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# THE SMOOT-HAWLEY TRADE WAR\*

### Kris James Mitchener, Kevin Hjortshøj O'Rourke and Kirsten Wandschneider

We document the outbreak of a trade war after the United States adopted the Smoot-Hawley tariff in June 1930. U.S. trade partners initially protested, with many eventually choosing to retaliate with tariffs. Using a new quarterly dataset on bilateral trade for ninety-nine countries, we show that U.S. exports to retaliators fell by 28%–32%. Using a second new dataset on U.S. exports at the product level, we find that the most important U.S. exports to retaliating markets were particularly affected, suggesting a possible mechanism whereby the United States was targeted despite most-favoured-nation obligations. The retaliators' welfare gains from trade fell by 8%–16%.

Empirical and theoretical interest in understanding the effects of trade wars has surged in response to the recent U.S.-China trade dispute. A fast-moving literature focuses on the effects of the tariff increases of 2018–9 on U.S. manufacturing employment, producer prices and capital expenditure of firms as well as welfare losses in the form of higher prices and nearly complete pass through (Amiti *et al.*, 2019; Flaaen and Pierce, 2019; Amiti *et al.*, 2020; Fajgelbaum *et al.*, 2020). Scholars and policymakers seeking to understand contemporary trade disputes have traditionally viewed the Smoot-Hawley legislation of June 1930, and the tariff wars that ensued, as a useful reference point, and a cautionary tale of what can go wrong when protectionism gets out of hand (Evenett, 2019). But what exactly were the effects of the Smoot-Hawley trade war on international trade flows?

Surprisingly, perhaps, for non-specialists, the general conclusion of quantitative economic historians who have explored the effects of 1930s protectionism is that it had less of an impact than was traditionally thought. The basic point is straightforward: the collapse in GDP during the Great Depression was so large that, on its own, it can explain the bulk of the trade collapse of 1929–33: there is relatively little left over for a rise in trade costs to explain. For example, Irwin (1998a) used aggregate quarterly U.S. import data to estimate a partial equilibrium U.S. import demand function. He found that, even if ad valorem tariff rates had remained unchanged in the United States, imports into that country would have declined by 31.9% from the second quarter of 1930 to the third quarter of 1932—not that much less than the 41.2% fall that actually

\* Corresponding author: Kevin Hjortshøj O'Rourke, Social Sciences, New York University Abu Dhabi, P.O. Box 129188, Abu Dhabi, United Arab Emirates. Email: kevin.orourke@nyu.edu

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occurred.<sup>1</sup> Furthermore, movements in the aggregate price level had larger effects on U.S. ad valorem tariff rates than changes in nominal tariffs (Crucini, 1994; Irwin, 1998b).

However, these and other papers do not address the quantitative impact of the *response* of other countries to the Smoot-Hawley tariff—the focus of our research.<sup>2</sup> It might be the case that Smoot-Hawley contributed relatively little to the aggregate decline in trade or production, consistent with the work of Irwin and others, but that retaliation distorted geographical trade patterns, significantly impacting U.S. exports to those trade partners that chose to participate in a trade war.<sup>3</sup> Jones (1934) argued that U.S. exports to Italy, Spain and Switzerland declined as a result of retaliation, based on the trade data available at the time, but there has been no rigorous exploration of the issue using modern empirical methods and comprehensive data. Our paper aims to fill this major gap in the literature: our gravity model estimates show that the quantitative impact of the Smoot-Hawley trade war on trade flows was big.

Our study focuses on the act of retaliation—when countries decide to raise trade barriers, not for domestic reasons, but primarily for the purpose of responding to other countries' actions. In particular, we ask two questions. First, what determined whether a country officially protested Smoot-Hawley, or went one step further and actually retaliated? And second, what was the impact of retaliation on trade flows?

Based on contemporary sources and government documents, we first identify country responses to Smoot-Hawley (whether they filed official protests with the U.S. government, retaliated by imposing tariffs or simply did nothing). We analyse whether these responses are predicted by trade or political relationships with the United States. Interestingly, we find that a country's response to Smoot-Hawley is not determined by a country's pre-1930 share of exports or bilateral trade balance with the United States. The main focus of the paper, however, is on the effects of the Smoot-Hawley trade war on bilateral imports. We estimate these using a structural gravity model, and a new, hand-collected quarterly dataset on bilateral trade for ninety-nine countries during the interwar period. This is to our knowledge the first high-frequency bilateral dataset to have been constructed for this period.<sup>4</sup> These new quarterly data allow for more precise identification of the timing of the response to Smoot-Hawley by either filing official protests against Smoot-Hawley and/or imposing retaliatory tariffs against the United States. We employ gravity model estimates to compare these "responders" to U.S. trade partners that did not respond. The inclusion of importer-time and exporter-time fixed effects as well as pairwise fixed effects in these models

<sup>1</sup> Madsen (2001) focused on interwar trade volumes generally, not U.S. imports specifically. He found a bigger role for trade policy, in part because he estimated panel regressions where the dependent variables are aggregate trade flows, and also because he interpreted the time dummies in those regressions (which are, not surprisingly, highly significant) as representing the impact of non-tariff barriers to trade. Jacks and Novy (2020) concluded that trade wars in the interwar period predominantly reinforced existing trade blocks and that bilateral retaliation was rare. Kitson and Solomou (1990) are another dissenting voice, using single-equation, time-series methods and aggregate data for the United Kingdom. Estevadeordal *et al.* (2003) and Adam (2019) used gravity methods to explore the impact of tariffs during the 1930s: the former found relatively small effects of tariffs while the latter found larger ones.

<sup>&</sup>lt;sup>2</sup> For recent overviews, see Irwin (2011) and the discussion in Irwin (2017). Crucini and Kahn (1996) provide a DSGE model of the trade war.

<sup>&</sup>lt;sup>3</sup> There is no consensus in the literature regarding whether interwar trade policy distorted geographical trade patterns. Eichengreen and Irwin (1995), Wolf and Ritschl (2011) and Gowa and Hicks (2013) downplayed the role of interwar trade blocs in distorting the geographical pattern of trade. However, de Bromhead *et al.* (2019) have shown that while the UK's switch to protection after 1931 only explains around a quarter of the decline in aggregate UK imports (similar to what Irwin found for the United States), it can account for the majority of Britain's shift towards Imperial imports during the period. Arthi *et al.* (2020) reached similar conclusions for interwar India.

<sup>&</sup>lt;sup>4</sup> The data will be made available to other scholars at https://cepr.org/content/trade-depression.

allows us to identify whether responders *differentially* reduced their imports from the United States after Smoot-Hawley, prima facie evidence that a trade war occurred.

Our results show that countries that responded to Smoot-Hawley with retaliatory tariffs reduced their imports from the United States by an average of 28%–32%, while countries that merely protested the implementation of the Smoot-Hawley tariff also reduced their imports, by between 15% and 23%. In other words, de facto retaliation went beyond the group of countries commonly labelled as *retaliators*.

These findings raise an interesting question: how did responders succeeded in targeting U.S. exports, given that many were bound by their most-favoured-nation obligations? One possible answer is quotas, which are by their nature discriminatory, but another is that countries chose to raise tariffs strategically by targeting particularly important exports of the United States, such as automobiles. To test this hypothesis, we construct an additional new dataset, this time of product-level, quarterly U.S. exports to fifty-nine countries between 1926 and 1932, and use our primary sources to identify key U.S. exports to each trade partner in 1928, before either the Great Depression or the trade war struck. Our gravity model estimates show that retaliators significantly reduced their purchases of key U.S. exports, especially automobiles, after Smoot-Hawley passed. For example, even when controlling for aggregate U.S. exports to particular markets, we show that chief U.S. exports to retaliators were differentially affected, falling by an additional 33% after the United States raised tariffs in 1930—a result that is consistent with trade partners targeting goods that were of particular importance to the United States. Given that these models include product-time, country-time and product-country fixed effects, the results also speak directly to the proposed mechanism driving the differential decline in U.S. exports during our sample period: retaliation by U.S. trade partners.

Finally, we calculate changes in the welfare gains from trade, following a recent approach that measures them using changes in the terms of trade.<sup>5</sup> We find that the welfare gains from trade enjoyed by retaliators fell by roughly 8%-16%.

In the next section, we describe the introduction of the Smoot-Hawley tariff bill and the international responses that followed. The discussion highlights the ambiguity characterising existing research regarding whether particular tariff increases occurring outside the United States constituted retaliation or were essentially autonomous. Sections 2 and 3 ask what made some countries officially protest U.S. policy, or retaliate, while others did not. Section 4 explores the impact of protests and retaliation on trade flows. Section 5 finds evidence that the most important U.S. exports to countries retaliating against it were particularly targeted. Using recent empirical advances, Section 6 examines how the Smoot-Hawley trade war affected the welfare of combatants.

#### 1. The Smoot-Hawley Tariff and Retaliation

The roots of the Smoot-Hawley tariff can be traced back to the First World War.<sup>6</sup> With European agricultural production depressed due to conflict, it had been a boom time for New World producers, who borrowed heavily to finance expansion. However, as European producers came back online and crop prices fell in response to the increased global supply, a deep recession occurred in the United States in 1920–1. Farm incomes remained depressed for the remainder

<sup>&</sup>lt;sup>5</sup> See Eaton and Kortum (2002), Arkolakis et al. (2008), Arkolakis et al. (2012) and Felbermayr et al. (2015).

<sup>&</sup>lt;sup>6</sup> For an excellent introduction, see Irwin (2011, ch. 1).

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of the 1920s—a decade characterised by lower agricultural prices worldwide. Heavily indebted American farmers found themselves increasingly under pressure, with many losing their farms.

In 1922, the Fordney-McCumber tariff was passed, resulting in a sharp increase in protection, particularly for industrial goods. Democrats and Midwestern Republicans supporting agricultural interests repeatedly called for a levelling of the playing field, arguing that industrial tariffs should be lowered, or agricultural prices raised in order to help farmers; however, it proved difficult to advance either agendum in Congress. Eventually Midwestern Republicans called for higher agricultural tariffs even though they would not provide benefits for farmers whose livelihoods depended on exporting to the rest of the world. The promise was contained in the Republican platform in the 1928 Presidential election and was endorsed by the victorious candidate, Herbert Hoover.

While Hoover favoured focusing on agricultural tariffs, Congress had other ideas. The House Ways and Means Committee did not wait for Hoover's inauguration before getting to work. Under its Republican chairman, Willis Hawley, it began hearings on a new tariff bill in January 1929. The committee eventually produced a bill that raised tariffs on industrial goods more than on agricultural products, hardly what Midwestern Republicans had intended. In May 1929, the House approved the bill, which then went to the Senate Finance Committee chaired by Reed Smoot. The Finance Committee raised some of the proposed tariffs and lowered others, in general moving the legislation in a more agriculture-friendly direction. In September, the full Senate started considering the bill, operating until March 4, 1930 as the so-called 'committee of the whole'. During this phase many industrial tariffs were further reduced. Following this phase, further amendments were made to individual tariff rates, with votes traded between Senators in a manner widely denounced at the time. The final bill reversed many of the tariff reductions that the same Senate, meeting as the committee of the whole, had engineered just a short time previously. The resulting Hawley-Smoot bill, or Smoot-Hawley as Smoot preferred to call it, was signed by President Hoover on June 17, 1930, and came into effect the following day. The legislation raised the average U.S. tariff on dutiable imports by around six percentage points (Irwin, 2017, pp. 389-90).

The classic text on trade wars defines them as 'a category of intense international conflict where states interact, bargain, and retaliate primarily over economic objectives directly related to the traded goods or service sectors of their economies, and where the means used are restrictions on the free flow of goods or services' (Conybeare, 1987, p. 3). The key concept for identifying a trade war is thus *retaliation*. If countries around the world decide to raise tariffs for purely domestic reasons, it would certainly be bad for international trade, but according to this standard definition, it would not constitute a trade war. Thus, our primary focus in this paper will be on retaliation. We aim to answer two questions. First, what determined whether countries responded to the United States, the provocateur in that it was the first that raised its tariffs? And second, what impact did retaliation have on U.S. exports?

In order to answer these questions, we need to clarify further the concept of retaliation in the context of the policy environment. Implicit in the definition of a trade war is the notion that it involves responding to the actions of an instigating country (or set of countries) whose trade policies have harmed or will potentially harm the trade of another country or set of countries ("the potential *retaliator(s)*"). Thus, in the context of Smoot-Hawley, the United States was the instigator and the potential *retaliators* were those countries that could respond with actions of their own. However, as Irwin (1998b, p. 337) pointed out, there were three possible responses, only one of which, in our empirical analysis, fits the definition of a trade war. The first was to take

'direct retaliatory measures against the United States'. The second was to view Smoot-Hawley as a signal that international 'policy discipline' had broken down, and erect trade barriers against all countries (a sign of rising protectionism). And the third possibility was not to respond at all that, in the context of the Great Depression, might still involve raising tariffs for purely domestic political reasons. Irwin (1998b) speculated that the second and third possibilities were the most common responses to Smoot-Hawley, especially the third option. By our definition, only the first response is what we would consider to be consistent with retaliation resulting from a trade war.

In practice, it has not always been easy to distinguish between these possibilities since all three, including the last, could represent protectionism. As Kindleberger (1973, p. 132) commented, it can be 'difficult to disengage reason from excuse', especially since some of the retaliation may have occurred before Smoot-Hawley came into effect. Some have doubted whether retaliation was involved (Eichengreen, 1989). For example, if a country increased tariffs on U.S. goods but not on other countries' goods, that would clearly constitute retaliation, but what if it abided by its most-favoured-nation (MFN) obligations and did not discriminate against U.S. products? It might still be retaliating if it was purposely targeting goods of particular interest to the United States (e.g., cars); but what if it had wanted to protect its car industry anyway? It is not surprising, then, that as noted below, scholars have disagreed about whether specific foreign responses in fact constituted retaliation. In this paper, we develop an empirical methodology that allows us to identify direct retaliatory effects on U.S. exports and whether key U.S exports, in particular, were targeted.

#### 2. Foreign Responses to Smoot-Hawley

The U.S. threat to raise tariff rates was initially met with protests by a large number of countries and British colonies. As Smoot-Hawley wound its way through Congress, twenty foreign governments urged the U.S. government to reconsider, lodging official complaints with the U.S. State Department between February and June of 1929. The Hoover administration refused to make the number and names of these petitioners public, so the U.S. Senate passed a resolution requiring the U.S. State Department to submit all formal complaints of countries protesting the proposed tariff increases to the U.S. Senate Finance Committee. These were then read into the public record during the official debate on the Smoot-Hawley legislation. By the fall of 1929, the number officially protesting the tariff bill had grown to thirty-five colonies and countries, including some of the United States' largest trade partners: the United Kingdom, Germany and Japan (see Tables 1 and 2).<sup>7</sup> Canada was the exception to this protocol. Given their close geographical proximity as well as the importance of bilateral trade between the two nations, the Canadian government appealed directly to President Hoover on March 15, 1929 (Kottman, 1975).<sup>8</sup>

Protesting countries and colonies represented the interests of domestic industries whose exports would be harmed by tariff increases (leather goods from Austria, bananas and coffee from Guatemala, tomatoes and olive oil from Italy, woollen goods from the United Kingdom, etc.). For example, as early as February 1929, Australian exporters of meat and wool called on Prime Minister Stanley Bruce to take action and urged that he retaliate by increasing tariff rates on American automobiles.<sup>9</sup>

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<sup>&</sup>lt;sup>7</sup> We include the countries whose protest letters are included in the Hearings before the Committee on Finance on HR.2667, which includes all communications received before September 5, 1929.

<sup>&</sup>lt;sup>8</sup> In our empirical exercises we thus code Canada as a *protester*.

<sup>&</sup>lt;sup>9</sup> New York Times, February 10, 1929.

U.S. exports to			Ţ	U.S. imports from		
Trade partner	Total exports (\$ millions)	Percent of total exports	Trade partner	Total imports (\$ millions)	Percent of total imports	
Great Britain	917.8	18.1	Canada	440.3	11.7	
Canada	811.9	16.0	Japan	351.6	9.3	
Germany	483.2	9.5	Great Britain	303.1	8.0	
Japan	265.0	5.2	British East Indies	234.1	6.2	
France	216.9	4.3	Germany	211.5	5.6	
Italy	184.4	3.6	Brazil	202.9	5.4	
Argentina	175.0	3.4	Mexico	198.5	5.3	
Australia &	164.5	3.2	Cuba	187.0	5.0	
New Zealand						
Cuba	127.6	2.5	India	158.3	4.2	
Netherlands	127.0	1.2	France	127.7	3.4	

Table 1. Ten largest U.S. trade partners in 1928.

*Source.* Authors' calculations based on domestic country sources. See Appendix B. Bold indicates that a country retaliated, italics indicates that a country petitioned, countries in bold and italics petitioned and retaliated.

	Percentage change in U.S.	Protester (date of first	
Country	imports (4/1929–4/1932)	correspondence)	Retaliator
Ireland	-92.3		
Argentina	-82.3	8/20/1929	Х
Uruguay	-79.3	6/8/1929	
Latvia	-72.0	7/30/1929	
Great Britain	-71.3	2/26/1929	
India	-69.5	6/29/1929	
Germany	-68.3	8/15/1929	
Austria	-67.3	6/8/1929	
Australia and New Zealand	-67.1	6/28/1929	Х
Canada	-60.1	3/15/1929	Х
Spain	-57.4	4/26/1929	Х
Czechoslovakia	-54.2	7/5/1929	
Mexico	-53.8	6/20/1929	Х
Japan	-52.8	7/25/1929	
British West Indies	-52.0	6/22/1929	
Netherlands	-51.8	6/12/1929	
France	-47.7	5/21/1929	Х
Greece	-47.1	6/19/1929	
Cuba	-45.9		Х
Italy	-45.5	5/27/1929	Х
Iran, Iraq and Afghanistan	-44.5	3/12/1929	
Denmark	-43.4	5/14/1929	
Dominican Republic	-37.0	4/15/1929	
Turkey	-33.5	6/18/1929	
Belgium and Luxembourg	-29.5	5/24/1929	
Switzerland	-20.2	6/10/1929	Х
Sweden	-15.7	7/1/1929	
Portugal	-15.5	8/3/1929	
Finland	-5.7	7/23/1929	
Honduras	-2.0	3/23/1929	
Guatemala	11.6	3/9/1929	
Norway	25.6	6/1/1929	
Romania	119 3	6/27/1929	

Table 2. Protesters, Retaliators and U.S. Imports after Smoot-Hawley.

*Notes: Protesters* filed petitions with the U.S. State Department. *Retaliators* imposed tariffs in response to Smoot-Hawley as per Mann (1930) and Jones (1934). *Threateners* are the subset of *protesters* who were not *retaliators*.

Protesting countries also explicitly drew attention to bilateral trade balances. More than 60% of the initial set of *protesters* argued that the United States ran a favourable bilateral balance of trade with them and that the tariffs were therefore unnecessary—a complaint made by some responders in more recent examples of trade wars. For example, the *New York Times* reported on June 15, 1930 that a prominent newspaper in Uruguay called for a prohibitive tariff on U.S.

automobiles stating that:

Uruguay's exports to the United States in 1928 were valued at \$10,000,000, while she imported from the United States in the same year products valued at \$29,000,000, of which 40% were automobiles and fuel. La Mañana holds that the restriction of automobile imports would affect nobody except those with a frivolous idea of luxury who spend for automobiles huge sums bearing no relation to their true wealth.<sup>10</sup>

The protests were to no avail. Smoot-Hawley passed Congress and was signed by President Hoover. The trade war began when countries responded by targeting U.S. goods with new trade restrictions. As the League of Nations documented, 'The Hawley-Smoot tariff in the United States was the signal for an outburst of tariff-making activity in other countries, partly at least by the way of reprisals. Extensive increases in duties were made almost immediately by Canada, Cuba, Mexico, France, Italy, and Spain' (League of Nations, 1933, p. 193). A prime example is Canada, which McDonald et al. (1997) characterised as being engaged in a trade war after the passage of Smoot-Hawley. With 43% of its exports going to the United States, Canada aggressively responded to Smoot-Hawley by twice raising its duties on U.S. goods in 1930. It first lowered duties on 270 goods imported from the British Empire and then imposed countervailing duties on sixteen American products, accounting for nearly one-third of U.S. exports to Canada. Then, after the Conservative government won an election held in July and characterised by anti-U.S. trade sentiment, it passed an 'emergency tariff'-raising import duties on textiles, agricultural implements, electrical equipment and meat-most of which came from the United States. Canada also imposed anti-dumping duties and administrative measures directed against U.S. products (Mann, 1958).

Other countries also retaliated against the United States in the wake of the passage of Smoot-Hawley. France raised its tariffs on some of its largest imports from the United States in 1930, including automobiles and parts in April (which was ranked fifth in terms of U.S. imports) and lard (which saw its rate double) (Bidwell, 1930, p. 24). The fact that France changed the tariff on automobiles from a value basis to a weight basis was seen by contemporaries as a direct reprisal against the United States. 'These rate changes resulted in increases of almost 50 per cent for some models and practically closed the French market to medium-priced American cars' (Mann, 1930, p. 276). In Italy, immediately following the passage of Smoot-Hawley, the duties on automobiles were also raised-by between 100% and 167%. On July 23, 1930 Spain adopted the Wais tariff (named after its finance minister), targeting automobiles, tires and motion picture equipment with new duties-products that overwhelmingly came from the United States and were not produced by Spain (Jones, 1934). The new tariff increased customs duties on automobiles, sewing machines, bicycles, motorcycles, pneumatic tires, razor blades and paints. Spain also rewrote its tariff schedule to charge higher duties on non-European automobiles and parts, leading American sales representatives in Spain to reduce 'their personnel in anticipation of a substantial curtailment of sales' (Mann, 1930, p. 275). In addition to Canada, France, Spain and Italy, we classify Argentina, Australia, Mexico, New Zealand, Cuba and Switzerland as

<sup>&</sup>lt;sup>10</sup> New York Times, June 15, 1930.

retaliators, based on the discussion of their retaliatory tariffs in Mann (1930) and other historical sources (see Appendix A for details).

To shed some light on the political economy of this trade war, the next section examines which countries responded and provides some reduced-form evidence on the political and economic characteristics of American trade partners that petitioned and retaliated against U.S. imports in response to Smoot-Hawley.

#### 3. Analysing the Characteristics of Protesters and Retaliators

A full list of countries responding to Smoot-Hawley is shown in Table 2. *Protesters* filed official petitions with the U.S. State Department in 1929, in response to the proposed tariff bill. *Retaliators* are U.S. trade partners listed by Mann (1930) and other contemporary sources as imposing tariffs on U.S. exports in response to Smoot-Hawley.<sup>11</sup> Since most *retaliators* also protested the tariffs, we additionally define *'threateners'* as the subset of *protesters* not retaliating. *Threateners* made up 43% of total U.S. trade in 1928, while *retaliators* constituted 38% of total U.S. trade. Tables 1 and 2 show that nine of the ten largest recipients of U.S. state Department. Six of the ten largest recipients of U.S. exports retaliated.

U.S. trade partners found additional ways to respond to the passage of Smoot-Hawley, including quotas and boycotts of U.S. products. For example, the Royal Italian Auto Club took out newspaper ads calling for a boycott of American cars, branding consumers of U.S. products as unpatriotic (Bidwell, 1930, p. 26). In South America, the widely circulated newspaper, La Mañana, called for a continent-wide boycott of prominent American consumer goods, such as automobiles, as did organisers in Argentina. The Federation of Uruguay Rural Societies urged the government to place restrictive taxes on automobiles and to also consider banning them altogether as part of a program of reprisal against the United States (Mann, 1930, p. 275). Similarly, several Swiss chamber of commerce chapters filed resolutions calling for boycotts of American products such as typewriters and automobiles (Mann, 1930, p. 112; Jones, 1934). And in Czechoslovakia, the country may have imposed a quota on U.S. automobile imports in response to Smoot-Hawley (Eichengreen, 1989). Our data and econometric analysis presented in subsequent sections will allow for the possibility that responses by trade partners may have included these non-tariff barriers as well as the targeting of key American exports. That is, Section 4 considers both a narrow definition of retaliation, where 'retaliators' include only those countries listed in Appendix A that imposed tariffs in response to Smoot-Hawley, and a broader definition, 'responders', that includes 'threateners'. Because all three measures are coded as indicator variables, they will also capture non-tariff barriers (e.g., quotas) as well as responses that do not formally involve state actors (e.g., boycotts). In Section 5, we further consider the possibility that responses were aimed at particular U.S. export sectors.

<sup>&</sup>lt;sup>11</sup> Full details are as already noted given in Appendix A. Mann was writing in 1930, the year that Smoot-Hawley was passed. Thus, he included countries that were preparing to retaliate, such as Argentina, or whose governments were facing pressure to retaliate, such as Uruguay. Jones (1934) and other sources listed in the Appendix later provided corroborating evidence of retaliation. Section 1 highlighted the ambiguity in the literature regarding whether or not retaliation was really involved. The evidence in Section 4 indirectly speaks to this issue, asking whether countries listed by Mann as retaliating *disproportionately* reduced their imports from the United States. The evidence suggests that Mann's judgments were sound. Note that trade flows to or from Australia and New Zealand were reported jointly with other parts of British Oceania by several countries, so we were obliged to treat these as one entity when constructing our gravity dataset. See Appendix C.

To better understand the characteristics of *responders*, we analyse the trade and political relationships countries had vis-à-vis the United States just prior to the onset of the trade war. Our probit model includes economic factors highlighted in the existing literature on trade wars or mentioned in the protests filed by trade partners in response to the American decision to consider tariff revisions in 1929: a country's bilateral trade balance with the United States in the three years 1926–8; the country's overall trade balance in the same years (both as a share of the country's total trade); and exports to the United States as a share of total exports in 1928.<sup>12</sup> The probit model also includes a number of political economy variables that have been identified by economic historians as potential drivers of trade policy: a country's political regime (*polity*), proxied by a twenty-one-point measure (where higher numbers indicate a more democratic and less authoritarian regime); a dummy variable indicating whether or not the country had an existing MFN agreement signed with the United States in 1928; and a dummy variable indicating whether the country had outstanding external official debt arising from World War I.<sup>13</sup> We estimate the equation

$$\{Responder_i\} = \alpha_0 + \beta_1 US \ Export \ Share_{i,1928} + \beta_2 Trade \ Balance_{i,1926-8} + \beta_3 Trade \ Balance \ vs \ US_{i,1926-8} + \beta_4 MFN \ Agreement_i + \beta_5 Polity \ Score_i + \beta_6 Indebtedness Dummy_i + \beta_7 Continent \ Dummy + \epsilon_i,$$
(1)

where the binary dependent variable (*responder*) takes on a value of 1 when an economy filed a formal complaint with the U.S. State Department during the debate on Smoot-Hawley, or when countries imposed retaliatory tariffs in response to the passage of Smoot-Hawley.

The last column of Table 3 presents empirical estimates of (1), with Huber-White-sandwich robust standard errors shown in parentheses. Although many protesting trade partners drew attention to their trade position vis-à-vis the United States in their formal complaints, the estimated coefficients do not support the idea that countries running large *bilateral* trade deficits with the United States were more likely to lodge an official complaint or to retaliate with a tariff. Indeed, several petitioners ran bilateral trade surpluses with the United States (e.g., the UK, Australia and Cuba). The coefficient on the bilateral trade balance is statistically insignificant, and when the other two trade-related variables are omitted, its sign actually becomes positive. Nor is a country's export dependence on the United States robustly correlated with being a *responder*, although it has the expected, positive sign.

On the other hand, the overall trade balance is positively associated with *responder* status: countries running larger trade surpluses were more likely to respond. Countries running trade surpluses may have had more to lose from protectionism elsewhere, and export interests in those countries may have been more politically powerful as well.

The probit models also suggest that more democratic countries (those with higher polity scores) were more inclined to petition the U.S. government. A one-unit increase in the polity score raises the probability of protesting by around 14%. Intense lobbying by industries may have been particularly effective in countries with democratically elected officials, and industries may have

 $<sup>^{12}</sup>$  We use the trade data of Gowa and Hicks (2013). We thank Raymond Hicks for graciously providing us with the data.

<sup>&</sup>lt;sup>13</sup> For polity data, see Marshall and Gurr (2020), available at http://www.systemicpeace.org/inscrdata.html. Information on MFN clauses comes from *Tariff Bargaining under Most-Favored-Nation Treaties*, Letter from the Chairman of the United States Tariff Commission, U.S. Government Printing office, Washington, 1934. War debts are from *The War Debts*, Supplement to the *Economist*, November 12, 1932. The lion's share of World War I debts were official debts directly or indirectly owed to the United States, a net creditor.

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Independent variable	Specification 1	Specification 2	Specification 3	Specification 4
Exports to the United States as share of total	2.124*			1.900
exports	(1.232)			(1.924)
Trade balance as share of total trade		3.474***		4.143**
		(1.215)		(1.850)
Trade balance versus United States as share of			3.099*	-2.666
total trade			(1.587)	(3.369)
Most favoured nation clause	0.302	0.064	0.343	-0.032
	(0.503)	(0.522)	(0.478)	(0.543)
Polity score	0.144***	0.143***	0.134***	0.146***
-	(0.038)	(0.043)	(0.040)	(0.040)
Indebtedness dummy	-0.426	-0.379	-0.533	-0.301
-	(0.663)	(0.795)	(0.718)	(0.780)
Continent dummies	Yes	Yes	Yes	Yes
Pseudo $R^2$	0.3688	0.4409	0.3695	0.4508
Observations	47	47	46	46

Table 3. Predicting who Responded to Smoot-Hawley.

*Notes:* The dependent variable takes on a value of 1 when an economy filed a formal complaint with the U.S. State Department during the debate on Smoot-Hawley or when countries imposed retaliatory tariffs in response to the passage of Smoot-Hawley. Regression estimates based on probit analysis. Robust SEs are shown in parentheses. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

had a greater incentive to establish effective lobbying in democratic societies (consistent with Grossman and Helpman, 1994). The Congressional Record contains 250 pages of filings from 35 governments, protesting against 300 specific items in the 1929 Tariff Bill, including cigar and cigarette holders (Austria), imitation pearls (Spain), granite, bread and matches (Finland), shoes (Czechoslovakia), and lacework, watches and clocks (Switzerland). This is consistent with industry lobbying. Other political-economy variables, such as indebtedness to the United States (as a result of World War I) and MFN agreements with the United States do not appear to play a role in a country's response to Smoot-Hawley.

# 4. The Effects of Retaliation on Trade Flows

### 4.1. Time-Series Evidence

In contrast to protectionism (and as discussed in Section 1), trade wars involve tariffs or other trade barriers applied in retaliation against the actions of a particular trade partner. In this section, we thus focus on what happened to U.S. exports after retaliatory tariffs and other barriers were imposed by its trade partners in response to the Smoot-Hawley tariff. To do so, we construct a new quarterly panel data set of bilateral trade flows between 1925–38 for ninety-nine economies, fifty-five of which were sovereign countries.

The unbalanced panel contains 105,922 raw observations on bilateral import flows. The country sample is based on the availability of high-frequency bilateral data from domestic sources. A full list of country sources can be found in Appendix B. In total, our data account for 30,688 million USD of total imports for all sample countries in 1928. Since according to the League of Nations total global imports stood at 34,475 million USD in 1928, this represents 89% of world imports.<sup>14</sup> Where necessary, we take advantage of 'duplicate' observations (i.e., the fact that exports from country *i* to country *j* can also be represented as imports into country *j* from country *i*) to obtain

<sup>14</sup> League of Nations, *Memorandum on International Trade and Balances of Payments*, volume 2, 1926–8.

the largest possible number of bilateral export pairs and to check the reliability of our quarterly data. In constructing our data set, wherever possible, we follow the procedures and best practices for gravity data outlined in Head *et al.* (2010). For example, our first choice is to use import data rather than the equivalent export data; when constrained to use export data, we add 10% to the value to take account of the fact that exports are reported FOB, while imports are reported CIF.<sup>15</sup> Given that the early 1930s were characterised by several severe shocks, the quarterly frequency of our data is particularly important for accurately estimating the effects of retaliation.

Figure 1 summarises one important aspect of the data by displaying time-series graphs of aggregate nominal U.S. exports to and imports from responders and non-responders. Responders consist of both retaliators and threateners. Non-responders are trade partners in our sample that neither protested, threatened nor retaliated. The first panel of Figure 1 shows that U.S. exports declined after the passage of Smoot-Hawley (marked by the vertical line indicating June 1930). U.S. exports to responders experienced a steeper decline than did exports to non-respondersconsistent with the notion that there may have been retaliation. Figure 1 also highlights the fact that responders made up the bulk of U.S. exports before the passage of Smoot-Hawleyabout 80%. What happened in their markets thus had a major impact on total U.S. trade. By contrast, the second panel of Figure 1 shows that U.S. imports declined in a roughly similar manner across the two groups of countries. This pattern is consistent with falling U.S. demand, in general, as well as with an increase in the general level of U.S. protection. It does not suggest that responders' exports to the United States were differentially affected. To unpack these trends further, Figure 2 disaggregates the responders, displaying U.S. exports by country of destination for both retaliators and threateners. All retaliators show a sharp decrease in imports from the United States after Smoot-Hawley. The response for the group of countries that filed petitions with the U.S. state department, but then did not retaliate, the threateners, looks more mixed, but overall shows a similar drop in countries' imports from the United States.

#### 4.2. Estimating the Effects on Bilateral Import Flows

Assessing whether the Smoot-Hawley trade war had an impact on trade flows means testing whether, ceteris paribus, U.S. *exports* differentially fell by more for trading partners that retaliated than for those that did not respond. As is standard in the literature, we use a theoretically well-founded gravity model to estimate the impact of retaliation on U.S. exports. In particular, we estimate either

$$\ln(IM_{ijt}) = \alpha + \gamma_1 Responder_{ijt} + \eta Controls_{ijt} + d_{it} + d_{it} + d_{ij} + \varepsilon_{ijt},$$
(2)

or

$$\ln(IM_{ijt}) = \alpha + \gamma_2 Retaliator_{ijt} + \gamma_3 Threatener_{ijt} + \eta Controls_{ijt} + d_{it} + d_{jt} + d_{ij} + \varepsilon_{ijt}.$$
 (3)

The dependent variable,  $IM_{ijt}$ , is the log of country *j*'s imports from country *i* in quarter *t*. The independent variables of interest are time-varying, trade pair-specific indicator variables that take the value 1 when country *i* is the United States and when country *j* is a trade partner of the United States that retaliated against Smoot-Hawley (*retaliator*), filed a petition in response to the proposed U.S. tariff bill of 1930 but did not retaliate (*threatener*), or did either (i.e., the union of the two previous groups) (*responder*). These variables switch on in the quarter when

<sup>&</sup>lt;sup>15</sup> We use Global Financial Data (2021) (see Taylor, 2021) to convert trade data to U.S. dollars, supplemented with data from Obstfeld *et al.* (2004) for Bulgaria.

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Fig. 1. U.S. Exports and Imports before and after Passage of Smoot-Hawley. Source. Authors' calculations based on bilateral trade data and country classifications as described in Appendix B and Table 2.

protests were filed or retaliation occurred and remain equal to 1 thereafter. Coding retaliation in this manner is necessary since we lack comprehensive bilateral tariff data for our ninety-nine interwar economies. Furthermore, retaliation could involve not only tariffs but non-tariff barriers. Using indicator variables allows us to capture the impact of these as well. The results will show the effect of responding relative to not responding (non-responders being the omitted category):



Fig. 2. Imports from the United States before and after Smoot-Hawley. Source. Authors' calculations based on bilateral trade data and country classifications as described in Appendix B and Table 2.

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note that non-responders may also have imported less from the United States as a result of the trade war, since according to the Lerner (1936) symmetry theorem, the Smoot-Hawley tariff should, on its own, have reduced American exports as well as imports.

The estimation equation includes a number of time-varying, pairwise institutional features (Controls<sub>iii</sub>) of the global trade environment of the interwar period, which may also have affected U.S. exports during our sample period. These controls include whether both economies in the bilateral trade pair were part of the Sterling Bloc, Reichsmark Bloc, Gold Bloc or Imperial Preference system, and whether countries had signed a reciprocal trade act with the United States in 1934 or subsequently (RTAA).<sup>16</sup> We also include variables indicating whether at least one economy in a given bilateral trade pair was involved in the Anglo-Irish trade war, the German-Polish trade war, or enforced the League of Nations sanctions against Italy, and whether two countries in a pair were simultaneously experiencing a financial crisis during a quarter.<sup>17</sup> And, as is now standard in the estimation of structural gravity models, we include exporter-time  $(d_{it})$  and importer-time  $(d_{it})$  fixed effects, allowing us to control for a long list of potential confounders that are time varying but country specific (e.g. other policy responses, including increases in general levels of protection targeting all countries) as well as other factors influencing multilateral resistance. We also include pair fixed effects  $(d_{ii})$  that allow us to control for a variety of other country-specific factors, including World War I debts owed to the United States. Identifying variation thus comes from time-varying imports for a given trade pair.

In common with much of the rest of the trade-policy literature, our estimates potentially suffer from endogeneity.<sup>18</sup> In particular, imports from the United States and selection into retaliation may have been subject to the same shocks. It seems plausible that countries may have imposed tariffs for monadic reasons. For example, it is reassuring that Section 3 found little evidence that economic links with the United States were strongly correlated with retaliation, and that domestic factors such as democracy were more important in explaining country responses. Such domestic factors would be accounted for by the inclusion of country-time fixed effects, which also control for all country-level changes in overall protection during the period. Furthermore, trade-pair fixed effects control for any time-invariant factors that may have led countries to treat the United States more or less favourably in the long run (Baier and Bergstrand, 2007), alleviating another concern about endogeneity. The regressions that consider the targeting of U.S. exports at the sectoral level (in Section 5) include country-time fixed effects, and thus control for any

<sup>16</sup> Polities in the sterling bloc are Arabia, Ascension, Australia, Falklands and St. Helena, the British Colonies, Denmark, Egypt, Estonia, Finland, Hong Kong, Iceland, India, Iraq, Iran and Afghanistan, Ireland, Latvia, Mauritius and Seychelles, Norway, Palestine, Portugal, Sweden and the United Kingdom. The Reichsmark bloc includes Austria, Bulgaria, Czechoslovakia, Germany, Greece, Hungary and Romania; the gold bloc consists of Belgium and Luxemburg, Belgian Africa, the Dutch East Indies, the Dutch West Indies, France, the French colonies, Italy, Italian Africa, Madagascar and Reunion, the Netherlands, Poland and Danzig, Switzerland and Syria. Imperial preference countries are classified based on de Bromhead *et al.* (2019), and RTAA countries are Belgium and Luxemburg, Brazil, Canada, Colombia, Nicaragua, Sweden, Switzerland and the United States.

<sup>17</sup> The Anglo-Irish trade war lasted from 1932–8. See O'Rourke (1991) for details. The crisis variable indicates whether both trade partners were simultaneously experiencing banking crises, as defined in Reinhart and Rogoff (2009), and adjusted where possible for quarterly dates based on Bernanke and James (1991). If no end date could be identified, banking crises were coded for four quarters. The Gernan-Polish trade war is coded from 1925:II to 1934Q:III. See Kowal (2008) for details. The League of Nations sanctions against Italy are coded as restricting Italian exports to all countries in our sample except Afghanistan, Albania, Arabia, Argentina, Austria, Bolivia, Brazil, Chile, China, Costa Rica, Ecuador, Gernany, Japan, Guatemala, Iceland, Yemen, Manchukuo, Morocco, Nicaragua, Panama, Paraguay, Peru, United States of America, Switzerland, Hungary, Uruguay and Venezuela (Welk, 1937). They lasted from 1935:IV to 1936:III.

<sup>18</sup> See, for example, the studies estimating the impact of tariffs on trade flows cited in the recent handbook chapter by Caliendo and Parro (2021, p. 22).

	Estimation procedure						
Independent variable	OLS	PPML	OLS	PPML			
Responder	$-0.290^{***}$	$-0.193^{***}$					
Retaliator	(01102)	(01001)	$-0.392^{***}$	$-0.327^{***}$			
Threatener			(0.110) $-0.259^{**}$ (0.112)	(0.084) $-0.158^{**}$ (0.065)			
Constant	12.65*** (0.005)	16.68*** (0.008)	(0.112) 12.65*** (0.005)	$16.68^{***}$ (0.008)			
Pairwise, time-varying control variables	Yes	Yes	Yes	Yes			
Observations	96,101	105,922	96,101	105,922			
(Pseudo) $R^2$	0.918		0.918				

Table 4. The Effects of Retaliation on Imports (Dependent Variable: Log Bilateral Imports).

*Notes:* All regressions include exporter-time, importer-time and pair fixed effects, as well as pairwise, time-varying controls for membership of the sterling, Reichsmark and gold blocs and the British imperial preference system; the Anglo-Irish trade war, the German-Polish trade war, the League of Nations sanctions against Italy; RTAA agreements with the United States; and simultaneous financial crises. SEs are clustered at the country-pair level and shown in parentheses. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

shifts in individual countries' aggregate bilateral trade policies vis-à-vis the United States. Thus, any remaining threats to identification would arise from some omitted factor that varies by time, product and country pair. Even if fixed effects do not entirely mitigate endogeneity concerns, it is worth noting that if retaliation were due to surges in imports from the United States, this would, if anything, bias the reported estimates downward.

Table 4 presents OLS estimates of (2) and (3) (using positive observations only) as well as Poisson pseudo-maximum likelihood (PPML) estimates using all observations, following Santos Silva and Tenreyro (2006). The OLS results in column 1 display the difference between all countries that responded in one way or another to the 1930 U.S. Tariff Act, and those that did not (with non-responders as the omitted category). The coefficient on responder is negative and statistically significant, with the coefficient showing that exports from the United States were, on average, 25% lower when a trade partner protested or retaliated in response to Smoot-Hawley.<sup>19</sup> Using the PPML specification (column 2), the differential effect on U.S. exports for responders remains negative and statistically significant at the one-percent level. Although the coefficient is somewhat smaller than in the OLS specification, the effect is still sizable, indicating a roughly 18% decline. The last two columns examine specifications for the two sub-categories of responders: threateners and retaliators. Non-responders are once again the omitted category. As might be expected, exports from the United States fall by even more when we focus only on the trade partners that retaliated, declining by between 28% and 32% depending on the regression specification. The measured average decline in U.S. exports to retaliators is consistent with the limited evidence available from country case studies.<sup>20</sup> It is interesting that the average *threatener* reduced its imports from the United States by between 15% and 23% after it protested Smoot-Hawley-a finding that suggests that de facto retaliation may have taken place even among countries not traditionally thought to have done so. This is consistent with the historical evidence presented above on Czechoslovak non-tariff reprisals, as well as with empirical findings in the

<sup>&</sup>lt;sup>19</sup> 100  $(1 - \exp(-0.29)) = 25\%$ .

<sup>&</sup>lt;sup>20</sup> For example, Irwin (2011, p. 158) estimates that Canada's 1930 tariffs potentially reduced U.S. exports by 21%.

		Estimation	procedure	
Independent variable	OLS	PPML	OLS	PPML
Responder	$-0.535^{***}$ (0.088)	$-0.633^{***}$ (0.048)		
Retaliator			$-0.918^{***}$ (0.084)	$-0.840^{***}$ (0.061)
Threatener			$-0.406^{***}$ (0.100)	$-0.507^{***}$ (0.099)
Constant	12.88*** (0.005)	16.79*** (0.007)	12.88*** (0.005)	16.80*** (0.009)
Pairwise, time-varying control variables	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes
Observations	67,671	72,753	67,671	72,753
(Pseudo) $R^2$	0.875		0.875	

 Table 5. Robustness Checks - The Effects of Retaliation on Imports, Sovereign Countries

 (Dependent Variable: Log Bilateral Imports).

*Notes:* All regressions include exporter-time, importer-time and pair fixed effects, as well as pairwise, time-varying controls for membership of the sterling, Reichsmark and gold blocs and the British imperial preference system; the Anglo-Irish trade war, the German-Polish trade war, the League of Nations sanctions against Italy; RTAA agreements with the United States; and simultaneous financial crises. SEs are clustered at the country-pair level and shown in parentheses. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

anti-dumping literature, suggesting that the threat of countervailing duties being imposed can be sufficient to induce changes in trade (Staiger and Wolak, 1994).

#### 4.3. Robustness Checks and Extensions

We perform a variety of robustness checks on our gravity model. First, we explore whether countries' colonial ties might be magnifying the response since not all polities in our analysis made independent trade-policy decisions. We repeat our gravity regressions for non-colonies (Table 5), which reduces the sample to fifty-nine sovereign nations. The coefficients on responders, retaliators and threateners remain negative and statistically significant. In fact, the effect for sovereign countries is larger than for the full country sample, with responders reducing imports from the United States by 41%–47%, threateners reducing them by 33%–40% and retaliators reducing them by 57%–60%. We also test whether any single country is driving the result, eliminating each *retaliator* from the sample and re-estimating the model. The average effect on U.S. imports remains and changes little, regardless of which *retaliator* is dropped, confirming our main result (see Appendix D).

To further our understanding about which sets of trade partners were driving the results, we split the sample of retaliators into three groups: (1) countries that imposed imperial preferences (Canada and Australia); (2) those that were part of the gold bloc (France, Italy and Switzerland) and (3) the rest (Argentina, Cuba, Mexico, Spain). For all three groups, the results remain negative and statistically significant (see Appendix E). We see the strongest retaliator effect for the imperial preference countries, followed by the Latin American countries and Spain. It appears that members of the British Empire were particularly effective at reducing trade with the United States; this is consistent with de Bromhead *et al.* (2019) and Arthi *et al.* (2020), who found that British and Indian trade policies induced a substitution towards imports from the Empire, at the expense of imports coming from elsewhere in the world.

Finally, as devaluations and changes in gold parities also might have affected bilateral trade flows, especially after the departure of Britain from the gold standard in September 1931, we include bilateral nominal exchange rates as an additional control variable. Because of limited historical information on exchange rates, the sample size is reduced to half of that shown in Table 4, and as a result, there is less statistical precision. Nevertheless, our core results remain unchanged: the coefficients on retaliator and responder are negative and statistically significant at standard confidence levels.<sup>21</sup>

#### 5. Strategic Responses to Smoot-Hawley

A trade war broke out when trade partners retaliated specifically against the United States in response to Smoot-Hawley. We have found that retaliators, and perhaps more surprisingly threateners, disproportionately reduced their imports from the United States. In order to accomplish this, policymakers in these countries presumably targeted specific U.S. products for duties or other trade restrictions (boycotts, quotas, etc), rather than raising duties on all countries' products in a non-strategic manner (as in general protectionism). Today, targeting another country's products in a trade war is often done with strategic intentions. For example, in 2017–8, China retaliated against the Trump administration's tariffs on its goods by raising duties on key products produced in states that were 'electorally sensitive' and/or main exports to China (e.g., agricultural goods). In other words, in a trade war, any differential effects would be observable both at the country and the product levels.<sup>22</sup>

The narrative evidence presented in Sections 2 and 3 suggests that strategic retaliation took a number of forms. For example, Czechoslovakia restricted automobile imports to 750 units from each of its most favoured nations; although in principle this action was non-discriminatory, the quota was binding for the United States, but non-binding for European trade partners such as France (Eichengreen, 1989). Quotas could also be set in an explicitly discriminatory manner. Overt discrimination was more difficult when it came to tariffs, given countries' MFN obligations. Countries could get around this, however, by raising tariffs disproportionately on key U.S. exports. Higher tariffs on movies, cars and other goods disproportionately supplied by the United States might in principle apply equally to all trade partners, consistent with the non-discrimination principle, but in practice particularly hit U.S. exports.<sup>23</sup>

To test whether trade retaliation involved targeting key imports from the United States in a strategic manner, we constructed a second panel data set of 27,840 quarterly observations, consisting of 104 U.S. product categories exported to 59 trade partners from 1926:III through 1932:II. Taking 1928 as the benchmark, the product level dataset comprises 35.6% of all U.S. exports in 1928 and captures the most important U.S. export partners in each product category. It is therefore weighted towards the most important U.S. export destinations and—again taking 1928 as a benchmark—includes 42% of U.S. exports to Canada in 1928, 47% of U.S. exports to the United Kingdom and 34% of U.S. exports to France. We hand collected data from

<sup>&</sup>lt;sup>21</sup> For example, using the PPML specification from Table 4, the coefficient on retaliator is -0.309, with a standard error of 0.093; it is statistically significant at the 1% level. The coefficient on responder is -0.143, with a standard error of 0.068; it is statistically significant at the 5% level.

<sup>&</sup>lt;sup>22</sup> The narrative evidence does not seem to indicate that retaliators took the additional step of targeting products from specific states. More than likely, there would have been little short-term gain to adopting this additional strategy as Hoover had just been inaugurated as President on March 4, 1929.

<sup>&</sup>lt;sup>23</sup> British Empire countries bypassed their MFN obligations in a more straightforward manner, arguing that imperial preference did not breach the principle of non-discrimination.

the U.S. Department of Commerce's *United States Monthly Summary of Foreign Commerce*. These bilateral-product-level data allow us to examine more precisely whether *threateners* and *retaliators* disproportionately targeted particular imports arriving from the United States after Smoot-Hawley, and, if so, by how much. More precisely, the product-level data allow us to construct a measure of 'strategic' targeting, specific to each trade partner. We identify the top ten exports from the United States to each country or colony in our data set as reported by the U.S. Department of Commerce. We then estimate the following equations using PPML:

$$\ln(EX_{kjt}) = \alpha + \delta_1 Top 10_{kj} \times Responder_{jt} + d_{kt} + d_{jt} + d_{kj} + \varepsilon_{kjt}, \tag{4}$$

and

$$\ln(EX_{kjt}) = \alpha + \delta_2 Top 10_{kj} \times Retaliator_{jt} + \delta_3 Top 10_{kj} \times Threatener_{jt} + d_{kt} + d_{jt} + d_{kj} + \varepsilon_{kjt}.$$
(5)

Here  $EX_{kjt}$  is exports of good k to country j in period t;  $Top10_{kj}$  is a dummy variable indicating whether, in 1928, good k was among the top ten U.S. exports to country j. As in Section 4,  $Responder_{jt}$ ,  $Retaliator_{jt}$  and  $Threatener_{jt}$  indicate whether country j was a responder, retaliator or a threatener in period t. The d represent product-time, country-time and product-country fixed effects. As a result, the identifying variation in U.S. exports is at the product (group)-trade partner-time level, and policies varying either bilaterally or at the country level (e.g., exchange-rate devaluations) are thus absorbed in these specifications.

We estimate (4) and (5) using PPML and the results are reported in Table 6. The  $\delta_1$ ,  $\delta_2$  and  $\delta_3$  values are estimated to be equal to -0.251, -0.396 and -0.216, respectively.<sup>24</sup> Thus, even when controlling for aggregate U.S. exports to particular markets ( $d_{jt}$ ), the regression estimates show that the most important U.S. products exported to responders were *disproportionately* affected. On average, chief U.S. exports to *retaliators* fell by an additional 33% after Smoot-Hawley and by an additional 19% for *threateners*. Aggregating retaliators and threateners, the main exports to the average *responder* dropped by an additional 22% after Smoot-Hawley. These results are consistent with countries targeting goods that were of particular importance to the United States. A coefficient of the order of 0.2, combined with a trade elasticity in the range of 5 to 8 (see the following section), could imply that tariffs on top U.S. exports were increased by around 2.5–4 percentage points more than tariffs generally. We stress, however, that our results do not preclude the possibility of overt discrimination, either via imperial preferences, or via non-tariff barriers to trade, such as quotas and boycotts (both mentioned in the narrative evidence).

As discussed in Sections 2 and 3, one U.S. export that may have been singled out for potential retaliation by multiple countries and repeatedly mentioned in contemporary accounts is automobiles—a fast growing and important U.S. export (Mann, 1930). Chrysler, Ford and General Motors were highly visible American brands sold globally. And, unlike many other leading U.S. exports, such as copper, cotton and petroleum, automobiles were differentiated products, easily identifiable in their final form. They were also consumer rather than producer goods, so restricting their supply did not risk hurting domestic industries. Tariffs, quotas and boycotts of U.S. automobiles may have thus been a particularly effective way of carrying out trade reprisals directed at American exports.

 $<sup>^{24}</sup>$  The results are not sensitive to using an alternative cut off of 'top five' exports to a trade partner. They are based on the product groups that can be consistently identified and do not change labelling or product classification between 1926–32. Using a broader product classification, allowing for name changes and some re-grouping does not fundamentally alter the results.

Independent variable	Coefficier	nt estimate
Panel A: equation (4)		
Constant	14.28***	14.28***
	(0.019)	(0.019)
Responder $\times$ Top10	-0.251***	
	(0.071)	
Retaliator $\times$ Top10		$-0.396^{***}$
		(0.121)
Threatener $\times$ Top10		$-0.216^{***}$
		(0.068)
Pseudo $R^2$	0.94	0.94
Panel B: equation (5)		
Constant	14.28***	14.28***
	(0.018)	(0.018)
Responder $\times$ Top10	-0.215***	()
1 1	(0.066)	
Responder $\times$ Top10 $\times$ Automobile	-0.305*	
	(0.158)	
Retaliator $\times$ Top10		$-0.327^{***}$
		(0.118)
Retaliator $\times$ Top10 $\times$ Automobile		$-0.566^{**}$
		(0.269)
Threatener $\times$ Top10		$-0.182^{***}$
		(0.064)
Threatener $\times$ Top10 $\times$ Automobile		-0.286**
		(0.143)
Pseudo R <sup>2</sup>	0.94	0.94
Number of observations	21,361	21,361

 

 Table 6. The Effects of Retaliation on Product-Level U.S. Exports (Dependent Variable: Log Bilateral Exports).

*Notes:* See the variable definitions in the text. All regressions are estimated using PPML and include country  $\times$  time, good  $\times$  time and good  $\times$  country fixed effects. SEs are clustered at the country-product level and shown in parentheses. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

To test this additional form of targeting, panel B of Table 6 adds triple-interaction terms to (4) and (5), where the Top10 × (retaliator/threatener/responder) terms are interacted with the product category 'automobiles and other vehicles'. Consistent with the historical evidence, we find an additional negative and statistically significant effect on the triple interaction term. As might be expected, the largest coefficients involve the retaliator dummy (column 2). The coefficient on the  $Top10_{kj}$  × retaliator × automobiles interaction is -0.566, indicating that retaliators reduced their automobile imports from the United States by an additional 43%. That said, the effect is also statistically significant in specifications using threatener and responder dummies. Our results suggest that while it may have been weaker, de facto retaliation, such as the aforementioned Czech automobile quotas, occurred in a broader range of countries than sometimes assumed.<sup>25</sup>

<sup>&</sup>lt;sup>25</sup> Prior to Smoot-Hawley, automobiles were consistently a top ten export from the United States to countries in the retaliator group. Examples include: Canada (2nd), Argentina (1st), Uruguay (1st), Spain (2nd), France (5th), Italy (10th), Cuba (4th) and Mexico (2nd).

## 6. Welfare Effects

What were the welfare effects of the Smoot-Hawley trade war? The welfare consequences of protection during a period of mass unemployment such as the Great Depression are ambiguous. On the one hand, tariffs raise revenue and protect domestic industries by raising the price of foreign goods, which may have increased welfare (Eichengreen, 1989; Clemens and Williamson, 2004). On the other hand, welfare gains due to beggar-thy-neighbour effects would have presumably been diminished or eliminated by the retaliation that is the focus of this paper.<sup>26</sup> Recent research provides new methods for measuring the gains from trade and evaluating the welfare consequences of past trade policy shocks (Eaton and Kortum, 2002; Arkolakis *et al.*, 2008; Arkolakis *et al.*, 2012; Felbermayr *et al.*, 2015). Relative to other computational methods, the elegance of the approach lies in its simplicity and the fact that it applies to a wide class of one-sector trade models that are popular in the literature and that differ with respect to their assumptions about microeconomic structure.

A basic insight from this literature is that changes in income due to trade shocks depend on changes in the terms of trade. For a given country, changes in the terms of trade, relative to each of its trade partners, can be surmised from the trade elasticity (i.e., one minus the elasticity of substitution across goods). Under certain assumptions spelled out in Arkolakis *et al.* (2012) (hereafter, ACR), calculating welfare depends only on (1) the domestic trade share (a country's trade with itself) and (2) the elasticity of trade (measured using a gravity equation). This formulation, however, ignores the welfare consequences of tariffs, which affect real income directly and indirectly (through the entry and exit of firms). Since tariffs are clearly central to our analysis and discussion of the 1930s, we modify the ACR formula using the methods discussed in Felbermayr *et al.* (2015) (hereafter, FJL).<sup>27</sup> We measure gains from trade in country *j*, *G<sub>j</sub>*, relative to autarky, as

$$G_j = 1 - \mu_j^{-(1+\delta\eta/\varepsilon_\tau)} \lambda_{ij}^{1/\varepsilon_\tau}, \tag{6}$$

where  $\varepsilon_{\tau}$  is the (positively defined) elasticity of imports relative to domestic demand with respect to iceberg trade costs,  $\lambda_{jj}$  is the domestic expenditure share and  $\mu_j$  is a tariff multiplier. The share  $\lambda_{jj}$  can be computed as 1 minus the import penetration ratio, which is calculated as imports as a share of domestic expenditure.<sup>28</sup> Since (6) calculates welfare changes relative to autarky, we use it to calculate the welfare gains from trade in 1929, 1930 and 1931, and then difference between periods to estimate the effect of Smoot-Hawley. As FJL show, the tariff multiplier  $\mu_j$  does not require information on bilateral tariffs or bilateral trade flows and can be computed as the share of aggregate tariff revenue in aggregate income.<sup>29</sup> The gains from trade depend on the term  $\delta\eta$ . As in FJL, we present results for two cases:  $\delta\eta = 0$  (corresponding to the Armington, Eaton and

 $<sup>^{26}</sup>$  Crucini and Kahn (2007) also made the point that retaliation could wipe out welfare gains, and in the case of the United States, argued that retaliation led to higher input costs for U.S. manufacturers, leading to production distortions.

<sup>&</sup>lt;sup>27</sup> In their model, ad valorem tariffs redirect consumption towards domestic goods and revenues are lump-sum transfers to consumers. Tariffs can act as either 'cost shifters' or 'demand shifters'.

<sup>&</sup>lt;sup>28</sup> The import penetration ratio is computed using total quarterly imports and exports from our data set and GDP figures from Mitchell (1975; 1993; 1995) converted into USD using exchange rates from the League of Nations *Statistical Yearbooks*. The GDP data are not as inclusive as our trade data, and so the number of countries we include in our welfare analysis is smaller.

<sup>&</sup>lt;sup>29</sup> Figures for revenue as a share of GDP are computed using Bank of Japan (1966), Mitchell (1975; 1993; 1995) and Arroyo Abad and Maurer (2017).

	Change in welfare	Change in welfare (percentage points)		Percentage change in welfare from:	
	1929 to 1930	1929 to 1931	1929 to 1930	1929 to 1931	
Panel A: average change	in welfare for different grou	ups: $\delta \eta = 0$			
Threateners (14)	0.252	0.240	4.1%	7.1%	
Retaliators (7)	-0.260	-0.473	-8.3%	-15.7%	
United States	0.065	-0.095	9.8%	-14.3%	
Panel B: average change	in welfare for different grou	ups: $\delta \eta = 0.65$			
Threateners (14)	0.273	0.269	4.2%	7.5%	
Retaliators (7)	-0.278	-0.500	-8.3%	-15.5%	
United States	0.071	-0.102	9.9%	-14.3%	

Table 7. Welfare Impact of the Smoot-Hawley Trade We	ar.
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Notes: Calculations are based on the methods outlined in Felbermayr et al. (2015).

Kortum, and Krugman models) and  $\delta \eta = 0.65$  (corresponding to the Melitz model). We set  $\varepsilon_{\tau} = 8.0$ , following Jacks *et al.* (2011), which explicitly estimates trade costs for the interwar period.<sup>30</sup>

Panels A and B of Table 7 display average changes in welfare for the two types of models and for different groups of belligerents (*retaliators, threateners* and the instigator, the United States) between the quarters immediately before the passage of Smoot-Hawley and those just after. In computing welfare effects, we use the actual domestic expenditure shares before and after Smoot-Hawley. As emphasised in the literature, this formulation of welfare shuts down a number of other sources of welfare gains from trade, including the industry dimension of trade flows, which would make the potential gains from trade, relative to autarky, much larger (Ossa, 2015). As a result, much like modern empirical estimates, the baseline values of gains of trade, relative to (counterfactual) autarky are small—in the range of 1% to 5% for 1929, our baseline year, and even when tariffs are included. Because the total gains from trade using this methodology are small, changes due to an increase in protection will be even smaller. The table thus displays welfare changes relative to 1929, not only as percentage changes in welfare, but as percentages of the total welfare gains from trade.

The calculations suggest that, for retaliators, welfare declined by approximately 0.3 percentage points between 1929 and 1930, corresponding to a reduction of roughly 8% in the total welfare gains from trade. Between 1929 and 1931, welfare declined by roughly 0.5 percentage points or 16% of the total welfare gains from trade. For threateners, the welfare effects are also small but positive, while for the United States, they are smaller and of mixed signs. Panel B of the table uses an alternative assumption of  $\delta \eta = 0.65$ , corresponding to the Melitz model, and produces results that are roughly similar in size.

As noted by previous scholars, the tariff of 1930 that provoked the trade war was substantial and broad based though not necessarily an optimal tariff, even for a large economy like the United States (Crucini and Kahn, 1996), and it provoked a significant retaliatory response from U.S. trade partners, largely negating any welfare gains based on our calculations through 1931—a finding consistent with Irwin (2011). Retaliating countries suffered small welfare losses as they imposed retaliatory tariffs targeting key U.S. products, such as automobiles, rather than optimal tariffs. It is also possible that retaliators were affected by other shocks affecting domestic expenditure shares at this time, such as Smoot-Hawley itself.

<sup>&</sup>lt;sup>30</sup> As a robustness check, we computed welfare setting  $\varepsilon_{\tau} = 5.0$ , the value in Costinot and Rodriguez-Clare's (2014) handbook chapter and in FJL and found very similar results: the relative sizes of the changes for different groups of combatants is not sensitive to this assumption.

## 7. Conclusion

President Trump's recent use of tariffs as a 'weapon' to cudgel other nations into changing their trade policies has renewed interest in understanding what trade wars are and how they affect flows of goods and services across borders. As our research indicates, the current trade war was by no means the first one initiated by the United States. The passage of Smoot-Hawley led to direct retaliation by important U.S. trade partners. Countries responded to its passage by imposing tariffs targeting U.S. exports. Although protectionism was on the rise in the 1930s, we collect novel data and design empirical tests that show that retaliation against Smoot-Hawley was distinctive: it involved policies specifically directed at the United States, the initial provocateur.

Using a new data set on quarterly bilateral trade flows as well as detailed information on who filed official protests during the legislative debate over the Tariff Act of 1930 and who (later) retaliated, gravity model estimates demonstrate that U.S. exports were severely affected by the Smoot-Hawley trade war. Even after controlling for financial crises, the effects of the global decline in aggregate demand and the overall decline in partner countries' imports from all sources, U.S. exports fell substantially. If they had just fallen in line with the overall reduction in imports in each country, we would have found no effect: instead, they fell disproportionately, by between 15% and 32%, depending on the specification and the countries involved. By examining the effects for protesters as well as retaliators, we are able to more extensively assess the retaliation against Smoot-Hawley: this was not limited to those countries traditionally regarded as 'retaliators'.

Product-level regression estimates confirm that retaliators were strategic in their response to Smoot-Hawley (as they have been in more recent trade wars), choosing to bludgeon key U.S. exports differentially. Fast-growing U.S. exports of automobiles appear to have been particularly targeted by U.S. trade partners. Our results suggest that MFN constraints did not prevent countries from effectively retaliating. In addition to strategically targeted tariffs, retaliation involved such non-tariff measures as quotas, boycotts and increased sales resistance to American goods. Our results show that this retaliation was extremely effective in reducing U.S. exports. In March 2018, Peter Navarro famously predicted that no country would retaliate against U.S. tariffs.<sup>31</sup> The evidence from the 1930s suggests it is a mistake, even for a country as wealthy and powerful as the United States, to assume that it can engage in a trade war with impunity.

<sup>31</sup> https://twitter.com/MorningsMaria/status/969584638514679810?s=20.

# Appendix A. Detailed information on Retaliators

Country	Date decreed	Date effective	Form of retaliation	Source and notes
Argentina			Boycott, plans for tariff	'The Argentine Minister of Finance on May 5 appointed a committee of customs appraisers to draw up a new tariff, which is generally expected to embrace various duties affecting leading imports from the United States. Already regulations concerning imports of apples from the United States have been stiffened by the refusal to accept certificates of American state authorities in regard to their quality. Distinct efforts have been made by various groups in Argentina to boycott United States' goods.' (Mann, 1930, p. 274).
Argentina			Tariff	'While tariffs had been increasing since the early 1920s (due 'While tariffs had been increasing since the early 1920s (due to mostly a revenue motive), there was a sharp jump in 1930 when the average import tariff increased from 16.7 to 28.7% in 1933. Furthermore, Diaz Alejandro (1970) reports that Argentina actually raised tariffs by more than the US and Canada. From 1925–1929 to 1930–1934, for instance, Argentina increased tariffs by 7.5 percentage points, compared to increases of 4.7 percentage points in the US and 0.6 percentage points in Canada.' (Brambilla <i>et al.</i> 2018, p. 11)
Australia	July 1, 1930		Tariff	<sup>1</sup> Budget proposals for further increases in tariff duties announced early in July, however, affect particularly commodities imported from the United States. These provide for the following duties: gasoline, 6 cents a gallon; tobacco, 12 cents a pound; cigarettes, 24 cents a pound; films, 2 cents a foot; newsprint, \$5 a ton; and radio tubes, 10 per cent ad valorem. An even more direct reprisal against the United States was embodied in a resolution introduced in the Australian House of Representatives by the Minister of Trade and Customs providing for an increase of 20 per cent in the duty on logs and sawed timber from Oregon. The aim of this measure was to give preference to British timber, and it was announced that Australia hoped to make a reciprocal arrangement with Canada.' (Mann, 1930, p. 278)

Country	Date decreed	Date effective	Form of retaliation	Source and notes
Canada	May 1, 1930	May 1, 1930	Tariff	'The Canadian Minister of Finance in a budget speech on May 1st announced the most drastic revision of the Canadian tariff which has occurred since 1907. This revision, which was enacted into law by the Canadian Parliament on May 28th, provided for decreases on 270 items and increases on 11 items under British preferential tariff, decreases on 98 items and increases on 35 items under the intermediate tariff, which applies to countries having most-favoured-nations treaties with Canada and decreases in 82 items and increases on 87 items under the general tariff, which applies to the United States and other countries having no commercial treaties with Canada.' 'The most outstanding feature of this new tariff schedule was the introduction of countervailing duties on potatoes, soups, livestock, fresh meats, cured and pickled meats, butter, eggs, wheat, flour, oats, oatmeal, rye, cut flowers and cast-iron pipes. The effect of these countervailing duties is automatically to increase the Canadian duty to the rate any country of origin imposes on imports from Canada, providing that rate is higher than the Canadian rate. Premier King of Canada stated on June 16 that these countervailing duties were imposed in order to show the United States that Canada desires to trade on equal terms, and that the purpose of the general revision of rates by Canada was to divert to the United Kingdom purchases of many types of goods previously bought in the United States.' 'As a result of the provision for countervailing duties, rates on a large number of agricultural commodities imported into Canada from the United States were raised on June 18, when the new United States tariff became effective.25 Potatoes, for example, had previously been free and now took a duty of 75 cents per hundredweiobt' (Mann. 1930 pp. 271–2)
Canada		May 1, 1930	Tariff	'Thus, when the Hawley-Smoot Tariff went into effect in June 1930, Canada automatically applied similar tariffs upon the list of products for which automatic reciprocal duties had been established. The automatic reciprocal duties were aimed directly, admittedly, at the United States.' (Jones, 1934 p. 190)
Canada		May 19, 1930	Tariff	'Without waiting for the final stages of our tariff legislation, the Canadian Parliament on May 19, 1930, enacted a new customs tariff which by increasing the rates on certain American goods and by widening the margin of British preference put our trade at a disadvantage. The Prime Minister, Mr. Mackenzie King, although avoiding the word "retaliation," stated that the Canadian legislation was influenced by the increased rates proposed in the American tariff.' (Bidwell, 1930, p. 22)

#### SMOOT-HAWLEY TRADE WAR

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Country	Date decreed	Date effective	Form of retaliation	Source and notes
Canada	May 1, 1930	May 1, 1930	Tariff	'On May 1, Dunning introduced a budget in the House of Commons that lowered rates on a long list of commodities (270) imported from imperial countries, reduced schedules on a moderate number of items (98) in the intermediate tariff-those countries enjoying most-favoured-nation treatment-and increased duties on 87 (against decreases on 82) items in the general tariff, the column applicable to the United States. According to American legation estimates, the revisions penalized American trade totaling \$175,000,000, the iron and steel industry along with fruit and vegetable farmers to be hurt the most. [] The new schedule became effective May 2, four days before the formal debate on the budget began. During that debate, which concluded on May 15 with its adoption, King announced his decision to hold an elaction that user? (Vettreen 1075 are 630.1)
Cuba	Jan. 27, 1930 May 17, 1930 May 30, 1930		Tariff	<sup>(President Machado of Cuba during 1930</sup> has issued three decrees, each of which increased tariff rates on a number of products which had previously been imported in substantial quantities from the United States. On January 27 rates on onions and garlic were raised. On May 17 there were increases on a long list of agricultural products, including livestock, various kinds of fresh meat, dairy products, eggs, fish, and canned meat. Further increases on May 30 were applicable to unbleached cotton fabrics and cotton knit goods ' (Mann. 1930, p. 273).
France	April 18, 1930		Tariff	'France, moreover, has enacted already a measure which is regarded as a concrete reprisal against the American tariff law. On April 18 the French tariff on automobiles was changed from a value to a weight basis with the following rates per 100 kilograms on passenger cars: up to 1100 kilograms, 800 francs; 1100 to 1500 kg., 925 fr.; 1500 to 1750 kg., 1050 fr.; 1750 to 2000 kg., 1275 fr.; over 2000 kg., 1500 fr These rate changes resulted in increases of almost 50 per cent for some models and practically closed the French market to medium-priced American cars.' (Mann, 1930, p. 276)
France			Protest	'The French Government protested the proposed increases of the Smoot-Hawley Tariff to no avail. The French Tariff Commission of the Chamber of Deputies passed a resolution protesting the proposed rates. Minister of Commerce Flandin issued a statement declaring that unless the increased tariff rates were modified by the Tariff Commission, France would take retaliatory measures.' (Jones, 1934, p. 163)
France			Quota	'It is a noteworthy fact that neither the public press nor public defenders of French policy during this period denied that discrimination against the United States existed in the administration of the quotas; they were devoted, rather, to justifying discrimination in case it did exist.' (Jones, 1934, p. 167)

Country	Date decreed	Date effective	Form of retaliation	Source and notes
France		April and July, 1930	Tariff	'In April the French tariff duties on imported automobiles and parts, imported principally from the United States, were increased substantially and in July the rates applicable to American lard were doubled.' (Bidwell, 1930, p. 24)
Italy	June 30, 1930	July 1, 1930	Tariff	'As the increases were in technical terms, an idea of the drastic nature of the new duties may be ascertained from the following typical increases: Ford (cheapest model) Duty increased from \$350 to \$815.50 [l.' (Jones. 1934, p. 82)
Italy			Boycott	"[] the boycott is a most effective weapon and has incalculable consequences. High tariffs are notoriously ineffective in checking the imports of luxury goods, and to an increasing extent, imports from the United States partake of the character of luxuries. But a boycott such as that proposed in 1929 by the Royal Automobile Club of Italy, by branding the purchaser of American goods as unpatriotic, puts a most effective end to their importation." (Bidwell, 1930, p. 26)
Italy	June 30, 1930		Tariff	'The meaning of the Minister's words became clear when a decree was issued (effective June 30) raising duties on imported automobiles by amounts varying from 100 to 167 per cent. Corresponding increases were announced for other kinds of motor vehicles, bodies, and parts. The Ministry of Finance issued regulations permitting Italian manufacturers to import rough parts until December 31, 1930, at from 20 to 25 per cent of the established tariff' (Mann 1930 p. 277)
Mexico	July 20, 1930	August 11, 1930	Tariff	Partly as a result of the American tariff and partly as a result of a shortage of food production, President Ortiz- Rubio instructed the Secretary of Agriculture to draft a revised tariff which would protect Mexican farmers. The first measure taken to this end was an increase in Mexican duties on wheat and flour; this became effective on July 20. The duty on flour in terms of United States currency was raised from 66 cents a kilogram to 96 cents a kilogram and many cancellations of contracts for future delivery of American flour resulted. Duties on a long list of other articles were revised and became effective on August 11.' (Mann, 1930, p. 273)
New Zealand	July 1, 1930		Tariff	'In the latter part of July, the New Zealand government surprised the country by the announcement of a new tariff schedule. The principal increases were: cigarettes, \$2 a thousand; cigars, 75 cents a pound; foreign automobiles, 5 per cent ad valorem; and foreign watches, 25 per cent ad valorem. Duties on a long list of other foreign imports· were also increased 5 per cent ad valorem. At the same time added preference was given to 158 items purchased from Great Britain. As the United States ranks second to Great Britain as a source for New Zealand's imports, it is obvious that this tariff revision affects it more than any other foreign country.' (Mann, 1930, p. 278)

## Continued

#### SMOOT-HAWLEY TRADE WAR

Country	Date decreed	Date effective	Form of	Source and notes
Switzerland	July 1, 1930		Boycott	'The participants in these meetings passed resolutions protesting the rates proposed for the several articles in which they were interested. As described in a previous section of the report, the protests of watchmakers and lace-workers resulted in considerable modifications of the proposed schedules and, consequently, it is improbable that any retaliatory action will be taken by the Swiss government. However, reports from Geneva on May 21 indicated that United States trade had already felt the effects of Swiss irritation against the proposed tariff, as importers had reduced purchases of typewriters, automobiles, and other
Switzerland			Tariff	American goods. (Mann, 1930, p. 277) Publication schedule of new tariff rates, as calculated by the Chambre de Commerce de l'Horlogere of Switzerland. (Jones 1934 p. 108)
Switzerland			Boycott	'Within five days of the publication of the Conference Committee rates in Switzerland protest meetings were being held in many parts of that country, the public press was calling for retaliation and boycott, protests were flooding into the Federal Council demanding governmental action, ' (Jones 1934, pp. 107–8)
Switzerland		December 10, 1930	Tariff	'Effective December 10, 1930, the Swiss tariff on typewriters was increased from \$5.25 per 100 pounds to \$21.89 per 100 pounds.' (Jones 1934, p. 123)
Spain Spain	July 22, 1930	July 23, 1930	Tariff	Principal object of the decree is 'to reduce the exportation of capital in exchange for certain products which unduly burden the international trade balance and for which there are no corresponding exports.' (Jones, 1934, p. 52) 'The new rates on cars up to 2000 kgs in weight represented increases of 100 % on chassis with engine, 125 % on motor cars with open bodies and 150 % on motor cars with closed bodies. Duties on motor cars weighing over 2000 kgs were increased by percentages nearly as large.' (Jones, 1934, p. 53)
Spain	July 23, 1930	July 23, 1930	Tariff	<sup>•</sup> On July 23 a royal decree was issued raising customs duties on automobiles, sewing machines, bicycles, motorcycles, pneumatic tires, razor blades, paints, silks, hams, and other articles. At the same time it was officially stated that the new tariff aimed at protection of the Spanish currency and industries and was not in the nature of a reprisal against the United States. However, it seems significant that a number of the commodities affected are imported chiefly from the United States and that the regulation in regard to automobiles provides that "extra European cars and cars containing "extra European" parts must pay a tax higher than that on European cars. For example, the tax on a car weighing 800 kilograms is 1,440 pesetas if manufactured in Europe and 2,400 pesetas if manufactured in the United States. American automobile agencies in Spain are reducing their personnel in anticipation of a substantial curtailment of sales." (Mann, 1930, p. 275)

# Continued

# **Appendix B. Trade Data from Country Sources**

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Austria: Statistik das Aussenhandles
February 1930 through January 1939, monthly
Belgium: Comptes Speciaux par Pays de Provence et de Destination: Part 1
Brazil: Foreign Trade
1932-39, quarterly
Bulgaria: Bulletin Statistique Mensuel
June 1920 through December 1939, monthly
Canada: Monthly Report of the Trade of Canada: Imports for Consumption and Exports. Canada, Dominion
Bureau of Statistics
January 1929 through December 1939, monthly
Czechoslovakia: Monthly Summary of Foreign Trade
April 1924 through June 1939, monthly
Denmark: Handelsstatistiske Meddelelser
January 1927 through December 1940, monthly
Egypt: Foreign Trade
January 1919 through September 1940, monthly
Estonia: Eesti Statistika
January 1923 through December 1937, monthly
Finland: Ulkomaankauppa Utrikes Handel, Commerce Extérieur de la Finlande, Finland, Tilastokeskus,
Helsinki.
January 1921 through August 1939, monthly
France: Statistique Mensuelle du Commerce Exterieur de la France,
January 1919–December 1938, monthly
Germany: Monatliche Nachweise über den auswärtigen Handel Deutschlands,
1924 through Quarter 1 1937, quarterly; March 1937 through October 1939, monthly.
Great Britain: Accounts Relating to Trade and Navigation of the United
Kingdom. January 1920–July 1939, monthly. Sir Auckland Geddes, ordered by The House of Commons,
London: Published by His Majesty's Stationary Office.
Greece: Bulletin Mensuel du Commerce Special
January 1925 through August 1940, monthly
Hong Kong: Trade and Shipping Returns
April 1930 through December 1940, monthly
Hungary: Statisztikai Havi Kozlemenyek
1925 through 1936, quarterly.
Iceland: Statistical Yearbook
July 1934-December 1934 and May 1935-November 1941, monthly.
India: Trade and Navigation
January 1922 through December 1940, monthly
Ireland: Trade and Shipping Returns, 1924–42
Italy: Movimento Commerciale del Regno D'Italia, Ministero dello Finanze, Ufficio Trattati e Legislazione
Doganale, (1919-35)
Japan: Monthly Return of the Foreign Trade of the Empire of Japan, 1924–38
Latvia: Commerce et Transit
1929 through 1938, monthly
Lithuania: Bulletin Statistique
November 1923 through August 1939, monthly
Malaya: Imports and Exports
July 1921 through December 1936, monthly
Mexico: Commercio Exterior Y Navegacion, January 1928–December 1929 and Revista de Economia Y
Edstadistica, April 1932-Februrary 1940, monthly.
Netherlands: Handelsverkeer
Quarter 1 1934-quarter 3 1939, quarterly
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Norway: Statistiske Meddelelser
Quarter 1 1932 through October 1939, quarterly
Palestine: Commercial Bulletin
July 1924 through October 1939, monthly
Poland: Handel z Poszczególnemi Krajami
January 1925 through May 1939, monthly starting in January 1927
Romania: Commerce Exterieur
October-December 1935 and April 1937–January 1939, monthly
Sierra Leone: Royal Gazette Trade Supplement
January 1931 through January 1940, monthly.
South Africa: Monthly Trade
Dates: 1919 through 1934, quarterly
Switzerland: Statistique Mensuelle du Commerce Exterieur
January 1925 through December 1940, monthly
Sweden: Commersiella Meddelanden
January 1933–September 1939, monthly
Turkey: Commerce Exterieur
1934 through 1939, monthly
United States: Monthly Summary of the Foreign Commerce of the United States
January 1917 through September 1941, monthly

# Appendix C. Grouping of Countries for the Analysis

Aggregate used in estimation	Countries/regions included
ARABIA	Bahrein, British Arabia, Hadramout, Hedjaz, Hejaz Arabia and Mesopotamia, Hejaz-Nejd, Kuwait, Muscat Territory and Trucial Oman, Muscat Oman Trucial Oman and Kuwait, Oman, Saudi Arabia, Saudi Arabia and Yemen, Socotora, Yemen
ASCENSION FALKLANDS ST. HELENA	Ascension, Ascension and St Helena, Falklands, St Helena, Tristan da Cunha
BELGIAN AFRICA BELGIUM AND LUXEMBURG	Belgian Colonies, Belgian Congo, Congo, Ruanda and Burundi, Rwanda Belgium, Luxemburg
BHUTAN AND NEPAL	Bhutan, Nepal
BRITISH EAST AFRICA	British East and West Equatorial Africa, British East Equatorial Africa, British Somaliland, Kenya, Kenya and Uganda, Kenya Uganda and Tanganyika, Tanganyika, Uganda, Zanzibar, Zanzibar and Pemba
BRITISH EAST INDIES	British Borneo, British Malacca, British Malaya, British North Borneo, Brunei, Federated Malay States, Malakka, Malay States, Malaysia, North Borneo, other British East Indies, Sarawak, Singapore, Straits and FMS, Straits Settlements, Straits Settlements and Labuan, unfederated Malay States
BRITISH MEDITERRANEAN	Cyprus, Gibraltar, Gibraltar et Malta, Malta, Malta and Gozo, Malta Gozo and Cyprus
BRITISH OCEANIA	Australasia, Australia, Australia and New Zealand, Australia Oceania, British Solomon Islands, Cook Islands, Fiji, Gilberte and Ellice Islands, Nauru, Nauru and British Samoa, Nauru and Western Samoa, New Guinea, New Hebrides, New Zealand, New Zealand and Oceania, other Australia, other British Oceania, other islands in the Pacific (British), Papua, Papua New Guinea, Ross Dependency, Samoa, Tonga

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Aggregate used in estimation	Countries/regions included
BRITISH SOUTHERN AFRICA	North Eastern Rhodesia, North West Rhodesia, Northern Rhodesia, Northern Rhodesia/Congo Basin, Nyasaland, other British South Africa, Rhodesia,
	Southern Rhodesia
BRITISH SUDAN	Anglo-Egyptian Sudan, Sudan
BRITISH WEST AFRICA	British Cameroon, British Togo, British West Equatorial Africa, Gambia, Gold Coast, Gold Coast and British Togoland, Nigeria, Nigeria and British Cameroon, other British West Africa, Sierra Leone
BRITISH WEST INDIES	Antigua, Antilles and British Guiana, Bahamas, Barbados, Bermuda, British Antilles, British Guiana, British Honduras, Cayman Islands, Grenada, Guiana, Jamaica, Jamaica and Antilles, Leeward Islands, other British Caribbean, other British West Indies, St Christopher, St Lucia, St Vincent, Trinidad, Trinidad and Tobago, Union Island, Winward Islands
CHINA	China and Manchuria, other China
COLOMBIA	Colombia and Galapagos
DOMINICAN REPUBLIC	San Domingo
DUTCH EAST INDIES	Borneo and Java, Dutch Borneo, Dutch India, Dutch New Guinea, Java and Madura, other Dutch East Indies, other Dutch possessions in the Indian Seas
DUTCH WEST INDIES	Curacao, Dutch Antilles, Dutch Guiana
FRANCE	Alsace Lorraine
FRENCH EAST AFRICA	French Somali Coast
FRENCH EAST INDIES	Cochin China, French India, French Indochina, Indo-china
FRENCH NORTH AFRICA	Algeria, Algeria and Tunis, French Morocco, French Morocco and Tanger, Morocco, Tunis, Tunisia
FRENCH OCEANIA	New Caledonia Society Islands
FRENCH WEST AFRICA	Cote d'Ivoire, Dahomey, Dakar, French Cameroon, French Congo, French
	Equatorial Africa, French Guinea, French Niger, French Sudan, French Togo, French West and Equatorial Africa, French West Equatorial Africa,
	Mauritania, other French West Africa, Senegal, Togo, Upper Volta
FRENCH WEST INDIES	French Antilles, French Guiana, Guadeloupe, Martinique
UNDIA	North Sea Free Ports
INDIA	other British India
IRAN IRAQ AND AFGHANISTAN	Afghanistan, Iran, Iran and Afghanistan, Iraq, Iraq and Afghanistan, Mesopotamia, Persia Mesopotamia Afghanistan
ITALIAN AFRICA	Cyrenaica, Eritrea, Eritrea and Italian Somali Coast, Italian East Africa, Italian Somaliland, Libya, other Italian Africa, Tripoli, Tripolitania and Cyrenaica
ITALY	Dodecanese, Italian Aegean Islands, Trieste
JAPAN	Chosen, Formosa, Japan (including Formosa and Japanese leased territories in China), Japan and Formosa, Japan and Korea, Japanese Islands, Japanese
	Oceania, Korea, South Sea Mandate
MADAGASCAR AND REUNION	Madagascar, Reunion
MANCHUKUO AND KWANTUNG	Manchukuo
MAURITIUS AND SEYCHELLES	Mauritius, Seychelles
NORWAY	Spilzbergen Delecting and Transforden Transforden
PALESTINE DANAMA	Paresulte and Transfordan, Transfordan
PHILIPPINES AND GUAM	Philippines Guam
POLAND AND DANZIG	Poland Danzig
PORTUGUESE ASIA	Goa Macao other Portuguese Asia Portuguese possessions in the Indian
	Seas. Portuguese East Indies. Portuguese India. Portuguese possessions in the
	Orient, Portuguese Timor
PORTUGAL	Azores, Azores and Madeira, Madeira
PORTUGUESE AFRICA	Cape Verde, Mozambique, other Portuguese Africa, Portuguese East Africa, Portuguese Guinea, Portuguese West Africa, Sao Thomé, Sao Thomé et
SAMOA	American Oceania, American Samoa

Aggregate used in estimation	Countries/regions included
SOUTH AFRICA	Basutoland, Bechunnaland Protectorate, Bechunnaland Protectorate
	Basutoland and Swaziland, Swaziland
SPAIN	Canaries, Ceuta, Melilla
SPANISH NORTH AFRICA	Spanish Fez, Spanish Morocco, Spanish Morocco and Canary Islands
SPANISH WEST AFRICA	Rio de Oro, Spanish Guinea, Spanish West Equatorial Africa
SWITZERLAND	Liechtenstein
SYRIA	French Syria, Syria Lebanon
TURKEY	Asia Minor
UNITED KINGDOM	Channel Islands, England, Great Britain, Northern Ireland
URUGUAY AND PARAGUAY	Uruguay, Paraguay
UNITED STATES OF AMERICA	Alaska
VENEZUELA AND GUIANA	Venezuela, Guiana
VIRGIN ISLANDS	American Antilles, St Croix, U.S. Virgin Islands, U.S. West Indies
YUGOSLAVIA AND ALBANIA	Yugoslavia, Albania

Continued

# **Appendix D. Dropping Individual Retaliators from the Sample (Dependent Variable: Log Bilateral Imports)**

		Estimation procedure	
Omitted country	Independent variable	OLS	PPML
Canada	Retaliator	-0.464***	-0.374***
		(0.12)	(0.11)
France	Retaliator	-0.423***	$-0.402^{***}$
		(0.11)	(0.09)
Italy	Retaliator	$-0.412^{***}$	$-0.333^{***}$
-		(0.12)	(0.09)
Spain	Retaliator	-0.393***	$-0.334^{***}$
		(0.11)	(0.09)
Switzerland	Retaliator	$-0.410^{***}$	$-0.336^{***}$
		(0.12)	(0.09)
Argentina	Retaliator	-0.364***	$-0.320^{***}$
		(0.11)	(0.09)
Mexico	Retaliator	$-0.383^{***}$	$-0.331^{***}$
		(0.12)	(0.09)
Cuba	Retaliator	$-0.419^{***}$	-0.336***
		(0.11)	(0.09)
Australia & New Zealand	Retaliator	$-0.352^{***}$	-0.263***
		(0.11)	(0.07)

*Notes:* The regression estimates and extended note are as in Table 4, with the exception of the 'omitted country', which is dropped from the sample in the estimation. See the text for details. Results for additional U.S. trade partners are available from the authors. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

	Estimation procedure		
Independent variable	OLS	PPML	
Retaliators with imperial preferences	-0.554***	-0.552***	
* *	(0.201)	(0.144)	
Retaliators in gold bloc	-0.267**	-0.213***	
C	(0.112)	(0.081)	
Remaining retaliators	-0.447***	-0.339***	
	(0.138)	(0.084)	
Threatener	-0.263**	$-0.157^{**}$	
	(0.112)	(0.062)	
Constant	12.65***	16.70***	
	(0.005)	(0.007)	
Pairwise, time-varying control variables	Yes	Yes	
Fixed effects	Yes	Yes	
Observations	96,101	105,922	
(Pseudo) R <sup>2</sup>	0.918		

# **Appendix E. Robustness Checks—Differentiating the Retaliators (Dependent Variable: Log Bilateral Imports)**

*Notes:* All regressions include exporter-time, importer-time and pair fixed effects, as well as pairwise, time-varying controls for membership of the sterling and Reichsmark blocs; the Anglo-Irish trade war, the German-Polish trade war, the Italian sanctions; RTAA agreements with the United States; and simultaneous financial crises. SEs are clustered at the country level and shown in parentheses. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

Santa Clara University, USA, CASBS, CAGE, CEPR, CES-ifo & NBER NYU Abu Dhabi, United Arab Emirates, CEPR & NBER University of Vienna, Austria & CEPR

Additional Supporting Information may be found in the online version of this article:

#### **Replication Package**

#### References

Arroyo Abad, L. and Maurer, N. (2017). 'Could Europe run Greece? Lessons from U.S. fiscal receiverships in Latin America, 1904–34', Working Paper, http://dx.doi.org/10.2139/ssrn.3026330.

Adam, M.C. (2019). 'Return of the tariffs: The interwar trade collapse revisited', Working Paper, Freie Universität Berlin. Amiti, M., Kong, S.H. and Weinstein, D. (2020). 'The effect of the U.S.- China trade war on U.S. investment', Working

Paper 27114, National Bureau of Economic Research.

- Amiti, M., Redding, S.J. and Weinstein, D. (2019). 'The impact of the 2018 tariffs on prices and welfare', Journal of Economic Perspectives, vol. 33(4), pp. 187–210.
- Arkolakis, C., Costinot, A. and Rodriguez-Clare, A. (2012). 'New trade models, same old gains', American Economic Review, vol. 102(1), pp. 94–130.
- Arkolakis, C., Demidova, S., Klenow, P. and Rodriguez-Clare, A. (2008). 'Endogenous variety and the gains from trade', *American Economic Review*, vol. 98(2), pp. 444–50.
- Arthi, V., Lampe, M., Nair, A.R. and O'Rourke, K.H. (2020). 'Deliberate surrender? The impact of interwar Indian protection', Working Paper 27178, National Bureau of Economic Research.
- Baier, S.L. and Bergstrand, J.H. (2007). 'Do free trade agreements actually increase members' international trade?', *Journal of International Economics*, vol. 71(1), pp. 72–95.

Bank of Japan. (1966). Hundred-Year Statistics of the Japanese Economy, Tokyo: Statistics Department, Bank of Japan.

Bernanke, B.S. and James, H. (1991). 'The gold standard, deflation, and financial crisis in the great depression: An international comparison', in (R.G. Hubbard, ed.), *Financial Markets and Financial Crises*, pp. 33–68, Chicago: University of Chicago Press.

Bidwell, P.W. (1930). 'The new American tariff: Europe's answer', Foreign Affairs, vol. 9(1), pp. 13-26.

- Brambilla, I., Galiano, S. and Porto, G. (2018). 'Argentine trade policies in the XX century: 60 years of solitude', *Latin American Economic Review*, vol 27(4), pp. 1–30.
- Caliendo, L. and Parro, F. (2021). 'Trade policy', Working Paper 29051, National Bureau of Economic Research.
- Clemens, M.A. and Williamson, J.G. (2004). 'Why did the tariff–growth correlation change after 1950?', *Journal of Economic Growth*, vol. 9(1), pp. 5–46.
- Conybeare, J.A.C. (1987). *Trade Wars: The Theory and Practice of International Commercial Rivalry*, New York: Columbia University Press.
- Costinot, A. and Rodríguez-Clare, A. (2014). 'Trade theory with numbers: Quantifying the consequences of globalization', in (G. Gopinath, E. Helpman and K. Rogoff, eds.), *Handbook of International Economics*, pp. 197–261, Amsterdam: Elsevier.
- Crucini, M.J. (1994). 'Sources of variation in real tariff rates: The United States, 1900–1940', American Economic Review, vol. 84(3), pp. 732–43.
- Crucini, M.J. and Kahn, J. (1996). 'Tariffs and aggregate economic activity: Lessons from the great depression', *Journal of Monetary Economics*, vol. 38(3), pp. 427–67.
- Crucini, M.J. and Kahn, J. (2007). 'Tariffs and the Great Depression revisited', in (T.J. Kehoe and E.C. Prescott, eds.), *Great Depressions of the Twentieth Century*, pp. 305–34, Federal Reserve Bank of Minneapolis.
- de Bromhead, A., Fernihough, A., Lampe, M. and O'Rourke, K.H. (2019). 'When Britain turned inward: The impact of interwar British protection', *American Economic Review*, vol. 109(2), pp. 325–52.
- Eaton, J. and Kortum, S. (2002). 'Technology, geography, and trade', Econometrica, vol. 70(5), pp. 1741–79.
- Eichengreen, B. (1989). 'The political economy of the Smoot-Hawley tariff', in (R.L. Ransom and P.H. Lindert, eds.), *Research in Economic History*, pp. 1–35, Greenwich Connecticut: JAI Press.
- Eichengreen, B. and Irwin, D.A. (1995). 'Trade blocs, currency blocs and the reorientation of world trade in the 1930s', *Journal of International Economics*, vol. 38(1–2), pp. 1–24.
- Estevadeordal, A., Frantz, B. and Taylor, A.M. (2003). 'The rise and fall of world trade, 1870–1939', *Quarterly Journal of Economics*, vol. 118(2), pp. 359–407.
- Evenett, S.J. (2019). 'The Smoot-Hawley fixation: Putting the Sino-US trade war in contemporary and historical perspective', *Journal of International Economic Law*, vol. 22(4), pp. 535–55.
- Fajgelbaum, P. D., Goldberg, P. K., Kennedy, P. J. and Khandelwal, A.K. (2020). 'The return to protectionism', *Quarterly Journal of Economics*, vol. 135(1), pp. 1–55.
- Felbermayr, G., Jung, B. and Larch, M. (2015). 'The welfare consequences of import tariffs: A quantitative perspective', *Journal of International Economics*, vol. 97(2), pp. 295–309.
- Flaaen, A. and Pierce, J. (2019). 'Disentangling the effects of the 2018–2019 tariffs on a globally connected U.S. manufacturing sector', FEDS Working Paper Series 2019-86, Board of Governors of the Federal Reserve System.
- Global Financial Data. (2021). *Global Financial Data* [database], San Juan Capistrano, CA: Global Financial Data. Data available at https://www.globalfinancialdata.com/.
- Gowa, J. and Hicks, R. (2013). 'Politics, institutions, and trade: Lessons of the interwar era', *International Organization*, vol. 67(03), pp. 439–67.
- Grossman, G.M. and Helpman, E. (1994). 'Endogenous innovation in the theory of growth', *Journal of Economic Perspectives*, vol. 8(1), pp. 23–44.
- Head, K., Mayer, T. and Ries, J. (2010). 'The erosion of colonial trade linkages after independence', Journal of International Economics, vol. 81(1), pp. 1–14.
- Irwin, D.A. (1998a). 'The Smoot-Hawley tariff: A quantitative assessment', *Review of Economics and Statistics*, vol. 80(2), pp. 326–34.
- Irwin, D.A. (1998b). 'From Smoot-Hawley to reciprocal trade agreements: Changing the course of U.S. trade policy in the 1930s', in (M.D. Bordo, C. Goldin and E.N. White, eds.), *The Defining Moment: The Great Depression and the American Economy in the Twentieth Century*, pp. 325–352, Chicago: University of Chicago Press.
- Irwin, D.A. (2011). Peddling Protectionism: Smoot-Hawley and the Great Depression, Princeton, NJ: Princeton University Press.
- Irwin, D.A. (2017). Clashing over Commerce: A History of US Trade Policy, Chicago: University of Chicago Press.
- Jacks, D.S., Meissner, C.M. and Novy, D. (2011). 'Trade booms, trade busts, and trade costs', *Journal of International Economics*, vol. 83(2), pp. 185–201.
- Jacks, D.S. and Novy, D. (2020). 'Trade blocs and trade wars during the interwar period', *Asian Economic Policy Review*, vol. 15(1), pp. 119–36.
- Jones, J.M. (1934). Tariff Retaliation: Repercussions of the Hawley-Smoot Bill, Philadelphia: University of Pennsylvania Press.
- Kindleberger, C.P. (1973). The World in Depression, 1929–1939, Berkeley: University of California Press.
- Kitson, M. and Solomou, S. (1990). Protectionism and Economic Revival: The British Interwar Economy, Cambridge: Cambridge University Press.
- Kottman, R.N. (1975). 'Herbert Hoover and the Smoot-Hawley tariff: Canada, a case study', *Journal of American History*, vol. 62(3), pp. 609–35.
- Kowal, S. (2008). 'Der deutsch-polnische Handel, 1900 bis 2006', in (D. Bingen, P.O. Loew and N. Wolf, eds.), Interesse und Konflikt: zur politischen Ökonomie der deutsch-polnischen Beziehungen, 1900–2007, pp. 25–46, Wiesbaden: Harrassowitz Verlag.

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League of Nations. (1933). World Economic Survey 1932-33, Geneva: League of Nations.

- Lerner, A.P. (1936). 'The symmetry between import and export taxes', Economica, vol. 3(11), pp. 306–13.
- Madsen, J.B. (2001). 'Trade barriers and the collapse of world trade during the great depression', Southern Economic Journal, vol. 67(4), pp. 848–68.
- Mann, L.B. (1930). 'Foreign reactions to the American tariff act', Foreign Policy Association Information Service, vol. 6(15), pp. 261–78.
- Mann, T.C. (1958). 'American trade policy and the lessons of the 1930s', *Department of State Bulletin*, vol. 38(98), pp. 895–8.
- Marshall, M.G. and Gurr, T.R. (2020). POLITY5 Project, Political Regime Characteristics and Transitions, 1800– 2018 [database], Vienna, VA: Center for Systemic Peace. Data available at http://www.systemicpeace.org/inscrdat a.html.
- McDonald, J.A., O'Brien, A.P. and Callahan, C.M. (1997). 'Trade wars: Canada's reaction to the Smoot-Hawley tariff', *The Journal of Economic History*, vol. 57(4), pp. 802–26.
- Mitchell, B.R. (1975). European Historical Statistics, 1750-1970, London: Macmillan Press.
- Mitchell, B.R. (1993). International Historical Statistics: The Americas 1750–1988, 2nd edn., London: Macmillan Press.
- Mitchell, B.R. (1995). International Historical Statistics: Africa, Asia & Oceania, 1750–1988, London: Macmillan Press.
- Obstfeld, M., Shambaugh, J.C. and Taylor, A.M. (2004). 'Monetary sovereignty, exchange rates, and capital controls: The trilemma in the interwar period', *IMF Staff Papers*, vol. 51(1), pp. 75–108.
- O'Rourke, K. (1991). 'Burn everything British but their coal: The Anglo-Irish economic war of the 1930s', *Journal of Economic History*, vol. 51(2), pp. 357–66.
- Ossa, R. (2015). 'Why trade matters after all', Journal of International Economics, vol. 97(2), pp. 266-77.
- Reinhart, C.M. and Rogoff, K.S. (2009). 'The aftermath of financial crises', *American Economic Review*, vol. 99(2), pp. 466–72.
- Santos Silva, J.M.C. and Tenreyro, S. (2006). 'The log of gravity', *Review of Economics and Statistics*, vol. 88(4), pp. 641–58.
- Staiger, R.W. and Wolak, F.A. (1994). 'Measuring industry-specific protection: Antidumping in the United States', Brookings Papers on Economic Activity. Microeconomics, vol. 1994, pp. 51–118.
- Taylor, B. (2021). 'GFD guide to global stock markets', http://dx.doi.org/10.2139/ssrn.3945093.
- Welk, W.G. (1937). 'League sanctions and foreign trade restrictions in Italy', *The American Economic Review*, vol. 27(1), pp. 96–107.
- Wolf, N. and Ritschl, A.O. (2011). 'Endogeneity of currency areas and trade blocs: Evidence from a natural experiment', *Kyklos*, vol. 64(2), pp. 291–312.