0.202***	0.205***	-0.241***	-0.255***
	(0.285)	(0.280)	(0.363)	(0.366)	(0.025)	(0.024)	(0.074)	(0.075)
$\Delta t^{USA,VNM}$		20.626***		-3.707**		3.583***		-1.606***
		(2.533)		(1.722)		(0.200)		(0.320)
$\Delta t^{USA,RoW}$		-72.927***		7.381		-5.125***		7.826***
		(8.870)		(9.366)		(0.520)		(1.706)
N	15376	15376	3150	3150	10974	10974	4402	4402
R-sq	0.15	0.16	0.11	0.11	0.11	0.14	0.13	0.14

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ asinh (X)	Δ asinh (X)	$\Delta \ln (X)$	$\Delta \ln (X)$	Entry	Entry	Exit	Exit
$1(\Delta t^{USA,CHN} > 0)$	0.284***	0.255***	0.015	0.007	0.055***	0.052***	-0.064***	-0.065***
	(0.067)	(0.067)	(0.090)	(0.090)	(0.006)	(0.006)	(0.018)	(0.018)
$1(\Delta t^{USA,VNM} > 0)$		3.460***		-0.781***		0.793***		-0.303***
		(0.538)		(0.275)		(0.052)		(0.064)
$1(\Delta t^{USA,RoW} > 0)$		-0.929***		0.163		-0.075***		0.193***
		(0.165)		(0.176)		(0.014)		(0.050)
N	15376	15376	3150	3150	10974	10974	4402	4402
R-sq	0.15	0.16	0.11	0.11	0.11	0.14	0.13	0.14

2017-2020

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ asinh (X)	Δ asinh (X)	$\Delta \ln (X)$	$\Delta \ln (X)$	Entry	Entry	Exit	Exit
$\Delta t^{USA,CHN}$	2.401***	2.596***	0.817*	1.179**	0.294***	0.308***	-0.286***	-0.292***
	(0.308)	(0.308)	(0.456)	(0.467)	(0.027)	(0.027)	(0.072)	(0.074)
$\Delta t^{USA,VNM}$		6.542***		-3.038		1.418***		-0.780**
		(2.350)		(2.252)		(0.266)		(0.331)
$\Delta t^{USA,RoW}$		-41.993***		-5.929		-3.959***		3.678**
		(9.338)		(13.013)		(0.767)		(1.777)
N	15163	15163	2963	2963	10806	10806	4357	4357
R-sq	0.15	0.15	0.11	0.12	0.10	0.11	0.11	0.12

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ asinh (X)	Δ asinh (X)	$\Delta \ln (X)$	$\Delta \ln (X)$	Entry	Entry	Exit	Exit
$1(\Delta t^{USA,CHN} > 0)$	0.593***	0.579***	0.077	0.076	0.081***	0.079***	-0.078***	-0.080***
	(0.076)	(0.076)	(0.112)	(0.112)	(0.007)	(0.007)	(0.017)	(0.017)
$1(\Delta t^{USA,VNM} > 0)$		0.929*		-1.253***		0.296***		-0.223***
		(0.514)		(0.380)		(0.066)		(0.060)
$1(\Delta t^{USA,RoW} > 0)$		-0.543**		0.198		-0.055***		0.130***
		(0.266)		(0.269)		(0.021)		(0.044)
N	15163	15163	2963	2963	10806	10806	4357	4357
R-sq	0.15	0.15	0.11	0.12	0.10	0.11	0.11	0.12

Note: The left hand side variables capture change in exports from 2017 to 2019 (top panel) and from 2017 to 2020 (bottom panel) – see eq (A.3). All columns include 1-digit sector dummies and lagged (2015 to 2017 in the top panel and 2014 to 2017 in the bottom panel) changes in the Vietnam exports to US (asinh-transformed in cols (1), (2) and (5) to (8), and log transformed in cols (3) and (4)). Standard errors in parenthesis are clustered by HS8 product, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level.

We further check the robustness of our results from the empirical specification in differences (eq (A.3)) to two types of tests. First, we re-estimate the regression after dropping HS 1-digit sector dummies and lagged (asinh or log) changes in export values. The results, reported in Table A.5 are qualitatively similar to baseline (Table A.4 in the main text), suggesting in particular that lagged effects, while significant, do not drive our main effects.

A second check concerns the results on the extensive margin – the effects on the likelihood of entry into and on that of exit from the US market. In Table A.6 we re-estimate specification (A.3) with entry and exit dummies as outcome variables using a logit instead of a linear probability model. The sign and significance of the coefficients are confirmed.

Table A.5: The effect of Trump tariffs on Vietnam's export growth to the US - without sector dummies or pre-trends

2017-2019	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ asinh (X)	Δ asinh (X)	$\Delta \ln (X)$	$\Delta \ln (X)$	Entry	Entry	Exit	Exit
$\Delta t^{USA,CHN}$	1.684***		1.194***		0.259***		-0.111	
	(0.265)		(0.332)		(0.023)		(0.071)	
$1(\Delta t^{USA,CHN} > 0)$		0.355***		0.034		0.084***		-0.079***
		(0.062)		(0.086)		(0.006)		(0.019)
N	17261	17261	4312	4312	12143	12143	5118	5118
R-sq	0.01	0.00	0.00	0.00	0.04	0.04	0.01	0.01
2017-2020								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ asinh (X)	Δ asinh (X)	$\Delta \ln (X)$	$\Delta \ln (X)$	Entry	Entry	Exit	Exit
$\Delta t^{USA,CHN}$	3.087***		1.936***		0.390***		-0.185**	
	(0.291)		(0.399)		(0.025)		(0.072)	
$1(\Delta t^{USA,CHN} > 0)$		0.660***		0.043		0.115***		-0.089***
		(0.070)		(0.102)		(0.006)		(0.019)
N	17132	17132	4292	4292	12036	12036	5096	5096
R-sq	0.01	0.01	0.01	0.01	0.02	0.03	0.00	0.01

Note: The left hand side variables capture change in exports from 2017 to 2019 (top panel) and from 2017 to 2020 (bottom panel). All columns report the estimates of the specification eq (A.3), but without sector dummies (σ_s) and lagged changes in exports (ΔX_{pc} – 2015 to 2017 in the top panel and 2014 to 2017 in the bottom panel). All columns also include changes in US tariffs on products from Vietnam ($\Delta \tau_p^{USA,VNM}$) and the rest of the world ($\Delta \tau_p^{USA,ROW}$) in odd numbered columns, and dummies for tariff increases in even numbered ones. Standard errors in parenthesis are clustered by HS8 product, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level.

Table A.6: The effect of Trump tariffs on Vietnam's extensive margin of export to the US – Logit estimates

2017-2019								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Entry	Entry	Entry	Entry	Exit	Exit	Exit	Exit
$\Delta t^{USA,CHN}$	2.732***	2.998***			-1.861***	-2.029***		
	(0.352)	(0.377)			(0.545)	(0.575)		
$1(\Delta t^{USA,CHN} > 0)$			0.749***	0.722***			-0.502***	-0.519***
			(0.092)	(0.093)			(0.128)	(0.130)
N	10974	10974	10974	10974	4402	4402	4402	4402
2017-2020								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Entry	Entry	Entry	Entry	Exit	Exit	Exit	Exit
$\Delta t^{USA,CHN}$	3.429***	3.715***			-2.137***	-2.245***		
	(0.340)	(0.355)			(0.529)	(0.536)		
$1(\Delta t^{USA,CHN} > 0)$			0.965***	0.951***			-0.580***	-0.600***
			(0.092)	(0.093)			(0.119)	(0.119)
N	10806	10806	10806	10806	4357	4357	4357	4357

Note: Logit estimates. In cols (1) to (4), the dependent variable is a dummy for products that Vietnam exported in 2019 (top panel) or 2020 (bottom panel) but not in 2017. The sample is composed of products that were not exported to the US in 2017. In cols (5) to (8), the dependent variable is a dummy for products that Vietnam did not export in 2019 (top panel) or 2020 (bottom panel), but did export in 2017. The sample is composed of products that were exported to the US in 2017. Odd numbered cols include sector dummies and lagged asinh differences in Vietnam exports to the US (between 2017 and 2015 in the top panel and between 2017 and 2014 in the bottom panel). Even numbered cols include also controls for US tariffs increases (or dummies for changes in cols (4) and (8)) on imports from Vietnam and other countries. Standard errors in parenthesis are clustered by HS8 product, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level.

The estimates from our differenced model (eq (A.3)) can be used to back out the aggregate effects of US tariff hikes during the US-China trade war on Vietnam exports. Specifically, we average the changes in Vietnam exports to the US across products as predicted only by the tariff variables ($\widehat{\Delta X_p^{USA}}$) – thus excluding the lagged changes in exports and the sector dummies):

$$\text{(A.4)} \quad \widehat{\Delta X^{USA}} = \sum_p \pi_{p,2017}^{USA} \widehat{\Delta X_p^{USA}}$$

where the weights π in the summation equal the product share in total US imports in 2017 (i.e., before the US started raising tariffs on Chinese products) for imported products (see Fajgelbaum et al. (2021) for a similar aggregation procedure). For products that Vietnam exported to the US in 2019 (or 2020) but not in 2017, we use the US import value in the latest year. We consider the predictions from the asinh-transformed values – which incorporate changes both at the intensive and extensive margins –, and from the log-transformed ones – which account for changes along the intensive margin only, and hence includes only products that were exported in both the start and end year. We also assess the predicted responses along the extensive margin by taking the weighted sum of exports for products that were added or dropped in 2019 (or 2020), where the weights equal the predicted probabilities from the entry regression (for products that were added) and from the exit regression (for products that were dropped). These extensive margin predictions measure the importance of product additions and drops relative Vietnam exports to the US in 2017.

The aggregate percent changes in Vietnam exports to US as predicted by US tariff increases on China (and other countries) are reported in Table A.7. Our estimates imply that Vietnam exports increased by 28% between 2017 and 2019 as result of US tariff increases especially on China – an effect slightly larger than the 22% average increase from US tariffs on Chinese products only (see section 2). The effect along the intensive margin only (column 'ln') is much lower, although both the overall and intensive margin responses become larger in 2020. The significant effects on entry and exit of products into and from the US market represent a small share of total Vietnam exports to US. The entry response is quantitatively more important, suggesting that US tariff hikes fostered entry into the US market of Vietnamese products more than affecting their survival probability. In spite of being small quantitatively, the significant effects on the extensive margin contribute to the difference between the full ('asinh') and the intensive margin ('ln') predicted changes in Vietnam exports to the US. Because asinh and log differences are approximately equal in our data, it is the difference in the point estimates between the two specifications (cols (2) and (4) in Table A.4) – driven by positive responses along the extensive margin of exporting – that explains why US tariffs on Chinese products has a larger impact on total Vietnam exports than on exports of continuing products only to the US.

Table A.7: Predicted percent changes in Vietnam exports to the US

2017-2019				
	asinh	ln	entry	exit
Change in VNM exports to USA (in %)	27.90	9.40	0.90	0.38
	(0.63)	(0.48)	(0.03)	(0.02)
2017-2020				
	asinh	ln	entry	exit
Change in VNM exports to USA (in %)	39.91	14.88	3.14	0.13
	(0.66)	(0.70)	(0.08)	(0.00)

Note: Predicted changes in Vietnam exports to the US. In the 'asinh' and 'ln' columns, the percent changes are computed as in eq (A.4) – these are weighted averages of predicted changes across products, where the weights equal the product share in Vietnam exports to the US in 2017 (including product not exported in 2017 for the 'asinh' column, and including only products exported both in 2017 and 2019 (or 2020) for the 'ln' column). In the 'entry' column, the reported changes are weighted sums of exports in 2019 (2020 in the bottom panel) for products not exported in 2017 – where the weights are the predicted probabilities of entry, relative to the total value of Vietnam exports to the US in 2017. In the 'exit' column, the reported changes are weighted sums of exports in 2017 for products not exported in 2019 (2020 in the bottom panel) – where the weights are the predicted probabilities of exit, relative to the total value of Vietnam exports to the US in 2017. Product-level predictions are computed from changes in US tariffs only. For the 'asinh' column, they come from the estimates in col (2); for the 'ln' column, from col (4); for the 'entry' column, from col (6); and for the 'exit' column, from col (8) of Table A.4 – specifications with changes in tariffs. Standard errors reported in parenthesis are computed from 100 bootstrap replications of HS 8-digit clusters.

We can extend this quantification exercise to include also the response of Vietnam exports to countries other than the US. As Fajgelbaum et al. (2021) show, exports from third countries like Vietnam can have different adjustments across destinations – e.g., depending on whether exporters operate along upward or downward sloping supply curves, and as a results of reallocation along global supply chains. Assessing the overall Vietnam export reaction to US tariffs on China (and other countries) is important as it informs our analysis of the impact of US-China tariffs on Vietnam labor market. The predicted changes in Vietnam exports to the US and to other countries (ROW) are obtained from a specification akin to the baseline regression in differences (see eq (A.3)), but with Vietnam exports to ROW (other countries than the US) stacked on exports to US. We then interact all US tariff variables (on China, Vietnam and other countries) and the sector dummies with an indicator for exports to the US, while controlling for lagged changes in Vietnam exports (to the US and to ROW). Data on Vietnam exports to ROW (as measured by ROW imports from Vietnam) are available at the HS 6-digit product level from the UN Comtrade database (for consistency, we also take the Comtrade data for US imports from Vietnam). Because Vietnam exports in most HS 6-digit products, meaningful adjustments along the entry and exit margins cannot be identified.

The estimated coefficients on the US-China tariff variables and its interaction with the indicator for the US market are reported in Table A.8. The positive coefficient on the $\Delta t^{USA,CHN}$ variable suggests that Vietnam increased its exports to other countries as a result of the US tariff increases on Chinese products. This finding confirms the results from Fajgelbaum et al. (2021). The effect on Vietnam exports to the US is larger when we include both intensive and extensive margin adjustments (cols (1) and (2)), and the difference is significant in the 2017-2020 period. In the log specification that retains only strictly positive flows in the start and end period, the elasticity is larger for Vietnam exports to ROW, although the difference is imprecisely estimated. These comparisons between the effects on exports to the US and ROW are valid also when we control for product fixed effects (in our differenced specification, they control for product-specific trends) that absorb the influence of the $\Delta t^{USA,CHN}$ variable (cols (2) and (4)). The direction of the effects is retained when we use dummy for tariff increases instead of the actual tariff changes.

Table A.8: The effect of Trump tariffs on Vietnam's export growth to the US and ROW

2017-2019

	(1) Δ asinh (X)	(2) Δ asinh (X)	(3) $\Delta \ln(X)$	(4) $\Delta \ln(X)$
$\Delta t^{USA,CHN}$	1.022*		0.546*	
	(0.590)		(0.312)	
× USA	0.840	0.842	-0.068	0.632
	(0.824)	(0.824)	(0.535)	(0.500)
N	9968	9968	5724	3186
R-sq	0.17	0.59	0.12	0.60

	(1) Δ asinh (X)	(2) Δ asinh (X)	(3) $\Delta \ln(X)$	(4) $\Delta \ln(X)$
$1(\Delta t^{USA,CHN} > 0)$	0.205		0.104	
	(0.159)		(0.085)	
× USA	0.139	0.139	-0.128	-0.040
	(0.208)	(0.208)	(0.151)	(0.139)
N	9968	9968	5724	3186
R-sq	0.16	0.59	0.12	0.60

2017-2020

	(1) Δ asinh (X)	(2) Δ asinh (X)	(3) $\Delta \ln(X)$	(4) $\Delta \ln(X)$
$\Delta t^{USA,CHN}$	1.358**		1.163***	
	(0.594)		(0.337)	
× USA	2.384***	2.388***	-1.018	-0.242
	(0.831)	(0.830)	(0.661)	(0.600)
N	9968	9968	5591	3076
R-sq	0.17	0.60	0.13	0.65

	(1) Δ asinh (X)	(2) Δ asinh (X)	(3) $\Delta \ln(X)$	(4) $\Delta \ln(X)$
$1(\Delta t^{USA,CHN} > 0)$	0.311*		0.232**	
	(0.164)		(0.096)	
× USA	0.346	0.348*	-0.348*	-0.223
	(0.211)	(0.211)	(0.195)	(0.171)
N	9968	9968	5591	3076
R-sq	0.17	0.60	0.13	0.65

Note: The left hand side variables capture stacked changes in exports from 2017 to 2019 (top panel) and from 2017 to 2020 (bottom panel) to the US and ROW. All columns include variables for US tariff changes to Vietnam, average US tariff changes to ROW (all countries except China and Vietnam), alone (in cols (1) and (3)) and interacted with a dummy for USA being the destination. All columns further include 1-digit sector dummies interacted with a USA dummy, and lagged (2015 to 2017 in the top panel and 2014 to 2017 in the bottom panel) changes in the Vietnam exports to US and ROW (asinh-transformed in cols (1) and (2), and log transformed in cols (3) and (4)). Cols (2) and (4) also include HS 6-digit product fixed effects. Standard errors in parenthesis are clustered by HS6 product, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level.

We use the estimates from Table A.8, columns (1) and (3) (and the not reported ones on the effects of US tariff changes on imports from Vietnam and ROW) to predict product-level changes in Vietnam exports due to US tariff hikes. Predicted changes in Vietnam exports to US include the effect of the tariff change variables and of its interaction with the USA dummy, whereas predicted changes in Vietnam exports to ROW equal the effect of the tariff change variables. These predictions are then aggregated through a weighted average across products, where the weights equal the product share in total Vietnam exports to the US and ROW in 2017, similar to what we did using HS 10-digit data in Table A.7 (see eq (A.4)). Predicted change in total Vietnam exports are computed as a weighted average across export changes to US and to ROW, with weights equals to the destination share.

The results, reported in Table A.9, indicate that US tariff increases led to an 18% increase in global Vietnam exports between 2017 and 2019 – i.e., 70 % of the observed increase in Vietnam exports. The effect is much larger on Vietnam exports to the US than to ROW, as the point estimates in Table A.8 suggest. Furthermore the effect increases over time, consistent with the evidence from the annual difference-in-difference regressions (see Figure 3. US tariffs were responsible for a 27% increase in total Vietnam exports between 2017 and 2020 (73% of the observed increase). This effect is driven by responses at the extensive margin. The numbers from the 'ln' columns suggest that the effects on the exports in products already exported in 2017 is much smaller (14 % between 2017 and 2020), and entirely driven by exports to ROW. Aggregating the data at the HS 6-digit level weakens the predicted response of Vietnam exports to US along the intensive margin.

Table A.9: Predicted percent changes in Vietnam exports to the US and ROW

2017-2019

	asinh			ln		
Destination:	USA	ROW	Total	USA	ROW	Total
Change in VNM exports (in %)	36.64	13.26	17.83	5.56	7.82	7.28
	(1.25)	(0.92)	(0.81)	(0.72)	(0.49)	(0.40)

2017-2020

	asinh			ln		
Destination:	USA	ROW	Total	USA	ROW	Total
Change in VNM exports (in %)	57.75	19.11	27.22	0.81	17.49	13.87
	(1.25)	(1.02)	(0.82)	(0.95)	(0.54)	(0.46)

Note: Predicted changes in Vietnam exports to the US. In the 'asinh' and 'ln' columns, the percent changes are computed as in eq (A.4) – these are weighted averages of predicted changes across products, where the weights equal the product share in Vietnam exports to the US in 2017 (including product not exported in 2017 for the 'asinh' column, and including only products exported both in 2017 and 2019 (or 2020) for the 'ln' column). In the 'entry' column, the reported changes are weighted sums of exports in 2019 (2020 in the bottom panel) for products not exported in 2017 – where the weights are the predicted probabilities of entry, relative to the total value of Vietnam exports to the US in 2017. In the 'exit' column, the reported changes are weighted sums of exports in 2017 for products not exported in 2019 (2020 in the bottom panel) – where the weights are the predicted probabilities of exit, relative to the total value of Vietnam exports to the US in 2017. Product-level predictions are computed from changes in US tariffs only. For the 'asinh' column, they come from the estimates in col (2); for the 'ln' column, from col (4); for the 'entry' column, from col (6); and for the 'exit' column, from col (8) of Table A.4 – specifications with changes in tariffs. Standard errors reported in parenthesis are computed from 100 bootstrap draws of HS 1-digit clusters.

We also estimate a first-differenced model for labor market outcomes where we control for lagged changes:

$$\text{(A.5)} \quad \Delta Y_{im} = \beta_1 \Delta \tau_{im}^{USA,CHN} + \beta_2 \Delta Y_{imt-1} + \alpha_m + \sigma_s + \epsilon_{im}$$

We look at changes in labor market outcomes ΔY_{im} within industries from 2017 to 2019 and to 2020. We include month fixed effect α_m so we compare changes across industries for every month, thereby netting out the influence of seasonality patterns. Sector dummies σ_s (one for each of the 21 sections in the ISIC rev. 4 industry classification) further absorb aggregate determinants of labor market shifts. We control for pre-trends ΔY_{imt-1}, i.e. changes in labor market outcomes from 2015 to 2017. Standard errors are clustered by industry.

The term τ_{im} captures the ISIC 4-digit sector-level exposure to Trump's tariffs, which we measure in three ways: 1) *Tariff dummy on China*, which is an indicator variable that takes the value 1 if any product in industry i was hit by Trump tariffs in month m (similar to the treatment dummy used in the difference-in-difference specification); 2) *Share of tariff lines hit*, which captures the proportion of HS 10-digit product lines in each industry i that were affected by Trump tariffs in month m; and 3) *Average tariff on China* which is the average of the change in tariffs across 10-digit products within each ISIC 4-digit industry up to month m in 2019. The month variation comes only from changes during 2019 – so for industries where tariffs were not changed during 2019, the three tariff variables will take on the same value in the 12 months.

The results of estimating model A.5 are in Table A.10 for the 2017-2019 period, and in Table A.11 for the 2017-2020. Panel A reports estimates for the impact of working in an industry whose products were hit by Trump's tariffs, Panel B shows the effect of an increase in the share of products affected by the US-China tariffs, and Panel C displays the effects of industry-level average changes in US tariffs imposed on Chinese products. In all three panels, we look at the impact of exposure to the Trump tariffs on the change in the number of workers (in log, columns 1-2), the number of weekly hours worked (in log, columns 3-4), hourly wages (in log, columns 5-6), and skill level (in log, columns 7-8).

We find that tariff hikes on China led to increased hours worked in hit sectors. The results are significant and of important magnitudes especially in Panel A where we use a dummy as our measure of exposure to US tariffs on Chinese products. The estimates effects from Column (2), Panel A, imply that the rate of job creation was 24% higher in treated industries, ye these coefficients are not statistically significant. The effects on working hour go in the same direction when estimated over the 2017-2020 period, as shown in Table A.11.

Table A.10: The effect of Trump tariffs on labor markets 2017-2019

Panel A

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ work	Δ work	Δ hours	Δ hours	Δ wage	Δ wage	Δ skill	Δ skill
Tariff on China = 1	0.226	0.223	0.033	0.037*	-0.020	-0.017	-0.004	-0.005
	(0.171)	(0.172)	(0.020)	(0.020)	(0.073)	(0.073)	(0.017)	(0.017)
Tariff on VNM = 1		0.022		0.030		-0.001		0.020
		(0.157)		(0.030)		(0.103)		(0.031)
Tariff on ROW = 1		0.014		-0.050**		-0.028		-0.002
		(0.126)		(0.024)		(0.077)		(0.015)
N	3892	3892	2679	2679	2679	2679	3757	3757
R-sq	0.31	0.31	0.10	0.10	0.09	0.09	0.24	0.24

Panel B

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ work	Δ work	Δ hours	Δ hours	Δ wage	Δ wage	Δ skill	Δ skill
% lines w/ tariff on CHN	0.052	0.053	0.022	0.022	0.023	0.022	-0.003	-0.002
	(0.139)	(0.140)	(0.020)	(0.020)	(0.068)	(0.068)	(0.020)	(0.020)
% lines w/ tariff on VNM		-0.759		0.052		-2.713		0.446
		(1.709)		(0.607)		(2.506)		(0.513)
% lines w/ tariff on ROW		-0.009		-0.121		0.796		-0.224*
		(0.475)		(0.173)		(0.709)		(0.132)
N	3892	3892	2679	2679	2679	2679	3757	3757
R-sq	0.31	0.31	0.10	0.10	0.09	0.09	0.24	0.24

Panel C

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ work	Δ work	Δ hours	Δ hours	Δ wage	Δ wage	Δ skill	Δ skill
Avg tariff on China	0.317	0.341	0.110	0.101	-0.017	-0.003	0.029	0.032
	(0.603)	(0.610)	(0.076)	(0.075)	(0.263)	(0.266)	(0.080)	(0.080)
Avg tariff on VNM		-6.302		7.131		-6.243		0.880
		(9.415)		(6.067)		(6.359)		(1.966)
Avg tariff on ROW		9.684		-29.738		20.449		-7.356
		(25.946)		(21.515)		(19.352)		(4.923)
N	3892	3892	2679	2679	2679	2679	3757	3757
R-sq	0.31	0.31	0.10	0.10	0.09	0.09	0.24	0.24

Note: The regressions include month and major level sector fixed effects. Standard errors in parenthesis are clustered by industry.

Table A.11: The effect of Trump tariffs on labor markets 2017-2020

Panel A

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ work	Δ work	Δ hours	Δ hours	Δ wage	Δ wage	Δ skill	Δ skill
Tariff on China = 1	0.026	-0.021	0.123**	0.128**	-0.095	-0.084	0.014	0.016
	(0.174)	(0.176)	(0.056)	(0.056)	(0.066)	(0.067)	(0.017)	(0.018)
Tariff on VNM = 1		0.017		0.003		0.071		0.045
		(0.136)		(0.082)		(0.081)		(0.030)
Tariff on ROW = 1		0.178		-0.018		-0.049		-0.011
		(0.109)		(0.045)		(0.052)		(0.010)
N	3884	3884	3021	3021	2710	2710	3742	3742
R-sq	0.30	0.30	0.82	0.82	0.10	0.10	0.30	0.30

Panel B

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ work	Δ work	Δ hours	Δ hours	Δ wage	Δ wage	Δ skill	Δ skill
% lines w/ tariff on CHN	-0.151	-0.156	0.060	0.061	-0.073	-0.072	0.019	0.020
	(0.139)	(0.140)	(0.074)	(0.074)	(0.073)	(0.074)	(0.018)	(0.018)
% lines w/ tariff on VNM		-1.021		1.289		-0.163		0.063
		(1.618)		(1.338)		(1.570)		(0.194)
% lines w/ tariff on ROW		0.470		-0.218		0.117		-0.084
		(0.374)		(0.410)		(0.536)		(0.052)
N	3884	3884	3021	3021	2710	2710	3742	3742
R-sq	0.30	0.30	0.81	0.82	0.10	0.10	0.30	0.30

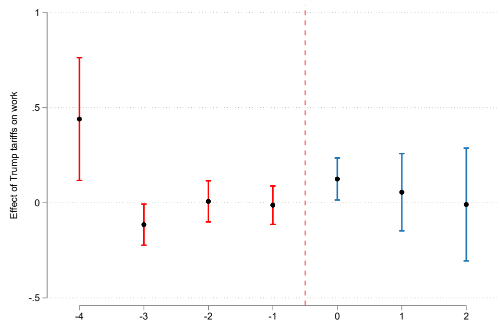
Panel C

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ work	Δ work	Δ hours	Δ hours	Δ wage	Δ wage	Δ skill	Δ skill
Avg tariff on China	-0.319	-0.334	0.296	0.268	-0.280	-0.329	0.085	0.079
	(0.638)	(0.659)	(0.215)	(0.221)	(0.264)	(0.266)	(0.072)	(0.074)
Avg tariff on VNM		4.070		6.693		7.696		0.216
		(8.560)		(6.626)		(5.346)		(0.961)
Avg tariff on ROW		-7.443		-12.568		-24.209		-3.825
		(21.829)		(21.538)		(18.607)		(2.763)
N	3884	3884	3021	3021	2710	2710	3742	3742
R-sq	0.30	0.30	0.82	0.82	0.10	0.10	0.30	0.30

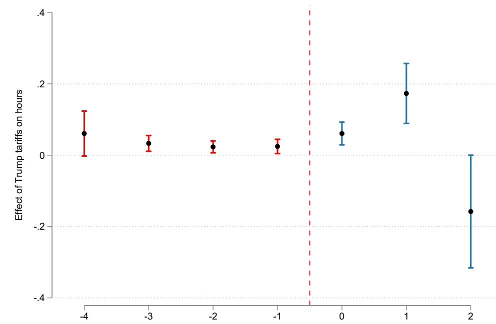
Note: The regressions include month and major level sector fixed effects. Standard errors in parenthesis are clustered by industry.

F Robustness checks on the labor market results

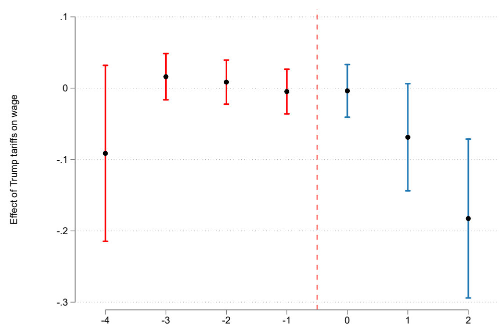
Figure A.18: The effect of Trump tariffs on Vietnam's labor markets - Only manufacturing, agriculture, and mining



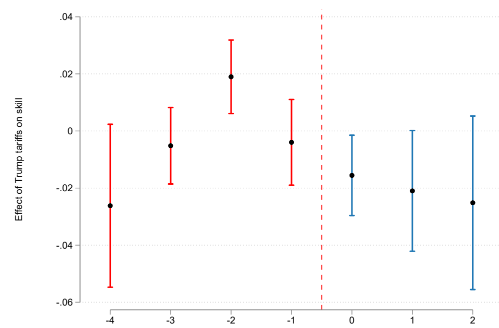
(a) Employment



(b) Hours



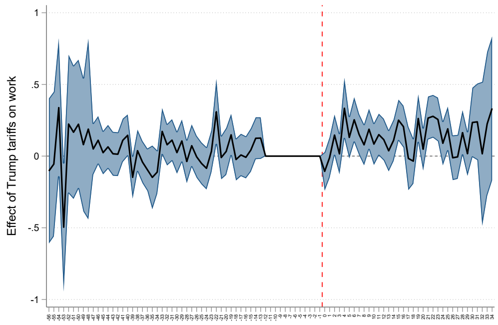
(c) Wages



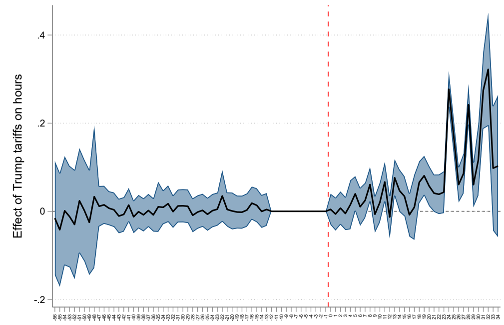
(d) Skills

Notes: Sample excludes all service industries (ISIC 2-digit sector code greater than 33). The dots show TWFE diff-in-diff estimates of the effect of tariff hikes on jobs, hours worked, wages, and skills across years and sectors. Blue bars are c.i. for treatment effects relative to the year before treatment. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2021).

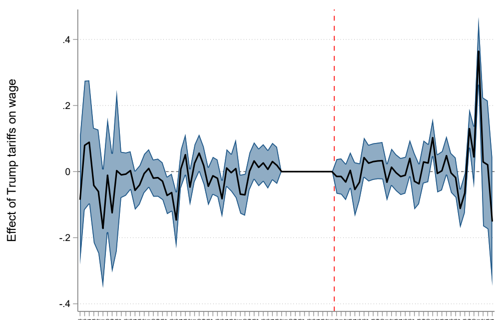
Figure A.19: The effect of Trump tariffs on Vietnam's labor markets - Month on month effects



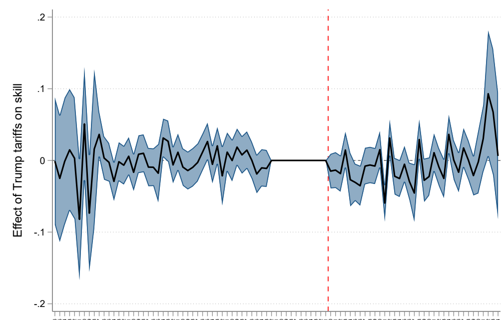
(a) Employment



(b) Hours



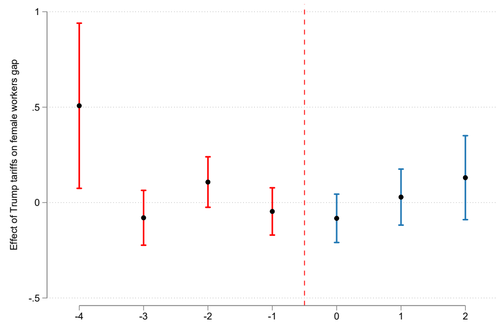
(c) Wages



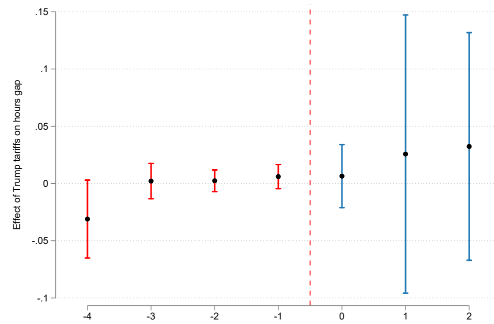
(d) Skills

Notes: The solid line shows the TWFE diff-in-diff estimates of the effect of tariff hikes on jobs, hours worked, wages, and skills across months and sectors. The shaded area shows the 90 percent confidence interval. We take the year before the first month when the tariff hits as the benchmark and look at how different the differences between treated and untreated sectors are in each of the following months. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2021).

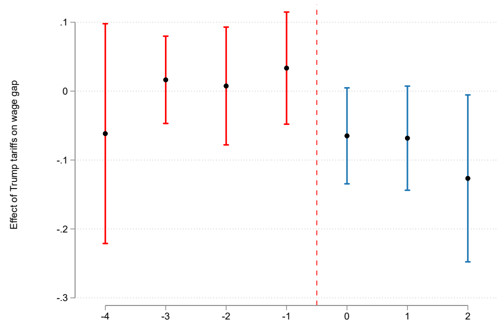
Figure A.20: The effect of Trump tariffs on Vietnam's labor markets - Gender gaps



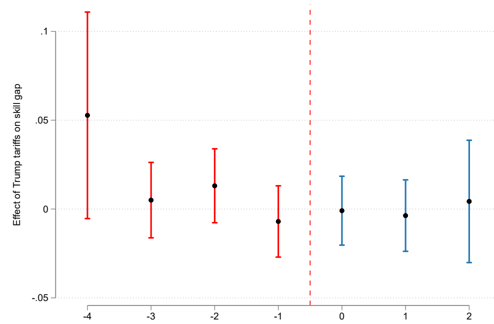
(a) Employment



(b) Hours



(c) Wages



(d) Skills

Notes: The dots show TWFE diff-in-diff estimates of the effect of tariff hikes on the gender gap in jobs, hours worked, wages, and skills across years and sectors. Blue bars are c.i. for treatment effects relative to the year before treatment. Red bars are c.i. for pre-treatment placebos, showing the year-on-year effects. Data on labor markets are from Vietnam's LFS. Data on tariff hikes from Fajgelbaum et al. (2021).