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Trading Blows: The Exchange-Rate Response to Tariffs and Retaliations

Daniel Ostry, Simon Lloyd, Giancarlo Corsetti

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Abstract

This paper provides econometric evidence on the response of exchange rates and bond yields to tariff events. We construct a novel Tariff Shock Database, which captures tariff-related announcements, threats and implementations by the U.S., China, the Euro Area and other countries between 2018 and 2020, and in 2025. Our shock measure accounts for both the size of tariff rates and their macroeco- nomic relevance. We show that, in line with the predictions of recent open-macro models, exchange rates react to U.S. tariff shocks in systematically different ways depending on retaliation: the U.S. dollar (USD) depreciates if other countries re- taliate; appreciates otherwise. Comparing the evidence across the two samples, we conclude that the USD depreciation following the U.S. tariff announcement on April 2nd 2025 was consistent with models capturing tariff-shock retaliation and hence not surprising. The spike in long-maturity U.S. Treasury yields was, however, more unprecedented. Views expressed in this publication reflect the opinion of individual author(s) and not those of the European University Institute or any Institutions to which they may be affiliated.

JEL Codes: F13, F31, F51, G15.

Keywords

Exchange Rates; Event Study; Retaliation; Tariffs

1 Introduction

To many, the U.S. dollar (USD) depreciation in response to the U.S. government's 'Liberation Day' tariff announcements on April 2nd 2025 marked a sharp discontinuity with the past. The USD depreciated by over 6 percent against the euro (EUR) (see Figure 1a), as well as in effective terms against a basket of currencies. When viewed alongside the spike in U.S. Treasury yields, these currency moves appear reflective of a 'reserve-currency shock' whereby the safety premium associated with U.S. assets is eroded. However, numerous commentators have also noted that the USD response is at odds with conventional wisdom and classical models—in which tariffs result in a currency appreciation, reflecting a shift in global demand.[1]

In this paper, we reconsider this conventional wisdom, providing new empirical evidence on the response of asset prices to tariff events based on the recent experience from 2018 to 2020. The question we ask is: do tariffs necessarily result in a currency appreciation? Relative to the literature, our innovation consists of distinguishing tariff shocks depending on whether or not they give rise to retaliation.

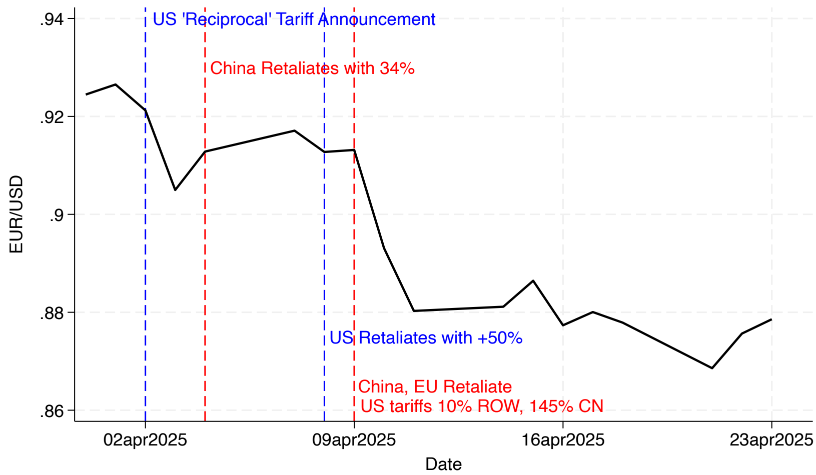
Our econometric analysis is best motivated with the case study shown in Figure 1b: the announcement of U.S. tariffs on steel and aluminum imported from the European Union (EU) on March 1st 2018. Like the Liberation Day event in 2025, many anticipated retaliatory tariff measures almost immediately, as this FT article with the headline "*EU considers imposing 'safeguard' import tariffs in response to US*" from March 2nd 2018 evidences. Indeed, the EU announced their retaliatory measures on March 7th 2018. In contrast to the conventional wisdom, the USD depreciated immediately after the U.S. announcement (see Figure 1b). It remained significantly weaker than its end-February level over the whole of March, after EU retaliation was announced, too.

Our empirical evidence suggests that this pattern is systematic. This means that USD depreciation following U.S. tariff announcements is not, in isolation, surprising once one accounts for expectations of tariff retaliation by governments in the rest of the world. Indeed, as shown by Bergin and Corsetti (2023), a USD depreciation is implied by asymmetries in the monetary-policy response to retaliatory tariff shocks

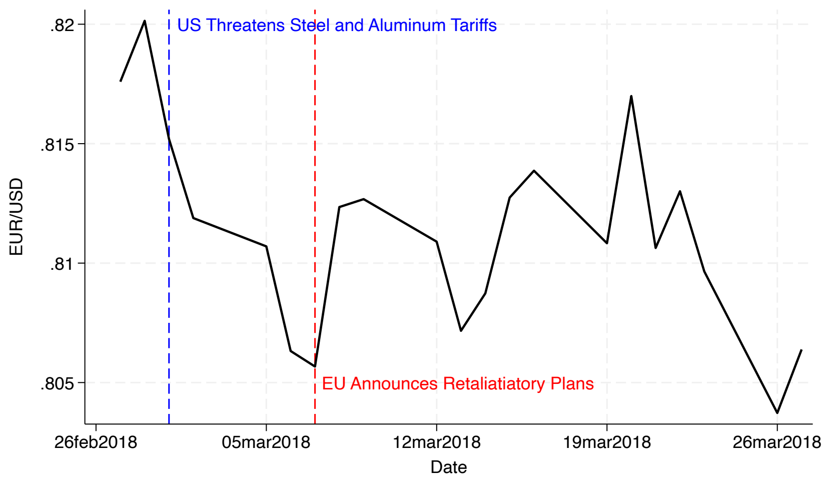
[1] See, e.g., the discussions in Hartley and Rebucci (2025) and Cardani et al. (2025).

Figure 1: Exchange-Rate Reactions to Tariff Announcements

(a) April 2nd 2025: 'Liberation Day'



(b) March 1st 2018: US Steel & Aluminum Tariffs



when the USD is the dominant currency in international trade.[2] What goes beyond the prediction of the theory, however, is the spike in long-maturity U.S. Treasury yields we document in response to tariff shocks after Liberation Day.

We reach these conclusions in three steps. First, we assemble a new dataset of tariff shocks. Our database captures U.S. tariff announcements, threats and implementations over the 2018-2020 period and in 2025, alongside information on the tariff

[2] Bergin and Corsetti (2023) work out the transmission of a symmetric trade war under different assumptions around exchange-rate pass through and pass-through from the border to final prices due to distribution. While under perfect pass-through, optimal monetary stabilization by all countries prevents currency movement, with a dominant currency in international trade the optimal policy in the country issuing it will engineer a depreciation.

responses by the rest of the world (RoW), namely, China, the EU and Canada. We ground the dataset in timelines of tariff-related events compiled by the *Peterson Institute for International Economics*, with additional supporting evidence from contemporary news sources. From the information in those timelines, we note the timing of each event (at daily frequency) and classify them into either (i) a tariff announcement or threat or (ii) a tariff implementation. Armed with 45 U.S. and 21 RoW tariff events from 2018-2020 and 13 U.S. and 10 RoW tariff events in 2025, we next quantify the size of each tariff action. To do so, we construct an 'effective tariff-rate shock', by combining the size of the tariff in *ad valorem* terms with the share of imports receiving that tariff. Our shocks thus capture heterogeneity in the economic relevance of different tariff actions. Finally, and crucially, we record a U.S. tariff shock as retaliated against if the rest of the world threatens or implements a tariff on the U.S. within the subsequent 7 days, although our results are robust to varying this definition.

Second, focusing on the 2018-2020 period, we use our U.S. effective tariff-rate shocks to investigate how U.S. tariff actions affected exchange rates and interest rate in the U.S., China and euro area over the days that follow. Our primary contribution here is to show that, while the USD does appreciate in response to U.S. tariff actions in the absence of retaliation, the appreciation is, however, offset by anticipation of retaliatory measures. This evidence is in line with results from theoretical exercises where, in a symmetric setup, retaliatory tariffs will perfectly offset the exchange-rate implications of domestic tariffs. However, our novel evidence goes beyond the confines of these exercises. In particular, we show that in tariff exchanges between the U.S. and the world—i.e., tariffs that go beyond U.S.-China bilateral actions—the USD depreciates significantly.

Third, we estimate the response of exchange rates and bond yields to U.S. tariff shocks in 2025, finding that the USD depreciated and short-maturity U.S. Treasury yields fell, while long-maturity Treasury yields rose. When viewed as a US tariff announcement on the world with retaliation, we conclude that the USD depreciation following the April 2nd 2025 U.S. tariff announcement was not entirely surprising. Nor was the response of short-maturity yields, which also fell following U.S. tariff events in the 2018-2020 period. The more persistent rise in long-maturity yields on April

2nd 2025, however, is without parallels in our sample, arguably reflecting a market reassessment of the financial consequences of geopolitical and trade fragmentation.

Related Literature. Our paper most directly contributes to the empirical literature assessing exchange-rate responses to tariffs. Closest to our work is Jeanne and Son (2024) who show that U.S. tariffs during the 2018-2020 period appreciated the USD and depreciated the Chinese Yuan (CNH) using minute-by-minute data. Although our focus is on lower, daily-frequency moves, our average results are consistent with the work by these authors: in line with the conventional wisdom and a number of other studies (e.g., Furceri et al., 2018; Barattieri et al., 2021), U.S. tariff shocks appreciate the USD. However, we show that this average effect masks heterogeneity, with the USD appreciating only if the U.S. tariff actions were not met with retaliation. Relative to Jeanne and Son (2024), our results suggest the importance of allowing for market anticipation of retaliatory measures, as these may be already priced in the exchange rate at the time of the U.S. announcements.

Within this empirical literature, our primary contribution is to construct a new database tracking changes in tariffs, which can be applied to study the responses of asset prices at high frequency. Our application, to exchange rates, has antecedents in the literature assessing the impact of news on exchange rates (e.g., Faust et al., 2006; Andersen et al., 2007; Rogers et al., 2014). Relatedly, Matveev and Ruge-Murcia (2024) use tweets by the U.S. President about potential tariffs on Canadian and Mexican goods, finding that they appreciate the USD. Similarly, Filippou et al. (2025) show that a broader set of tweets by the U.S. President, with macroeconomic and trade content, drive significant USD appreciation.

More recent work has focused on the Liberation Day tariff announcements, highlighting surprising features of asset-market moves in this period (e.g., Hartley and Rebucci, 2025; Jiang et al., 2025). In contrast to these contributions, our systematic empirical analysis reveals the challenges of comparing the financial-market moves following the single Liberation Day event to the average effect of tariffs over the 2018-2020 period. Once we focus on US tariff actions over 2018-2020 on a wider set of trading partners that elicited foreign retaliation, we conclude that the USD depreciation following

April 2nd 2025 was not necessarily surprising. Perhaps more surprising though, and in line with Jiang et al. (2025), is the spike in long-maturity U.S. Treasury yields.

Stepping back, our results contribute to the broad literature assessing the macroeconomic implications of tariffs, where the exchange-rate response plays a crucial role in determining the size and sign of aggregate variables. In the Mundell-Fleming framework, tariffs result in a currency appreciation, which can worsen the trade balance and reduce employment. In contrast, within dynamic open-economy models, the nominal exchange rate can depreciate following tariffs when import substitution is sufficiently low (Ostry, 1991; Lloyd and Marin, 2024; Auclert et al., 2025) or if domestic interest rates fall (Krugman, 1982). Indeed, a nominal currency depreciation can arise when monetary policy is set optimally in response to tariffs (Bergin and Corsetti, 2023; Bianchi and Coulibaly, 2025). Our paper provides direct model-free evidence on exchange-rate responses to tariffs, highlighting the importance of retaliation for the sign and persistence of currency changes.

The remainder of this paper is structured as follows. Section 2 describes our tariff shock database. Section 3 presents our empirical analysis of the financial-market effects of tariff shocks between 2018 and 2020. Section 4 compares the April 2nd 2025 Liberation Day responses to our empirical estimates from the 2018-2020 period. Section 5 concludes.

2 Tariff Shock Database

One of the contributions of this paper is to develop a new daily database of effective tariff-rate shocks, covering the periods 2018-2020 and 2025-present. This section describes the construction of those shocks, which we plan to update periodically. The underlying timeline of tariff-related news comes from the *Peterson Institute*. We combine this with narrative evidence and macroeconomic data to construct shock series scaled for the size and economic relevance of tariff measures. Moreover, we distinguish between days on which tariffs were announced, implemented or threatened, as well as whether they constituted retaliatory actions or not.

2.1 Tariff News Timeline

Bown and Kolb (2018) provide a detailed timeline tracking tariff-related news during the 2018-2020 period. We restrict our sample to events that pertain directly to tariffs and involve at least one of the U.S.'s largest four trading partners: the EU, Mexico, China and Canada. This implies 58 events in total for the 2018-2020 period, including 45 by the U.S., 16 by China, 2 by the EU and 3 by Canada. For the purposes of our analyses into the effects of tariff news on financial markets, we use only events occurring on business days, dropping tariff-related news occurring on non-business days. In addition, we drop events from the timeline which do not constitute a tariff threat, announcement or implementation.[3] After dropping these events, our final timeline for the 2018-2020 period includes 46 distinct entries.

Panel A of Table 1 details these 2018-2020 events. Of the 46, 35 represent U.S. tariff announcements, threats or implementations,[4] while 19 events represent tariff responses by China, the EU and Canada. A majority of the U.S. tariff events, 21 out of 35, pertain to U.S.-China-bilateral tariffs, with the remaining 14 events corresponding to global tariffs, mostly on specific products such as steel and aluminum, autos, solar panels and washing machines. Of the 19 tariff-response events, 15 represent actions by China and 4 by the EU and Canada (including the March 1st 2018 example shown in Figure 1b).

The right-most columns of Table 1 categorize all these events as tariff escalations or de-escalations, denoted by $+1$ or -1, respectively. The majority of events represent escalations, although there are still a number of de-escalation events. The narrative information in the table also helps to highlight the unanticipated nature of many of the U.S. tariff actions. And, even when a tariff-related event was expected, the details of tariff proposals were less clear *ex ante*.

As many of the rest-of-the-world events represent retaliations, the unanticipated nature of these events is less clear. So, a key step in our analysis is to determine which

[3] For example, the timeline includes the U.S. filing a complaint to the WTO about Chinese retaliatory tariffs on July 16th 2018, as well as the U.S. announcing subsidies for farmers affected by tariffs on July 24th 2018. While not independent of the trade war, since neither of these are direct tariffs on traded goods, we drop them from our timeline.

[4] In some instances the dates on which tariffs are announced, threatened or implemented are not mutually exclusive, so we are not able to decompose events along these lines.

Table 1: Timeline of Tariff Events (+1 denotes effective tariff increase, −1 decrease)

Date	Description	US Event	RoW Event
A: 2018-2020			
22-Jan-18	U.S. imposes safeguard tariffs on solar panels and washing machines.	1	0
01-Mar-18	U.S. announces future tariffs of 25% on steel and 10% on aluminum across board (affecting mostly Canada, EU, Mexico, Korea).	1	0
07-Mar-18	EU announces its retaliatory response if hit with U.S. steel and aluminum tariffs, hitting consumer goods.	0	1
08-Mar-18	U.S. temporarily exempts Canada and Mexico from steel and aluminum tariffs.	-1	0
22-Mar-18	Investigation finds China uses unfair trade practices; U.S. indicates forthcoming tariffs on Chinese goods and WTO dispute. At same time, U.S. temporarily exempts EU, Korea, Brazil, Argentina, Australia from steel and aluminum tariffs.	1	0
23-Mar-18	U.S. steel and aluminum tariffs come into effect.	1	0
02-Apr-18	China imposes retaliatory tariffs on U.S. on aluminum waste and various foods.	0	1
03-Apr-18	U.S. threatens tariffs on China, at 25% on 50bn USD, largely on intermediate inputs and capital goods.	1	0
04-Apr-18	China retaliates with threat of tariffs on 50bn USD imports, mostly on U.S. transportation and vegetable products.	0	1
05-Apr-18	U.S. escalates by asking officials to consider whether addition 100 billion USD of US imports from China should be tariffed.	1	0
17-Apr-18	China imposes preliminary tariffs on U.S. Sorghum.	0	1
30-Apr-18	U.S. extends tariff exemptions for EU, Canada and Mexico; Argentina, Australia and Brazil receive indefinite exemptions.	-1	0
18-May-18	China ends Sorghum tariffs during negotiations.	0	-1
23-May-18	U.S. considers 25% tariffs on autos and parts.	1	0
29-May-18	U.S. says it will impose tariffs on 50bn USD of Chinese goods starting June 15.	1	0
01-Jun-18	U.S. ends tariff exemptions for EU, Canada, Mexico.	1	0
15-Jun-18	U.S. amends list of tariffed 50bn goods from China; China also updates its list. Both effective from July 6.	1	1
18-Jun-18	U.S. looks into another 200bn USD of Chinese imports to tariff at rate of 10%.	1	0
22-Jun-18	EU retaliates against U.S., affecting steel, aluminum, agriculture and food.	0	1
06-Jul-18	First stage of U.S. and Chinese 50bn USD tariffs, totalling 34bn USD, go into effect.	1	1
10-Jul-18	U.S. publishes list of additional 200bn USD worth of Chinese imports to tariff.	1	0
20-Jul-18	U.S. threatens to tariff all Chinese imports.	1	0
01-Aug-18	U.S. considers 25% tariff on 200bn USD of Chinese imports, up from 10%.	1	0
03-Aug-18	China threatens further tariffs on 60bn USD of goods (5–25%).	0	1
07-Aug-18	U.S. finalizes second tranche of 50bn USD tariff plan.	1	0
08-Aug-18	China removes crude oil from 50bn USD tariff list, but maintains 25% on 16bn USD.	0	1
10-Aug-18	U.S. doubles steel tariffs on Turkey to 50%, aluminum to 20%.	1	0
23-Aug-18	Second tranches of U.S. and China 50bn USD tariffs come into effect.	1	1
17-Sep-18	U.S. finalizes 200bn USD tariff list, with 10% tariff rising to 25% in Jan.	1	0
18-Sep-18	China finalizes tariffs on 60bn USD of US goods; lowers rate to 5–10%.	0	1
24-Sep-18	US (200B at 10%) and China (60B at 7%) tariffs come into effect.	1	1

Continued on next page

Table 1 – continued from previous page

Date	Description	US Event	RoW Event
10-May-19	U.S. tariffs of 25% on 200bn USD of Chinese goods come into effect.	1	0
13-May-19	China intends to retaliate by raising tariff rate on 60bn USD.	0	1
17-May-19	U.S. lifts steel and aluminum tariffs on Canada and Mexico.	-1	0
30-May-19	U.S. announces 5% tariffs on all imports from Mexico due to border.	1	0
01-Jun-19	China tariffs on 36bn USD of goods go into effect.	0	1
07-Jun-19	U.S calls off Mexico tariffs.	-1	0
01-Aug-19	U.S. announces 10% tariffs on all remaining Chinese exports, starting Sep 1.	1	0
13-Aug-19	U.S. plans two new tariff rollouts, 112bn USD and 160bn USD.	1	0
23-Aug-19	China retaliates with 75bn USD tariffs. U.S. raises tariffs to 30%.	1	1
11-Sep-19	China removes some tariffs; U.S. delays increase.	-1	-1
11-Oct-19	U.S. cancels October tariffs in anticipation of trade deal.	-1	0
13-Dec-19	U.S. cancels December tariffs after trade deal.	-1	0
24-Jan-20	U.S. increases steel and aluminum tariffs on EU, Taiwan, Japan and China.	1	0
06-Aug-20	U.S. reinstates Canadian steel tariffs. Canada retaliates.	1	1
15-Sep-20	U.S. ends tariffs on Canadian steel.	-1	-1
B: 2025-Present			
31-Jan-25	U.S. announces tariffs on all imports from Canada, Mexico (25%), China (+10%).	1	0
03-Feb-25	U.S., Canada and Mexico postpone tariffs for 1 month.	-1	-1
04-Feb-25	U.S. 10% tariffs on China. China retaliates with 15%/10% on U.S. goods.	1	1
10-Feb-25	U.S. announces 25% tariffs on steel and aluminum.	1	0
03-Mar-25	U.S. confirms tariffs; Canada and China retaliate.	1	1
06-Mar-25	USMCA exemptions on Canada/Mexico tariffs. Canada follows.	-1	-1
10-Mar-25	China's March 4 retaliatory tariffs come into effect.	0	1
12-Mar-25	U.S. steel/aluminum tariffs come into effect. Canada, EU retaliate.	1	1
26-Mar-25	U.S. announces 25% auto tariffs (USMCA exempted).	1	0
02-Apr-25	U.S. 'Liberation Day': tariff rate rises by 14pp.	1	0
03-Apr-25	March 26 auto tariffs take effect. Canada retaliates.	1	1
04-Apr-25	China announces 34% tariffs on all U.S. goods.	0	1
08-Apr-25	U.S. amends 34% tariff on China to 84%.	1	0
09-Apr-25	Liberation Day tariffs paused; U.S. announces 125% tariffs on China. China, EU, Canada retaliate.	1	1
10-Apr-25	China's retaliatory tariffs take effect. EU retaliation paused.	1	1
11-Apr-25	China announces further retaliation: 125% on U.S. imports.	0	1

events represent retaliations to specific U.S. policies. Rather than use foreign retaliatory tariff events as 'shocks' themselves, we instead distinguish between U.S. tariff shocks that *were* and *were not* retaliated against. The idea here is that foreign retaliatory tariffs are likely to be anticipated or heavily signaled—as the March 1st 2018 example in the Introduction highlighted—so will not be exogenous events.

We classify a U.S. shock to have been retaliated against if we see a foreign response within the 7 days following the initial U.S. event. From the perspective of our empirical event-study analysis, this is akin to assuming that markets expected a retaliation at the time of the initial U.S. tariff action. We view the 7-day cut-off to be conservative, since in practice retaliations occur pretty swiftly, as the timelines in Table 1 demonstrate. Importantly, our results are robust to alternative specifications of this retaliation rule, including modifying the threshold number of days and accounting for the intent behind foreign tariffs.

Panel B of Table 1 details events in 2025, to date, from Bown (2025). There are 17 events in total,[5] of which 14 include U.S. tariff actions and 11 rest of the world actions. As we shall discuss in Section 4, although certain aspects of the events bear similarities with the 2018-2020 period, the "global" nature of the U.S. tariffs and the number of rest-of-the-world actions, as well as the speed with which the tariff events have taken place so far, stand out.

2.2 Shock Construction

Our news database isolates key tariff-related events. In table 1 we have categorized events distinguishing between escalations or de-escalations, captured by an indicator variable taking the value $+1$ and -1, respectively, as in Jeanne and Son (2024). This indicator, however, does not capture differences in tariff rates or the macroeconomic relevance of announcements—e.g., a 10% tariff on a single type of good vs. a 10% tariff on all inputs. To account for heterogeneity in the economic importance of different tariff-related news events, we transform our news database into a (set of) continuous shock variable(s)—i.e., an effective tariff-rate shock—by combining narrative evidence

[5]In the 2025 sample, there are 3 events occurring on weekends, which are not included in the table.

and macroeconomic data.

Our baseline tariff-shock measure captures *both* the size of the announced, threatened or implemented tariff rate *and* the total value of imports impacted by those tariffs. Let $\tau_{i,t}$ denote the *ad valorem* tariff rate linked to a tariff announcement, threat or implementation on a date t and for a country/region i. In addition, let $M^{\tau}_{i,(-1)}$ denote the USD value of annual imports affected by that tariff (in billions) in the last 12-month period for which it is measured relative to date t, and let $M_{i,(-1)}$ denote total annual imports by country i over the same period. Our tariff shock, $\varepsilon^{\tau}_{i,t}$, is defined as:

$$\varepsilon^{\tau}_{i,t} := \tau_{i,t} \cdot \frac{M^{\tau}_{i,(-1)}}{M_{i,(-1)}} \qquad \text{for } i = US, CH, EA, CA \tag{1}$$

where US denotes U.S., CH is China, EA is euro area and CA is Canada.

The shock definition (1) ensures that the shock measure captures the economic relevance of the tariff actions. For example, if U.S. total imports are 2.5tn USD and the U.S. applies, announces or threatens a 25% tariff on 100bn USD of foreign imports, we record this as a 1% effective tariff-rate shock. In addition, the normalization of the shock with respect to total imports $M_{i,(-1)}$ helps to account for inflation over time, so shock values can be compared across the two sub-samples.

In practice, we obtain information on the tariff rate $\tau_{i,t}$ and size of the 'tariffed' goods $M^{\tau}_{i,(-1)}$ from narrative information related to the tariff event. In some instances, this can be read directly from Table 1. For example, on April 3rd 2018, the U.S. announced an *ad valorem* tariff rate of $\tau_{i,t} = 0.25$ on a pre-determined (nominal) quantity of imports $M^{\tau}_{i,(-1)} = 50$bn USD. In other cases, when tariffs are applied on a subset of goods (e.g., steel and aluminum on March 1st 2018), we calculate the quantity of imports of those specific goods using a variety of sources.

Figure 2a plots our tariff shocks for the 2018-2020 period. (Orange) circles denote U.S. tariff actions applied on imports *only* from China, while (black) squares represent U.S. tariff actions *vis-à-vis* the rest of the world. For events that were met with foreign relation within 7 days, the corresponding circle or square is filled in. For example, in the figure, the first black filled-in square from the left corresponds to the March 1st 2018 event described in the Introduction, when the U.S. announced tariffs on imported steel and aluminum from the EU. The effective tariff-rate shock on that date is around 0.3%, reflecting the 25% and 10% *ad valorem* rates on steel and aluminum, respectively, and the scale of these imports overall (as a share of U.S. total imports).

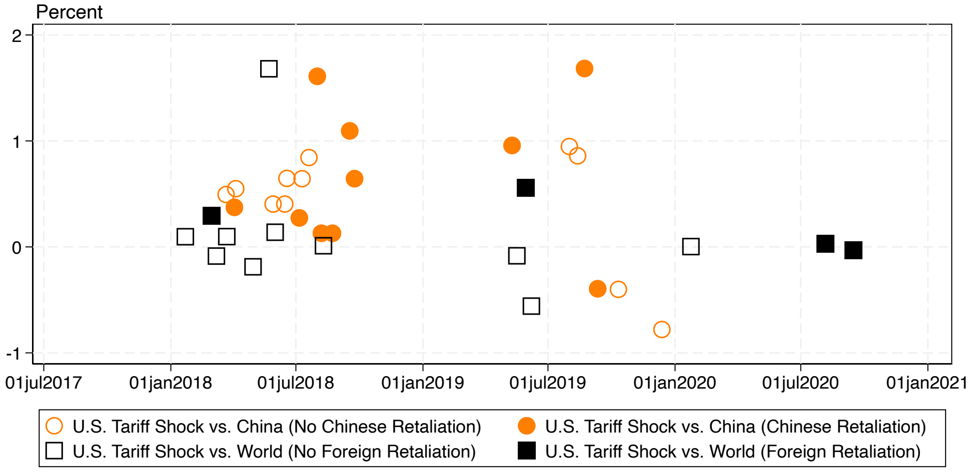
The magnitude of the overall effective tariff-rate shocks over the 2018-2020 period lies between -1% and +2%. In our graphs, negative values denote instances where announced tariffs were paused, or canceled or implemented tariffs were removed. For example, there are three negative values in the second half of 2019 recorded in Figure 2a. These represent a de-escalation of the U.S.-China trade war over that time. On September 11th 2019, the U.S. delayed an increase of tariffs on China and, in retaliation on the same day, China announced the removal of some tariffs on the U.S. Subsequently, the U.S. administration canceled announced increases in tariff rates on China, in anticipation of a trade deal on October 11th 2019 and upon successful agreement of a trade deal on December 13th 2019.

Figure 2b plots effective tariff-rate shocks for rest-of-the-world events. Here, the shaded entries denote events that took place in retaliation to U.S. tariffs, so correspond with shaded U.S. actions in Figure 2a. Although most Foreign actions occur swiftly (within a week) and so meet the retaliation condition, the retaliatory measures are strikingly small in terms of effective tariff-rate magnitudes. While the U.S. tariff shocks in Figure 2b lie between -1% and 2%, the retaliatory actions range from -0.1% to 0.5%.

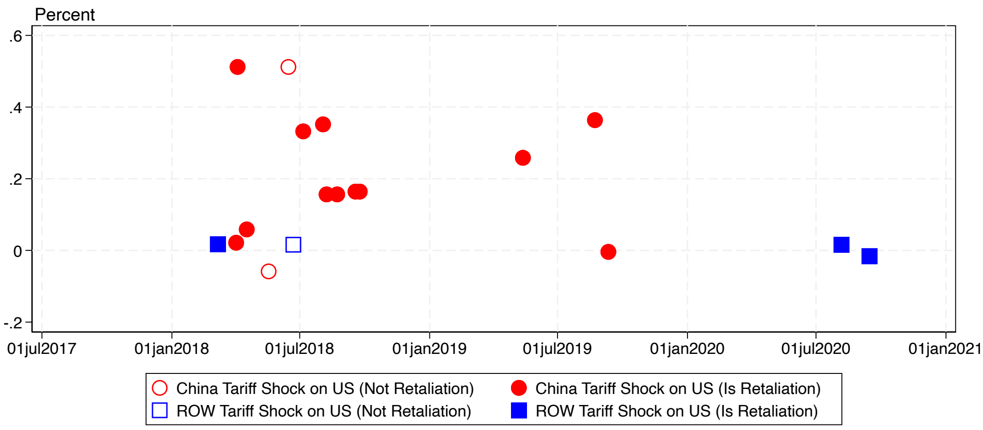
Figure 3 plots our U.S. and rest-of-the-world tariff shocks for the more recent period, 2025-present. Compared to Figure 2, there are 4 key differences. First, shocks are much larger in magnitude. The Liberation Day tariffs represented a U.S. effective tariff-rate shock shock of around 14%, while the largest shock between 2018 and 2020 was less than 2%. Second, the shocks happened in quick succession, over a matter of days. Third, within the week after Liberation Day, all of the tariff shocks were retaliated against. In contrast, during the 2018-2020 period, less than 50% of U.S. tariff events were retaliated against. Finally, while the majority of 2018-2020 tariffs were focused on China, the 2025 events span a broader set of countries and involve global retaliation.

Figure 2: Effective Tariff-Rate Shocks 2018-2020

(a) U.S. Shocks



(b) Rest of the World Shocks



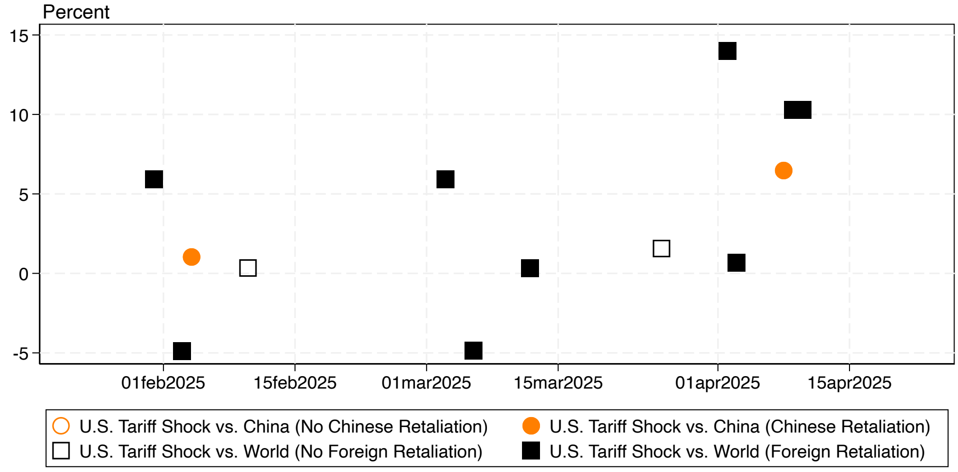
Notes. Shocks constructed by combining tariff news timeline (Bown and Kolb, 2018) with narrative evidence on the size and economic relevance of each event via equation (1).

3 Tariff Shocks and Exchange Rates, 2018-2020

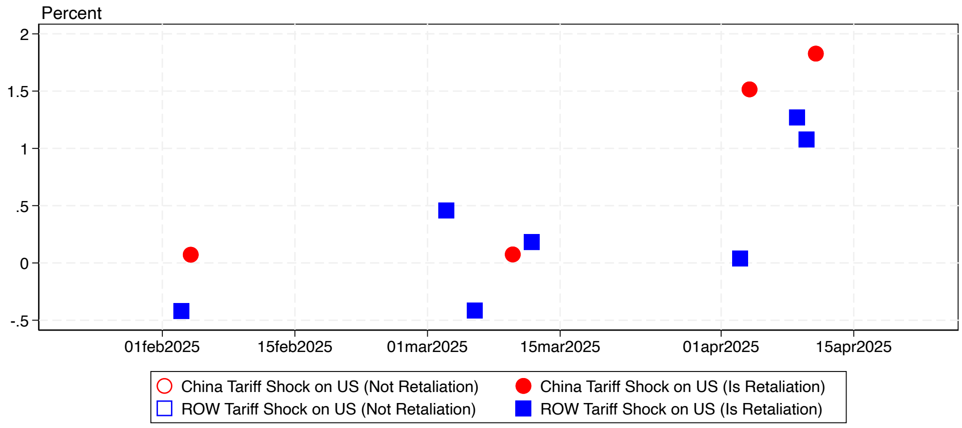
Armed with our shock series, we now assess their impact on financial markets over the days and weeks following tariff shocks.

Figure 3: Effective Tariff-Rate Shocks 2025-Present

(a) U.S. Shocks



(b) Rest of the World Shocks



Notes. Shocks constructed by combining tariff news timeline (Bown, 2025) with narrative evidence on the size and economic relevance of each event via equation (1).

3.1 Average Effects Across All Shocks

We begin by estimating the impact of all U.S. tariff events over the 2018-2020 period. To do this, we estimate the following local-projection (Jordà, 2005) specification:

$$e_{t+h} - e_{t-1} = \alpha^h + \beta^h \varepsilon^{\tau}_{US,t} + \boldsymbol{\gamma}^{h\prime} \mathbf{x}_{t-1} + u_{t+h} \tag{2}$$

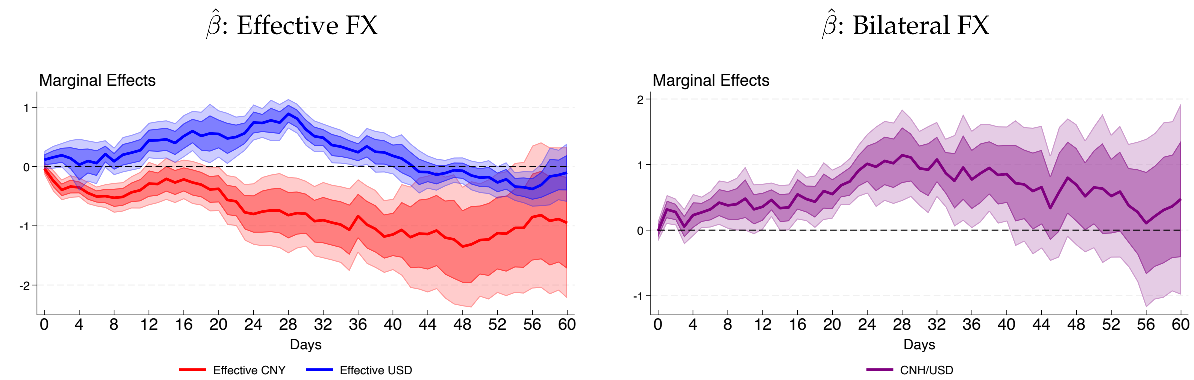
where e_{t+h} denotes the (log) bilateral or effective USD exchange rate h business days after a date-t tariff event. Our coefficient of interest is β, which denotes the marginal impact of a 1pp effective tariff shock on the dependent variable.

Regression (2) includes a set of (lagged) control variables $\mathbf{x}_{t-1}$ intended to capture factors that could impact the dependent variable, while being correlated (in sample) with the shock series itself. Primary among these controls is a daily macroeconomic-news index by Stavrakeva and Tang (2024), capturing over 65% of exchange-rate volatility at monthly frequency and 90% at quarterly frequency. This series is included to ensure that our β coefficient does not inadvertently capture the lagged effects of other macroeconomic news—as opposed to the tariff event itself. We also control for lagged 10-year relative interest differentials (for the U.S. vs. the EU and China), the lagged VIX, and lagged 3-month covered interest parity deviations from Du et al. (2018), to account for other potential documented drivers of exchange rates.

Figure 4 plots estimated impulse responses from equation (2) for all U.S. tariff events in the 2018-2020 period, those that were and were not retaliated against. The left-hand figure presents the response of the effective USD and CNY exchange rate, where an increase corresponds to an effective currency appreciation, and vice versa for a decrease. The right-hand figure documents results for the CNH/USD bilateral exchange rate, defined such that an increase corresponds to a USD appreciation (i.e., the bilateral exchange rate represents the yuan price of 1 USD). For inference, we augment the local-projection regression with lags of the dependent variable (Montiel Olea and Plagborg-Møller, 2021) and use Newey and West (1987) standard errors.

The results in Figure 4 align with the conventional wisdom, as well as the existing literature for the 2018-2020 period (most notably Jeanne and Son, 2024). On average, U.S. tariff shocks during the 2018-2020 period are associated with an appreciation of the USD, in both effective terms and bilaterally against the CNH. Our point estimates indicate that a 1pp effective tariff-rate shock is, on average, associated with around 1% appreciation over the four weeks following the event. Consistent with our results for the CNH/USD bilateral exchange rate, we also find that the effective CNY exchange rate significantly depreciates in the weeks after a surprise U.S. tariff action.

Figure 4: Average Impact of 2018-2020 Tariff Events on Exchange Rates



Notes. Shaded areas correspond to the 68% and 90% confidence intervals constructed from Newey and West (1987) standard errors with four lags, from the local-projection regression (2) augmented with lags of the dependent variable (Montiel Olea and Plagborg-Møller, 2021).

3.2 Retaliation

Although consistent with conventional wisdom, the results of regression (2) do not account for differences when U.S. tariffs face retaliation. To reach our key empirical result, we extend our regression setup to separately estimate the impact of U.S. tariff actions on exchange rates when there is and is not retaliation within the subsequent 7 days. To do so, we use the information collated in Section 2 to define a retaliation indicator variable $\mathbb{1}_t^{Ret}$, which equals 1 if a U.S. tariff shock on date t was retaliated against within 7 days, and 0 otherwise, by any region (i.e., China, EU or Canada). We then estimate the following extended local-projection model:

$$e_{t+h} - e_{t-1} = \alpha^h + \beta_1^h \varepsilon_{US,t}^{\tau} + \beta_2^h \left(\varepsilon_{US,t}^{\tau} \times \mathbb{1}_t^{Ret}\right) + \delta^h \mathbb{1}_t^{Ret} + \boldsymbol{\gamma}^{h\prime} \mathbf{x}_{t-1} + u_{t+h} \tag{3}$$

Here, β_1 represents the estimated effect of U.S. tariff shocks on exchange rates conditional on no retaliation, while $\beta_1 + \beta_2$ is the corresponding estimate conditional on relation—such that β_2 captures the marginal effect of retaliation. We estimate equation (3) using the same controls and inference procedures as for equation (2).

Figure 5 presents the results for effective currency baskets in the left-hand column and the CNH/USD bilateral exchange rate in the right-hand column. The estimated responses conditional on no retaliation corroborate with the average across the sample: the USD significantly appreciates, in effective terms and *vis-à-vis* the CNH, following a U.S. tariff shock. Point estimates are somewhat larger than in Figure 4.

However, the responses conditional on retaliation are significantly different. The impulse responses in the middle row show that retaliation pushes the USD to *depreciate* in effective and bilateral terms. The magnitude of the marginal $\hat{\beta}_2$ coefficient broadly offsets that of the no-retaliation coefficient, $\hat{\beta}_1$, such that the overall effect of tariffs with retaliation on exchange rates are approximately awash, as shown in the bottom panels.

Recall from Section 2 that the size of rest-of-the-world effective tariff-rate shocks are smaller than those of the U.S.. Our empirical evidence may reasonably reflect asymmetries in the transmission of tariff shocks and the impact of tariffs on financial markets. We expand on this issue below.

3.3 Global Events

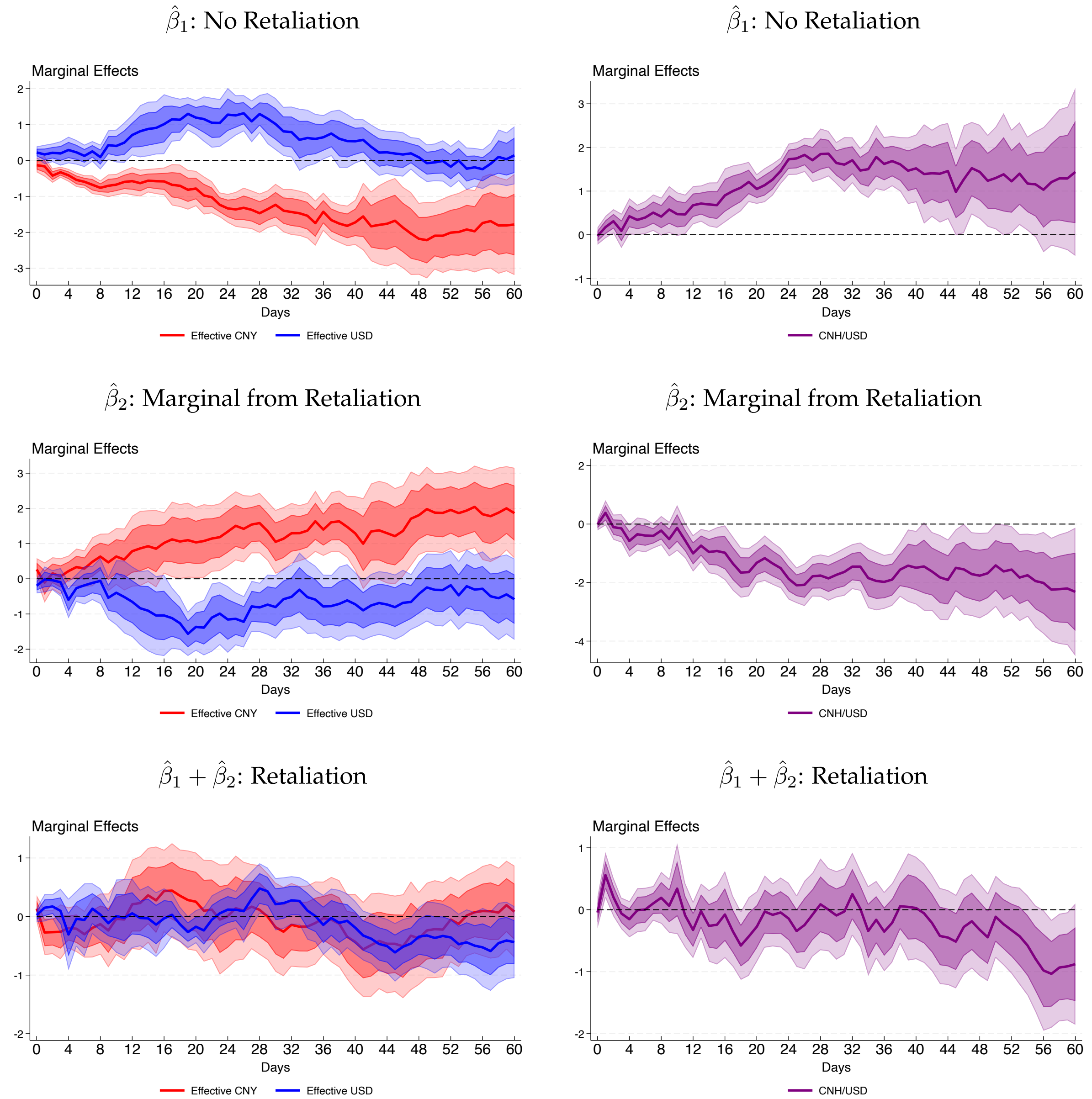
In the set of 35 U.S. tariff events between 2018 and 2020, 21 capture actions specifically on China, while 14 reflect events that involve tariffs on other U.S. trade partners—predominantly the EU, Canada and Mexico—often *in addition* to China. In this subsection, we focus our attention on these 14 events, asking the question of whether the exchange-rate responses differ when these US tariff actions on the world are met with retaliation.

To address this, we re-estimate regression (3), restricting our sample to these 14 global events. Figure 6 plots the estimated impulse responses, focusing on the USD *and EUR* effective tariff rates, as well as the EUR/USD bilateral exchange rate (where, again, this is defined such that a decline corresponds to a USD depreciation). Qualitatively, the USD patterns are similar to Figure 5, which relies on the entire set of shocks with retaliation. Conditional on no retaliation, the USD appreciates significantly—both in effective terms and bilaterally *vis-à-vis* the euro.[6] The marginal impact of retaliation, captured by $\hat{\beta}_2$, again has the opposite sign and is statistically significant indicating that retaliation places pressure on the USD to depreciate.

But there is a key difference in this case: the magnitude of estimated responses.

[6] The USD also appreciates on average across all observations, as shown in Figure A.1.

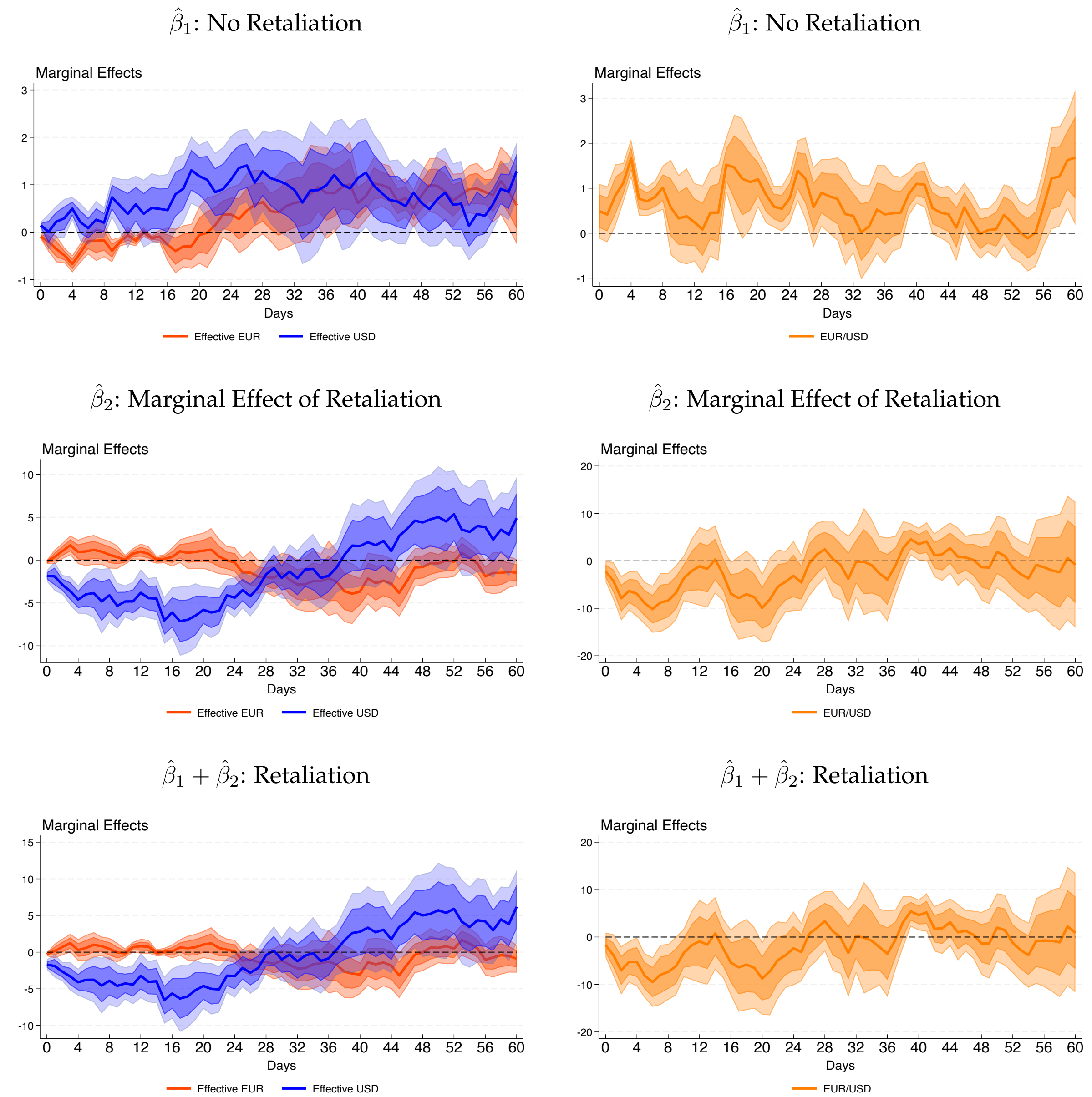
Figure 5: Exchange-Rate Impacts of 2018-2020 Tariff Events Conditional On Retaliation



Notes. Shaded areas correspond to the 68% and 90% confidence intervals constructed from Newey and West (1987) standard errors with four lags, from the local-projection regression (2) augmented with lags of the dependent variable (Montiel Olea and Plagborg-Møller, 2021).

In Figure 5, the $\hat{\beta}_1$ and $\hat{\beta}_2$ were similar in magnitude such that a tit-for-tat retaliation would leave the implied USD exchange rate broadly unchanged. In Figure 6, the $\hat{\beta}_2$ coefficients are much larger. The peak marginal effect of a 1pp effective U.S. tariff rate shock, conditional on no-retaliation, is around 1.5% on the USD effective exchange rate. The marginal impact of retaliation peaks at nearly -6pp. So, if the rest of the world

Figure 6: Exchange-Rate Impacts of 2018-2020 Global Tariff Events Conditional On Retaliation



Notes. Shaded areas correspond to the 68% and 90% confidence intervals constructed from Newey and West (1987) standard errors with four lags, from the local-projection regression (3) augmented with lags of the dependent variable (Montiel Olea and Plagborg-Møller, 2021).

retaliates against a U.S. tariff action, our results indicate that the USD will actually *depreciate*—both in effective terms and *vis-à-vis* the euro.

It is worth stressing that, to a large extent, our evidence is *not* a departure from theory. In the model by Bergin and Corsetti (2023), a trade war can imply a USD depreciation, even when symmetric, in an environment where the USD is the dominant currency in international trade. The reason is that the asymmetry in exchange-rate pass through creates an asymmetry in the optimal monetary stabilization to tariff shocks. Specifically, the optimal monetary response is *relatively more expansionary* in the U.S. relative to the rest of the world. This is so because in the U.S., a USD depreciation will not produce significant imported inflation in goods and inputs—imports priced in USD move very little with the exchange rate, at least in the short run—improving the trade-off faced by the optimizing policymaker. Within the model, a monetary expansion in the U.S., in turn, sustains demand for rest-of-the-world production. Moreover, since a USD depreciation means that the foreign currency prices of imports from the U.S. fall at the border, it also reduces rest-of-the-world imported inflation.

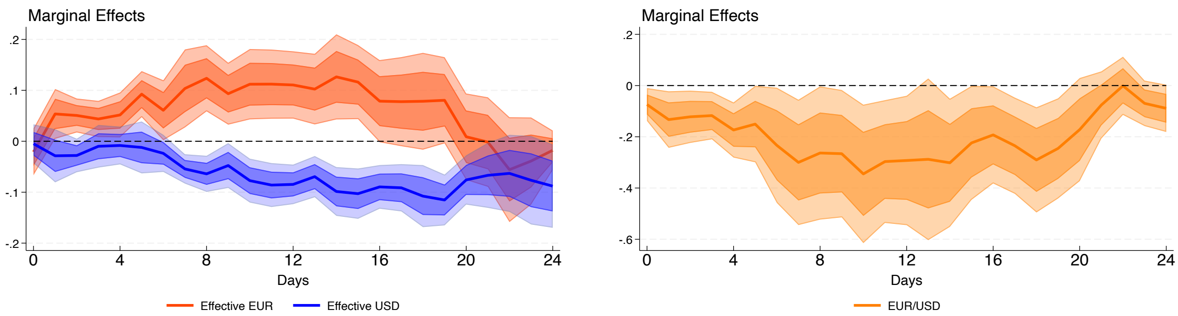
For these reasons, in the rest of the world, even if retaliation matches U.S. tariff rates one-for-one, matching the U.S. monetary stance is not optimal within the model. A weaker rest-of-the-world currency would not help foreign firms' competitiveness, since their prices are sticky in USD. Instead, it would increase imported inflation. Because of this, the optimal monetary response in the rest of the world within this model is to respond to the shock in a more conservative fashion, containing inflation at the cost of some output losses, and thus contributing to weakening the dollar. Ultimately, in light of these theoretical results, when the rest of the world retaliates, a USD depreciation *per se* should neither be surprising nor considered at odds with conventional economic modeling.

4 Is This Time Different?

In this section, we apply the same empirical model to the tariff shocks in 2025. By comparing our results across the two samples, we address two questions. First, the tariff rates in the first round of announcements after April 2nd 2025 are much larger than in the 2018-2020 sample. Does the response of the exchange rate differ not only in sign, but also in magnitude? Second, are there systematic differences in the transmission of the shock that can shed light on the balance between direct effects of tariffs matched by stabilization policies, and "information" about the economy? We address these questions in turn.

Figure 7: Impact of 2025 Tariff Events on Exchange Rates

$\hat{\beta}$: Effective FX $\qquad$ $\hat{\beta}$: Bilateral FX



Notes. Shaded areas correspond to the 68% and 90% confidence intervals constructed from Newey and West (1987) standard errors with four lags, from the local-projection regression (2) augmented with lags of the dependent variable (Montiel Olea and Plagborg-Møller, 2021).

4.1 Tariff Shocks and Exchange Rates in 2025

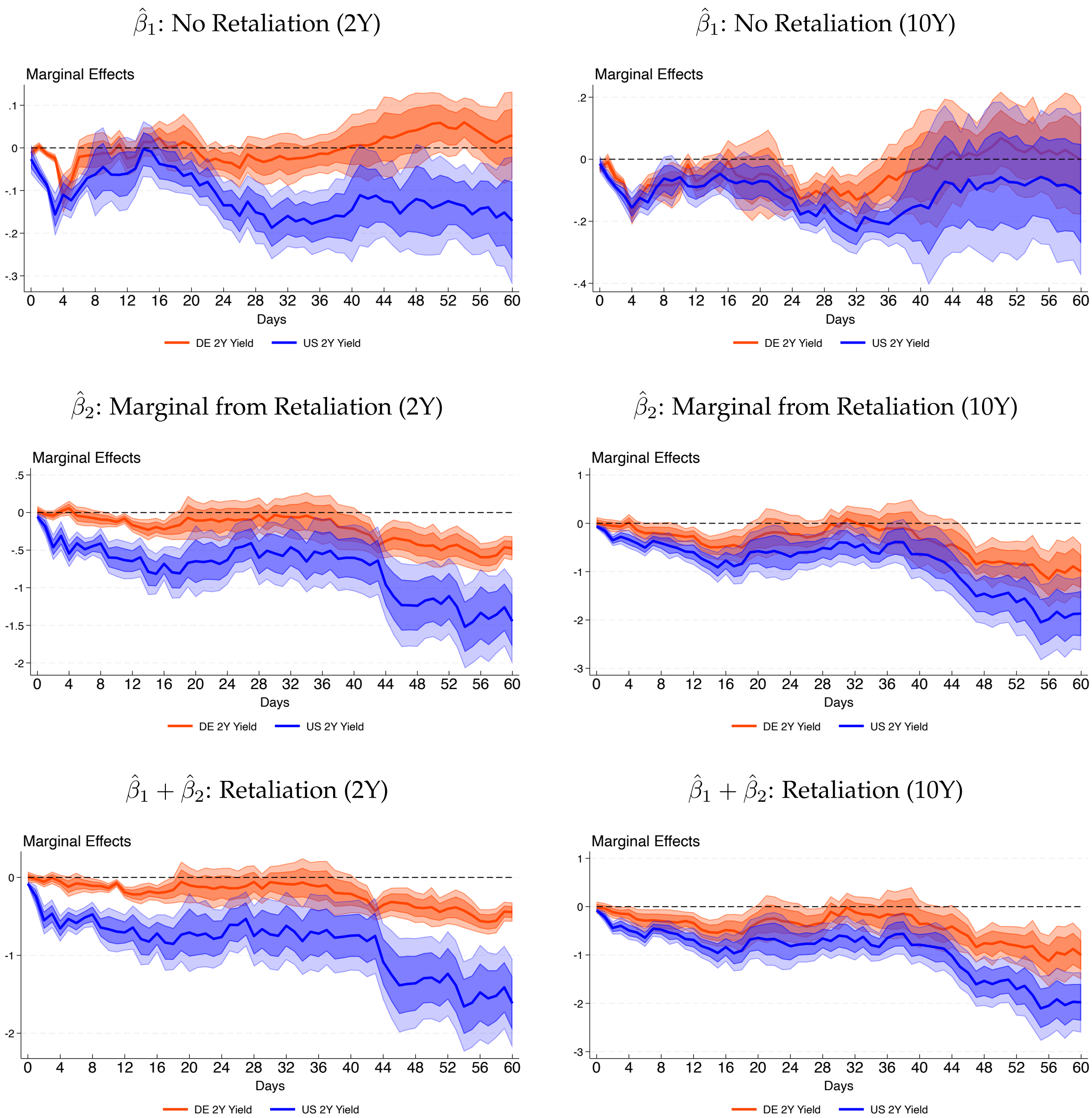
Results from re-estimating our average effect regression (2) using the 2025 tariff shocks are presented in Figure 9. As apparent from this figure, the U.S. tariff actions in 2025 *depreciate* the USD, both in effective terms and bilaterally against the EUR. Importantly, since all post-April 2nd 2025 U.S. tariffs are retaliated against, and almost all correspond to US tariff announcements on a wide set of trading partners, the correct counterpart for these results in the 2018-2020 period comes from $\beta_1 + \beta_2$ in regression (3), where we see a U.S. dollar depreciation as well. The key distinction is in the magnitudes. If anything, conditional on a linear model, the U.S. dollar depreciation following April 2nd was too small given the size of the U.S. tariffs.

4.2 Tariff Shocks and Bond Yields: 2018-2020 vs. 2025

We now bring the model to bear on the response of bond yields. In the early sample, depicted in Figure 8, U.S. bond yields respond negatively, consistent with a scenario of price stability in which economic activity may be negatively affected by the impact of tariffs on productivity. The response follows the same pattern at both the 2-year and the 10-year horizon, and is stronger with retaliation. Irrespective of retaliation, yields in Europe respond more positively than in the U.S.

The same pattern does not repeat in 2025, see Figure 9. While US 2Y yields do fall,

Figure 8: 2- & 10-Year Bond Yields and 2018-2020 Global Tariff Events Conditional on Retaliation

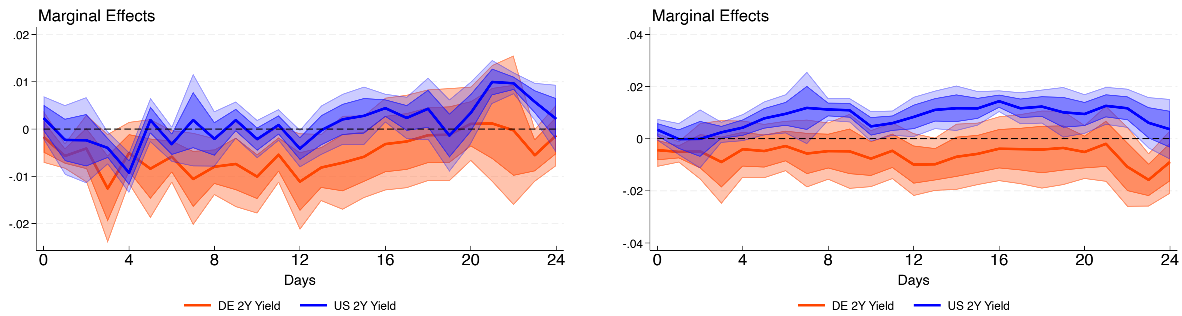


Notes. Shaded areas correspond to the 68% and 90% confidence intervals constructed from Newey and West (1987) standard errors with four lags, from the local-projection regression (3) augmented with lags of the dependent variable (Montiel Olea and Plagborg-Møller, 2021).

the response is effectively muted. US 10Y yields, however, are clearly rising over time. Over a longer horizon, the short-run stabilization policy of the central bank, which may optimally accommodate some inflation to sustain economic activity, should no longer be reflected in investors' expectations. These yield moves may instead reflect a re-appraisal of growth and inflation prospects. The comparison of the two periods

Figure 9: Impact of 2025 Tariff Events on 2-year and 10-year Bond Yields

$\hat{\beta}$: 2Y Bond Yields $\hat{\beta}$: 10Y Bond Yields



Notes. Shaded areas correspond to the 68% and 90% confidence intervals constructed from Newey and West (1987) standard errors with four lags, from the local-projection regression (2) augmented with lags of the dependent variable (Montiel Olea and Plagborg-Møller, 2021).

thus conveys that a different, more complex, transmission mechanism may have been at play in 2025 compared to the 2018-2020 period.

5 Conclusion

In this paper, we provide new empirical evidence on the response of exchange rates to tariff actions based on the recent experiences in 2018-2020 and 2025. Our innovation comes from a careful classification between tariff shocks, depending on whether they give rise to retaliatory measures in the rest of the world.

We construct a new dataset documenting effective tariff-rate shocks, going beyond a classification of escalations/de-escalations used in the literature to date. Our shocks measure has the advantage of capturing the size and economic relevance of different tariff announcements.

Our econometric evidence for the period 2018-2020 shows that, when the rest of the world is expected to retaliate against a U.S. tariff announcement, the USD can depreciate significantly, at odds with a widespread view, but in line with theoretical exercises. In light of our evidence, the USD depreciation following the April 2nd 2025 is not surprising. The response of 10-year yields is, however, significantly different.

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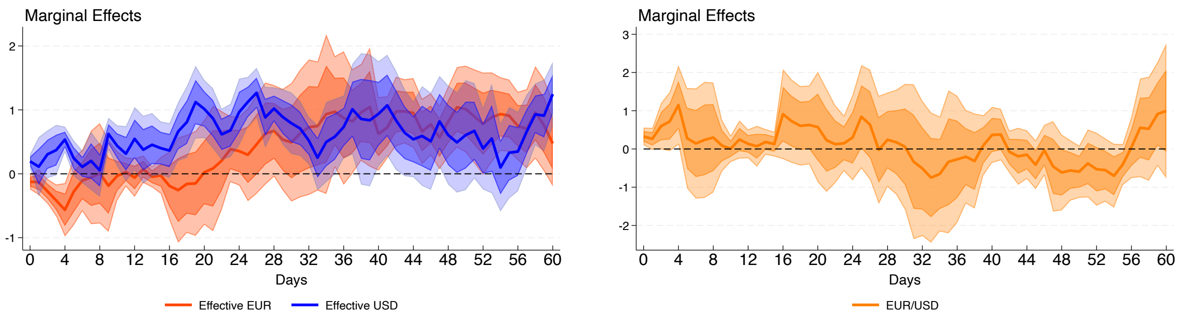
Appendix

A Additional Results

Figure A.1: Average Impact of 2018-2020 Global Tariff Events on Exchange Rates

$\hat{\beta}$: Effective FX

$\hat{\beta}$: Bilateral FX



Notes. Shaded areas correspond to the 68% and 90% confidence intervals constructed from Newey and West (1987) standard errors with four lags, from the local-projection regression (2) augmented with lags of the dependent variable (Montiel Olea and Plagborg-Møller, 2021).

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