

CEPIE Working Paper No. 03/22

Center of Public and International Economics

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AND THE CROSS SECTION OF EXCHANGE
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Jantke de Boer
Stefan Eichler
Ingmar Rövekamp

Editors: Faculty of Business and Economics, Technische Universität Dresden.

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Protectionism, bilateral integration, and the cross section of exchange rate returns in US presidential debates*

Jantke de Boer[†]

Stefan Eichler[‡]

Ingmar Rövekamp[§]

TU Dresden

TU Dresden & IWH

TU Dresden

November 2022

Abstract

We study the impact of US presidential election TV debates on intraday exchange rates of 96 currencies from 1996 to 2016. Expectations about protectionist measures are the main transmission channel of debate outcomes. Currencies of countries with high levels of bilateral foreign trade with the US depreciate if the election probability of the protectionist candidate increases during the debate. We rationalize our results in a model where a debate victory of a protectionist candidate raises expectations about future tariffs and reduces future net exports to the US, resulting in relative depreciation of currencies with high bilateral trade integration.

JEL-Classification: F31, G15, G14, D72

Keywords: Exchange Rates, US Presidential Elections, TV Debates, Protectionism, Bilateral Trade Integration

*We thank conference and seminar participants at the American Economic Association (AEA) Meeting 2020, the European Economic Association (EEA) Meeting 2021, the German Economic Association (VfS) Annual Meeting 2021, the International Finance and Banking Society Conference, the Hagen Workshop on Global Economic Studies, the Doctoral CGDE Workshop, the ICMAIF Conference, and TU Dresden.

[†]TU Dresden, Department of Business and Economics, Chair of International Monetary Economics, Helmholtzstr. 10, 01069 Dresden, Germany; Email: jantke.de_boer@tu-dresden.de.

[‡]TU Dresden, Department of Business and Economics, Chair of International Monetary Economics, Helmholtzstr. 10, 01069 Dresden, Germany & Halle Institute for Economic Research, Department of Financial Markets, Germany; Email: stefan.eichler@tu-dresden.de.

[§]TU Dresden, Department of Business and Economics, Chair of International Monetary Economics, Helmholtzstr. 10, 01069 Dresden, Germany.

1 Introduction

During the United States (US) general election campaigns, leading candidates for the offices of the President and Vice President usually engage in four presidential TV debates discussing their policy stances. The debates attract the largest audience of any televised campaign event and are often being hyped by the media as so-called "game changers". Even if debates alone do not determine the election outcome, the candidates' performance affects voter preferences.

In this paper, we study the effects of US presidential election TV debates on the cross section of intraday exchange rate returns. The performance of the candidates in the debate is an exogenous shock to exchange rates. Therefore, we can draw causal inference from changes in the election probabilities during and immediately after the debate. Given the differences in candidates' policy position on protectionism, a change in the election probability will result in a change in expected future trade policies relevant for the currency value. The actual debate topic is irrelevant and we do not expect that investors update their view on the degree of protectionism of each candidate during the debate. Rather, given the policy stance of each candidate, the expected value of protectionist trade policy changes with the exogenous change in the election probabilities during and after the debate. As the intrinsic fundamental value is important for determining the cross section of currency returns, investors will embed their expectations about future policy changes in exchange rates (Jeanne and Son (2021)). We exploit the variation in the cross-country exposure to US policies, measured by bilateral integration with the US in terms of foreign trade, in order to identify the impact of the debate outcome on a country's exchange rate.

To the best of our knowledge, we are the first to investigate the cross-sectional variation of exchange rate returns around US presidential debates. We consider 96 flexible foreign currencies from 1996 to 2016, covering 23 debates. We exploit the exogenous shift in intraday presidential election probabilities during and after debates and combine the information on candidate's policy stances towards protectionism with foreign countries bilateral integration with the US to analyze the cross-sectional variation of exchange rate returns. The results allow us to draw causal inference on the changes in the foreign currencies' fundamental value caused by revisions in investors' expectations about future trade policy shifts after the presidential election. We document that foreign currencies weaken against the US dollar if the protectionist candidate wins the debate, and this effect is more pronounced for countries with tight bilateral trade with the US.

The main contribution of our paper is empirical but our results have a straightforward theoretical foundation. Textbook open-economy models on macroeconomic effects of tariffs argue that exchange rates adjust to absorb real shocks (Mundell (1961); Dornbusch (1974); Eichengreen (1981); Krugman (1982); Van Wijnbergen (1987); Edwards and Ostry (1990)). In order to capture

the effect of anticipated tariff changes, we use a portfolio balance model in the spirit of Gabaix and Maggiori (2015) and Della Corte and Fu (2020), where credit constrained financiers clear the foreign exchange market. A debate victory of the protectionist candidate raises expectations about higher US tariffs that devalue future US imports. The expected improvement in US net exports is associated with expectations of a stronger US dollar and incentivizes financiers to increase their net dollar position (i.e., they increase the dollar long position or reduce the dollar short position). The dollar appreciates in the course of the debate with a protectionist victory and the expected appreciation is even larger, which incentivizes the increase the net dollar position. We show that the dollar appreciation after victory of the protectionist candidate is larger against currencies with more intense bilateral trade integration, which is due to the larger reduction in expected bilateral US net exports and thus excess dollar supply in the respective currency pair.

The US presidential debates from 1996 to 2016 took place between 9:00 and 10:30 p.m. Eastern Daylight Time (EDT) at pre-scheduled dates in the last week of September and the first two weeks in October. Considering intraday exchange rate quotations during and immediately after debates enables us to identify the causal debate effect on a cross section of exchange rate returns. We focus on a narrow time window during and after debates until midnight for several reasons. First, election probabilities do not change much after the end of the debate, indicating that the exogenous shift in investors' expectation is reflected in exchange rates shortly after the debate. Second, during this narrow time window most international markets are closed, which mitigates the occurrence of non-debate related confounding macroeconomic news. Third, as the four presidential debates are held in a row within three weeks, our focus on short term exchange rate returns eliminates the risk of overlapping debate (anticipation) effects. We verify that the bid-ask spreads of the considered exchange rates are lower during trading hours of the debates compared to days without scheduled debates, indicating higher trading liquidity during the debate window.

We use intraday prices of electoral prediction markets taken from the Iowa Electronic Markets (IEM) to derive changes in election probabilities of the candidates during debates. The prices of these Arrow Debreu securities can be treated as market-aggregated forecasts about the outcome of the election. In practice, these markets meet the definition of weak-form efficiency because they offer simple betting strategies based on publicly available information (Wolfers and Zitzewitz (2006)). General problems of event studies can be mitigated with prediction market data by measuring prior probabilities of an event, followed by an exact scaling between changes in probabilities and market reactions (Snowberg et al. (2011)). Even if the contracts are based on popular vote cast, and not Electoral College, changes in IEM election probabilities have been shown to dominate election polls (Forsythe et al. (1992); Wolfers and Zitzewitz (2004); Rhode and Strumpf (2004); Berg et al. (2008)) and should therefore help investors updating their expectations.

We interact changes in election probabilities with policy positions of the respective candidates. Therefore, we draw an objective measure from the Manifesto Project Dataset (Volkens et al. (2016)) that contains coded parties' policy positions derived from a content analysis of electoral manifestos. We focus on the policy position regarding protectionism but also test for alternative channels using policy positions on military and immigration, which we can match with bilateral integration with the US (e.g., military aid and immigrants). Using historical data on bilateral US import tariffs, we provide evidence that tariff rates grow significantly faster under protectionist candidates.

For our analysis, we sample exchange rate returns and changes in election probabilities in 15-minute windows, relative to the beginning of the debate (9:00 p.m.). In order to explain cross-country heterogeneity in the transmission of presidential debates, we match the changes in election probabilities for each policy position with a bilateral macroeconomic variable measuring a country's exposure to changes in economic policy.

We find robust evidence for a negative unconditional debate effect, implying that presidential debates are followed by an immediate depreciation of the US dollar against foreign currencies on average by 1.5 basis points (bps). The mean absolute change in the election probabilities during the debate window is around 2 percentage points (pp). An increased election probability of the protectionist candidate is a main transmission channel of debate outcomes on exchange rates. We find that the cross-sectional variation of exchange rate returns is governed by country's bilateral trade integration with the US.

Currencies of countries with high foreign trade vis à vis the US weaken if the election probability of the protectionist candidate increases. For example, an increase in the election probability of the protectionist candidate is associated with statistically significant currency depreciation for countries with exports to the US greater than 2 percent relative to their GDP, while no significant effect is detected below the threshold. Currencies of highly integrated countries with bilateral exports of 25 percent of their GDP show a depreciation of nearly 8 bps if the protectionist candidates' election probability increases by 2 pp. This accounts for more than the half of the standard deviation of the sample exchange rate returns during the 9:00 - 11:00 p.m. time window.

The effect is smaller combining protectionism with other macroeconomic variables of foreign trade (e.g., imports from US, net exports to US, trade with world). Using alternative policy positions on military and immigration, debate effects are negligible. Overall, these results suggest that the exchange rate adjustment is aligned with the winning candidate's policy stance on protectionism in conjunction with the level of the country's bilateral trade integration with the US.

Related literature. The paper is related to several strands in the literature. There are recent papers following Mundell examining the impact of tariffs - more specifically of US border adjust-

ment taxes - on exchange rates using open-economy New-Keynesian models. The bottom line is that even the anticipation of trade reforms appreciate exchange rates without affecting other macroeconomic variables (Auerbach (2017); Lindé and Pescatori (2019); Barbiero et al. (2019)). Furceri et al. (2018) and Barattieri et al. (2021) find real and nominal exchange rate appreciations, respectively, after tariff increases. On the empirical side, Jeanne and Son (2021) attribute a large fraction of the total US dollar appreciation in 2018 and 2019 to high-frequency tariff news but effects last only short term. Our quasi event study approach allows a causal identification of the impact of changes in expectations about future tariffs on currencies.

Next, we contribute to a literature about the actual effects of imposed tariffs during trade wars initiated under the Trump administration. Jiao et al. (2021) find that Chinese exports to the US fell significantly in response to US tariff surges. The US-China trade war causes mostly unintended negative responses of US stocks (Egger and Zhu (2020)). Fajgelbaum et al. (2019) also report large declines in US trade as a consequence of import tariffs. This provides evidence that changes in expectations about trade policy through presidential debates play a crucial role for future economic performance and hence exchange rates.

Our paper contributes to studies using high-frequency identification of the impact of monetary policy announcements (Rogers et al. (2014); Mueller et al. (2017); Cieslak and Schrimpf (2019); Bianchi et al. (2019)) and macroeconomic announcements (Gürkaynak et al. (2005); Faust et al. (2007); Andersen et al. (2003), (2007)). We follow a similar methodology and scaled by the highly anticipated events, the magnitude and duration of debates' exchange rate reactions is reasonably large. For now, only individual debates or announcements are studied, while we consider a larger range of events. For instance, Wolfers and Zitzewitz (2016) show appreciating currencies of major US trade partners when Trumps election probability declines. US firms with strong relations to China experience lower stock returns on days with tariff announcements (Huang et al. (2019)). On days with US-China trade-tension related negative news, the Chinese yuan and the Korean won depreciate (Carlomagno and Albagli (2022)). Tweets from president Trump about potential tariffs on Canadian and Mexican goods appreciate the US dollar (Matveev and Ruge-Murcia (2021)).

A growing literature associates cross-sectional return variation to heterogeneous risk exposure driven by fundamental differences. For instance, "Trump stocks", whose prices increase with his election probability, have on average lower foreign exposure (Hanke et al. (2020)). Wagner et al. (2018) find that expected trade policies are capitalized in stock returns, i.e., internationally oriented firms lost after the election of Trump due to fears of tariffs and unfavorable taxation of foreign earnings. In our paper, we use trade flows to rationalize heterogeneity in currency returns and shed light on countries' exposure to changes in expected trade policies. The presidential debate is one special event that cause exogenous changes in election probabilities and we show that country-

specific exposure to US trade policy is priced in the cross section of exchange rates.

Turning to US presidential cycles, Santa-Clara and Valkanov (2003) find higher stock market returns under Democrats. Pástor and Veronesi (2020) solve this with higher risk aversion prior Democratic presidencies.¹ There is a large literature on the role of partisanship, i.e., the differences in policies under Democrats and Republicans (e.g., Nordhaus (1975); Hibbs (1977); Alesina and Roubini (1992); Alesina and Rosenthal (1995); Alesina et al. (1997); Dutt and Mitra (2005); Blinder and Watson (2016)). Stock markets and the US dollar respond mostly positive to the election of a Republican president (Bernhard and Leblang (2006); Snowberg et al. (2007); Sattler (2013); Brogaard et al. (2019)). When taking firm-specific political connectedness into account, partisanship affect financial markets differently (Forsythe et al. (1992); Knight (2006); Faccio (2006); Goldman et al. (2008), 2013; Cooper et al. (2010); Belo et al. (2013); Addoum and Kumar (2016); Child et al. (2021)). We account for this by first controlling for partisanship of presidential candidates, identifying actual policy positions with the party’s manifesto, and finally focusing on macroeconomic connectedness instead of political connections.

Eventually, closely related is recent evidence from Della Corte and Fu (2020) that shows higher US dollar returns under Democratic presidencies accompanied with lower tariffs. They interpret return differences as compensation for global trade uncertainties under Republicans. In contrast, we rationalize currency returns with changes in expectations about US import tariffs. We focus on short-term reactions during presidential debates while Della Corte and Fu (2020) consider presidential cycles. The isolated short term shift in expectations during debates allows drawing causal evidence of exchange rates due to innovations in expected trade policies. Beyond that, we explicitly identify the potential US presidents’ position on protectionism with manifestos, which reveals that Republicans are not always promoting more protectionism than Democrats. Differentiating between policy positions goes beyond the traditional partisanship approach. When controlling for party affiliation in debates, we confirm that increasing election probabilities of Democratic candidates are followed by an appreciation of the US dollar. Finally, we show that cross-sectional variation in currency returns can be explained by the intensity of bilateral trade with the US.

We contribute to the existing literature in the following ways. To the best of our knowledge, we are the first to draw causal inference of the impact of expected protectionist measures on the cross section of exchange rates. Thereby, we deepen the understanding of the macroeconomic impact of US trade policies. Second, we provide empirical and theoretical evidence that country’s sensitivity to anticipated US import tariffs is driven by bilateral trade integration with US. Third, instead of the stock market and firm-specific integration, we consider the foreign exchange market and

¹More broadly, political uncertainty is generally high around US presidential elections. See, among many others, Bachman (1992), Lobo and Tufte (1998), Białkowski et al. (2008), Pástor and Veronesi (2012), Goodell and Vähämaa (2013), Kelly et al. (2016), Chan and Marsh (2021)

country-specific bilateral integration with the US. Finally, we examine the impact of partisanship by identifying the candidates' policy positions on different topics with textual analysis and we extend research by not only considering single elections or single countries.

2 Data

We run a panel data analysis to study the impact of US presidential debates on foreign currencies. Our sample contains intraday exchange rate returns, sampled on a daily basis for 96 flexible exchange rate regimes from 01/1996 to 12/2016, including developed and developing countries.²

US presidential debates. We consider the election years 1996, 2000, 2004, 2008, 2012, and 2016. With the exception of 1996, four presidential debates per year were held, leaving us with 23 debate days during our sample period and a maximum of 5,466 trading days per currency without debates. See Table A1 for the sample of US presidential debates with respective candidates and discussed topics. All debates took place between 9:00 and 10:30 p.m. EDT.³

High frequency currency data. The spot exchange rate data come from Thomson Reuters Tick History and consists of bid and ask quotes nearly every minute. We filter for quotes that have available prices to ensure that trades actually take place. We obtain daily panels of spot exchange rates each 15-minute tick and if no quote was given during a specific time interval, we left the gap unfilled. As spot exchange rates we take the average of the bid and ask quotes and express them in the number of foreign currency units one US dollar buys, meaning an increase in the spot rate denotes an appreciation of the US dollar against the foreign currency. We only consider currencies of countries that have a flexible exchange rate regime and are not anchored to

²The World Bank classifies economies based on their GNI per capita in low-income economies, lower-middle-income economies, upper-middle-income economies, and high-income economies. Even if the classification of the World Bank does not imply a judgment concerning the development status of any country, we consider high-income economies as developed countries and others as emerging markets and developing countries. Further, we consider currencies of Eurozone countries before their adoption of the Euro as individual currencies and the aggregate Euro Area afterwards. The sample of developed countries contains: Australia, Austria, Belgium, Canada, Chile, Croatia, Cyprus, Czechia, Denmark, Estonia, Eurozone, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Rep. of Korea, Russia, Seychelles, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, Uruguay (40). The sample of developing contains: Albania, Algeria, Angola, Argentina, Azerbaijan, Belarus, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burundi, Chile, Colombia, Comoros, Croatia, Czechia, Dem. Rep. of the Congo, Dominican, Republic, Estonia, Ethiopia, Gambia, Ghana, Guinea, Haiti, Hungary, Indonesia, Iran, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Malawi, Malaysia, Malta, Mauritania, Mexico, Moldova, Mongolia, Morocco, Mozambique, Nepal, Nigeria, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Rep. of Korea, Romania, Russia, Serbia, Seychelles, Sierra Leone, Slovakia, Slovenia, South Africa, Sri Lanka, Sudan, Suriname, Tanzania, Thailand, Tunisia, Turkey, Uganda, Ukraine, Uruguay, Uzbekistan, Vanuatu, Yemen, Zambia (71). Some countries are listed twice due to transition between the categories.

³For debates on weekends, we compare Friday evening exchange rates with those on Monday morning. We take the change from daylight saving time to Eastern Standard Time (EST) into account and match data on EDT.

another currency.⁴ Our currency sample covers approximately over 90 percent of the total daily turnover in the foreign exchange market (BIS (2019)).

Figure 2 shows the mean bid-ask spreads (as percentage of ask rates) on debate days versus non-debate days over the full sample period for every hour during the day. In the time window of presidential debates (9 p.m. - 10:30 p.m. EDT), spreads are 10 percent smaller on days with debates compared to days without debates. With the exception of 11 p.m., spreads stay below long-term averages over the whole debate night. The spreads for currencies of developed countries (see sample in Lustig et al. (2011)) and currencies that would be most affected by US trade policies (e.g., Mexican peso and Singapore dollar) are not significantly different from averages during debates. The foreign exchange markets of Sydney and Tokyo are open (starting at 6 p.m. and 7 p.m. EDT respectively), which ensures enough coverage of trading activity.

We also run a panel regression analysis of bid-ask spreads in every 15-minute-window on dummy variables for hourly time stamps. For example, a dummy variable takes the value of one between 9:00 - 10:00 p.m. EDT, and zero otherwise. We consider country fixed effects and year fixed effects. We test against the reference time stamp where foreign exchange trading volume peaks, namely noon in London. Our results indicate that bid-ask spreads during the time window of presidential debates are not significantly different from spreads during main trading hours. This proves sufficient high liquidity on foreign exchange markets during our narrow event window and underlines the relevance of our findings about debates for exchange rate returns, and hence for international investors.

Election probabilities. We use prices of prediction market contracts taken from IEM to measure changes in election probabilities of the candidates in the course of presidential debates. IEM are real-money futures markets that allow to trade contracts about the outcome of an event, i.e., the price of a contract at any given time can be seen as a forecast of the outcome. On the Winner-Takes-All (WTA) market, the payoffs are determined by which of the two major parties (Democrat (Dem) or Republican (Rep)) receives the larger share of the popular vote cast. The traded Arrow-Debreu securities pay \$1 if respective party nominee receives the majority and \$0 otherwise. This standard no-arbitrage pricing with risk-neutral outcome probabilities can be treated as market-aggregated forecasts about the probability of a future event with q^{Dem} where $q^{Dem} = 1 - q^{Rep}$. We consider Democratic WTA contracts, i.e., an increase in the prices ($q^{Dem} > 0$) implies an increased election probability of the Democratic candidate. In contrast, a decrease in the price implies an increased election probability of the Republican candidate. The prediction market is

⁴We use the coarse *de facto* exchange rate arrangement classification of Ilzetzki et al. (2019). Our sample considers only currencies with codes of 3 and higher.

open continuously and publicly available prices on the website are reported on a daily basis. In our analysis, we are able to use intraday prices of Democratic WTA contracts to determine election probabilities each 15-minute tick.⁵ For example, on the first US presidential debate day in 2016, the price of the Democratic WTA contract was \$0.661 at 9:00 p.m. (start of debate) and \$0.675 at 10:30 p.m. (end of debate). Hence, the election probability of the Democratic candidate Δq^{Dem} has increased by 1.4 pp during the debate.

Expectations about the debate outcome are not already fully priced in the contracts before the event and debates contain new information that goes beyond public election polls. We regress absolute values of changes in election probabilities in every 15-minute window in the 48 hours around debates (starting at 12 a.m. on debate days and ending at 12 a.m. the day after) on a dummy that is one during the respective 90-minute window, and zero otherwise, with day fixed effects and time fixed effects. We provide evidence that election probabilities statistically significantly change during presidential debates. Obviously, the performance of candidates in the debate can hardly be anticipated and so the outcome of the debate is an exogenous shock. This allows us to draw causal inference between exchange rate returns and exogenous debate shocks.

Policy positions. To obtain an objective measure of the policy positions of the candidates, we use the Manifesto Project Dataset (Volkens et al. (2016)). The dataset contains coded parties' election manifestos based on their policy preferences. The variables indicate a share of quasi-sentences in the respective category, calculated as a fraction of the overall number of allocated codes per document. We focus on the policy position on protectionism but also test for alternative transmission channels using positions on military and immigration.

The variable "Protectionism positive" counts quasi-sentences that have favorable mentions of extending or maintaining the protection of internal markets, e.g., with tariffs, quota restrictions, or exports subsidies. The variable "Protectionism negative" counts quasi-sentences of supporting the concept of free trade, open markets, and calls for abolishing all means of market protection.⁶ For each party (Democrat and Republican), we take the net position by subtracting the negative po-

⁵Thomas Gruca, Director at the Iowa Electronic Markets Institute, provided the intraday prediction market data. For the US elections 2008 - 2016, we compare our 15-minute IEM prices with intraday quotes from Intrade/Betfair on presidential debate days. The changes in election probability of both sources have a positive correlation and move consistently in the same direction. With a betting volume of nearly £200m for bets on US presidential elections, Betfair is the most liquid internet betting exchange. Due to temporal limitations in the availability of Intrade/Betfair data, we can verify this only for half of our sample.

⁶According to the Manifesto Project Codebook the other variable descriptions are: "Military Positive": The importance of external security and defense. May include statements concerning: The need to maintain or increase military expenditure [...]. "Military Negative": Negative references to the military or use of military power to solve conflicts. May include references to: Decreasing military expenditures, disarmament [...]; "Immigration Positive": Statements favoring new immigrants, against restrictions and quotas. Includes allowing new immigrants for the benefit of the country's economy. "Immigration Negative": Statement advocating the restriction of the process of immigration, i.e., accepting new immigrants. Might include statements regarding: Immigration being a threat to national character of the country, "the boat is full" argument [...].

sition from the positive position, i.e., "Protectionism positive"^{Dem} – "Protectionism negative"^{Dem} and "Protectionism positive"^{Rep} – "Protectionism negative"^{Rep}. For example, in the 2016 US election manifestos, the value of the variable "Protectionism positive"^{Dem} was 0.13, and the value of for "Protectionism negative"^{Dem} was 0.27, resulting in a net position in protectionism of -0.14 for the Democratic candidate. For the Republican candidate the net position was -0.1 ($0.36 - 0.46$). A positive net position implies that the candidate supports protectionist measures and vice versa for negative values.⁷ This leaves us with a relative policy position on protectionism, per candidate, for each election year.⁸

We can validate that under protectionist presidents implemented US import tariffs are increased at a higher pace compared to non-protectionist presidents by using data from World Integrated Trade Solution (WITS) about bilateral AHS Weighted Average tariffs imposed on US imports. In recent times of global trade liberalization, US import tariffs decrease overall and therefore we detrend by calculating the first difference of the yearly tariff levels. Under protectionist presidents, the mean change in import tariffs is with -0.05 pp per year only one third of the change under non-protectionist presidents (-0.16 pp per year). We run a panel regression with country fixed effects of the changes in US import tariffs on a dummy variable that identifies protectionist presidencies using manifesto positions. The difference of 0.11 pp between protectionist and non-protectionist presidencies on changes in US imports tariffs is significant. This emphasizes the information value of the textual-based identified policy positions in the manifestos for future economic policies.

We choose the policy position towards protectionism since we expect the largest impact of changes in expected trade policies on exchange rates and we can match the position with bilateral macroeconomic variables of the corresponding foreign countries. For example, for policy positions on tax policy or public expenditures, there are no obvious bilateral macroeconomic variables that could be matched with the respective foreign countries.

Bilateral macroeconomic variables. We use macroeconomic variables for country's bilateral integration to estimate a country-specific reaction of exchange rates depending on the presidential debate outcome. Therefore, we match the policy position with a bilateral macroeconomic variable of the respective country. The policy position towards protectionism is matched with: Bilateral exports and imports with the US and the world (source: United Nations Comtrade) and in force Free

⁷In the same manner, policy positions on military and immigration are coded.

⁸The absolute preference towards protectionism may change in time. For example, both candidates in the 1996 election have been less protectionist than in 2016. However, as prices already reflect the average value of candidates' preferences prior to the debate, the relative stance towards protectionism is important to understand the impact of the debate outcome on the cross section of exchange rates.

Trade Agreements (FTA) with the US (source: Office of the United States Trade Representative).⁹

We expect that stronger bilateral ties to the US are associated with a more pronounced debate effect on the foreign currency returns. If the more protectionist candidate wins the debate, we expect foreign currencies of countries which are more integrated with the US via foreign trade to weaken more against the US dollar than foreign currencies with a lower degree of bilateral integration. We assume that financial market participants acknowledge the candidates' policy position on protectionism in manifestos, irrespective of the debate topic. For example, even if candidates do not talk about foreign trade policy in a particular debate, currencies with intense bilateral trade ties to the US should still weaken if the protectionist candidate wins the debate.

Election probability \times Policy position \times Macroeconomic variable. In our baseline model, we use intraday prices of the Democratic WTA contract in order to match changes in election probabilities in 15-minute windows exactly with corresponding exchange rate returns during and after debates. To explain a country-specific transmission of presidential debates on exchange rates, we interact changes in election probabilities with candidates' policy positions and macroeconomic variables of the underlying countries. Since we use continuous changes in election probabilities, Δq^{Dem} can be positive or negative. We can calculate four possible scenarios for changes in the election probabilities.

Table 1 shows the scenarios for changes in the election probability of the protectionist candidate.¹⁰ First, we subtract the net position of the Republican from the net position of the Democrat. A positive value implies that the Democrats supports protectionism in that election year more than the Republicans and vice versa for negative values. In 2016, the difference in the net positions was negative with -0.04, implying that the Republican candidate favors protectionism more than the Democratic candidate. Since the policy positions do not change through election year, we always consider them as 1 or -1 . The variable takes a value of 1 if the respective candidate promotes more protectionism and -1 if not. Afterwards, we multiply 1 or -1 with changes in election probabilities. For example, an increasing election probability of the less protectionist candidate decreases the election probability of the protectionist candidate, resulting in $-\Delta q^{ Protec}$. Thus, during the first US presidential debate of 2016, the change in the election probability of the protectionist candidate was $\Delta q^{ Protec} = -1.4$ pp.

Table 2 shows the summary statistics of the absolute values of changes in the election probability of the protectionist candidate, relative to the beginning of the debates (9:00 p.m.) expanding by

⁹The policy position towards military is matched with: US foreign military aid (source: US Agency for International Development). The policy position towards immigration is matched with: Migrant stock in the US (source: United Nations) and remittances from the US (source: World bank).

¹⁰The approach is analogue for the policy positions military and immigration.

15-minute windows.¹¹ After presidential debates (10:30 p.m.), election probabilities have changed on average by 2 pp. Finally, we have triple interactions by interacting the changes in election probabilities with corresponding macroeconomic variables of underlying countries, e.g., changes in election probability of the protectionist candidate with bilateral foreign trade flows with the US.

3 Empirical Strategy

In this section, we present the calculation of exchange rate returns and changes in election probabilities with tick-by-tick data and the econometric model that captures the impact of US presidential debates.

Exchange rate returns. Throughout the paper, exchange rate returns are reported in percent. We adjust for outliers by limiting returns to $+/-30$ percent. We use a panel of spot exchange rates in 15-minute windows to calculate intraday foreign currency returns. Since the debates take place between 9:00 and 10:30 p.m. EDT, we declare $s_{i,t,9:00p.m.}$ as the reference spot rate which is the last quote between 8:45 and 9:00 p.m. of currency i at day t .¹² The return at time T is the difference between the natural logarithms of the spot rate at T and the reference spot rate

$$r_{i,t,T} = \ln(s_{i,t,T}) - \ln(s_{i,t,9:00p.m.}), \quad (1)$$

and measures the return of the exchange rate (foreign currency i per US dollar) at day t in the time interval between 9:00 p.m. and time T . We use a wide range of post-debate exchange rate returns by expanding T by 15-minute windows, i.e., $T = 9:15$ p.m., 9:30 p.m., etc. If there is no quote available in the 15-minute window T , we do not display any return. A positive (negative) exchange rate return implies an appreciation (depreciation) of the US dollar against foreign currencies.

Changes in election probabilities. Similar to exchange rate returns, we calculate changes in election probabilities according to

$$\Delta q_{t,T}^{Dem} = q_{t,T}^{Dem} - q_{t,9:00p.m.}^{Dem}, \quad (2)$$

where $\Delta q_{t,T}^{Dem}$ measures the change in the election probability of the Democratic candidate from the beginning of the debate (9:00 p.m.) to time T (expanding by 15-minute windows). For changes in the election probability on protectionism $\Delta q_{t,T}^{Prot}$ we multiply $\Delta q_{t,T}^{Dem}$ with 1 or -1 (see Table 1).

¹¹Due to absolute values, changes in election probabilities also hold for the other policy positions.

¹²For a few observations, where no quote is available between 8:45 and 9:00 p.m., we use the previous 15-minute window as the reference spot rate.

Match returns with election probabilities. Figure 1 visualizes the calculation of intraday exchange rate returns and changes in election probabilities for different time intervals T , relative to 9:00 p.m., expanding by 15-minute intervals. For a given window length T , we sample exchange rate returns to have a panel of returns in daily frequency. The changes in election probabilities are only available on debate days. We present results for a multitude of panels in daily frequency, each calculated for a different window length. The high frequency data allow an exact matching of intraday windows lengths for exchange rate returns and changes in election probabilities at

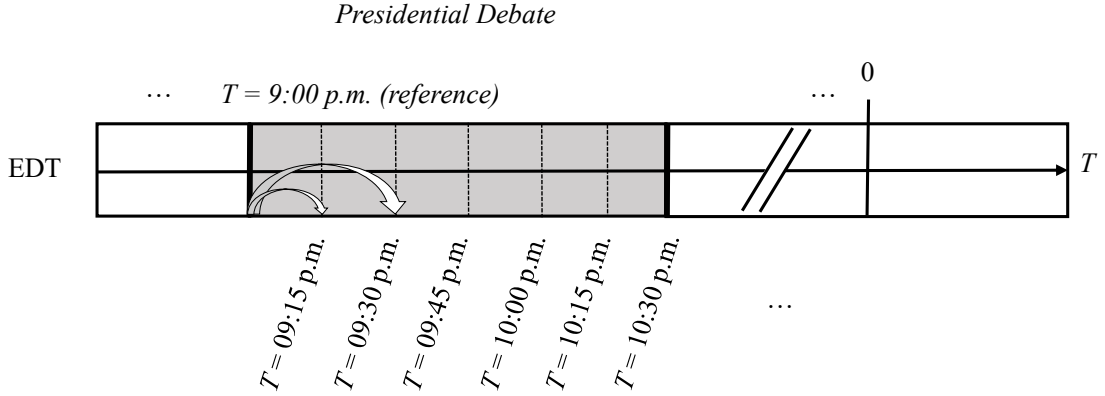


Figure 1: Time line of the calculation of exchange rate returns and changes in election probabilities. The US presidential debates take place between 9:00 and 10:30 EDT. For the intraday exchange rate returns (and changes in election probabilities), we use the spot exchange rate (and Democratic WTA contract price) at 9:00 p.m. as the reference and calculate returns (and election probability changes) by expanding the time interval T in 15-minute windows.

Empirical model. Our regression models use panel data in daily frequency. Each panel model uses intraday exchange rate returns and changes in election probabilities, calculated for a given time interval spanning from the start of the debate at 9:00 p.m. to T (expanding by 15-minute windows). We present results for a multitude of post-debate windows to show the evolution of the debate effect. For generality, the index T is suppressed in the following.

In our benchmark regression model, we analyze first the unconditional debate effect by regressing exchange rate returns on a dummy variable that takes the value of 1 on US presidential debate days and 0 otherwise

$$r_{i,t} = \alpha_0 + \beta_1 \times Debate_t + \alpha_1 + \gamma_a + \varepsilon_{i,t}, \quad (3)$$

where the coefficient β_1 measures the difference in the impact of debate days on exchange rate returns compared to non-debate days. We account for country fixed effects α_1 and year fixed effects γ_a . The error term is measured by $\varepsilon_{i,t}$.

Next, we examine cross-country heterogeneity in the debate effect by interacting the change in election probability of the protectionist candidate with a macroeconomic variable measuring the bilateral trade ties between country i and the US. We also consider the linear term of the change in the election probability of the Democratic candidate in order to account for partisan effects

$$\begin{aligned}
r_{i,t} = & \alpha_0 + \beta_1 \times Debate_t + \beta_2 \times Debate_t \times \Delta q_t^{Dem} + \beta_3 \times Debate_t \times \Delta q_t^{Protec} \\
& + \beta_4 \times Trade_{i,t} + \beta_5 \times Debate_t \times Trade_{i,t} + \beta_6 \times Debate_t \times \Delta q_t^{Dem} \times Trade_{i,t} \\
& + \beta_7 \times Debate_t \times \Delta q_t^{Protec} \times Trade_{i,t} + \alpha_1 + \gamma_a + \varepsilon_{i,t}.
\end{aligned} \tag{4}$$

On days without presidential debates where $Debate_t = 0$, the variables of Δq_t^{Dem} and Δq_t^{Protec} are consequently zero. The coefficient β_3 in Equation (4) measures the general effect of changes in the election probability of the protectionist candidate on exchange rate returns, while β_7 accounts for the cross country heterogeneity of the protectionism effect for different levels of bilateral trade with the US. Given an average change in election probabilities during debates of 1.5 - 2.5 pp (see Table 2), we can infer the impact on exchange rate returns for different levels of bilateral integration with the US. We expect that an increasing election probability of the protectionist candidate depreciates foreign currencies against the US dollar, especially for high values of bilateral trade integration with the US, due to fears of tariffs that might hamper future trade relations.

4 Results

4.1 Unconditional Debate Effect

This section contains our results of the impact of US presidential debates on exchange rate returns. At first, we run Equation (3) and for each regression we use a different time interval from 9:00 p.m. to T . Table 3 reports the results for different estimation windows (starting at 9:15 p.m. and expanding by 15 minutes) of using the baseline regression with (I) country fixed effects and year fixed effects. We find robust evidence of a negative unconditional debate effect on exchange rates (i.e., a depreciation of the US dollar against foreign currencies) with the most pronounced effect being detected at the end of the debate at 10:30 p.m.¹³

Figure 3 plots the mean unconditional effect of the debate together with the 90%-confidence

¹³A positive outlier is detected directly at the beginning of the debate.

interval around presidential debates for each 15-minute window. Following the debate, we detect a negative reaction of exchange rates. At the end of the debate (10:30 p.m.), average foreign currency returns are significantly negative with -0.015 pp compared to non-debate-days. Until midnight, the average impact of debates on returns remains significantly negative. Afterwards, the negative trend fades out and coefficients become positive but move in a wider range.

Even if the unconditional debate effects on exchange rate returns are quite small, they are statistically significant. The average debate effect of -0.015 pp (using the 9:00 to 10:30 p.m. window) is also economically significant, given that the standard deviation of foreign currency returns during this window in the total sample is 0.2 pp. Moreover, election probabilities do not change much after debates end at 10:30 p.m., which indicates that relevant information for updating expectations about future policies are fully priced during the course of debates. Finally, we can expect that the impact on exchange rates in this narrow time window is solely driven by the presidential debates since the influence of confounding news during this time of the day is negligible.

Robustness checks. Table 3 also shows results with (II) country fixed effects and month fixed effects, and (III) country fixed effects and year fixed effects with standard errors clustered on country and year. The depreciation of the US dollar during debates is robust for nearly all time windows in both specifications. Alternatively, when we consider only election years as sample, the magnitude of the debate effect remains stable.

Figure A1 displays mean exchange rate returns during the 9:00 to 10:30 p.m. window for each debate and reveals that debates in the recent past have had a greater impact on exchange rate returns than earlier debates, possibly due to a higher degree of political uncertainty and polarization, particularly in 2008 and 2016. The sequence of debates in election campaigns do not follow a clear pattern. Further, Table A3 shows results of the baseline regression for exchange rate returns (9:00 to 10:30 p.m. window) by excluding year-by-year one election year. The results indicate that no single election year is driving the overall negative debate effect.

Finally, Figure A2 and Figure A3 show that the negative debate effect also holds for subsamples of developed and developing countries. The debate effect is even more pronounced for developed countries. At the end of the debate at 10:30 p.m., the US dollar depreciates by -0.02 pp on average against developed countries' currencies and by -0.012 pp against currencies of emerging markets and developing countries.

4.2 Cross Section of Exchange Rate Returns

4.2.1 Protectionism

In this section, we run a cross-country analysis to study how changes in the election probability of the protectionist candidate shape the cross section of exchange rate returns around debates. We find, holding the unconditional effects fixed, that exchange rates' reaction to presidential debate outcomes depends on a country's bilateral trade with the US.

In order to analyze the heterogeneity in the debate effect, we run Equation (4) by interacting the changes in the election probability of the protectionist candidate with bilateral ties of the foreign currency's country with the US. Given a large heterogeneity in country's bilateral integration with the US, debates sensibly have heterogeneous effects on different currencies. Therefore, we can infer whether an increased election probability of the protectionist candidate is viewed as favorable or not favorable for countries with particular macroeconomic characteristics.

For example, we expect that a higher election probability of the protectionist candidate should weaken the Mexican peso more against the US dollar than the British pound due to the larger trade integration of Mexico (Mexico had exports to the US (in % of GDP) of 25 percent in 2016, while United Kingdom had only 2 percent of exports to the US). At first, we test the conditioning effect of country's bilateral exports to the US for the impact of the change in the election probability of the protectionist candidate on exchange rate returns.

Table 4 reports the detailed regression results. The coefficient on the changes in election probability of the protectionist candidate $Debate_{t,T} \times \Delta q_{t,T}^{ Protec }$ is mostly significantly positive and the strongest in the beginning of the debate. In line with expectations, this unconditional effect implies an immediate depreciation of foreign currencies against the US dollar in case of an increasing election probability of the protectionist candidate. This double interaction effect slowly fades out over the course of the night.

For the cross-country variation in sensitivities to a protectionist debate victory, we show that the depreciation effect of protectionism on foreign currency returns amplifies with increasing export levels to the US $Debate_{t,T} \times \Delta q_{t,T}^{ Protec } \times Exports_{i,t,T}$. The conditional protectionism effect becomes significantly positive after the end of the debate. For example, the interaction coefficient of changes in protectionist candidates' election probability with a county's bilateral exports to the US is positive with 0.00147 pp at 11:00 p.m. With an increase of country's bilateral exports to the US by one percent, the impact of a one pp increase in the election probability of the protectionist candidate yields a significant 0.00147 pp increase in the exchange rate returns. That is, a higher bilateral foreign trade integration with the US is associated with larger depreciation against the US dollar after a successful presidential debate of the protectionist candidate.

The time disconnection of the unconditional protectionism effect and the conditional protectionism effect can be traced back to the fact that investors need time to incorporate complex news. The shock of a protectionist debate victory can be assessed immediately, while the particular impact on certain countries needs more time to be priced in currencies. It is not surprising that the unconditional protectionism effect becomes insignificant after the significant conditional protectionism effect appears. We refrain to interpret the unconditional Democrat effect $Debate_{t,T} \times \Delta q_{t,T}^{Dem}$ since parties have many economic objectives and we only control for partisanship.

Figure 4 visualizes the evolution of the interaction coefficient over the debate night. During the debate, the interaction effect is not significantly different from zero. After the debate, it becomes positive and statistically significant at 10:45 p.m. and remains significant until 00:15 a.m. The magnitude ranges between 0.0012 pp and 0.0017 pp.

In the next step, we calculate the average marginal effects by taking the derivative of the expected exchange rate returns with respect to the changes in the election probability of the protectionist candidate for different export levels to the US. The marginal effect reflects an increase of the protectionist candidates' election probability by one pp. Figure 5 plots the average marginal effects on exchange rate returns at 11:00 p.m. in 90% confidence intervals for the sample range of zero to 25 percent bilateral exports to the US (% of GDP). We find that currencies of countries with relative US exports of at least 2 percent statistically significantly weaken if the election probability of the protectionist candidate increases, while no significant effect is detected below the threshold. The average marginal effect of a one pp increase in the protectionist candidates' election probability at the mean value of relative export levels (3.25 percent) is 0.004 pp. Given that the average change in the protectionist candidates' election probability in the 9:00 - 11:00 p.m. window is 2 pp (see Table 2), and the standard deviation of foreign currency returns during this window in the total sample is 0.14 pp, the result suggests that the protectionism channel accounts for around 0.06 standard deviations of exchange rate returns for countries with the mean export ratio. For countries with high relative bilateral exports to the US amounting to 25 percent, the marginal effect of an increase in the protectionist candidates' election probability by one pp is 0.037 pp. For a mean 2 pp change in the election probability, the protectionist channel thus yields a 0.074 pp exchange rate return, which accounts for more than the half of the standard deviation of the sample exchange rate returns.

The protectionist channel is therefore strongest for Canada, Mexico, and Singapore. The first two countries signed in 1994 the NAFTA with the US. The results confirm our expectation that currencies of countries that are highly integrated with the US via exports weaken more if the election probability of the protectionist candidate increases during the debate. We show that countries with high bilateral exports to the US weaken more in terms of their exchange rate if

unfavorable changes in trade policies are expected. The heterogeneity in the sensibility of exchange rates reflect differences in fears to potential trade barriers that might hamper exports to the US, especially for highly integrated countries. This effect also holds in a sample of election years only.

We can rationalize the empirical results with a theoretical model in Section 5 by showing that expectations about higher future tariffs on US imports decrease the value of country's net exports to the US and depreciate foreign currencies on clear financial markets and the effect strengthens with countries export levels to the US.

Robustness checks. In the following section, we conduct several robustness checks. First, we verify causal inference from changes in the protectionist election probabilities on exchange rate returns. We match returns with 15-minute-lagged changes in the election probability of the protectionist candidate. The results are stable, proving the causal effect of changes in the election probability on exchange rates (i.e., exchange rates do not cause changes in election probabilities). The next robustness checks refer to the persistence of debate effects. We report main results only for short horizons instead of daily or weekly windows because US presidential debates are closely followed by each other. In our sample, there have been two to eight business days between the events with four days in-between on average. Studying longer horizons can result in an overlap that will undermine the clear identification of debate effects. When looking at the days after debates in Figure 6, the interaction coefficient with relative exports to the US (using updated 15-minute changes in election probabilities) peaked up to 0.005 pp at 9:00 a.m. and fades out over the day, but the effect is no longer significant. The same holds when we keep changes in the election probability of the protectionist candidate constant at $\Delta q_{t,10:30p.m.}^{ Protec}$ after the debate. We see that election probabilities do not change much anymore after the debate and hence, the information set relevant for updating expectations about presidential election probabilities are already fully priced during the course of debates. Next, we calculate daily returns for various horizons, i.e., $r_{i,t+1,9:00p.m.} = \ln(s_{i,t+1,9:00p.m.}) - \ln(s_{i,t,9:00p.m.})$, and use lagged debate dummies and keep changes in election probabilities constant at $\Delta q_{t,10:30p.m.}^{ Protec}$. For example, three days after the debates, the interaction coefficients are positive but insignificant. Even if the significance fades out over the next day, the innovation in exchange rates is still positive. The insignificance is likely driven by confounding news since the foreign exchange rate market is highly liquid and therefore longer lasting debate effects are not expectable.

We also employ Equation (4) for two subsamples. Figure A4 shows the interaction coefficients of changes in the protectionist candidates' election probability with country's relative export levels to the US for the subsample of developed countries and Figure A5 for the subsample of developing countries. The reaction of exchange rate returns of developed countries is less significant while

currencies of developing countries react even stronger. At 11:00 p.m., the impact of a one pp increase in the election probability of the protectionist candidate per each percent exports to the US is 0.00168 pp, which is 15 percent larger than the results for the full sample.

Next, we control whether the effect is driven through FTAs with the US and run Equation (4) considering both, interactions with the existence of a FTA as a dummy variable and exports to the US. Table A4 shows that the interaction coefficient for country's relative exports to the US is statistically significant but the interaction with a FTA dummy is not stable. We conclude that the cross-country heterogeneity in exchange rate returns is not only driven by in force trade agreements but by actual bilateral trade relations with the US.

Instead of exports to the US, we also consider imports from the US, total trade with the US (sum of exports and imports), and net exports with US (exports minus imports) as measures for bilateral trade integration with the US to test for conditioning effects of changes in the election probability of the protectionist candidate. Figure 7, Figure 8, and Figure 9 show the interaction coefficients of changes in the protectionist candidates' election probability with country's bilateral trade integration (% of GDP). The level of country's imports from the US and total trade with the US also has a positive effect on the US dollar exchange rate (i.e., depreciation of foreign currencies). For net exports to the US, the size of the interaction coefficient is nearly twice as much, implying that especially countries with trade surpluses to the US weaken more if the election probability of the protectionist candidate increases. Though the heterogeneous debate effects are most significant for bilateral export integration with the US.

Finally, we control if actually bilateral trade integration with the US, or possibly global trade integration with the world, matters for explaining cross-sectional exchange rate returns. Therefore, we repeat our estimation for the interaction of changes in the election probability of the protectionist candidate with country's trade integration towards the world. An increased election probability of a protectionist candidate has a substantially lower and mostly statistically insignificant impact on exchange rate returns conditional on country's trade integration with the world (see Figure A6, Figure A7, Figure A8, Figure A9). Our results suggest that a country's bilateral trade integration with the US - and not the degree of country's global integration with the world - is relevant for the transmission of presidential debate outcomes on exchange rates.

To sum up, we provide causal evidence that expectations about protectionist policies affect exchange rate movements and that the degree of country's integration with the US explains heterogeneity in returns during presidential debates. If the candidate that promotes more protectionist measures wins debates, currencies of countries weaken to the extent they are exporting to the US.

4.2.2 Military and Immigration

In this section, we test for alternative transmission channels of debate outcomes using changes in the election probabilities of candidates that favor higher military expenditures or new immigrants in explaining the cross section of exchange rate returns. Our results indicate that these policy positions have only a negligible role in shaping debate effects on exchange rate returns.

Military. First, we test for the conditioning effect of military integration with the US on exchange rate returns if the pro-military candidates' election probability increases. We expect the conditional impact of an increase in the election probability of the pro-military candidate to be negative since currencies of countries with stronger military ties to the US should strengthen if the debate winner promotes higher military expenditure.

We measure country's military integration with the US by using recipient country's foreign aid from the US that is categorized as "military" (% of GDP). In 2016, US military and security aid made up to 33 percent of the total US aid and gone primarily towards helping allies purchase US military equipment, training foreign military personnel, and funding peacekeeping missions.¹⁴

Table A5 shows results for the interaction of changes in the pro-military candidates' election probability with country's received US military aid. After a rise in the beginning, the effect is mostly insignificant during debates but becomes statistically significantly negative with -0.0079 pp at 10:30 p.m. Thus, with an increase in country's US military aid by one percent, the impact on exchange rate returns of a one pp increase in the election probability of the pro-military candidate is significantly negative, implying an appreciation of foreign currencies against the US dollar.

Immigration. Next, we turn to the policy position on immigration and interact the changes in the election probability of the candidate that favors new immigrants with country's integration by migrants with the US. We expect the conditioning effect to be negative since currencies of countries that are highly integrated with the US by migrants should strengthen if the election probability of the candidate that favors new immigrants increases. We have to exclude $\Delta q_{t,T}^{Dem}$ from the model since the policy position on immigration is only coded for 2016. Clinton (Democrat) promotes more relaxed immigration rules than Trump (Republican) and therefore, the changes in the election probability of the Democrat and the candidate that favors new immigrants are identical.

As macroeconomic variables, we use the migrant remittance outflows from the US to foreign countries (% of GDP) and the migrant stock in the US (% of US population). Table A6 reports the

¹⁴In our sample, the major US military aid recipient countries (% of GDP) are Israel, Poland, and Ukraine. For example, descriptions of transfers are: "The amount of credit extended to a foreign government or international organization in any fiscal year for the procurement of defense articles, defense services, and design and construction services".

detailed regression results for the conditioning effects of migrant stock in the US. While the reaction of exchange rate returns conditional on the relative migrant stock is most of the time significantly positive, the interaction coefficient of remittances is not statistically significant. Currencies of countries with a high relative migrant stock in the US appreciate if the election probability of the pro-immigration candidate increases. For example, at 11:00 p.m., the impact on exchange rate returns of a one pp increase in the election probability is significantly negative with -0.05 pp. We are aware that the result is mainly driven by one country, Mexico, with a relative migrant stock in the US of 3.8 percent in 2016. For comparison, the second largest relative migrant stock comes from the Philippines with 0.6 percent. Thus, we have to take the result with caution since it is more an outcome of the election 2016, rather than it allows making a comprehensive conclusion about the role of immigration rules in presidential campaigns for exchange rate returns.

The results for the candidates' policy stances on immigration and military are mostly insignificant, suggesting that the policy positions play no role for debate effects on exchange rate returns. Our robust findings presented in Section 4.2.1 indicate that the policy position on protectionism is most important for explaining the heterogeneity in debate effects.

5 Model

Much of the classic open-economy analysis fails to connect exchange rates to macroeconomic fundamentals, especially in short time periods (Meese and Rogoff (1983)). Instead of assuming that exchange rates move to absorb real shocks in a Mundellian framework, one has to view nominal exchange rates as asset prices by connecting them to financial markets with demand and supply of assets in different currencies (Kouri (1976); Obstfeld and Rogoff (1996)). We augment the portfolio-balance exchange rate model of Gabaix and Maggiori (2015) by tariffs to rationalize our empirical results. The tariff framework has also been used by Della Corte and Fu (2020), who show that global tariff uncertainty impacts the financial risk-bearing capacity through the variation of future imports. Instead of modeling tariff uncertainty, we consider expected changes in protectionist election probabilities during debates to include variation of future imports.

In the course of US presidential debates, investors update their expectations about presidential election probabilities and future protectionist measures (e.g., tariffs) and future US imports. We show that this expectations mechanism affects global currency demand and drives the heterogeneity in exchange rate returns.

Set-up. Following Gabaix and Maggiori (2015) and Della Corte and Fu (2020), we employ a discrete-time model with two periods: $t = 0, 1$. There are two countries (here: United States is

domestic and Mexico is foreign),¹⁵ each populated by a continuum of households who produce and trade goods in an international market and invest with financiers in domestic currency risk-free bonds. The financiers intermediate the households' capital flows by taking the other side of their currency demands but face a limited-commitment constraint which induces a downward-sloping demand curve for risk taking. Given the limited commitment of financiers, exchange rates adjust so that financial markets are clear.

Households in the US maximize their utility $\theta_0 \ln C_0 + \beta \mathbb{E}[\theta_1 \ln C_1]$ by choosing the amount of nontradeable (NT) goods, domestic tradeable (H) goods, and foreign tradeable (F) goods in the consumption basket $C_t = [(C_{NT,t})^{\chi_t} (C_{H,t})^{\alpha_t} (C_{F,t})^{\iota_t}]^{\frac{1}{\theta_t}}$. The sum of the non-negative stochastic preference parameters are defined to be $\theta_t = \chi_t + \alpha_t + \iota_t$. The nontradable good is the numéraire, its price equals 1. Households earn income from the production of domestic goods and from interest on their domestic risk-free bond holdings.

The US charges a tariff rate τ_t on foreign tradeable goods. From the utility maximization of US households we obtain the pre-tariff value of US imports

$$\lambda_t p_{F,t} (1 + \tau_t) C_{F,t} = \iota_t, \quad (5)$$

where the amount of imported Mexican goods $C_{F,t}$ decreases in the price and the tariff, and increases in the stochastic preference parameter ι_t .¹⁶ Hence, the post-tariff value of US imports is $\left(\frac{\iota_t}{1+\tau_t}\right)$.¹⁷

The exchange rate e_t is defined as the quantity of US dollar bought by 1 Mexican peso. Mexican consumers arrive at an optimal value of imported US goods of $\lambda_t^* p_{F,t}^* C_{F,t}^* = \xi_t^*$.¹⁸ The dollar value of US exports is denoted by $\xi_t e_t$ and net exports are $NX_t = \xi_t e_t - \left(\frac{\iota_t}{1+\tau_t}\right)$.

The excess currency demand or supply result from trade flows and imbalances are absorbed by financiers at a premium.¹⁹ According to Gabaix and Maggiori (2015), this premium results from the limited capacity of financiers to borrow from households. Profit maximization under the limited borrowing constraint yields the optimal aggregate demand of financiers for dollar bonds

$$Q_0 = \frac{1}{\Gamma} \mathbb{E} \left[e_0 - e_1 \frac{R^*}{R} \right], \quad (6)$$

where financiers' demand for dollar decreases in the current strength of the dollar (i.e., it increases in e_0) and increases in the future return adjusted strength of the dollar (i.e., it decreases in $e_1 \frac{R^*}{R}$).

¹⁵The following solutions also hold for n countries (see Online Appendix of Gabaix and Maggiori (2015)).

¹⁶The value of Mexican imports is given by $p_{H,t}^* C_{H,t}^* = \xi_t$.

¹⁷We follow Gabaix and Maggiori (2015) and assume $Y_{NT,t} = \chi_t$ so that $\lambda_t = 1$. The same assumptions hold for Mexico.

¹⁸For simplicity we assume that Mexico charges no tariffs on imports from the US.

¹⁹In complete financial markets, the equilibrium exchange rate would naturally be $e_t = \frac{\iota_t}{\xi_t(1+\tau_t)}$.

The limited risk-bearing capacity of financiers is governed by $\Gamma = \gamma var(e_1)^\alpha$, i.e., a more volatile exchange rate increases the complexity/riskiness of the financiers' balance sheet and reduces his capacity to borrow and absorb imbalances from the foreign exchange market.

Equilibrium exchange rates. In the equilibrium of the peso/dollar market, financiers absorb the imbalance from bilateral goods trade:

$$\xi_0 e_0 - \frac{\iota_0}{1 + \tau_0} + Q_0 = 0, \quad (7)$$

$$\xi_1 e_1 - \frac{\iota_1}{1 + \tau_1} + RQ_0 = 0. \quad (8)$$

The demand for US dollar versus Mexican peso has to be cleared each period. Using these equations with the financiers' demand function, we can solve for the equilibrium exchange rates

$$e_0 = \frac{\frac{(1+\Gamma)\iota_0}{1+\tau_0} + \mathbb{E}\left(\frac{\iota_1}{1+\tau_1}\right)}{2 + \Gamma}, \quad (9)$$

$$e_1 = \left\{ \frac{\iota_1}{1 + \tau_1} \right\} + \frac{\frac{\iota_0}{1+\tau_0} + (1 + \Gamma)\mathbb{E}\left(\frac{\iota_1}{1+\tau_1}\right)}{2 + \Gamma}, \quad (10)$$

where $\left\{ \frac{\iota_1}{1+\tau_1} \right\}$ is the random import shock and $\Gamma = \gamma var\left(\frac{\iota_1}{1+\tau_1}\right)^\alpha$. Our results are similar to Della Corte and Fu (2020), except for the fact that we focus on the expected change in the future tariff rates instead of tariff uncertainty. Given the financiers' risk-bearing capacity, if the election probability of the protectionist candidate increases, the future value of US imports will go down. From these results, it is clear that the current and future exchange rate depends on expectations about tariff rates in $t = 1$.

Debate victory of protectionist candidate and US net exports. If the protectionist candidate wins the presidential debate, markets expect a higher tariff rate on Mexican imports in the future $\mathbb{E}(\tau_1) > 0$. This depresses the expected value of future US import demand for Mexican goods and the effect is more pronounced for higher base values of imports ι_1 ,

$$\frac{\partial \mathbb{E}\left(\frac{\iota_1}{1+\tau_1}\right)}{\partial \mathbb{E}(\tau_1)} = -\frac{\mathbb{E}(\iota_1)}{\mathbb{E}(1 + \tau_1)^2} < 0. \quad (11)$$

For equilibrium value exchange rates, this implies that the dollar gets stronger against the peso, in particular for large import values ι_1 ,

$$\frac{\partial e_0}{\partial \mathbb{E}(\tau_1)} = -\frac{\mathbb{E}(\iota_1)}{\mathbb{E}(1 + \tau_1)^2(2 + \Gamma)} < 0, \quad (12)$$

and the expected exchange rate is also reduced, even by a larger amount,

$$\frac{\partial \mathbb{E}(e_1)}{\partial \mathbb{E}(\tau_1)} = -\frac{(1 + \Gamma)\mathbb{E}(\iota_1)}{\mathbb{E}(1 + \tau_1)^2(2 + \Gamma)} < 0. \quad (13)$$

The debate victory of a protectionist candidate leads to $d\mathbb{E}(e_1) < de_0 < 0$ and $d(e_0 - \mathbb{E}(e_1)) > 0$, i.e., a reduction of expected peso appreciation or an increase in expected dollar appreciation, depending on the initial sign of $e_0 - \mathbb{E}(e_1)$.

In the following we present an example for the adjustment mechanisms. Let us assume that the US is a debtor country, i.e., US net exports to Mexico are negative:

$$NX_0^- = \xi_0 e_0 - \frac{\iota_0}{1 + \tau_0} < 0. \quad (14)$$

Taking the foreign exchange market clearing condition Equation (7) into account, it follows that financiers are long in the dollar and short in the peso ($Q_0 > 0$). That is, financiers absorb the excess supply of dollars originating from the net export deficit of the US.

Using Equation (9) and (10) in Equation (6), and assuming zero interest rates, yields the position of the financiers in $t = 0$:

$$Q_0 = \frac{1}{\Gamma} \mathbb{E}(e_0 - e_1) = \frac{\frac{\iota_0}{1 + \tau_0} - \mathbb{E}\left(\frac{\iota_1}{1 + \tau_1}\right)}{(2 + \Gamma)} > 0. \quad (15)$$

The dollar is expected to appreciate against the peso ($\mathbb{E}(e_1) < e_0$) in order to incentivize financiers to hold the net long position in the dollar. Given the limited risk taking capacity Γ , it takes a larger expected dollar appreciation to increase the net dollar holdings of financiers.

Now, a debate victory of the protectionist candidate raises expectations about higher tariff rates in the future ($d\mathbb{E}(\tau_1) > 0$). From Eq. (12) and (13) it follows that the dollar appreciates in $t = 0$, and even more in expectations in $t = 1$, $d\mathbb{E}(e_1) < de_0 < 0$. For the US as a debtor country, the expected appreciation of the dollar is increased, $d(e_0 - \mathbb{E}(e_1))$, which constitutes the incentive for the financiers to increase their dollar long position and their peso short position, $dQ_0 > 0$.²⁰

From Equation (12) it is also clear that the protectionist expectations mechanism is even more pronounced for currency pairs with higher levels of bilateral integration/imports

$$\frac{\partial \left[\frac{\partial \mathbb{E}\left(\frac{\iota_1}{1 + \tau_1}\right)}{\partial \mathbb{E}(\tau_1)} \right]}{\partial \mathbb{E}(\tau_1)} = -\frac{1}{\mathbb{E}(1 + \tau_1)^2} < 0. \quad (16)$$

For a given value of US exports to Mexico, higher levels of US imports from Mexico are

²⁰If the protectionist candidate loses the debate, the results are reversed. Expected US imports from Mexico are increased, the dollar depreciates against the peso, and financiers reduce their dollar long position.

associated with a more pronounced dollar appreciation against the peso after a successful debate of the protectionist candidate. For a higher base value of imports $\mathbb{E}(\iota_1)$, the amount of import reduction due to the tariff increase is larger. That is, after protectionist victories in a debate, financiers have to absorb larger dollar amounts to clear the foreign exchange market. In order to incentivize them to absorb larger dollar amounts against the peso, the dollar appreciation must be larger relative to currencies of countries with high bilateral trade integration. On the contrary, for countries with little trade integration (i.e., small US imports), the expected reduction in imports due to tariff increases are small, and financiers have to absorb only small amounts of dollars to clear the market. This mechanism explains our main empirical result, the amount of dollar appreciation after a debate victory of the protectionist candidate is the larger, the more intense bilateral integration.

6 Conclusion

In this paper, we exploit the exogenous shocks on US presidential election probabilities in the course of TV debates to identify the causal impact of candidates' policy stances on protectionism on the cross section of exchange rate returns. Using a sample of 23 US presidential election TV debates for the election years 1996, 2000, 2004, 2008, 2012, and 2016 and analyzing 96 foreign currencies, we find robust evidence for a negative unconditional debate effect during the 90-minute event, meaning debates are followed by an immediate depreciation of the US dollar by 1.5 bps. The effect is statistically and economically significant.

We match returns with changes in electoral prediction market prices during respective time windows and the policy position on protectionism of the candidates, extracted from manifestos, and find that expectations about protectionist measures are a major transmission channel of presidential debate outcomes. We find that currencies of countries that are highly integrated with the US via exports depreciate if the election probability of the more protectionist candidate increases. For currencies of countries with large relative export levels (e.g., Mexico, Canada, and Singapore), the average marginal effect of an increase in the protectionist candidate's election probability by 2 pp during this narrow time window is nearly 8 bps, which accounts for more than the half of the standard deviation of the sample exchange rate returns.

To rationalize the empirical results, we use an extension of the exchange rate determination model in the spirit of Gabaix and Maggiori (2015) and Della Corte and Fu (2020). In this model, a debate victory of the protectionist candidate raises expectations about higher US tariffs that devalue future US imports. Net US exports are expected to increase, raising expectations of a stronger US dollar, which incentivizes financiers to increase net dollar position after the debate.

In line with our empirical results, we show that a debate victory of the protectionist candidate is associated with an appreciation of the US dollar and that the magnitude of US appreciation against other currencies increases with bilateral export integration.

Increasing election probabilities of the protectionist candidate also weakens currencies of countries with high levels of bilateral trade and net exports, while trade with the world account for no significant debate effect. We do not find evidence that candidates' policy positions on military and immigration plays a significant role in explaining the impact of the debate on exchange rates.

We conclude that changes in expectations about future trade policy are a main transmission channel of presidential debates. Currencies of countries have heterogeneous exposure to trade policies, determined by their level of bilateral export integration with the US, and hence cross-country exchange rate returns vary in that way.

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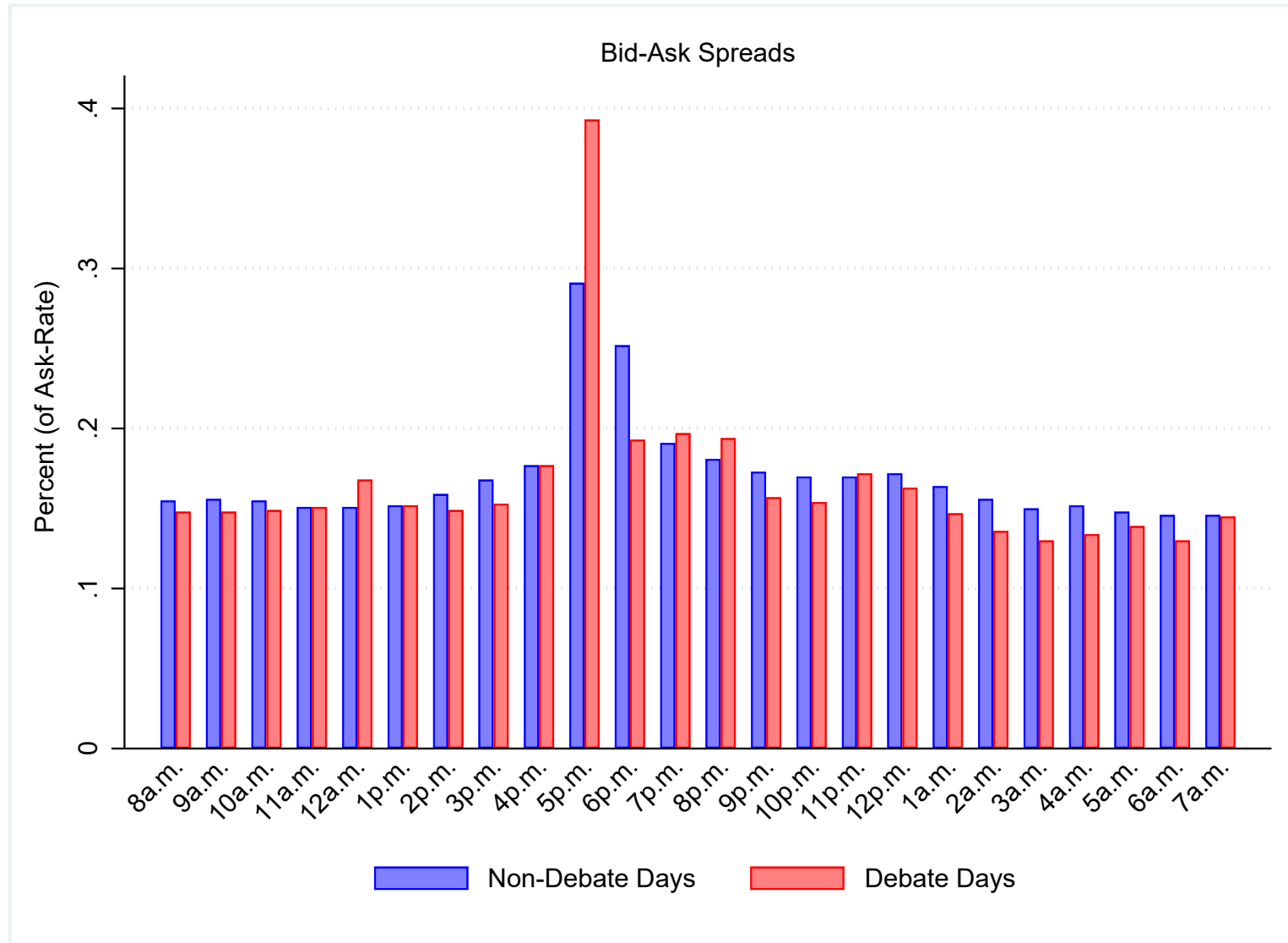


Figure 2: Average bid-ask spreads per hour over the day in EDT. This figure shows the mean bid-ask spreads (calculated as percentage of ask rates) on debate days versus non-debate days over the full sample for every hour during the day in EDT. The US presidential debates take place between 9:00 and 10:30 EDT. Low values of bid-ask spreads indicate high liquidity on foreign exchange markets.

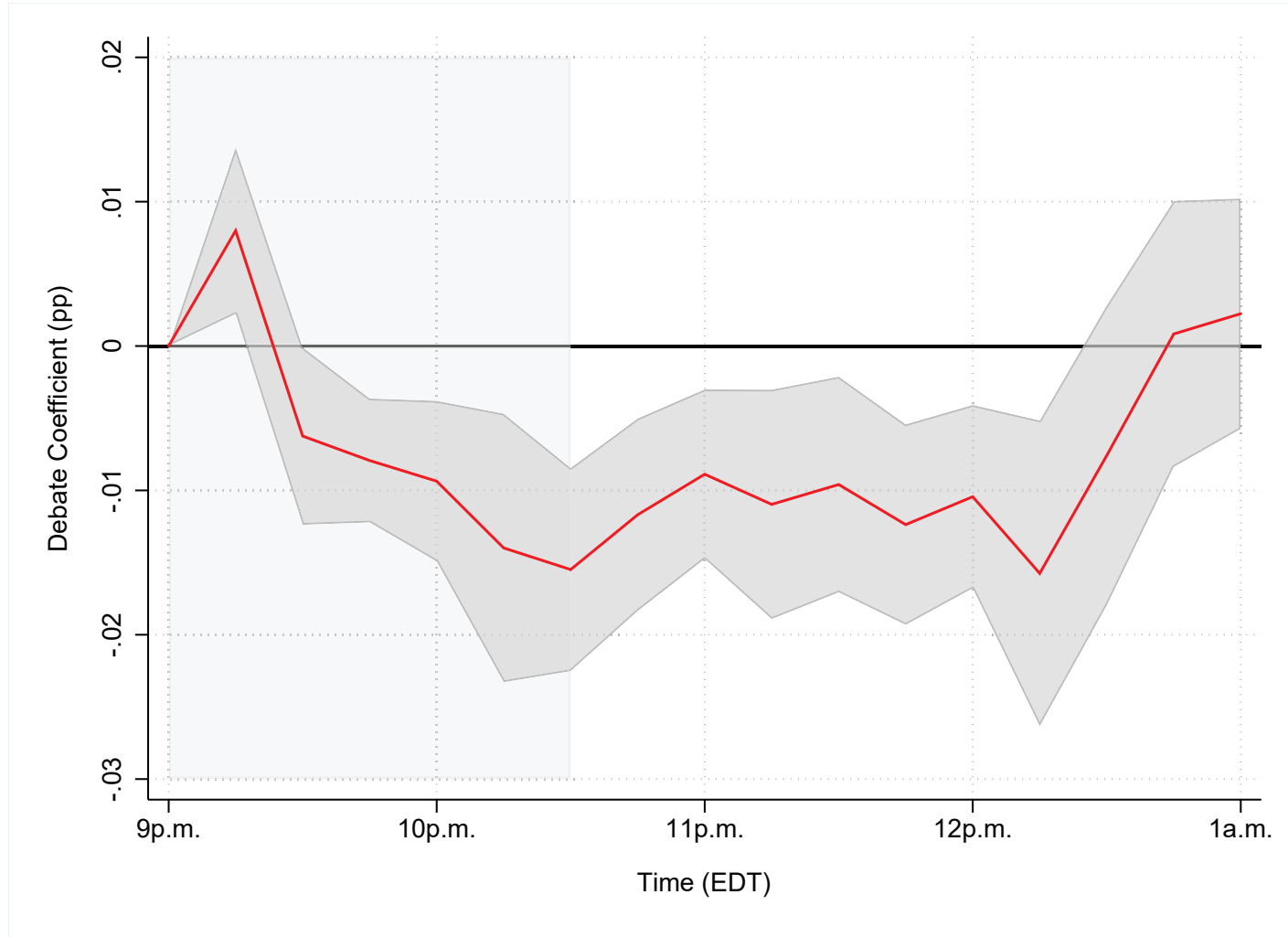


Figure 3: Unconditional debate effect. Plot of the coefficient β_1 from regression $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$ around US presidential debates (9:00 - 10:30 p.m. EDT) with upper and lower limit in 90%-confidence intervals. The dummy variable $Debate_{t,T}$ takes a value of 1 on days of presidential debates and 0 otherwise. Exchange rate returns of currency i at day t are calculated as $r_{i,t,T} = \ln(s_{i,t,T}) - \ln(s_{i,t,9:00p.m.})$ with expanding T by 15-minute-windows. The spot exchange rates are expressed in the number of foreign currency units one US dollar buys, meaning a negative coefficient denotes a depreciation of the US dollar against foreign currencies. The results are given in percentage points. We account for country fixed effects and year fixed effects. The full sample ranges from 01/1996 - 12/2016 and contains 96 flexible exchange rates. Results of the regressions are reported in Table 3.

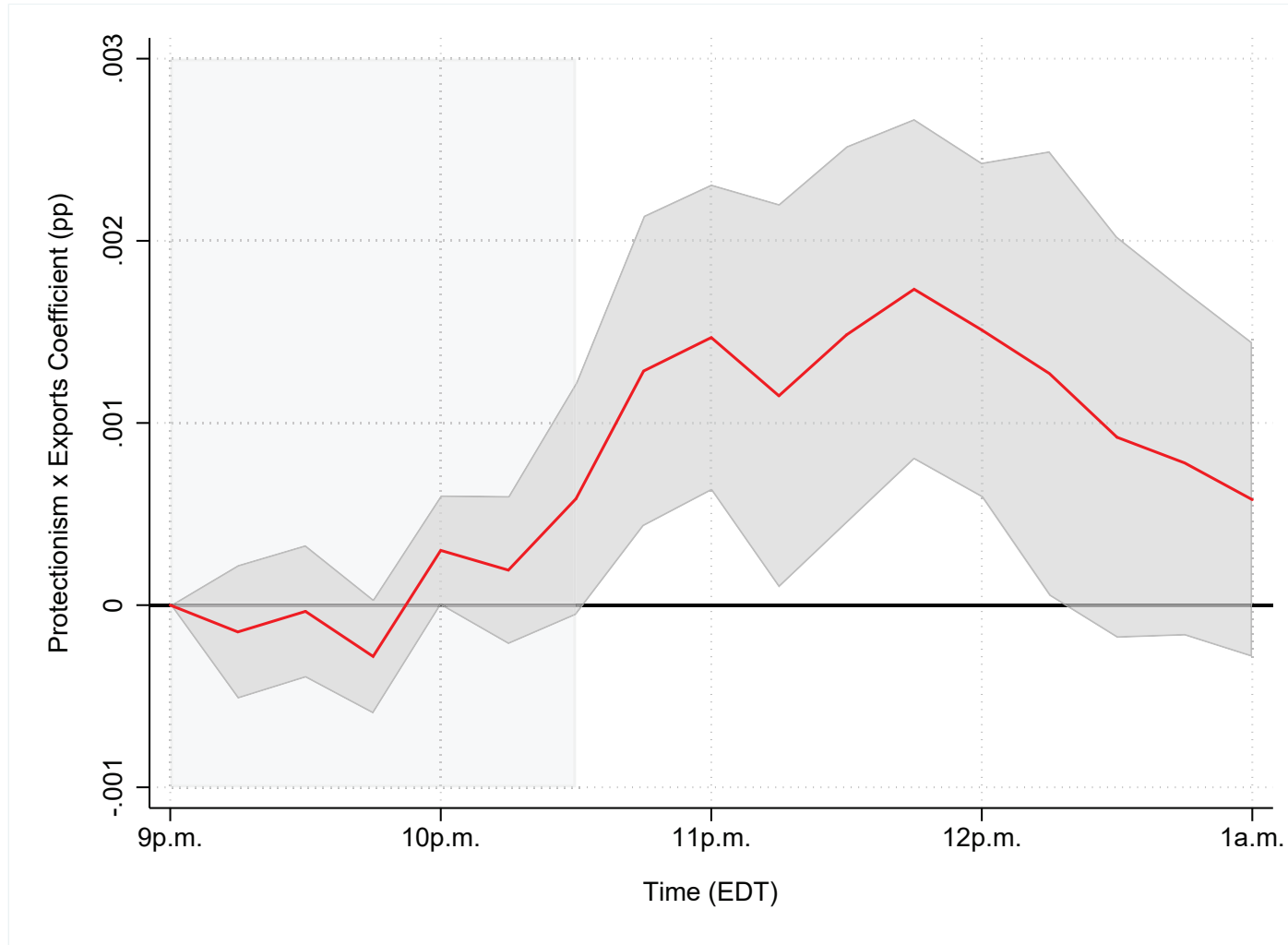


Figure 4: Impact of protectionism conditional on exports to US. Plot of the coefficient β_7 from regression $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \beta_2 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} + \beta_3 \times Debate_{t,T} \times \Delta q_{t,T}^{ Protec} + \beta_4 \times Exports_{i,t,T} + \beta_5 \times Debate_{t,T} \times Exports_{i,t,T} + \beta_6 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times Exports_{i,t,T} + \beta_7 \times Debate_{t,T} \times \Delta q_{t,T}^{ Protec} \times Exports_{i,t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$ around US presidential debates (9:00 - 10:30 p.m. EDT) with upper and lower limit in 90%-confidence intervals. A positive coefficient denotes a depreciation of the foreign currency against the US dollar. The results are given in percentage points. We account for country fixed effects and year fixed effects. The full sample ranges from 01/1996 - 12/2016 and contains 93 flexible exchange rates. Results of the regressions are reported in Table 4.

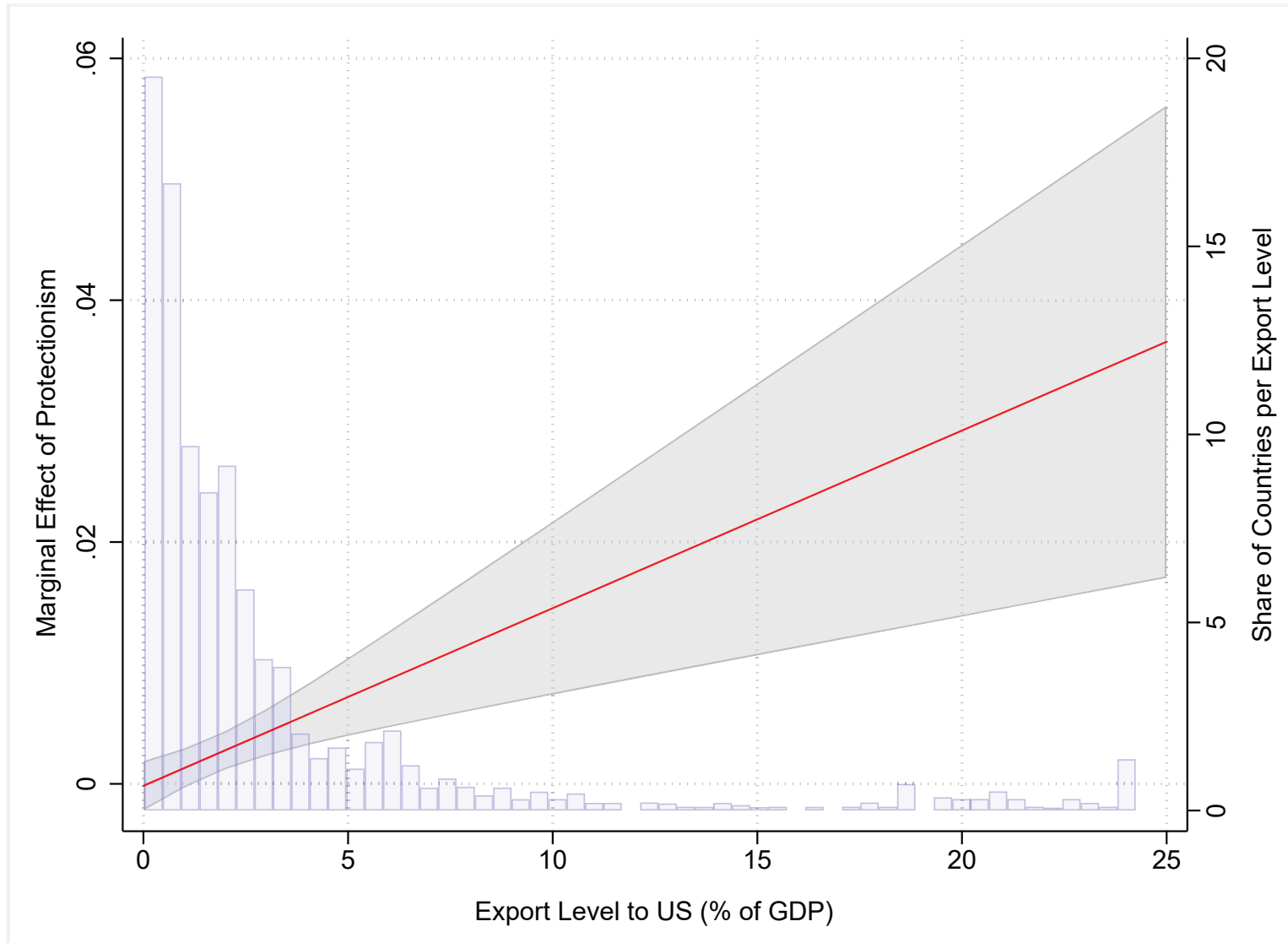


Figure 5: Average marginal effect of protectionism conditional on exports to US. Plot of the average marginal effect of $\Delta q_{t,T}^{Protectionism}$ for different relative export levels. The underlying regression is $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \beta_2 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} + \beta_3 \times Debate_{t,T} \times \Delta q_{t,T}^{Protec} + \beta_4 \times Exports_{i,t,T} + \beta_5 \times Debate_{t,T} \times Exports_{i,t,T} + \beta_6 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times Exports_{i,t,T} + \beta_7 \times Debate_{t,T} \times \Delta q_{t,T}^{Protec} \times Exports_{i,t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$ at $T = 11 : 00p.m.EDT$. A positive coefficient denotes a depreciation of foreign currencies against the US dollar. The results are given in percentage points. We account for country fixed effects and year fixed effects. The full sample ranges from 01/1996 - 12/2016 and contains 93 flexible exchange rates.

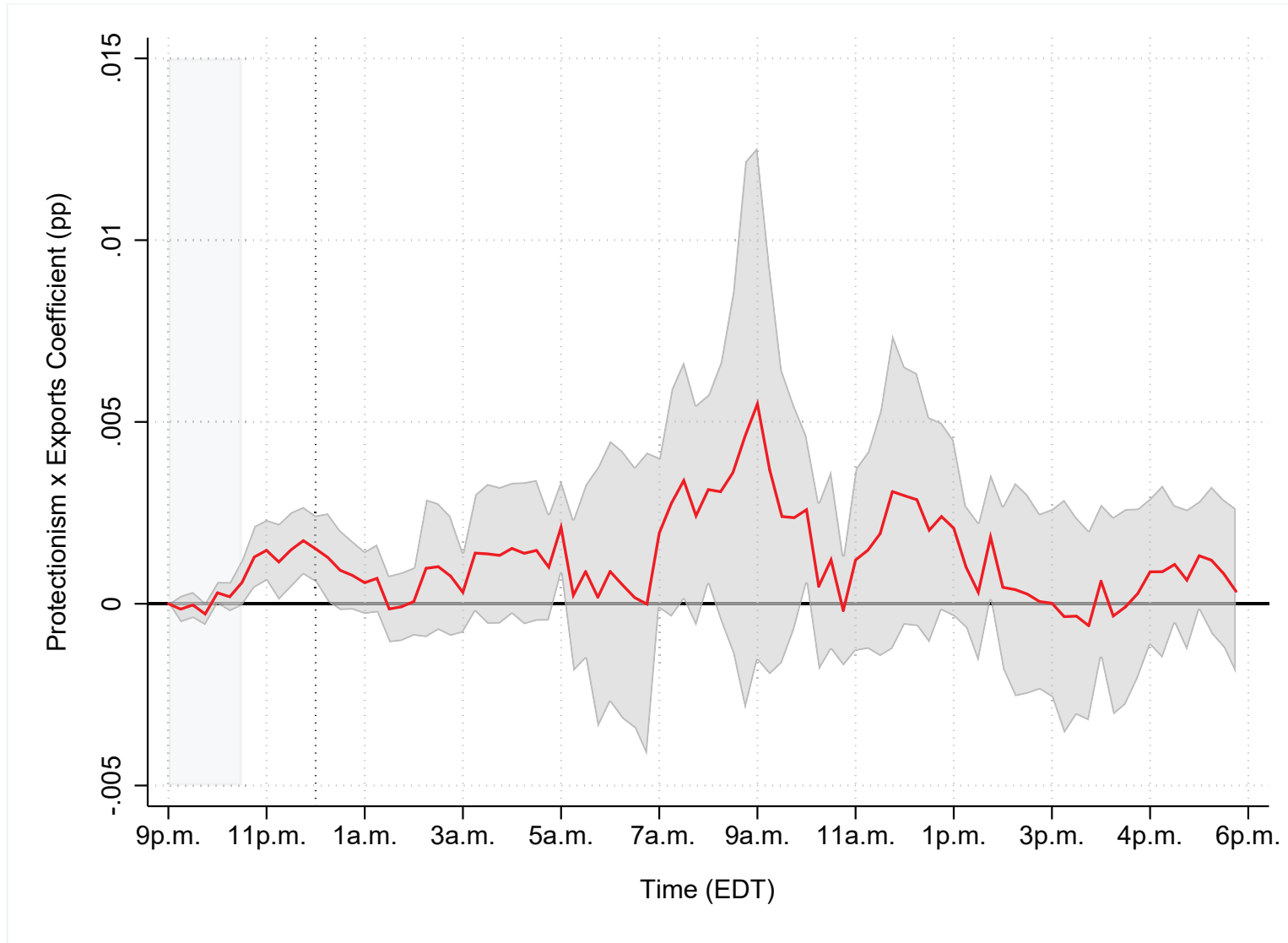


Figure 6: Impact of protectionism conditional on exports to US. Plot of the coefficient β_7 from regression $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \beta_2 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} + \beta_3 \times Debate_{t,T} \times \Delta q_{t,T}^{Protec} + \beta_4 \times Exports_{i,t,T} + \beta_5 \times Debate_{t,T} \times Exports_{i,t,T} + \beta_6 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times Exports_{i,t,T} + \beta_7 \times Debate_{t,T} \times \Delta q_{t,T}^{Protec} \times Exports_{i,t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$ around US presidential debates and analogue for the day after ($t+1$) with upper and lower limit in 90%-confidence intervals. A positive coefficient denotes a depreciation of the foreign currency against the US dollar. The results are given in percentage points. We account for country fixed effects and year fixed effects. The full sample ranges from 01/1996 - 12/2016 and contains 93 flexible exchange rates.

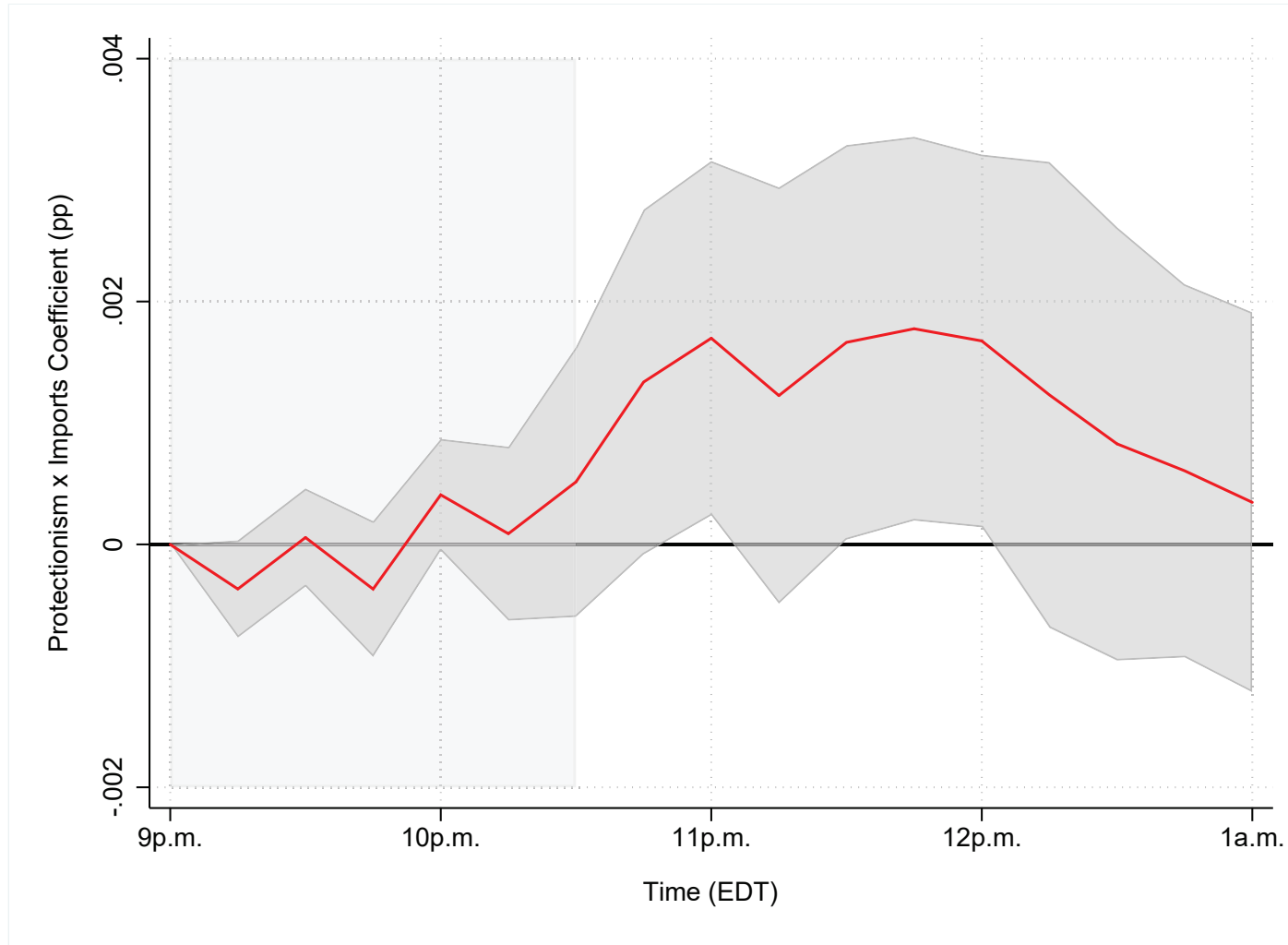


Figure 7: Impact of protectionism conditional on imports from US. Plot of the coefficient β_7 from regression $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \beta_2 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} + \beta_3 \times Debate_{t,T} \times \Delta q_{t,T}^{ Protec} + \beta_4 \times Imports_{i,t,T} + \beta_5 \times Debate_{t,T} \times Imports_{i,t,T} + \beta_6 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times Exports_{i,t,T} + \beta_7 \times Debate_{t,T} \times \Delta q_{t,T}^{ Protec} \times Imports_{i,t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$ around US presidential debates (9:00 - 10:30 p.m. EDT) with upper and lower limit in 90%-confidence intervals. A positive coefficient denotes a depreciation of the foreign currency against the US dollar. The results are given in percentage points. We account for country fixed effects and year fixed effects. The full sample ranges from 01/1996 - 12/2016 and contains 92 flexible exchange rates.

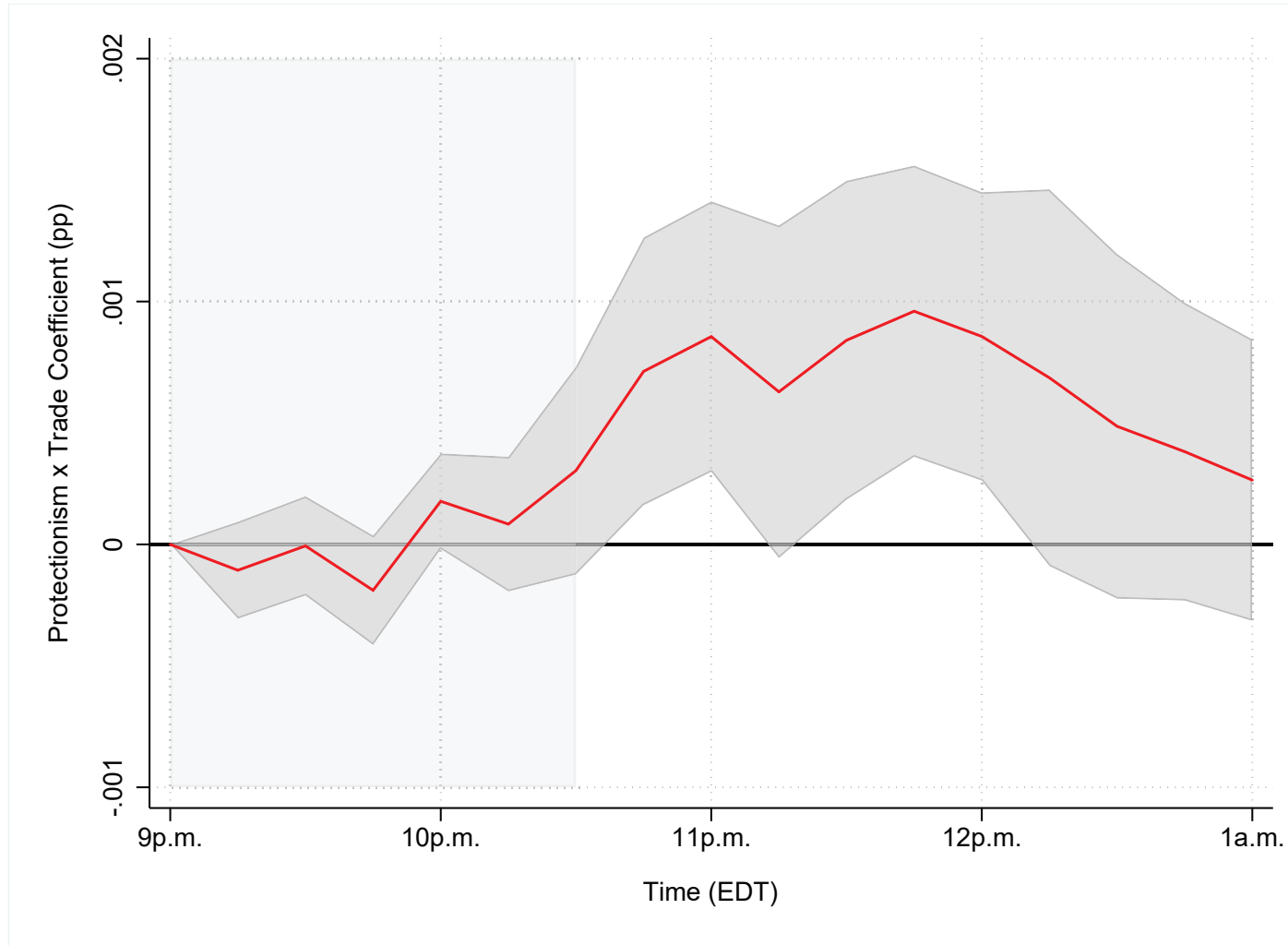


Figure 8: Impact of protectionism conditional on trade with US. Plot of the coefficient β_7 from regression $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \beta_2 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} + \beta_3 \times Debate_{t,T} \times \Delta q_{t,T}^{ Protec} + \beta_4 \times Trade_{i,t,T} + \beta_5 \times Debate_{t,T} \times Trade_{i,t,T} + \beta_6 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times Trade_{i,t,T} + \beta_7 \times Debate_{t,T} \times \Delta q_{t,T}^{ Protec} \times Trade_{i,t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$ around US presidential debates (9:00 - 10:30 p.m. EDT) with upper and lower limit in 90%-confidence intervals. A positive coefficient denotes a depreciation of the foreign currency against the US dollar. The results are given in percentage points. We account for country fixed effects and year fixed effects. The full sample ranges from 01/1996 - 12/2016 and contains 92 flexible exchange rates.

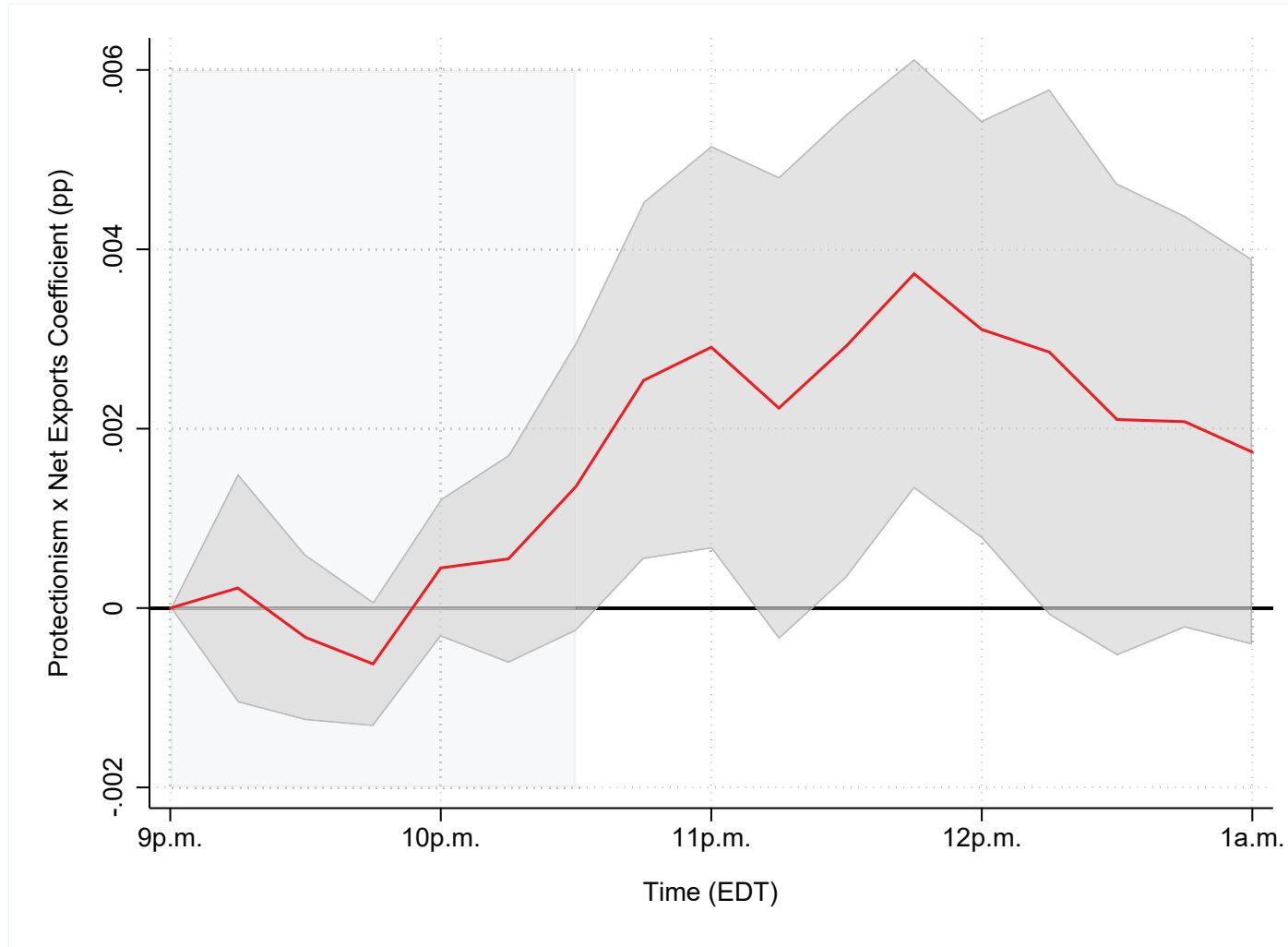


Figure 9: Impact of protectionism conditional on net exports to US. Plot of the coefficient β_7 from regression $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \beta_2 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} + \beta_3 \times Debate_{t,T} \times \Delta q_{t,T}^{ Protec} + \beta_4 \times NetExports_{i,t,T} + \beta_5 \times Debate_{t,T} \times NetExports_{i,t,T} + \beta_6 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times NetExports_{i,t,T} + \beta_7 \times Debate_{t,T} \times \Delta q_{t,T}^{ Protec} \times Trade_{i,t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$ around US presidential debates (9:00 - 10:30 p.m. EDT) with upper and lower limit in 90%-confidence intervals. A positive coefficient denotes a depreciation of the foreign currency against the US dollar. The results are given in percentage points. We account for country fixed effects and year fixed effects. The full sample ranges from 01/1996 - 12/2016 and contains 92 flexible exchange rates.

Table 1: Calculation of changes in election probabilities. The table shows the calculation of the changes in the election probability for the policy position "Protectionism". The first column reports two possible scenarios regarding the price changes of the Democratic WTA contract from IEM during presidential debate. The security pays \$1 if the Democratic candidate receives the majority vote share and \$0 otherwise. Therefore, an increasing price indicates an increasing election probability of the Democratic candidate and vice versa. The second column shows two possible scenarios regarding the candidates' policy positions: The Democratic candidate can either promote more protectionist measures as the Republican candidate (difference > 0) or not (difference < 0). The third column reports then a variable that can be either 1 or -1, where 1 is the scenario where the Democratic candidate favors more protectionism than his opponent and -1 when the Democratic candidate favors less protectionism. Eventually, the fourth column shows the calculation of the changes in the election probability of the protectionist candidate by multiplying the price changes of the Democratic WTA contract with 1 or -1, depending on the sign in the third column. This leaves four possible scenarios for changes in the protectionist election probability than can occur during presidential debates.

Change in Dem. WTA price	Difference "Protec." Dem. - Rep.	Favoring "Protec" (yes: 1, no: -1)	Change in election probability of protec. candidate
$\Delta q^{Dem} > 0$	> 0	1	$\Delta q^{Dem} \times 1 = \Delta q^{Protec}$
$\Delta q^{Dem} > 0$	< 0	-1	$\Delta q^{Dem} \times -1 = -\Delta q^{Protec}$
$\Delta q^{Dem} < 0$	> 0	1	$-\Delta q^{Dem} \times 1 = -\Delta q^{Protec}$
$\Delta q^{Dem} < 0$	< 0	-1	$-\Delta q^{Dem} \times -1 = \Delta q^{Protec}$

Table 2: Summary statistics of changes in election probabilities. The table shows the summary statistics of the average absolute values of the changes in the election probability of the protectionist candidate during the debate window. The changes in the election probability are calculated in 15-minute windows relative to 9:00 p.m. EDT, the beginning of the debates. For example, the election probability of the protectionist candidate changes on average by 1.6 pp from 9:00 - 10:30 p.m. EDT.

	Mean absolute values of $\Delta q_{t,T}^{Protec}$ relative to $\Delta q_{t,9:00p.m.}^{Protec}$. (in pp)							
$T =$	09:15p.m.	09:30p.m.	09:45p.m.	10:00p.m.	10:15p.m.	10:30p.m.	10:45p.m.	11:00p.m.
Mean	0.53	0.90	1.40	1.65	1.91	1.60	2.53	2.04
Median	0.20	0.50	0.80	0.90	0.90	0.90	1.50	0.90
SD	0.98	1.21	1.72	1.78	2.56	1.49	3.06	1.94
Min	0	0	0	0	0	0	0	0
Max	4.10	4.50	5.70	5.90	10.70	5.80	13.60	5.80

Table 4: Impact of protectionism conditional on exports to US. The table shows results of the OLS model of daily panels of exchange rate returns in 15-minute-windows on the interaction of changes in the protectionist candidates' election probability with country's exports to the US (scaled by GDP), $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \beta_2 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} + \beta_3 \times Debate_{t,T} \times \Delta q_{t,T}^{Protec} + \beta_4 \times Exports_{i,t,T} + \beta_5 \times Debate_{t,T} \times Exports_{i,t,T} + \beta_6 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times Exports_{i,t,T} + \beta_7 \times Debate_{t,T} \times \Delta q_{t,T}^{Protec} \times Exports_{i,t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$. Exchange rate returns of currency i at day t are calculated as $r_{i,t,T} = \ln(s_{i,t,T}) - \ln(s_{i,t,9:00p.m.})$ with expanding T by 15-minute-windows and are matched with changes in election probabilities. A positive coefficient denotes a depreciation of the foreign currencies against the US dollar and vice versa. The results are given in percentage points. The full sample ranges from 01/1996 - 12/2016 and contains 93 flexible exchange rates. In the baseline model (I), we account for country fixed effects and year fixed effects, the regression models (II) contain country fixed effects and month fixed effects, and the regression models (III) contain year fixed effects with standard errors clustered on country and year. The p-values (in parentheses) are based on robust standard errors. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Return at T	211500	213000	214500	220000	221500	223000	224500	230000	231500	233000	234500	0
(I)												
Debate (D)	0.0069* (0.0038)	-0.0100** (0.0041)	-0.0100*** (0.0031)	-0.0109*** (0.0035)	-0.0164*** (0.0058)	-0.0156*** (0.0049)	-0.0115*** (0.0036)	-0.0083* (0.0043)	-0.0085 (0.0052)	-0.0048 (0.0050)	-0.0104** (0.0050)	-0.0079* (0.0043)
Exports to US (E)	0.0003 (0.0003)	0.0002 (0.0004)	0.0001 (0.0003)	0.0001 (0.0002)	-0.0001 (0.0004)	-0.0002 (0.0005)	0.0001 (0.0006)	0.0001 (0.0003)	-0.0001 (0.0005)	-0.0004 (0.0006)	-0.0008 (0.0007)	-0.0002 (0.0003)
D \times E	-0.0000 (0.0006)	0.0006 (0.0008)	0.0000 (0.0006)	0.0001 (0.0006)	-0.0003 (0.0010)	-0.0004 (0.0011)	-0.0001 (0.0007)	-0.0003 (0.0007)	-0.0004 (0.0008)	-0.0010 (0.0009)	-0.0008 (0.0011)	-0.0007 (0.0006)
D \times Δq^{Dem}	-0.0049** (0.0025)	0.0017 (0.0014)	0.0067*** (0.0015)	0.0023 (0.0017)	0.0010 (0.0021)	0.0028* (0.0015)	0.0029** (0.0014)	0.0033** (0.0013)	0.0069*** (0.0026)	0.0042** (0.0019)	0.0012 (0.0024)	0.0034 (0.0021)
D \times $\Delta q^{Dem} \times$ E	0.0002 (0.0002)	-0.0001 (0.0002)	-0.0009*** (0.0002)	-0.0006*** (0.0002)	-0.0006** (0.0002)	-0.0010*** (0.0003)	-0.0015*** (0.0004)	-0.0014*** (0.0005)	-0.0021*** (0.0006)	-0.0020*** (0.0006)	-0.0020*** (0.0006)	-0.0018*** (0.0005)
D \times Δq^{Protec}	0.0059** (0.0024)	-0.0047*** (0.0015)	0.0051*** (0.0015)	0.0024 (0.0016)	0.0008 (0.0022)	0.0035** (0.0013)	0.0006 (0.0013)	-0.0002 (0.0012)	0.0012 (0.0026)	0.0031* (0.0017)	0.0010 (0.0020)	-0.0005 (0.0017)
D \times $\Delta q^{Protec} \times$ E	-0.0001 (0.0002)	-0.0000 (0.0002)	-0.0003 (0.0002)	0.0003 (0.0002)	0.0002 (0.0002)	0.0006 (0.0004)	0.0013** (0.0005)	0.0015*** (0.0005)	0.0011* (0.0006)	0.0015** (0.0006)	0.0017*** (0.0006)	0.0015*** (0.0006)
Constant	0.0007 (0.0012)	0.0021 (0.0013)	0.0028* (0.0016)	0.0008 (0.0008)	0.0026 (0.0019)	0.0047** (0.0019)	0.0044** (0.0021)	0.0027** (0.0013)	0.0057** (0.0024)	0.0052* (0.0029)	0.0067** (0.0031)	0.0030** (0.0015)
Observations	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853
Currencies	93	93	93	93	93	93	93	93	93	93	93	93
R^2	0.0005	0.0005	0.0004	0.0003	0.0004	0.0005	0.0008	0.0009	0.0008	0.0011	0.0010	0.0011

Table 4 Cont'd.

Return at T	211500	213000	214500	220000	221500	223000	224500	230000	231500	233000	234500	0
(II)												
Debate (D)	0.0119*** (0.0042)	-0.0098* (0.0051)	-0.0088*** (0.0030)	-0.0085** (0.0035)	-0.0156** (0.0062)	-0.0155*** (0.0051)	-0.0079** (0.0038)	-0.0080* (0.0045)	-0.0086 (0.0053)	-0.0084 (0.0060)	-0.0127** (0.0060)	-0.0068 (0.0049)
Exports to US (E)	0.0003 (0.0003)	0.0002 (0.0004)	0.0001 (0.0003)	0.0001 (0.0002)	-0.0001 (0.0004)	-0.0003 (0.0005)	0.0001 (0.0005)	0.0001 (0.0003)	-0.0001 (0.0005)	-0.0004 (0.0006)	-0.0009 (0.0007)	-0.0002 (0.0003)
D \times E	-0.0000 (0.0006)	0.0006 (0.0008)	-0.0000 (0.0006)	-0.0000 (0.0006)	-0.0004 (0.0010)	-0.0004 (0.0011)	-0.0001 (0.0007)	-0.0002 (0.0007)	-0.0004 (0.0008)	-0.0010 (0.0010)	-0.0007 (0.0011)	-0.0007 (0.0006)
D \times Δq^{Dem}	-0.0055** (0.0025)	0.0019 (0.0014)	0.0074*** (0.0016)	0.0027* (0.0016)	0.0011 (0.0019)	0.0028** (0.0014)	0.0035** (0.0014)	0.0033*** (0.0012)	0.0065*** (0.0024)	0.0035* (0.0020)	0.0006 (0.0023)	0.0039* (0.0020)
D \times $\Delta q^{Dem} \times$ E	0.0002 (0.0002)	-0.0001 (0.0002)	-0.0009*** (0.0002)	-0.0006*** (0.0002)	-0.0006** (0.0002)	-0.0010*** (0.0003)	-0.0015*** (0.0004)	-0.0014*** (0.0005)	-0.0021*** (0.0006)	-0.0020*** (0.0006)	-0.0019*** (0.0006)	-0.0018*** (0.0005)
D \times Δq^{Protec}	0.0061** (0.0024)	-0.0048*** (0.0015)	0.0056*** (0.0016)	0.0030* (0.0016)	0.0008 (0.0019)	0.0037*** (0.0013)	0.0011 (0.0013)	0.0001 (0.0012)	0.0011 (0.0023)	0.0024 (0.0017)	0.0006 (0.0020)	0.0005 (0.0017)
D \times $\Delta q^{Protec} \times$ E	-0.0001 (0.0002)	-0.0000 (0.0002)	-0.0003 (0.0002)	0.0003 (0.0002)	0.0002 (0.0002)	0.0006 (0.0004)	0.0013** (0.0005)	0.0015*** (0.0005)	0.0012* (0.0006)	0.0015** (0.0006)	0.0018*** (0.0006)	0.0015*** (0.0006)
Constant	0.0024 (0.0019)	0.0059*** (0.0018)	0.0105*** (0.0028)	0.0031** (0.0016)	0.0116*** (0.0033)	0.0155*** (0.0042)	0.0164*** (0.0042)	0.0074*** (0.0024)	0.0135*** (0.0041)	0.0148*** (0.0040)	0.0238*** (0.0053)	0.0063** (0.0026)
Observations	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853
Currencies	93	93	93	93	93	93	93	93	93	93	93	93
R^2	0.0025	0.0030	0.0029	0.0038	0.0032	0.0035	0.0041	0.0049	0.0044	0.0050	0.0052	0.0059

Table 4 Cont'd.

Return at T	211500	213000	214500	220000	221500	223000	224500	230000	231500	233000	234500	0
(III)												
Debate (D)	0.0069 (0.0069)	-0.0100** (0.0046)	-0.0100 (0.0067)	-0.0109 (0.0121)	-0.0164 (0.0103)	-0.0156* (0.0090)	-0.0115 (0.0068)	-0.0083 (0.0054)	-0.0085 (0.0073)	-0.0048 (0.0084)	-0.0104 (0.0095)	-0.0079 (0.0081)
Exports to US (E)	0.0003 (0.0004)	0.0000 (0.0000)	0.0001 (0.0000)	0.0001 (0.0000)	-0.0001 (0.0004)	-0.0002 (0.0005)	0.0000 (0.0000)	0.0001 (0.0003)	-0.0001 (0.0000)	-0.0004 (0.0006)	-0.0008 (0.0009)	-0.0002 (0.0000)
D \times E	-0.0000 (0.0005)	0.0006 (0.0005)	0.0000 (0.0006)	0.0001 (0.0009)	-0.0003 (0.0011)	-0.0004 (0.0014)	-0.0001 (0.0009)	-0.0003 (0.0007)	-0.0004 (0.0008)	-0.0010 (0.0011)	-0.0008 (0.0013)	-0.0007 (0.0010)
D \times Δq^{Dem}	-0.0049 (0.0033)	0.0017* (0.0010)	0.0067 (0.0041)	0.0023 (0.0028)	0.0010 (0.0020)	0.0028 (0.0028)	0.0029** (0.0011)	0.0033 (0.0027)	0.0069** (0.0031)	0.0042 (0.0032)	0.0012 (0.0027)	0.0034 (0.0030)
D \times $\Delta q^{Dem} \times$ E	0.0002 (0.0001)	-0.0001 (0.0002)	-0.0009** (0.0003)	-0.0006** (0.0003)	-0.0006 (0.0004)	-0.0010*** (0.0003)	-0.0015*** (0.0003)	-0.0014* (0.0007)	-0.0021** (0.0008)	-0.0020** (0.0008)	-0.0020** (0.0007)	-0.0018** (0.0007)
D \times Δq^{Protec}	0.0059 (0.0037)	-0.0047*** (0.0008)	0.0051 (0.0044)	0.0024 (0.0030)	0.0008 (0.0020)	0.0035 (0.0025)	0.0006 (0.0011)	-0.0002 (0.0028)	0.0012 (0.0032)	0.0031 (0.0033)	0.0010 (0.0022)	-0.0005 (0.0025)
D \times $\Delta q^{Protec} \times$ E	-0.0001 (0.0001)	-0.0000 (0.0002)	-0.0003 (0.0003)	0.0003 (0.0002)	0.0002 (0.0004)	0.0006* (0.0003)	0.0013*** (0.0003)	0.0015* (0.0007)	0.0011 (0.0008)	0.0015* (0.0008)	0.0017** (0.0007)	0.0015** (0.0007)
Constant	0.0001 (0.0011)	-0.0005 (0.0012)	-0.0003 (0.0006)	-0.0019*** (0.0005)	-0.0014 (0.0009)	-0.0007 (0.0011)	-0.0026 (0.0018)	-0.0040*** (0.0009)	-0.0034* (0.0017)	-0.0024 (0.0017)	-0.0015 (0.0029)	-0.0039*** (0.0013)
Observations	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853
Currencies	93	93	93	93	93	93	93	93	93	93	93	93
R^2	0.0024	0.0025	0.0019	0.0011	0.0028	0.0040	0.0045	0.0026	0.0039	0.0056	0.0059	0.0031

“Protectionism, bilateral integration, and the cross section of exchange rate returns in US presidential debates”

by Jantke de Boer, Stefan Eichler and Ingmar Rövekamp

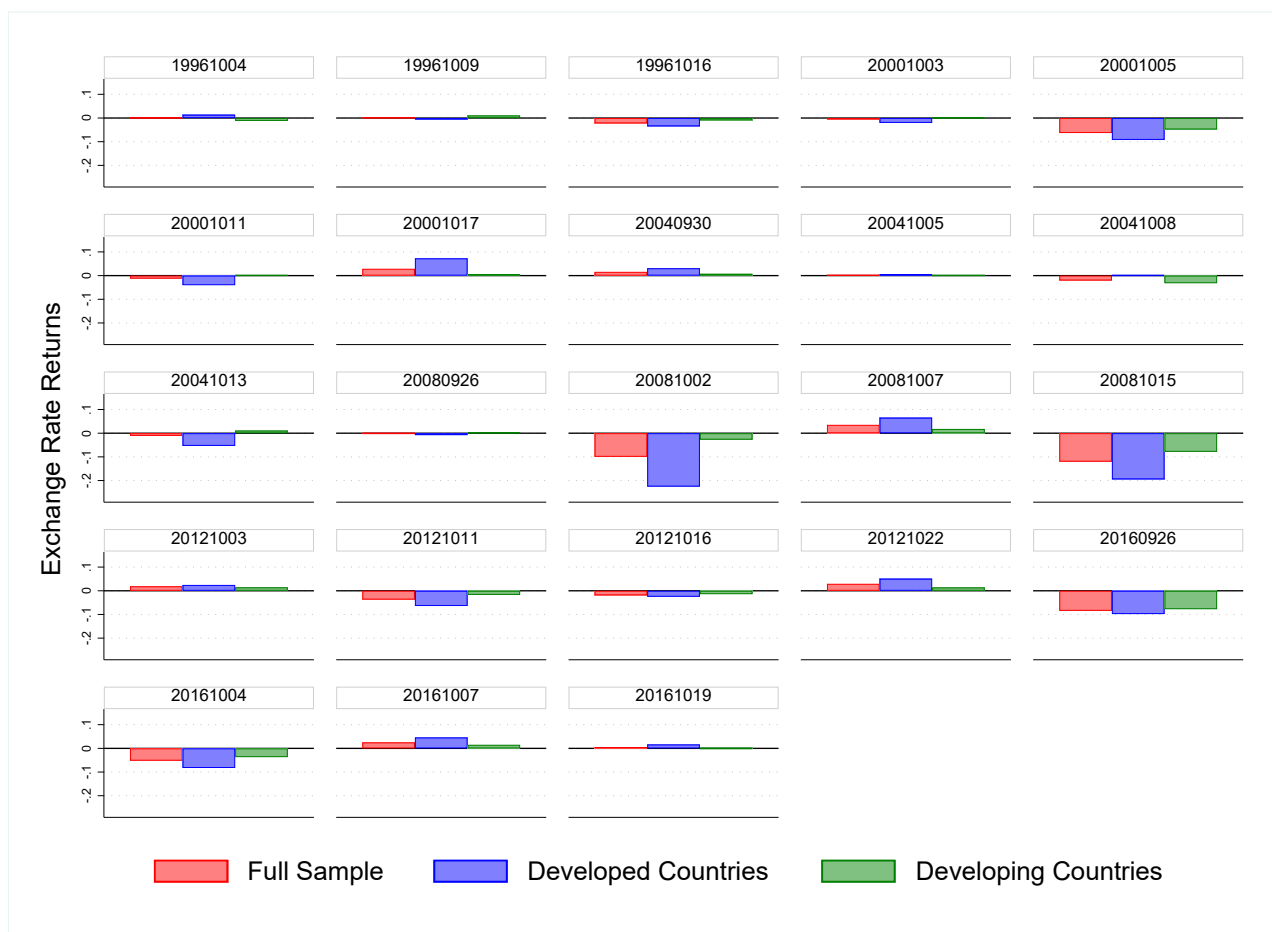


Figure A1: Mean exchange rate returns by debate. The graph shows the means of exchange rate returns between 9:00 p.m. and 10:30 p.m. EDT by debate for the election years 1996, 2000, 2004, 2008, 2012, and 2016. Exchange rate returns of currency i at day t are calculated as follows $r_{i,t,10:30p.m.} = \ln(s_{i,t,10:30p.m.}) - \ln(s_{i,t,9:00p.m.})$. The spot exchange rates are expressed in the number of foreign currency units one US dollar buys, meaning a negative coefficient denotes a depreciation of the US dollar against foreign currencies. The results are given in percentage points. The full sample ranges from 01/1996 - 12/2016 and contains 96 flexible exchange rates.

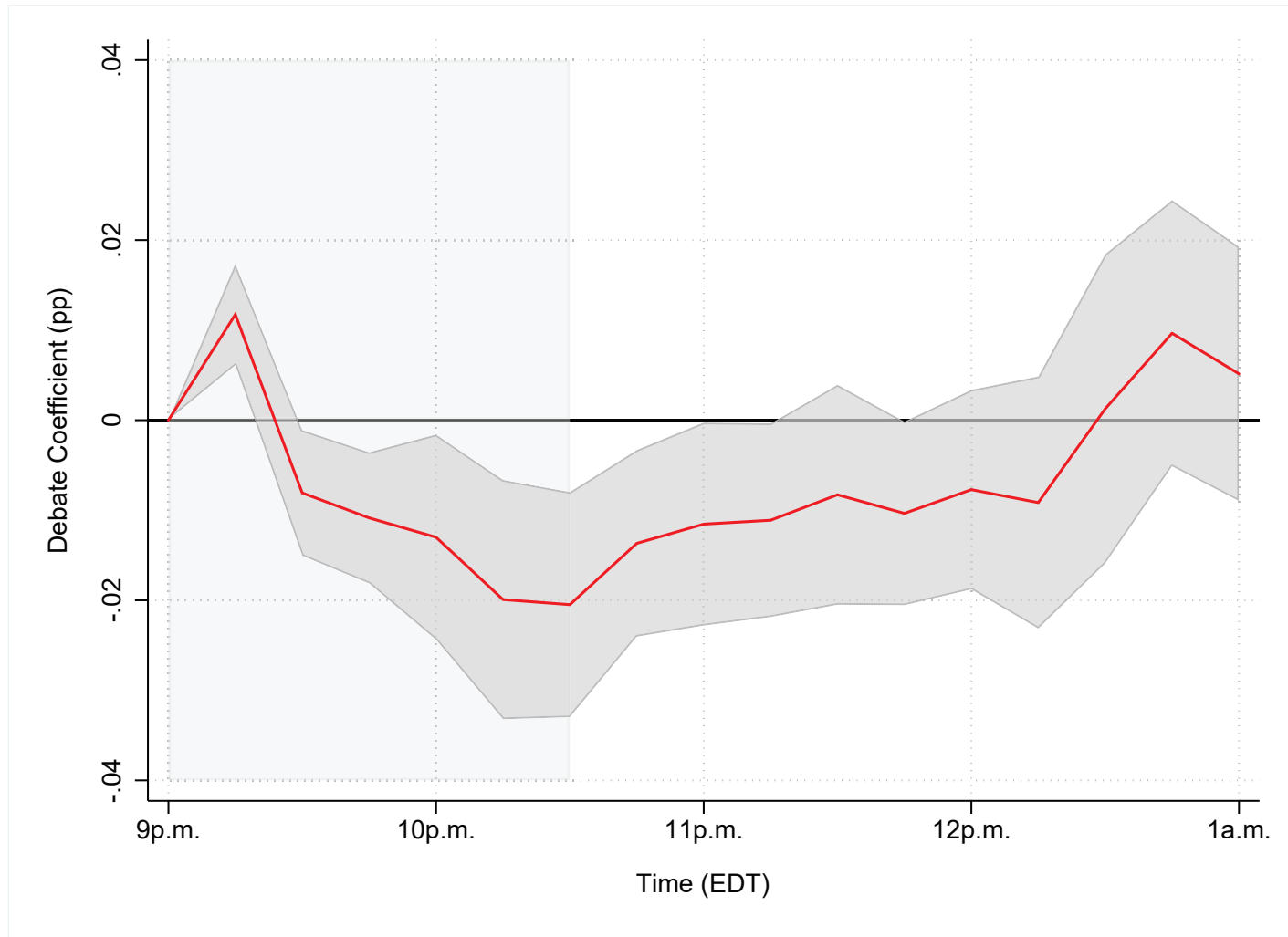


Figure A2: Unconditional debate effect - Developed countries. See Figure 3 for detailed description. The sample of developed countries ranges from 01/1996 - 12/2016 and contains 40 flexible exchange rates.

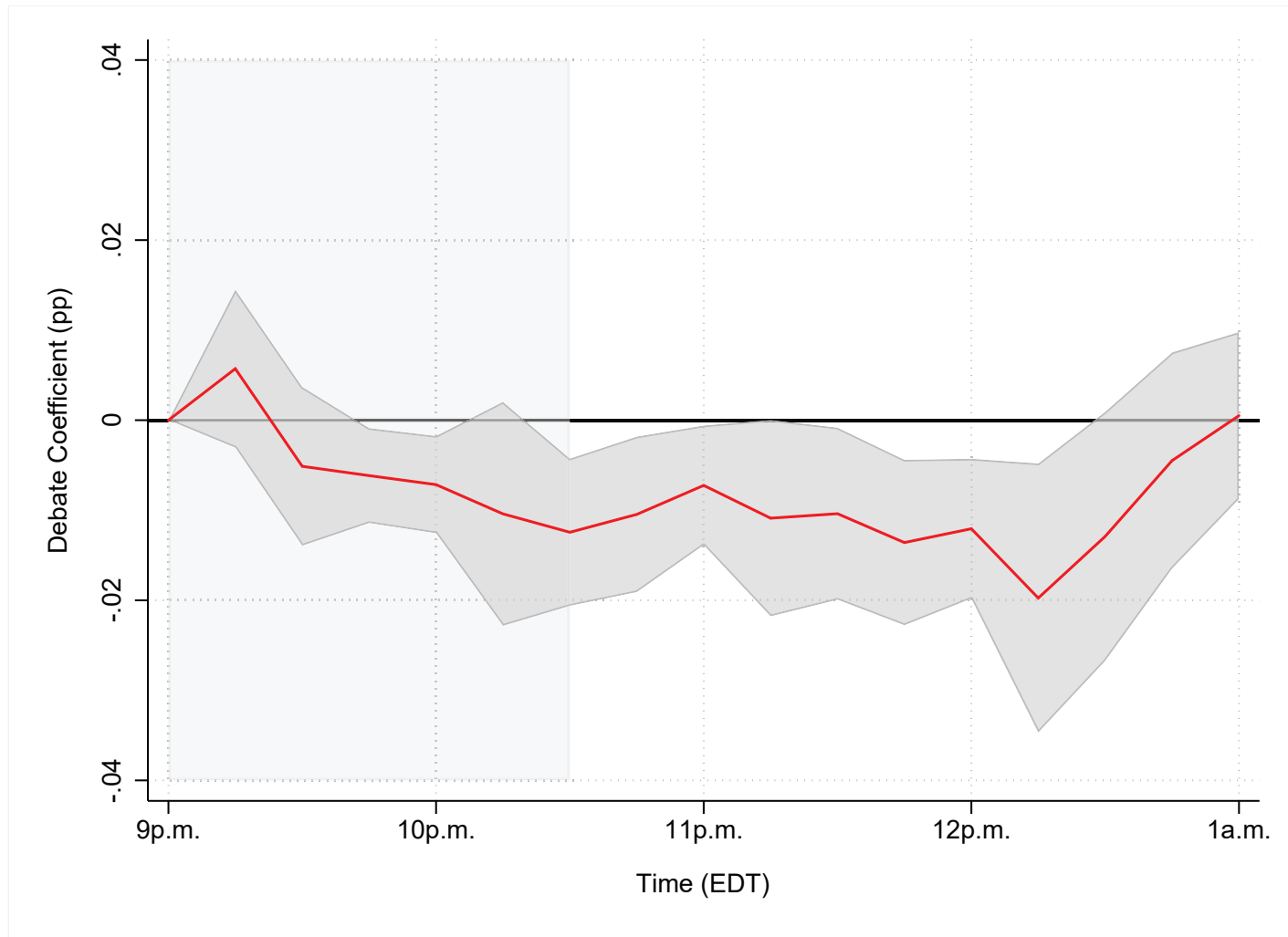


Figure A3: Unconditional debate effect - Developing countries. See Figure 3 for detailed description. The sample of developing countries ranges from 01/1996 - 12/2016 and contains 71 flexible exchange rates.

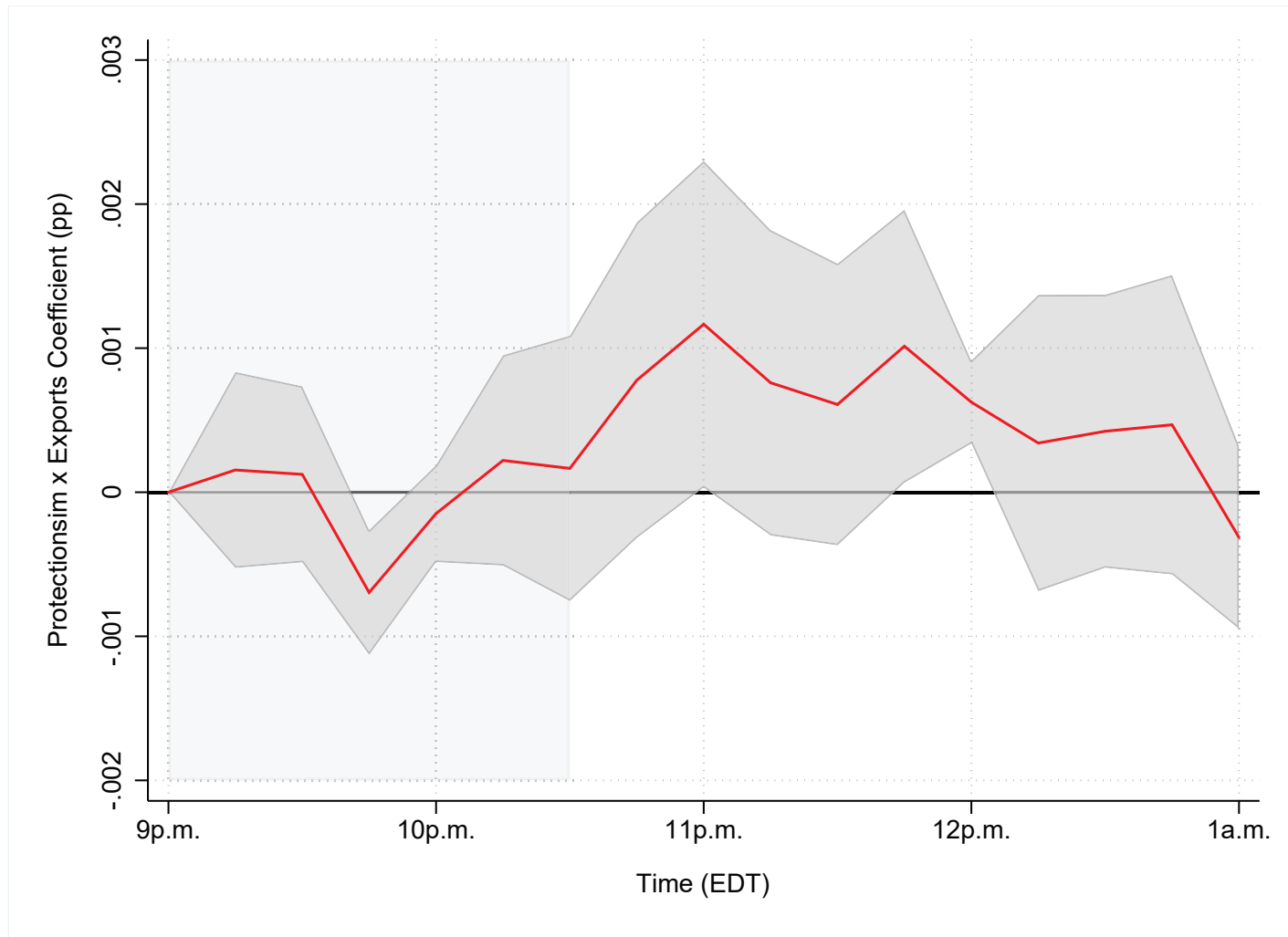


Figure A4: Impact of protectionism conditional on exports to US - Developed countries. See Figure 4 for detailed description. The sample of developed countries ranges from 01/1996 - 12/2016 and contains 39 flexible exchange rates.

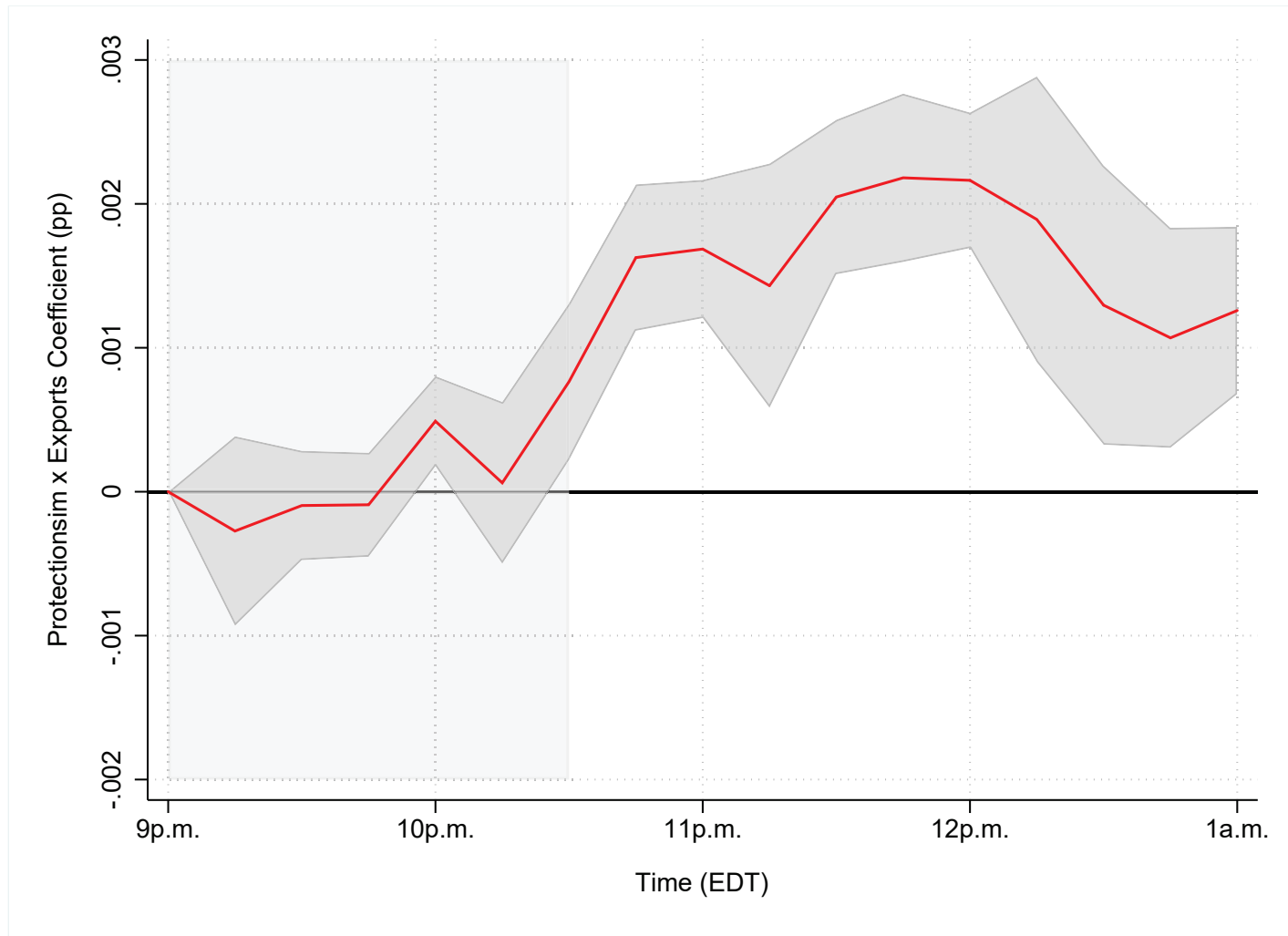


Figure A5: Impact of protectionism conditional on exports to US - Developing countries. See Figure 4 for detailed description. The sample of developing countries ranges from 01/1996 - 12/2016 and contains 69 flexible exchange rates.

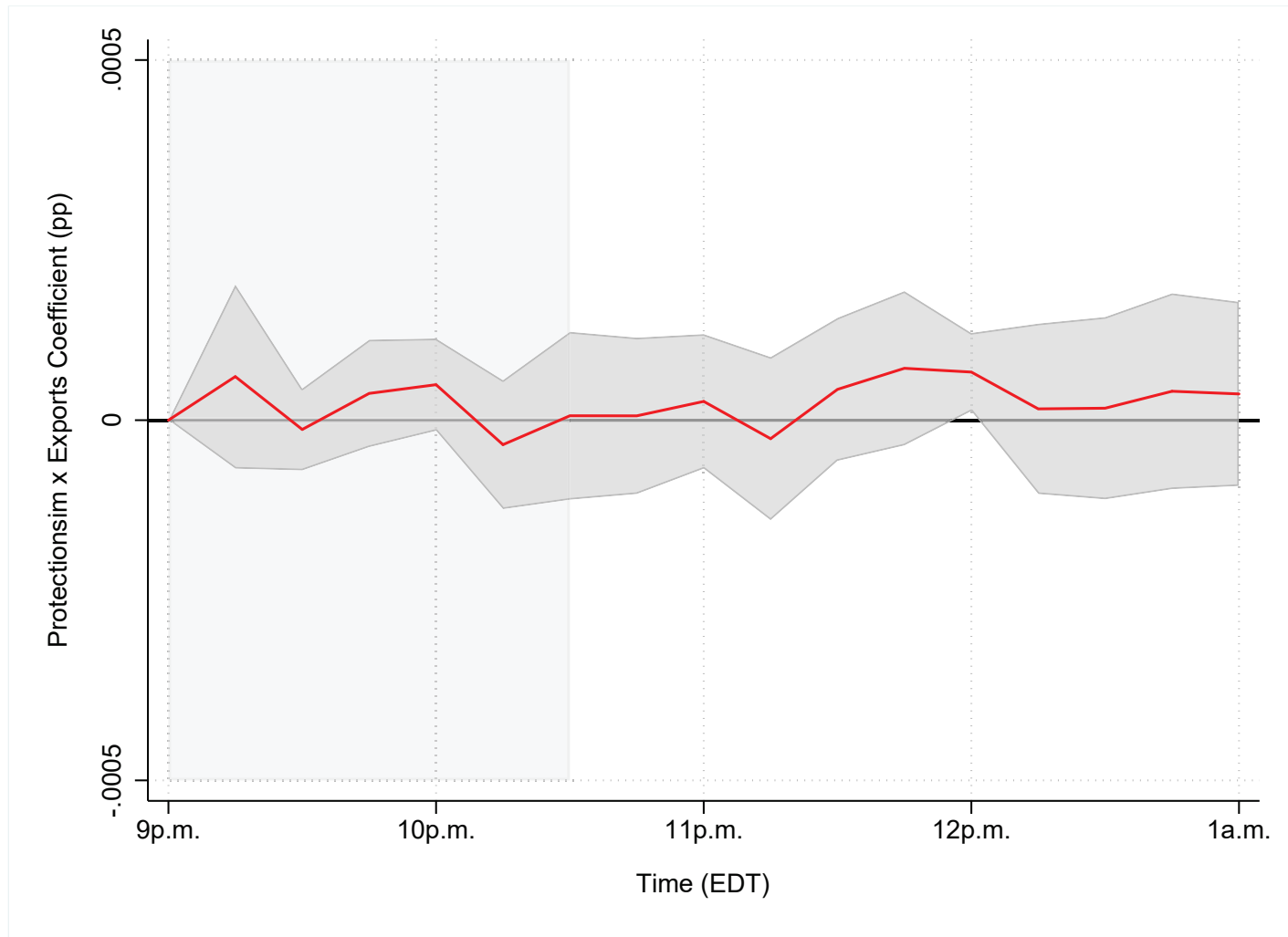


Figure A6: Impact of protectionism conditional on exports to world. See Figure 4 for detailed description but integration with world instead of US. The full sample ranges from 01/1996 - 12/2016 and contains 93 flexible exchange rates.

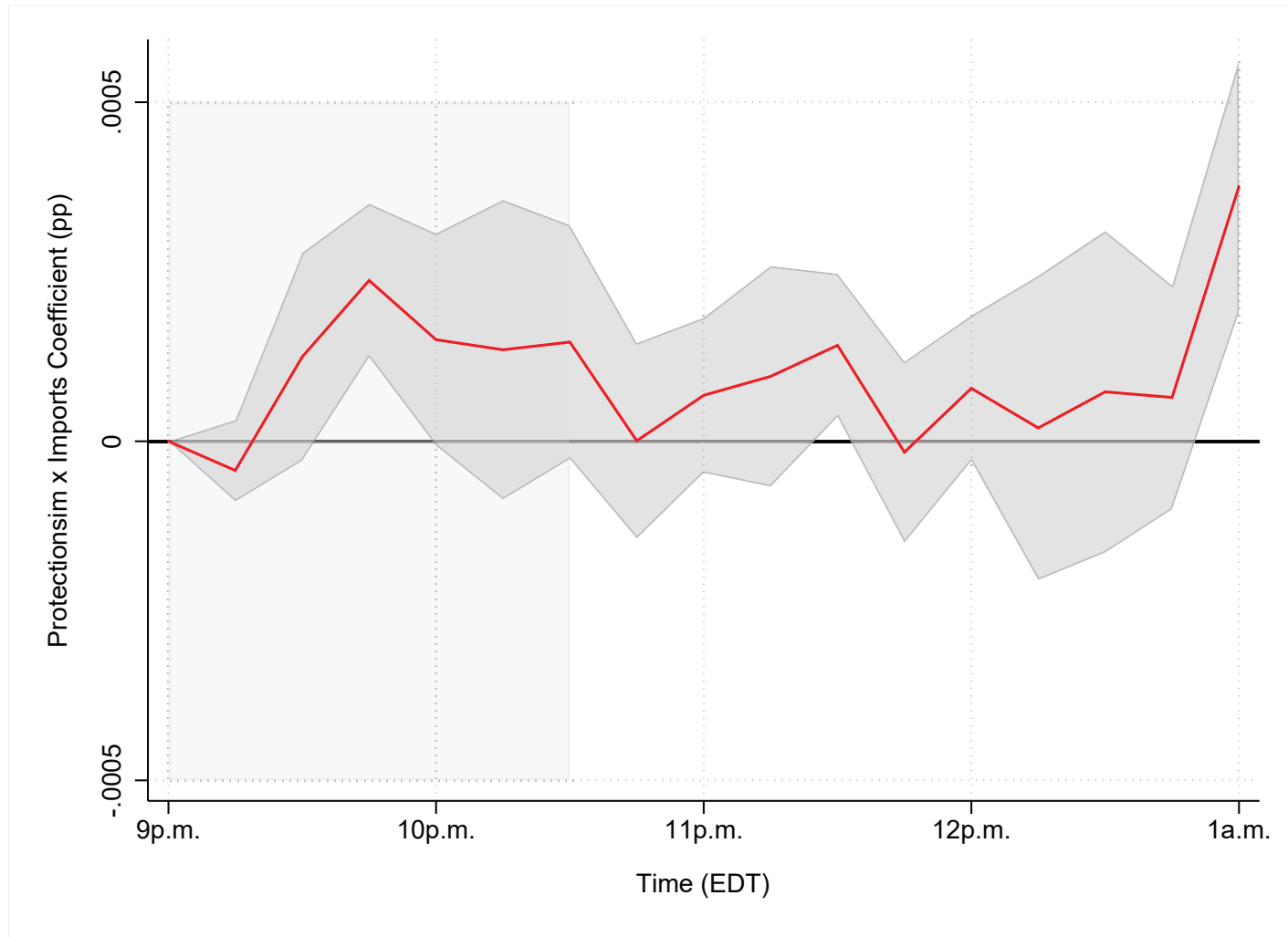


Figure A7: Impact of protectionism conditional on imports from world. See Figure 7 for detailed description but integration with world instead of US. The full sample ranges from 01/1996 - 12/2016 and contains 92 flexible exchange rates.

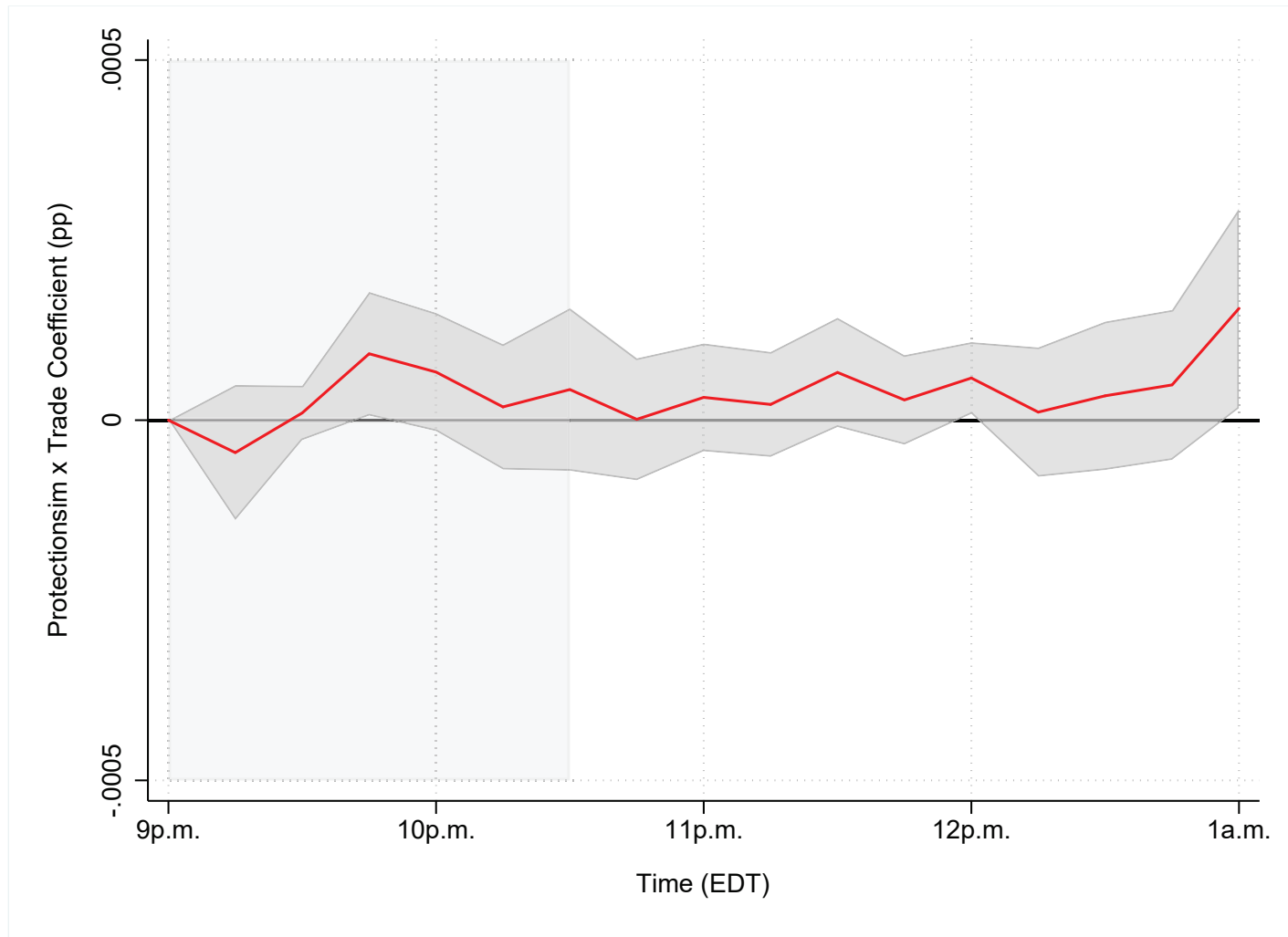


Figure A8: Impact of protectionism conditional on trade with world. See Figure 8 for detailed description but integration with world instead of US. The full sample ranges from 01/1996 - 12/2016 and contains 92 flexible exchange rates.

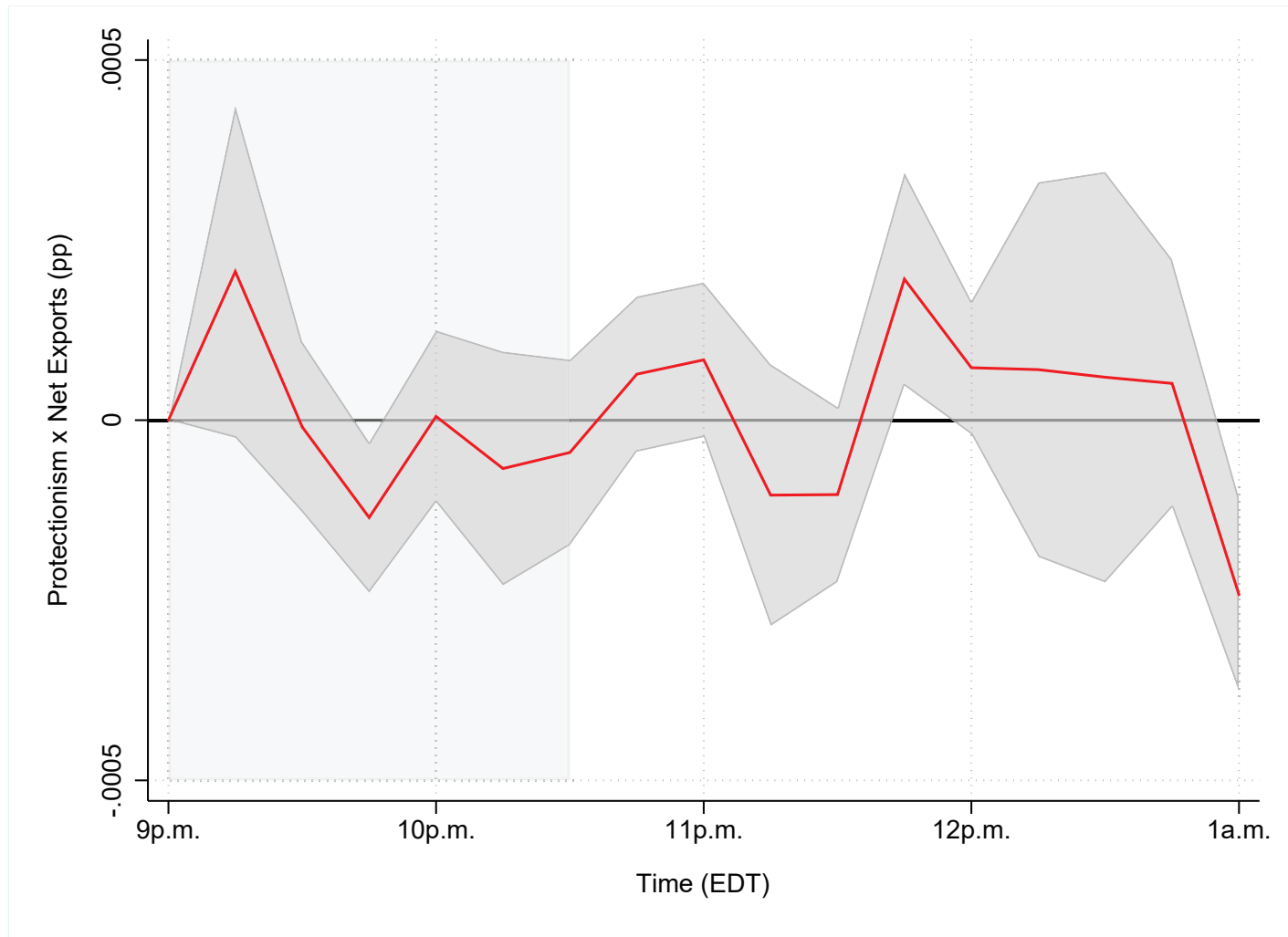


Figure A9: Impact of protectionism conditional on net exports to world. See Figure 9 for detailed description but integration with world instead of US. The full sample ranges from 01/1996 - 12/2016 and contains 92 flexible exchange rates.

Table A1: US presidential TV debates from 1996 - 2016.

Date	Democrat	Republican	Protectionist candidate	Topic of debate	Debate winner (10:30 p.m. EDT)
10/19/2016	Clinton	Trump		-	Democrat
10/09/2016	Clinton	Trump	Republican	-	Republican
10/04/2016	Kaine	Pence		VP Debate	Republican
09/26/2016	Clinton	Trump		-	Democrat
10/22/2012	Obama	Romney		Foreign Policy	Democrat
10/16/2012	Obama	Romney	Republican	All Topics	Democrat
10/11/2012	Biden	Ryan		VP Debate	Democrat
10/03/2012	Obama	Romney		Domestic Policy	Republican
10/15/2008	Obama	McCain		The Economy and Domestic Policy	Democrat
10/07/2008	Obama	McCain	Democrat	All Topics	Democrat
10/02/2008	Biden	Palin		VP Debate	Republican
09/26/2008	Obama	McCain		Foreign Policy and National Security	Republican
10/13/2004	Kerry	Bush		Domestic Policy	Democrat
10/08/2004	Kerry	Bush	Republican	Domestic and Foreign Policy	Republican
10/05/2004	Edwards	Cheney		VP Debate	Democrat
09/30/2004	Kerry	Bush		Foreign Policy	Republican
10/17/2000	Al Gore	Bush		-	Democrat
10/11/2000	Al Gore	Bush	Democrat	-	Republican
10/05/2000	Liebermann	Cheney		VP Debate	Democrat
10/03/2000	Al Gore	Bush		-	Democrat
10/16/1996	Clinton	Dole		-	Republican
10/09/1996	Al Gore	Kemp	Republican	VP Debate	Republican
10/06/1996	Clinton	Dole		-	Republican

Table A2: Descriptive statistics of macroeconomic variables (winsorized at 1st and 99th percentile).

Variable	Obs	Mean	SD	Min	Max
Exports to US (% GDP)	257000	3.252	4.908	.024	24.246
Exports to World (% GDP)	258000	31.458	22.091	2.185	140.888
Imports to US (% GDP)	258000	2.768	3.494	.096	18.436
Imports to World (% GDP)	258000	22.806	23.745	.438	121.689
Trade with US (% GDP)	256000	6.049	8.229	.388	41.891
Trade with World (% GDP)	257000	54.316	39.556	8.044	249.091
NX to US (% GDP)	256000	.465	2.251	-4.383	10.176
NX to World (% GDP)	257000	8.653	22.159	-33.995	102.443
US Military Aid (% GDP)	205000	.064	.228	0	1.572
US Remittances (% GDP)	92183	.356	.716	0	4.24
Migrant Stock (% US Pop.)	13220	.144	.53	.002	3.8

Table A3: Unconditional debate effect excluding debate years. The table shows the results of the OLS model of exchange rate returns at 10:30 p.m. EDT on a dummy variable $Debate_{t,T}$ that takes a value of 1 on days of presidential debates and 0 otherwise, $r_{i,t,10:30p.m.} = \alpha_0 + \beta_1 \times Debate_{t,10:30p.m.} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$. We exclude successively year-by-year one election year. Exchange rate returns of currency i at day t are calculated as $r_{i,t,10:30p.m.} = \ln(s_{i,t,10:30p.m.}) - \ln(s_{i,t,9:00p.m.})$. A negative coefficient denotes a depreciation of the US dollar against foreign currencies. The results are given in percentage points. The full sample ranges from 01/1996 - 12/2016 and contains 96 flexible exchange rates. In the baseline model (I), we account for country fixed effects and year fixed effects. The p-values (in parentheses) are based on robust standard errors. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Return at 10:30p.m.	without 1996	without 2000	without 2004	without 2008	without 2012	without 2016
Debate	-0.0168*** (0.00494)	-0.0162*** (0.00452)	-0.0185*** (0.00490)	-0.00910*** (0.00303)	-0.0197*** (0.00539)	-0.0123*** (0.00449)
Constant	0.00709 (0.00533)	0.00368*** (0.00117)	0.00363*** (0.00114)	0.00317*** (0.00113)	0.00339*** (0.00113)	0.00356*** (0.00111)
Observations	261,281	260,004	259,675	258,287	258,417	256,638
Currencies	96	96	95	96	96	95
R^2	0.000	0.000	0.000	0.000	0.000	0.000

Table A4: Impact of protectionism conditional on exports to US and FTA with US. The table shows results of the OLS model of daily panels of exchange rate returns in 15-minute-windows on the interaction of changes in the protectionist candidates' election probability with country's exports to the US (scaled by GDP) and a dummy variable for FTA with the US, $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \beta_2 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} + \beta_3 \times Debate_{t,T} \times \Delta q_{t,T}^{Protec} + \beta_4 \times Exports_{i,t,T} + \beta_5 \times Debate_{t,T} \times Exports_{i,t,T} + \beta_6 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times Exports_{i,t,T} + \beta_7 \times Debate_{t,T} \times \Delta q_{t,T}^{Protec} \times Exports_{i,t,T} + \beta_8 \times FTA_{i,t,T} + \beta_9 \times Debate_{t,T} \times FTA_{i,t,T} + \beta_{10} \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times FTA_{i,t,T} + \beta_{11} \times Debate_{t,T} \times \Delta q_{t,T}^{Protec} \times FTA_{i,t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$. Exchange rate returns of currency i at day t are calculated as $r_{i,t,T} = \ln(s_{i,t,T}) - \ln(s_{i,t,9:00p.m.})$ with expanding T by 15-minute-windows and are matched with changes in election probabilities. A positive coefficient denotes a depreciation of the foreign currencies against the US dollar and vice versa. The results are given in percentage points. The full sample ranges from 01/1996 - 12/2016 and contains 93 flexible exchange rates. In the baseline model (I), we account for country fixed effects and year fixed effects. The p-values (in parentheses) are based on robust standard errors. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Return at	211500	213000	214500	220000	221500	223000	224500	230000	231500	233000	234500	0
(I)												
Debate (D)	0.0071* (0.0038)	-0.0100** (0.0042)	-0.0098*** (0.0032)	-0.0106*** (0.0036)	-0.0162*** (0.0058)	-0.0152*** (0.0049)	-0.0113*** (0.0037)	-0.0081* (0.0042)	-0.0085 (0.0052)	-0.0045 (0.0050)	-0.0101** (0.0050)	-0.0076* (0.0042)
Exports to US (E)	0.0004 (0.0003)	0.0003 (0.0004)	0.0001 (0.0003)	0.0001 (0.0002)	-0.0001 (0.0004)	-0.0003 (0.0005)	0.0001 (0.0006)	0.0001 (0.0003)	-0.0001 (0.0005)	-0.0004 (0.0006)	-0.0009 (0.0007)	-0.0002 (0.0003)
D × E	-0.0003 (0.0008)	0.0007 (0.0011)	0.0005 (0.0007)	0.0009 (0.0008)	0.0005 (0.0014)	0.0009 (0.0013)	0.0007 (0.0008)	0.0005 (0.0009)	-0.0003 (0.0011)	0.0001 (0.0011)	0.0009 (0.0013)	0.0006 (0.0010)
FTA [0;1]	0.0022 (0.0015)	0.0015 (0.0016)	0.0000 (0.0014)	-0.0017 (0.0021)	-0.0027 (0.0027)	-0.0020 (0.0029)	-0.0011 (0.0029)	-0.0006 (0.0024)	-0.0002 (0.0037)	-0.0007 (0.0033)	-0.0025 (0.0033)	-0.0012 (0.0024)
D × FTA	0.0075 (0.0095)	-0.0048 (0.0130)	-0.0172 (0.0104)	-0.0241 (0.0168)	-0.0249 (0.0266)	-0.0351 (0.0220)	-0.0204 (0.0125)	-0.0190 (0.0177)	-0.0029 (0.0192)	-0.0333 (0.0202)	-0.0469* (0.0248)	-0.0371 (0.0233)
D × Δq^{Dem}	-0.0041 (0.0025)	0.0016 (0.0014)	0.0067*** (0.0015)	0.0022 (0.0017)	0.0010 (0.0021)	0.0027* (0.0014)	0.0028** (0.0013)	0.0033*** (0.0012)	0.0069*** (0.0025)	0.0041** (0.0019)	0.0012 (0.0023)	0.0034 (0.0021)
D × Δq^{Dem} × E	-0.0004 (0.0005)	-0.0003 (0.0003)	-0.0011*** (0.0003)	-0.0006** (0.0003)	-0.0006* (0.0003)	-0.0010** (0.0005)	-0.0013** (0.0005)	-0.0013** (0.0005)	-0.0020*** (0.0007)	-0.0019*** (0.0007)	-0.0020*** (0.0007)	-0.0018*** (0.0006)
D × Δq^{Dem} × FTA	0.0102 (0.0098)	0.0081* (0.0047)	0.0088 (0.0057)	0.0020 (0.0045)	0.0004 (0.0061)	-0.0033 (0.0080)	-0.0099 (0.0097)	-0.0063 (0.0077)	-0.0064 (0.0091)	-0.0064 (0.0093)	-0.0029 (0.0089)	-0.0029 (0.0079)
D × Δq^{Protec}	0.0050** (0.0025)	-0.0045*** (0.0014)	0.0052*** (0.0015)	0.0024 (0.0016)	0.0008 (0.0021)	0.0036** (0.0014)	0.0005 (0.0013)	-0.0002 (0.0013)	0.0012 (0.0026)	0.0031* (0.0017)	0.0011 (0.0020)	-0.0004 (0.0017)
D × Δq^{Dem} × E	0.0006 (0.0004)	0.0001 (0.0003)	-0.0004 (0.0002)	0.0003 (0.0002)	0.0002 (0.0003)	0.0008* (0.0005)	0.0015** (0.0006)	0.0016*** (0.0006)	0.0013* (0.0007)	0.0018** (0.0007)	0.0021*** (0.0007)	0.0017*** (0.0006)
D × Δq^{Dem} × FTA	-0.0185** (0.0089)	-0.0012 (0.0051)	0.0064 (0.0063)	0.0014 (0.0043)	0.0002 (0.0049)	-0.0090* (0.0047)	-0.0112* (0.0061)	-0.0087 (0.0057)	-0.0065 (0.0065)	-0.0121** (0.0057)	-0.0115** (0.0052)	-0.0082* (0.0047)
Constant	0.0005 (0.0012)	0.0020 (0.0014)	0.0028* (0.0016)	0.0009 (0.0009)	0.0028 (0.0019)	0.0048** (0.0020)	0.0045** (0.0022)	0.0027** (0.0013)	0.0057** (0.0024)	0.0052* (0.0030)	0.0069** (0.0031)	0.0030** (0.0015)
Obs.	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853	256,853
Currencies	93	93	93	93	93	93	93	93	93	93	93	93
R ²	0.0005	0.0005	0.0004	0.0004	0.0004	0.0005	0.0008	0.0009	0.0008	0.0011	0.0010	0.0011

Table A5: Impact of pro-military conditional on US military aid. The table shows results of the OLS model of daily panels of exchange rate returns in 15-minute-windows on the interaction of changes in the pro-military candidates' election probability with country's received US military aid (scaled by GDP), $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \beta_2 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} + \beta_3 \times Debate_{t,T} \times \Delta q_{t,T}^{Military} + \beta_4 \times MilitaryAid_{i,t,T} + \beta_5 \times Debate_{t,T} \times MilitaryAid_{i,t,T} + \beta_6 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times MilitaryAid_{i,t,T} + \beta_7 \times Debate_{t,T} \times \Delta q_{t,T}^{Military} \times MilitaryAid_{i,t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$. Exchange rate returns of currency i at day t are calculated as $r_{i,t,T} = \ln(s_{i,t,T}) - \ln(s_{i,t,9:00p.m.})$ with expanding T by 15-minute-windows and are matched with changes in election probabilities. A positive coefficient denotes a depreciation of the foreign currencies against the US dollar and vice versa. The results are given in percentage points. The full sample ranges from 01/1996 - 12/2016 and contains 93 flexible exchange rates. In the baseline model (I), we account for country fixed effects and year fixed effects. The p-values (in parentheses) are based on robust standard errors. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Return at	211500	213000	214500	220000	221500	223000	224500	230000	231500	233000	234500	0
(I)												
Debate (D)	0.0026 (0.0032)	-0.0068 (0.0048)	-0.0138*** (0.0037)	-0.0116*** (0.0036)	-0.0162*** (0.0061)	-0.0178*** (0.0051)	-0.0090** (0.0044)	-0.0113*** (0.0036)	-0.0124** (0.0051)	-0.0116** (0.0055)	-0.0167*** (0.0056)	-0.0122*** (0.0046)
US Military Aid (MA)	0.0001 (0.0018)	0.0008 (0.0026)	0.0013 (0.0014)	0.0011 (0.0014)	0.0013 (0.0028)	0.0049** (0.0023)	0.0051* (0.0031)	0.0040** (0.0019)	0.0030 (0.0038)	0.0071* (0.0039)	0.0104** (0.0045)	0.0091*** (0.0021)
D × MA	0.0062* (0.0033)	0.0079* (0.0044)	0.0089* (0.0053)	0.0043 (0.0039)	0.0189*** (0.0053)	0.0132** (0.0053)	0.0012 (0.0039)	0.0097*** (0.0032)	0.0241*** (0.0049)	0.0078 (0.0058)	0.0147** (0.0065)	0.0089* (0.0052)
D × Δq^{Dem}	-0.0312 (0.0204)	0.0033 (0.0063)	0.0088*** (0.0031)	0.0004 (0.0033)	-0.0019 (0.0110)	0.0044 (0.0034)	-0.0037 (0.0042)	0.0033 (0.0040)	-0.0004 (0.0096)	0.0011 (0.0032)	-0.0036 (0.0037)	-0.0006 (0.0033)
D × Δq^{Dem} × MA	0.0465*** (0.0171)	0.0010 (0.0063)	-0.0081** (0.0033)	0.0019 (0.0038)	0.0031 (0.0099)	-0.0023 (0.0034)	0.0057 (0.0056)	-0.0023 (0.0041)	-0.0122 (0.0090)	-0.0075** (0.0037)	-0.0022 (0.0042)	-0.0048 (0.0040)
D × $\Delta q^{Military}$	-0.0288 (0.0204)	0.0021 (0.0064)	0.0091*** (0.0029)	0.0022 (0.0032)	-0.0005 (0.0110)	0.0059** (0.0030)	-0.0003 (0.0035)	0.0038 (0.0038)	0.0006 (0.0093)	0.0058** (0.0024)	0.0012 (0.0032)	0.0015 (0.0029)
D × $\Delta q^{Military}$ × MA	0.0419** (0.0171)	0.0002 (0.0064)	-0.0121*** (0.0032)	0.0004 (0.0037)	0.0000 (0.0099)	-0.0067** (0.0032)	0.0003 (0.0042)	-0.0040 (0.0038)	-0.0157* (0.0086)	-0.0168*** (0.0026)	-0.0102*** (0.0036)	-0.0078** (0.0034)
Constant	0.0021*** (0.0008)	0.0028*** (0.0010)	0.0026** (0.0012)	0.0010 (0.0007)	0.0023* (0.0012)	0.0035*** (0.0013)	0.0038** (0.0016)	0.0017 (0.0013)	0.0042** (0.0017)	0.0039** (0.0018)	0.0032* (0.0019)	0.0005 (0.0017)
Obs.	205,133	205,133	205,133	205,133	205,133	205,133	205,133	205,133	205,133	205,133	205,133	205,133
Currencies	86	86	86	86	86	86	86	86	86	86	86	86
R^2	0.0005	0.0005	0.0005	0.0003	0.0005	0.0007	0.0007	0.0007	0.0009	0.0012	0.0012	0.0009

Table A6: Impact of pro-immigration conditional on migrant stock in US. The table shows results of the OLS model of daily panels of exchange rate returns in 15-minute-windows on the interaction of changes in the pro-immigration candidates' election probability with country's number of migrants in the US (scaled by US population), $r_{i,t,T} = \alpha_0 + \beta_1 \times Debate_{t,T} + \beta_2 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} + \beta_3 \times Debate_{t,T} \times \Delta q_{t,T}^{Immigration} + \beta_4 \times Migrants_{i,t,T} + \beta_5 \times Debate_{t,T} \times Migrants_{i,t,T} + \beta_6 \times Debate_{t,T} \times \Delta q_{t,T}^{Dem} \times Migrants_{i,t,T} + \beta_7 \times Debate_{t,T} \times \Delta q_{t,T}^{Immigration} \times Migrants_{i,t,T} + \alpha_1 + \gamma_a + \varepsilon_{i,t,T}$. Exchange rate returns of currency i at day t are calculated as $r_{i,t,T} = \ln(s_{i,t,T}) - \ln(s_{i,t,9:00p.m.})$ with expanding T by 15-minute-windows and are matched with changes in election probabilities. A positive coefficient denotes a depreciation of the foreign currencies against the US dollar and vice versa. The results are given in percentage points. The full sample ranges from 01/1996 - 12/2016 and contains 93 flexible exchange rates. In the baseline model (I), we account for country fixed effects and year fixed effects. The p-values (in parentheses) are based on robust standard errors. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Return at	211500	213000	214500	220000	221500	223000	224500	230000	231500	233000	234500	0
(I)												
Debate (D)	0.0110** (0.0050)	-0.0066 (0.0056)	-0.0203*** (0.0063)	-0.0331*** (0.0088)	-0.0287*** (0.0080)	-0.0211*** (0.0077)	-0.0135** (0.0061)	-0.0067 (0.0064)	-0.0140* (0.0075)	-0.0253*** (0.0091)	-0.0317*** (0.0101)	-0.0197** (0.0088)
Migrants (MI)	0.0047*** (0.0007)	0.0054*** (0.0008)	0.0068*** (0.0013)	0.0051*** (0.0003)	0.0097*** (0.0013)	0.0115*** (0.0011)	0.0105*** (0.0012)	0.0115*** (0.0007)	0.0119*** (0.0016)	0.0118*** (0.0015)	0.0151*** (0.0014)	0.0146*** (0.0008)
D × MI	-0.0123*** (0.0032)	0.0152*** (0.0018)	-0.0560*** (0.0037)	-0.1039*** (0.0042)	-0.1172*** (0.0033)	-0.0854*** (0.0030)	-0.0146*** (0.0028)	-0.0570*** (0.0037)	-0.0605*** (0.0047)	-0.0562*** (0.0047)	-0.0687*** (0.0068)	-0.0843*** (0.0071)
D × Δq^{Im}	0.2303*** (0.0777)	0.0043 (0.0126)	-0.0063** (0.0026)	-0.0142*** (0.0030)	-0.0104*** (0.0031)	-0.0033** (0.0016)	-0.0025* (0.0015)	-0.0067*** (0.0022)	-0.0048** (0.0022)	-0.0073*** (0.0025)	-0.0071*** (0.0026)	-0.0044* (0.0023)
D × Δq^{Im} × MI	-0.0899 (0.0563)	0.0929*** (0.0117)	-0.0203*** (0.0013)	-0.0427*** (0.0020)	-0.0552*** (0.0018)	-0.0297*** (0.0016)	-0.0327*** (0.0010)	-0.0560*** (0.0022)	-0.0591*** (0.0012)	-0.0615*** (0.0013)	-0.0575*** (0.0013)	-0.0615*** (0.0013)
Constant	-0.0052*** (0.0017)	-0.0037* (0.0021)	-0.0067*** (0.0021)	-0.0054** (0.0023)	-0.0063** (0.0030)	-0.0061** (0.0028)	0.0032 (0.0038)	-0.0048 (0.0032)	-0.0018 (0.0061)	-0.0090* (0.0050)	-0.0131** (0.0054)	-0.0040 (0.0045)
Obs.	13,220	13,220	13,220	13,220	13,220	13,220	13,220	13,220	13,220	13,220	13,220	13,220
Currencies	52	52	52	52	52	52	52	52	52	52	52	52
R^2	0.0055	0.0026	0.0043	0.0077	0.0087	0.0063	0.0144	0.0113	0.0097	0.0117	0.0116	0.0099