Currency devaluations and beggar-my-neighbour penalties: evidence from the 1930s[†]

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The currency devaluations of the 1930s facilitated a faster recovery from the Great Depression in the countries depreciating, but their unilateral manner provoked retaliatory and discriminatory commercial policies abroad. This article explores the importance of the retaliatory motive in the imposition of trade barriers by gold bloc countries during the 1930s and its effects on trade. Relying on new and existing datasets on the introduction of quotas, tariffs, and bilateral trade costs, the quantification of the discriminatory response suggests that these countries imposed significant beggar-my-neighbour penalties. The penalties reduced trade to a similar degree that modern regional trade agreements foster trade. Furthermore, the analysis of contemporary newspapers reveals that the devaluations of the early 1930s triggered an Anglo-French trade conflict marked by tit-for-tat protectionist policies. With regards to global trade, the unilateral currency depreciations came at a high price in political and economic terms. These costs must have necessarily reduced their benefit to the world as a whole.

The currency depreciations of the 1930s were a precondition for recovery from the Great Depression. While their effect on the initiating countries was unquestionably positive, their deflationary effect on those who stayed on the gold standard prevented them from being beneficial in a strictly Paretian sense.[1] Furthermore, they had strong implications for trade policy. Policymakers in other countries perceived the widespread exit from gold in 1931 as a commercial policy tool.[2] French policymakers took the lead, retaliating by targeting their own commercial policy weapons specifically at those countries that had left the gold

[1] Eichengreen and Sachs, 'Exchange rates'.

[2] Irwin, *Trade policy disaster*, pp. 25–35. Like now, at the heart of this view was the argument that a country that deliberately undervalued its currency gained significantly at the expense of others. A lower real exchange rate would stimulate exports, which in turn would create current account problems abroad. See, for example, Goldstein and Lardy, 'China's exchange rate policy dilemma', pp. 423–5, for an exposition of this argument.

standard.[3] Other gold bloc countries reacted similarly. Belgium, Italy, Switzerland, and the Netherlands introduced discriminatory quotas, anti-dumping tariffs, or both.[4] Precisely because of their unilateral manner and beggar-my-neighbour character, the devaluations had provoked a wave of retaliatory and discriminatory trade policies.

This novel type of protectionism, a 'pernicious' bilateralism,[5] is viewed as exemplary of the disintegrating commercial world in the interwar period.[6] It is emblematic of the last of three stages of interwar protectionism.[7] It differed from the previous two stages not only in the tools—quantitative restrictions gained importance—but also in scope. In the first phase of the Depression governments followed the classical protectionist motive and imposed tariffs to reduce competition for domestic producers.[8] In the second phase, they resorted to more protectionism, now including quotas, to balance their budgets and to protect their currencies. When countries started to leave the gold standard, this latter constraint became less binding and countries with depreciated currencies tended to become relatively less protectionist.[9] However, the very action of leaving the gold standard gave way to a third stage of protectionism, in which countries staying on the gold standard resorted to discriminatory commercial policies.[10] In contrast to the previous two stages, the quotas, tariffs, and exchange controls were often directed at specific countries.[11] Such discrimination provided the breeding ground for trade wars. The devaluations had nurtured protectionism of a new kind with new commercial weaponry and, more importantly, a strong discriminatory element.

This study explores the significance of the retaliatory motive in protectionism during the 1930s and discusses its implications for our assessment of the economic effects of unilateral currency depreciations. Consistent with Shamir's narrative, the qualitative analysis of contemporary newspapers reveals a change in public discourse, in which retaliatory sentiment gained momentum after the devaluations.[12] Furthermore, it documents how French commercial policymakers imposed discriminatory trade policies. These were a direct response to the unilateral currency depreciations, which gold bloc countries perceived as a beggar-my-neighbour policy. Henceforth, such policies are thus referred to as beggar-my-neighbour penalties. To gauge their relative importance, the empirical assessment widens the scope of the study geographically by including more countries, and thematically by assessing the penalties' effects on trade. Relying

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[3] This commercial policy episode is often mentioned anecdotally. See, for example, Eichengreen and Irwin, 'Slide to protectionism', p. 877. Shamir, *Economic crisis*, pp. 121–37, refers to it as the Franco-British trade war.

[4] Heuser, *Control*, pp. 30–3; Irwin, *Trade policy disaster*, p. 25.

[5] Irwin, 'Multilateral and bilateral trade policies', p. 109.

[6] Ibid. This resonates with the view of contemporaries, as exemplified by League of Nations, *World Economic Survey*, ch. 6. Kitson and Solomou, 'Bilateralism', are critical of this notion. The interwar gravity literature by Eichengreen and Irwin, 'Trade blocs'; Wolf and Ritschl, 'Endogeneity'; and Gowa and Hicks, 'Politics', can be interpreted in a similar manner.

[7] Roorbach, 'Tariffs', p. 224.

[8] Ibid.

[9] Eichengreen and Irwin, 'Slide to protectionism'.

[10] Roorbach, 'Tariffs', p. 230.

[11] Ibid., p. 224.

[12] Shamir, *Economic crisis*, pp. 121–37.

on existing trade cost data for a number of countries[13] as well as novel datasets on Swiss quotas and French tariffs, it empirically distinguishes beggar-my-neighbour penalties from non-discriminatory trade cost increases. Across datasets and specifications, the analysis suggests that the penalties were important by modern and historical standards. Likewise, their effects on trade were economically significant. A back-of-the-envelope calculation suggests that they reduced the gold bloc's imports from devaluing countries by between 16 and 22 per cent. Such magnitudes correspond well to the effects found for modern regional trade agreements—just with the opposite sign.[14]

How does accounting for negative commercial policy externalities change our understanding of the unilateral currency devaluations of the 1930s? Incorporating these costs necessarily widens the gap between potential and realized benefits to the world as a whole. In light of the limited space to manoeuvre in the interwar policy arena, it is probably indeed the case that unilateral devaluations were the only available policy option.[15] Yet, while the economics of currency valuations and discriminatory tariffs might remain the same, policy environments change. In a climate different from that of the 1930s, other options might prevail as second-best solutions.

The remainder of the article is organized as follows. Focusing on the calculus of potential and realized benefits, section I discusses recent and contemporary scholarship on the currency depreciations of the 1930s and their link to commercial policies. With a focus on the Anglo-French relationship, section II provides a qualitative account of the link between devaluations and discriminatory protectionism, highlighting the escalating economic nationalism and rhetoric of retaliation. Equipped with the lessons from the qualitative analysis, section III quantifies the force of the retaliatory response and investigates the effects on trade. Section IV discusses the implications and concludes.

I

As previous research on the interwar period suggests, one cannot treat commercial and exchange rate policies independently in this episode. This section discusses recent scholarship, which links the rise of protectionism to the gold standard. Countries that had left the gold standard early felt less pressure to become protectionist. However, devaluations like those of the 1930s can be beggar-my-neighbour and might thus exacerbate general protectionist tendencies by provoking retaliation. Indeed, contemporary scholars made a strong connection between the devaluations, the following retaliation, and the corresponding increase in the overall level of protectionism. Incorporating this consideration into the analysis of the net benefits of the devaluations necessarily changes the calculus.

Inspired by the theoretical and empirical work of Eichengreen and Sachs,[16] a broad consensus on the positive effect of the devaluations for the depreciating

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[13] Jacks, Meissner, and Novy, 'Trade booms'.
[14] They are in the range of the trade-creating effect typically found for the EU, but slightly smaller than those found for NAFTA. See Head and Mayer, 'Gravity equations', p. 160.
[15] Eichengreen, 'Currency war', p. 431.
[16] Eichengreen and Sachs, 'Exchange rates'; eisdem, 'Competitive devaluations'.

countries has emerged.[17] Countries that had left the gold standard early tended to recover faster. For those who stayed, Eichengreen and Sachs point out two counteracting effects. On the one hand, they would lose competitiveness as their exports would be relatively more expensive. On the other, gold inflows from devaluing countries could ease monetary conditions. This could outweigh the demand shift and 'thus, a devaluation under a gold standard may or may not be beggar-thy-neighbor'.[18] However, Eichengreen and Sachs conclude that the devaluations were in fact beggar-my-neighbour as depreciating countries on average acquired gold stocks in the aftermath of the devaluations.[19] Hence, the devaluations were a double-edged sword.

This initial characterization of the currency devaluations of the 1930s is illuminating and balanced, and highlights their unfulfilled potential. This study will be as much a restatement as an extension of the initial cost–benefit analysis by Eichengreen and Sachs, for two reasons. First, the subsequent literature has focused on the benefits for the countries that devalued their currencies and has largely ignored the negative effects for those that stayed on the gold standard.[20] Second, the devaluations had important commercial policy externalities. These should be accounted for when assessing the net benefits of the devaluations. As for the monetary consequences, it is useful to highlight the asymmetric effects on gold standard countries and floaters.

To explain the 'trade policy disaster' in the interwar period, Eichengreen and Irwin advance a modified macroeconomic trilemma illustrating the policymakers' constraints.[21] They could choose only two of the following three policies: a fixed exchange rate, open trade, and independent monetary policy. Bound by their gold standard orthodoxy—that is, refusing to leave the gold standard—some resorted to protectionist policies such as quotas and tariffs to protect the value of their currency rather than reducing it. The trilemma explanation provides us with a powerful framework for understanding what had probably set the general protectionist movement in motion besides the more classical motives such as unemployment. Furthermore, it illuminates why countries with depreciated currencies were, on average, less prone to become more protectionist.

On the other hand, gold standard countries did not simply become more protectionist, but the very nature of their commercial policies changed. Facing increased competition in international markets, countries responded with discriminatory restrictions against those who had left the gold standard rather than across-the-board tariffs and quotas. They retaliated against what they thought of as unfair competition. The contemporary academic discourse serves as a

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[17] See, for example, Bernanke, 'Macroeconomics'; Campa, 'Exchange rates'; Mitchener and Wandschneider, 'Capital controls'.

[18] Eichengreen and Sachs, 'Competitive devaluations', p. 70.

[19] Eichengreen and Sachs, 'Exchange rates', pp. 943–4.

[20] Typically, subsequent studies either only highlight the positive aspects of the currency depreciations (for example, Bernanke, 'Macroeconomics') or stress the *theoretical* outcome that competitive devaluations do not have to necessarily be beggar-my-neighbour (for example, Campa, 'Exchange rates'). These studies thus ignore the *empirical* finding by Eichengreen and Sachs, 'Exchange rates', p. 943, that the currency depreciations of the 1930s were in fact beggar-my-neighbour. Given the absence of this important qualification in the subsequent literature, it is important to point out that Eichengreen and Sachs, 'Exchange rates', p. 946, criticize both the reluctance of some countries to leave the gold standard and the failed coordination of the devaluations.

[21] See Eichengreen and Irwin, 'Slide to protectionism'; Irwin, *Trade policy disaster*.

credible witness for this link between currency depreciations and discriminatory protectionism.

It was in the 1930s that Joan Robinson popularized the 'beggar-my-neighbour' term by comparing the commercial policy environment to the famous card game with explicit reference to the devaluations.[22] She described what economists nowadays call a non-cooperative game:

> In times of general unemployment a game of beggar-my-neighbour is played between the nations, each one endeavouring to throw a larger share of the burden upon the others. As soon as one succeeds in increasing its trade balance at the expense of the rest, others retaliate, and the total volume of international trade sinks continuously . . . [23]

Robinson's stance was far from isolated. Other contemporary economists emphasized the negative commercial policy consequences. Among other reasons for the rise of protectionism, Liepmann pointed to retaliation for exchange rate depreciation.[24] In his free trade manifesto, Findlay bemoaned the retaliation of 20 other nations after the devaluations, particularly emphasizing paradigm shifts away from free trade such as that in the Netherlands.[25] Roorbach argued explicitly that the devaluation 'resulted in a movement for still further restrictions of imports by the gold standard countries';[26] in the words of MacKintosh: 'The protectionist plea is most likely to be heard when he [the producer] is asking to be protected against a fresh threat to his position'.[27] That the devaluations had negative externalities for commercial policy was a prominent view among contemporary economists.[28]

When assessing policy options in the mirror of history, it is important to take a balanced view of the past. The recent literature emphasizes the positive effects of the devaluations based on the framework of Eichengreen and Sachs, even though these authors themselves highlighted their beggar-my-neighbour character. With respect to commercial policy, subsequent literature has highlighted a positive effect, as devaluing countries became relatively less protectionist. In contrast, contemporary academics portrayed the devaluations themselves, and their unilateral manner in particular, as toxic for the commercial policy environment. According to them, they led to discriminatory trade policies. *Ceteris paribus*, such policies must have reduced the large potential benefits of the devaluations to the world as a whole. Before we embark on empirical exploration of their magnitude and effects on trade, the next section documents the toxicity of the interwar commercial policy arena and explores the means by which countries discriminated against trading partners.

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[22] See Irwin, *Trade policy disaster*, p. 125. Sometimes, it is also referred to as 'beggar-thy-neighbour,' but not in Robinson's work. See Robinson, *Essays*, pp. 210–28.

[23] Ibid., p. 210.

[24] See Liepmann, *Tariffs*, pp. 361–4.

[25] Findlay, *Britain under protection*, p. 31.

[26] Roorbach, 'Tariffs', p. 89.

[27] MacKintosh, 'Trade barriers', p. 1.

[28] Naturally, there were also some sceptics. While acknowledging that the 'fear of exchange dumping' increased trade barriers, Graham and Whittlesey, 'Fluctuating exchange rates', p. 411, argue, in line with Irwin's trilemma, that 'it is at least equally probable that the attempt to maintain the nominal exchange value of a currency will lead to the erection of almost unscalable [trade] barriers'.
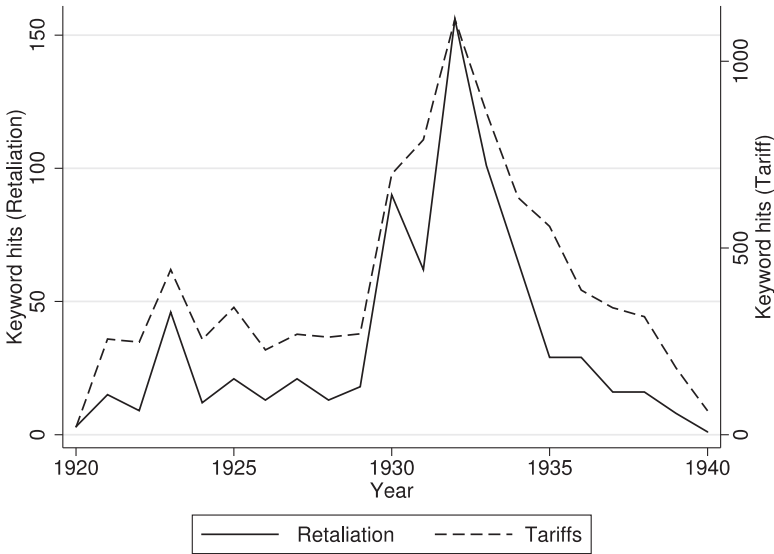
Figure 1.   *Frequency of keywords in the* Manchester Guardian

Notes: 'Tariffs' includes hits for 'tariff' or 'tariffs' in combination with 'exports' or 'imports'. Retaliation includes hits for 'retaliation' or 'retaliatory' in combination with 'tariff' or 'tariffs' or articles containing the expression 'tariff war'. Advertisements are excluded. It is important to note that some of these counts might include coincidental hits. However, the margin of error seems small.
Source: Author's own calculation from the *Manchester Guardian* (1920–40) Online Archive provided by ProQuest; see online app. S1 for details.

II

Abstracting from quotas for the moment, the importance of retaliatory commercial policies over time is perhaps best summarized by figure 1. It presents keyword counts from the *Manchester Guardian*, a newspaper with an international focus, for expressions related to either retaliation or tariffs more generally. Changes over time in the keyword counts may thus be interpreted as changes in retaliatory sentiment in foreign policy.[29] While the tariff question was relevant throughout the 1920s with about 260 counts per year, retaliation became more topical at the beginning of the 1930s. While it was mentioned a mere 17 times per year from 1920 to 1929 on average, the corresponding average for 1930–3 is 104. The increase in 1930 is clearly in response to the Smoot–Hawley legislation, but it trails the magnitude of retaliatory sentiment in 1932 by a long way. In that year, articles with the word combination 'tariff' and 'retaliation' appeared on average almost every other day.

To add substance to these data and to characterize the general political climate, the following section discusses the Anglo-French commercial policy relationship on the basis of articles published between 1930 and 1934 in the *Manchester*

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[29] Naturally, the observed level of reporting varies across newspapers depending on the scope of their reporting, their political attitude, and frequency of publication. As Owen, 'Facts are sacred', p. 661, points out, the *Manchester Guardian* had a strong emphasis on international affairs. This may well mean that the observed level is not representative for general political sentiment and rather reflects foreign policy sentiment, but it is unlikely that the observed trend would look very different had other newspapers been used for this analysis. To ensure that the reporting on retaliatory sentiment is not a peculiarity of the *Manchester Guardian*, the following section incorporates articles from the *Financial Times* and the *Economist*.

Guardian, the *Financial Times*, and the *Economist*. This episode can be divided into three acts. In the prelude to the devaluations, the protectionist idea was gaining momentum in France. However, French policy measures were more likely to meet with empathy in Britain before 1931 and hopes for cooperation were still present. In the second phase starting with the devaluations, the rhetoric shifted towards a more nationalistic and retaliatory tone. Finally, this culminated in a continuing tit-for-tat game, illustrated in the final part of this section.

The move towards protectionism had already been visible in France before the crisis of 1931. France fought a tariff war with Australia in 1930 and 1931[30] and, like other countries, considered retaliation immediately after the Smoot–Hawley bill was passed in the US in June 1930.[31] France pressed for negotiations and called the American most favoured nation (MFN) treatment into question.[32] While this threat did not materialize, France discriminated against the US by introducing a more draconian quota for American coal than for coal of other origins in July 1931. In light of the 89 per cent reduction in the American quota, the 6 per cent reduction for British coal seemed modest.[33] It may have been this comparison that provoked empathy in Britain. The Secretary of Mining, Emanuel Shinwell, pointed out that the French quota was not aiming to 'embarrass' Great Britain, but was an effort by the French government to protect coal workers. Instead of calls for retaliation, there were calls for cooperation of the mining industries across Europe.[34]

Tariff proposals in Britain were still of a 'revenue nature' before the end of 1931. In September, the Chancellor of the Exchequer, Philip Snowden, proposed a revenue tariff on luxury goods.[35] As this was a large industry across the Channel, this suggestion was met with 'outstanding anxiety' in France.[36] The rhetoric began to change. Criticizing the proposed measures, Louis Rollin, the French Minister of Commerce, emphasized that tariff increases should only be legitimate as countermeasures against unfair competition such as dumping.[37] A British commentator hoped that the tariff menace could lead to new negotiations concerning a tariff truce, which had been initiated two years earlier but failed.[38] Such hopes dissipated, especially after 20 September 1931, when the British devaluation 'fell like a bombshell on the [French] market'.[39] Economic nationalism and tariff war rhetoric soon replaced international sympathy and leniency. The spirit of cooperation and diplomacy came under strain.

The devaluation provoked 'great surprise and consternation in French industrial and business circles', according to M. V. Naudeau, president of the French Chamber of Commerce in London.[40] The same was true for policymakers. Nevertheless, it was hoped that this would stop the British tariff plans. Rollin commented: 'it goes without saying that if the British Government have been

[30] *Manchester Guardian*, 20 June 1931, p. 16.
[31] *Manchester Guardian*, 16 June 1930, p. 8.
[32] *Manchester Guardian*, 20 June 1930, p. 15.
[33] *Manchester Guardian*, 28 July 1931, p. 12.
[34] Ibid.
[35] *Manchester Guardian*, 11 Sept. 1931, p. 12.
[36] *Economist*, 19 Sept. 1931, p. 517.
[37] *Manchester Guardian*, 18 Sept. 1931, p. 11.
[38] *Manchester Guardian*, 22 Sept. 1931, p. 12.
[39] *Economist*, 26 Sept. 1931, p. 550.
[40] *Financial Times*, 22 Sept. 1931, p. 5.

thinking of new tariff measures, now that the depreciation in sterling constitutes an important bounty for British exporters, they must have given up the idea'.[41] Once again, this illustrates the extent to which policymakers linked exchange rate and commercial policies.

In the initial weeks after the devaluation of the pound, the French public did not perceive the float as a permanent situation. French newspapers speculated about whether the pound would return at par or about 20 per cent below it.[42] This too proved to be wishful thinking. In Britain, the tariff question became a dominant topic in the run-up to the general election, with the Labour Party opposing and the Conservative Party favouring protection.[43] The Conservatives won the election by a large margin,[44] indicating substantial public support for protectionist policies.

After the devaluations, minor incidents could trigger intense debates. When Britain announced a ban on French potatoes due to the threat of a Colorado beetle infestation, the *Journée Industrielle* considered this a protectionist measure and called for tariff reprisals.[45] About a month later, the French Minister of Agriculture threatened to ban coal, tea, and whisky from Britain if the embargo was not lifted.[46] In the meantime, France had banned certain foodstuffs from early October until the end of the year.[47] In the case of butter and beef, this mainly hit two other depreciators, Denmark and Argentina.[48]

In November, France reacted on a large scale to the devaluations. The surtax on goods from countries with depreciated currencies came into effect on 14 November 1931.[49] Certain goods such as grain and tea were exempted from this tariff and this list would be modified over time. The surtax in its initial form employed different rates across countries: 15 per cent for Great Britain, Australia, Denmark, and Sweden; 10 per cent for Uruguay and Argentina; 8 per cent for Norway; and 7 per cent for British India and the native states.[50] A month later the surtax was fixed at 15 per cent for all of these countries. However, given the many exceptions to it, the actual change in the tariff level for individual countries differed.[51] Nevertheless, the British Mining Association reported immediate effects materializing in the cancellation of orders, because British coal exports had become relatively more expensive for French importers.[52]

Because of this apparent level of discretion and the fact that no other large-scale coal exporter went off the gold standard, British industrialists suspected that the

[41] *Manchester Guardian*, 22 Sept. 1931, p. 12.
[42] *Manchester Guardian*, 24 Sept. 1931, p. 13.
[43] 'At the very moment that a tariff has become not only a superfluity but an absurdity we are to have a general election, it is generally believed, on that question alone'; *Manchester Guardian*, 28 Sept. 1931, p. 8.
[44] *Manchester Guardian*, 20 Dec. 1931, p. 7.
[45] *Manchester Guardian*, 11 Nov. 1931, p. 9.
[46] *Manchester Guardian*, 23 Oct. 1931, p. 23.
[47] *Manchester Guardian*, 2 Oct. 1931, p. 12.
[48] Ibid.
[49] *Economist*, 2 Jan. 1932, pp. 5–6.
[50] *Economist*, 21 Nov. 1931, p. 956.
[51] While the bilateral tariff rate against countries such as Sweden and Denmark indeed increased by more than 15% *ad valorem* between 1930 and 1932, the same measure for Great Britain 'only' doubled from 5 to 10% *ad valorem*. This seems to be due to the extensive use of exemptions of certain goods from the surtax (for example, coal at a later point in time) as a bargaining device. Britain, however, was the exception rather than the rule. Section III discusses the average effects taking into account all tariff measures rather than just the surtax.
[52] *Manchester Guardian*, 17 Dec. 1931, p. 9.

surtax unfairly targeted Great Britain.[53] The Chamber of Commerce argued that the surtax violated the MFN clause, which both countries had agreed upon.[54] To such criticism, Rollin responded that the 15 per cent would still not be enough to compensate for the competitive advantage gained by British manufactures through the devaluations.[55] Moreover, a French correspondent argued that the new exchange rate resembled a 50 per cent *ad valorem* tariff. Regarding new proposed British tariff legislation, the correspondent stated: 'The loss to France and to other countries will be very heavy, and many people here do not hesitate to say that the action of the British Parliament amounts to a declaration of economic war'.[56] Clearly, French industrialists had not hesitated to fuel this war. They insisted that the Minister of Commerce should not lose any time 'in taking up the matter with the British government and, if necessary, to start retaliatory measures'.[57] In sum, the last remnants of empathy vanished after the devaluations and agitation took over in the press and in politics. The immediate reactions anticipated an increase in protectionism, which is documented in the following paragraphs.

While trade continued to fall, retaliation spiralled further upward. Before the introduction of the General Tariff in early 1932,[58] the British Parliament passed the Abnormal Importations Act on 17 November 1931.[59] It empowered the president of the Board of Trade, Walter Runciman, to impose duties on wholly or mainly manufactured goods of up to 100 per cent for a duration of six months.[60] One justification for the tariff was the French surtax. Referring to France's return to gold at one-fifth of its prewar parity, a commentator argued that Great Britain could have imposed a tariff of 400 per cent in 1928.[61]

With the new tools at hand, retaliation was discussed quite openly in the House of Commons. Members of Parliament considered whether it was legal within the current treaty status to place special tariffs on French luxury goods and agreed they could.[62] These discussions also made clear that while Great Britain had received MFN treatment under an old French law, no binding treaty existed and thus any French tariff imposition would be legal.

Tariff increases did not remain hypotheticals. Three decrees were issued under the Abnormal Importations Act. These fixed mostly prohibitive duties of 50 per cent on a variety of goods. While not aimed at specific countries per se, the tariff affected the US, France, Germany, and the Netherlands the most, as the details of the first,[63] second,[64] and third[65] schedules demonstrate. According to

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[53] *Manchester Guardian*, 8 Dec. 1931, p. 9.
[54] *Manchester Guardian*, 1 Dec. 1931, p. 11. Later we shall see that the MFN treatment was actually more of an unspoken rule and no such contract existed.
[55] *Economist*, 28 April 1931, p. 1006.
[56] *Manchester Guardian*, 3 Dec. 1931, p. 9.
[57] *Financial Times*, 23 Nov. 1931, p. 5.
[58] See Kitson and Solomou, *Protectionism*, for a discussion of the effect of the General Tariff.
[59] *Economist,* 2 Jan. 1932, pp. 5–6.
[60] *Economist,* 21 Nov. 1931, pp, 943–4.
[61] Ibid., p. 944.
[62] *Hansard* (Commons), 5th ser., CCLXIX, 31 Nov. 1931, col. 1025. See also O'Connor's comment: 'Will not the best possible representation [regarding the French surtax] be made when we have a tariff of our own?'; ibid., col. 841.
[63] *Economist*, 28 Nov. 1931, p. 994.
[64] *Economist*, 5 Dec. 1931, p. 1061.
[65] *Economist*, 26 Dec. 1931, pp. 1220–3.

the *Economist*, the schedules were a small concession to protectionism in statistical terms but not in principal and hence the commentator concluded that Runciman was playing a 'dangerous game'.[66] While Runciman proclaimed that 'there is no connection whatever between that decree and our orders, or the legislation which preceded them',[67] his own critical remarks on the French policies[68] and the parliamentary debates discussed above raise serious doubts about the truthfulness of this statement.

French reactions to these emergency tariffs included the reduction of the quota on British coal less than eight days after the passage of the law,[69] which was 'designed to restrict entries of British and other foreign fuels'.[70] However, until the British General Tariff was introduced at the end of February 1932, France also made some concessions. It lifted the surtax on coal in order to obtain favourable treatment for some agricultural products.[71] However, such bargaining could not halt the general move to protectionism in Britain. It did not affect the introduction of the General Tariff of 10 per cent *ad valorem* (through the Import Duties Act), which came into effect on 29 February 1932.[72]

Interestingly, the second section of the General Tariff provided the Board of Trade with powers 'to impose supplementary duties in case of foreign discrimination' on top of the General Tariff.[73] While the final decision remained with the House of Commons, recommendations were made by the Import Duties Advisory Committee and it appears that the House always followed those.[74] The 135 recommendations issued between 1932 and 1936 often contained tariff amendments concerning not just one but multiple goods.[75] Despite its name, the General Tariff thus included discretionary elements.

France responded to the General Tariff with the introduction of new quotas in 'rapid succession'.[76] A particularly draconian example was the quota on British textile machinery, which reduced import allowances to less than 10 per cent in 1931 terms.[77] These new quotas also covered cotton yarn and piece goods.[78] In the following two years, the above characterization of the situation as a tit-for-tat game remains accurate for Anglo-French commercial relations. For instance, a new anti-dumping bill was introduced in December 1932, which allowed France

[66] Ibid.
[67] *Hansard* (Commons), 5th ser., CCLX, 4 Dec. 1931, col. 1474. According to the *Economist*, 26 Dec. 1931, pp. 1220–3, the third schedule was probably not aiming at *one* specific country.
[68] *Hansard* (Commons), 5th ser., CCLX, 4 Dec. 1931, col. 1474.
[69] *Economist*, 2 Jan. 1932, pp. 5–6.
[70] *Economist*, 31 Dec. 1931, pp. 1006–7. Reports from the *Manchester Guardian*, 19 Dec. 1931, p. 12, demonstrate that demands for retaliation were not unique to the Anglo-French relationship.
[71] *Manchester Guardian*, 27 Feb. 1932, p. 15.
[72] *Economist*, 2 Jan. 1932, pp. 725–6.
[73] *Bills and Acts* (Commons), Bill 33, 1931–2, p. I.645.
[74] Capie, 'Shaping the British tariff structure', p. 160.
[75] The recommendations could include additional tariffs, drawbacks, and exemptions for certain goods. They can be found in ProQuest's UK Parliamentary Papers online archive as part of the 'Command Papers' (https://parlipapers.proquest.com/). Specifically, searching for the terms 'import duties recommendations of the Import Duties Advisory Committee' and 'Order' yields the relevant documents. Using these sources, the following numbers of recommendations per year were counted: 1932: 9; 1933: 23; 1934: 36; 1935: 35; 1936:32. For a more detailed account of this part of the Act, see the work by Capie, 'Shaping the British tariff structure', pp. 159–62.
[76] *Manchester Guardian*, 22 March 1932, p. 4.
[77] *Manchester Guardian*, 16 April 1932, p. 11.
[78] Ibid.

to superimpose tariffs of up to 50 per cent on all merchandise from countries that treated France less favourably than their other trading partners.[79] In 1933, there were still British demands for retaliation against the surtax.[80] These demands became even louder when France did not apply the surtax against the US after the devaluation of the dollar. The *Manchester Guardian* claimed that France had a 'fear of annoying the US'.[81] The surtax against Britain was only suppressed from January 1934 onwards.[82] The quotas remained in place.

Focusing on the Anglo-French commercial policy relationship, this section has demonstrated the importance of retaliation following the devaluation of the pound in terms of rhetoric and actions taken. French policymakers understood the unilateral devaluations as a protectionist measure and retaliated accordingly. This led to similar reactions abroad. The 'potato incident' shows clearly that even minor actions could provoke severe threats. This qualitative analysis informs the quantitative assessment in two ways. First, it illustrates that trade policy did indeed have discretionary elements. Policymakers raised tariffs against certain countries by targeting their main export goods and by introducing a surtax on depreciated currencies. Second, it is apparent that quotas soon became the commercial policy tool of choice, which may have meant that post-1932 tariff rates were only of secondary importance.

III

The qualitative evidence suggests that French policymakers perceived the devaluations as a beggar-my-neighbour policy and retaliated accordingly. How large was this beggar-my-neighbour penalty? How does this commercial policy reaction generalize to other gold bloc countries? From the newspaper evidence on France as well as that from other qualitative sources for the remaining gold bloc countries,[83] we know that quotas and tariffs were the prime commercial weaponry in gold bloc countries. The fact that data on these are rarely recorded at the bilateral level makes it particularly challenging to identify discriminatory trade policies.[84] To overcome this difficulty, this section introduces three pieces of evidence. First, it links increases in a synthetic trade cost measure to the devaluations. Second, the analysis of novel Swiss data on quotas and French data on tariffs elucidates the precise mechanisms of discriminatory import restrictions. The final part of this quantitative assessment makes use of the estimated changes in trade costs to speculate about the effects on trade.

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[79] *Economist*, 10 Dec. 1932, p. 1081.

[80] *Manchester Guardian*, 10 May 1933, p. 12; 24 Nov. 1933, p. 4.

[81] *Manchester Guardian*, 24 Nov. 1933, p. 9.

[82] *Manchester Guardian*, 1 Jan. 1934, p. 13.

[83] United States Tariff Commission, *Regulation*, pp. 5, 21, 24, provides an overview of the legal aspects of commercial restrictions by country. The Belgian government had the power to apply countervailing duties to countries with depreciated currencies and quotas against unfair competition. Italian law provided the opportunity to impose quotas and tariffs by decree against unfair competition of all sorts. In 1933, a new law with explicit reference to depreciated currencies was passed. The Dutch government passed anti-dumping and clearing acts in 1931 and 1932 respectively, introduced a quota system in Dec. 1931, and established monopoly control for a large number of agricultural goods in 1932.

[84] This is reflected in the scarcity of studies using bilateral tariff data. Among the few works that come to mind are Dedinger, 'Franco-German trade puzzle', and Varian, 'Anglo-American trade costs', on the late nineteenth century, and Hayakawa, 'Omission', on modern trade data.

In a data-scarce environment, bilateral trade costs can be proxied by a synthetic measure.[85] While the derivation is not trivial, its intuition is easily summarized. Based on data on the internal trade of two countries as proxied by the respective tradable GDPs and a parameter assumption about the elasticity of substitution, it is possible to calculate two hypothetical bilateral trade flows in a frictionless world. The difference between such hypothetical flows and the observed ones constitutes the trade costs. Conveniently, the resulting measure can be interpreted in *ad valorem* equivalent terms.[86]

How can we isolate commercial policy repercussions from the currency devaluations from these data? By construction, the trade cost measure indicates neither what these trade costs are composed of, nor which of the two countries is responsible for them. Fortunately, a set of fixed effects can partially alleviate the former and fully address the latter of these two caveats. First, pair-specific fixed effects account for most of the important trade costs such as distance and language similarity, which do not vary over short periods.[87] Second, time-varying country fixed effects account for the change in the trading partners' average trade cost levels. The remaining variation in trade costs stems from pair-specific changes over time. Can the devaluations help to explain this variation? The following equation addresses this question by employing an existing trade cost dataset:[88]

$$\ln\left(1 + \tau_{i,j,t}\right) = \beta GS_{off} + \gamma_{i,t} + \psi_{j,t} + \phi_{i,t} + t_t + \epsilon_{i,j,t} \qquad (1)$$

in which $\ln(1 + \tau_{i,j,t})$ is the logarithm of the mark-up due to trade costs τ between countries i and j at time t. GS_{off} takes the value one if at least one country is off the gold standard. $\gamma_{i,t}$ and $\psi_{j,t}$ are time-varying country fixed effects for i and j respectively, $\phi_{i,t}$ a pair-specific fixed effect, and t_t a time fixed effect. If countries staying on the gold standard imposed beggar-my-neighbour penalties against devaluing countries, trade costs would increase for country pairs that were not linked by the gold standard relative to those who were. Hence, we would expect the coefficient β to be positive and significant.

While reverse causation concerns can be easily dismissed on historical grounds,[89] exchange rate volatility could potentially confound the results of this specification due to its strong correlation with the gold standard variable.[90] The concern is thus that the β coefficient for GS_{off}, rather than capturing a discretionary protectionist response, picks up potential negative effects of exchange rate volatility. Using different samples and specifications allows us to gauge the importance of this factor. First, it is possible to compare the period in which countries joined the

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[85] Novy, 'Gravity redux'.

[86] Ibid. Whether this holds strictly true for historical data is—given the imprecision of historical national accounts—unclear.

[87] It is true that transport costs, unlike distance, vary over time. However, the general variation of transport costs is captured by the time fixed effect. While not controlled for, the differential effect on bilateral transport costs is unlikely to correlate with the gold standard adherence variable in the main specification. Countries around the world had left the gold standard in 1931, while others stayed on it at least until 1933.

[88] Jacks et al., 'Trade booms'.

[89] For example, see Wolf, 'Scylla and Charybdis', for a discussion of the structural reasons, and Accominotti, 'London merchant banks', for the trigger for the exit from the gold standard.

[90] In contrast, the inclusion of a variable indicating the imposition of exchange controls by at least one trading partner did not affect the results. As the coefficient for this variable was insignificant, potentially due to strong multicollinearity with the time-varying country fixed effect, it is omitted from the presentation.

Table 1. *Discriminatory protectionism in bilateral trade cost data*

Dependent variable	Trade cost: $\ln(1+\tau)$				
Specification	Off gold			Asymmetric regime	
Column	(1)	(2)	(3)	(4)	(5)
Sample	1925–9	1930–4	1930/1932	1930/1932	1930/1932
GS_{off}	0.0076	0.0450***	0.0498***		
	(0.63)	(2.88)	(3.28)		
GS_{as}				0.0249***	0.0409***
				(3.28)	(2.71)
Reference group					
Off gold–Off gold				√	√
Off gold–On gold					
On gold–On gold	√	√	√	√	(dropped)
R^2	0.558	0.707	0.852	0.852	0.854
N	740	740	296	296	264

Notes: t-statistics in parentheses. Significance levels: *$p<0.10$, **$p<0.05$, ***$p<0.01$. Country-pair, time, and time-varying country fixed effects are included but not shown. Standard errors are robust. The dataset comprises a balanced sample of 148 country pairs per year. Gold bloc countries in the sample include Belgium, France, Italy, the Netherlands, and Switzerland. The results are robust to the exclusion of country pairs containing France.
Source: Author's own calculation. The underlying data are from Jacks et al., 'Trade booms'.

gold standard with the period in which many countries left it. If the β coefficient had the same magnitude in both samples, the effect would be driven by exchange rate volatility. Second, it is possible to analyse the role of exchange rate volatility by alternating the reference group. Specifically, we can compare country pairs with asymmetric exchange rate regimes GS_{as}, that is, with one trading partner on and one off the gold standard, with those in which both countries had either left or stayed on the gold standard. Finally, dropping the gold standard group, the corresponding regression compares only country pairs affected by exchange rate volatility. However, only one of them received the beggar-my-neighbour penalty.

Table 1 illustrates the results. To improve expositional clarity, the lower part of the table documents the reference group for the indicator variable of interest. The results in column 2 suggest that trade costs increased by $e^{0.045} - 1 \approx 4.6\%$ for country pairs that were no longer linked by the gold standard during the period 1930–4. Column 3 repeats the same exercise by focusing on the change from 1930 to 1932. The fixed effects included in the above equations facilitate an interpretation within a difference-in-differences framework, in which 1931 is dropped as the year in which the treatment occurred. Arguably, this specification represents the cleanest estimate of the beggar-my-neighbour penalty. It implies an *ad valorem* equivalent penalty of $e^{0.0498} - 1 \approx 5.1\%$.

Column 1 suggests that this effect is not driven by exchange rate volatility. In the period 1925–9 many countries joined the gold standard, but the effects on trade costs were insignificant. If exchange rate volatility were playing an important role, we would expect an effect of similar magnitude and significance for this period. The specifications in columns 4 and 5 lend further support to this notion. They focus on country pairs with asymmetric exchange rate regimes, meaning that one of the trading partners was on the gold standard while the other was not. As only the reference group changes in column 4, the R^2 remains identical

Table 2.   *Non-discriminatory trade cost increases in gold bloc countries*

	France	*Belgium*	*Italy*	*The Netherlands*	*Switzerland*	*Ø*
$\tau_{i,\,1932}^{ND}$	2.02	5.21	2.33	1.21	0.55	2.26
Pairs	24	21	13	12	3	

Source: Author's own calculation. See tab. 1 for underlying data and regression and section III for the methodology.

and large. On the other hand, the size of the coefficient changes—reducing the effect to $e^{0.0249} - 1 \approx 2.5\%$. This is not particularly surprising as the reference group now contains highly heterogeneous country pairs. The final column drops country pairs in which both countries were on the gold standard. It thus compares two groups for which exchange rate volatility could have played a role. The effect of an asymmetric exchange rate regime is $e^{0.0409} - 1 \approx 4.2\%$. Compared to the point estimate of 5.1 per cent from the main specification, this allows some role for exchange rate volatility. However, it also implies that exchange rate volatility is not driving the effect. Taking tariff reductions through modern regional trade agreements as a point of reference,[91] the estimated size of between 4.1 and 5.1 per cent implies that the beggar-my-neighbour penalty constituted a significant barrier to trade.

To gauge its significance for this commercial policy episode in particular, table 2 provides the non-discriminatory increase of trade costs $\Delta\tau_{i,1932}^{ND}$ in gold bloc countries for a comparison. $\Delta\tau_{i,1932}^{ND}$ follows directly from the time-varying country fixed effects $\gamma_{i,1932}$ in the difference-in-differences specification in column 3.[92] The lower part of the table shows the number of country pairs in which the respective gold bloc country is included. Given the small sample size, the estimates of these country-specific intercepts are subject to considerable uncertainty. It thus seems prudent to take the average non-discriminatory trade cost increase in gold bloc countries as a point of reference. Amounting to around 2.3 per cent, it is smaller than the beggar-my-neighbour penalty. Most conservatively, the largest non-discriminatory increase (Belgium) was about as large as the penalty. Hence, the beggar-my-neighbour penalty was substantial even in the high-tariff environment of the 1930s.

In sum, the analysis of trade costs suggests that the beggar-my-neighbour penalty was economically significant by historical and modern standards. While the qualitative evidence suggests that tariffs and quotas were the most common commercial policy weapons, the synthetic trade cost measure is mute on how trade costs rose. The following part of this quantitative assessment thus elucidates the precise mechanisms underlying the changes in trade costs by analysing the introduction of Swiss quotas and French tariffs.

Quota and licensing systems were widely adopted in the 1930s.[93] Typically, they covered a number of goods that were specified either by a special commission or the relevant trade authorities. As such, they could be used to

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[91] Burfisher, Robinson, and Thierfelder, 'Impact of NAFTA', p. 127, reports pre-NAFTA trade-weighted *ad valorem* equivalents of 4% for the US and 10% for Mexico.
[92] Specifically, $\Delta\tau_{i,1932}^{ND} = e^{\gamma_{i,1932}} - 1$.
[93] Heuser, *Control*, p. ix.

discriminate against a certain country group by imposing restrictions on goods that were predominantly imported from those countries. A country imposing such restrictions was Switzerland. Unlike France, Switzerland was a small open economy and had been an ardent proponent of free trade for as long as was possible. Studying the introduction of licensing and quotas in Switzerland thus constitutes a complementary case with respect to the country size, general protectionist attitude, and the protectionist measure employed.

Having passed the corresponding legislation in December 1931, the Swiss government began to impose quotas and to require import licenses for certain goods from 1932 onwards. A council proposed a list of goods, which was then subject to approval by an industry commission and finally passed by the federal assembly.[94] An important justification was the protection of the trade balance.[95] As such, these quotas were most effective when directed against countries that devalued their currency. Furthermore, a convincing case for a quota or license had to be made before the commission. This was more easily done if producers faced 'unfair competition'. While such institutional arrangements make discrimination likely, the words of Switzerland's chief commercial diplomat provide direct evidence. When Walter Stucki defended the introduction of the quota system at the World Economic Conference in London in 1933, he made explicit references to the exit from gold by Great Britain via depreciation and by Germany via the introduction of exchange controls.[96] Even more illuminating, since they were undisclosed at the time of their writing, are the American memoranda from the negotiations of a new Swiss-American trade treaty in 1935. Stucki explained the introduction of quotas with the devaluations and 'frankly admitted that Swiss quotas discriminated against American commerce'.[97] Such statements indicate that the Swiss licensing and quota system was introduced in a discriminatory manner.

Gauging the extent of Swiss discrimination against devaluing countries requires a variety of data. First, the de facto gold adherence is coded for all Swiss trading partners.[98] Second, import data by trading partner at the goods level from 1931 makes it possible to calculate the share of imports for a given good from countries that would eventually devalue. As it proved impossible to transcribe the universe of trade flows for 1931, a list of goods from the International Chamber of Commerce was used to determine the sample. The bilateral import flows for the according items were transcribed from the Swiss trade statistics.[99] Choosing a year prior to the actual implementation in 1932 ensures that the results are not confounded by the effects of the restrictions themselves. Third, information on the introduction of import restrictions can be found in the tariff section of the 1933 issue of the Swiss trade statistics.[100] With these data to hand, the following equation specifies a probability model for the introduction of quotas and licenses:

$$R_g = \beta_1 S_{Off\ gold,\ g} + \beta_2 \ln\left(M_g\right) + \beta_3 \Delta P_g + I_i + \epsilon_g \qquad (2)$$

[94] United States Tariff Commission, *Regulation*, p. 34.
[95] Heuser, *Control*, p. 31.
[96] League of Nations, *Journal*, p. 94.
[97] Department of State, *Diplomatic Papers*, p. 751.
[98] League of Nations, *Statistical Yearbook 1940/1941*, pp. 180–2; Wolf and Yousef, 'Breaking the fetters', pp. 256–8; Crafts and Fearon, *Great Depression*, p. 19. Online app. S1 provides further details.
[99] Online app. S1 provides further details.
[100] Direction générale des douanes fédérales, *Statistique annuelle du commerce*.

Table 3.   *Discrimination in Swiss quota setting*

Dependent variable	Introduction of restriction/licensing					
Sample	Full			Excluding agricultural goods		
$S_{Off\,gold,\,g}$	0.200*	0.204**	0.173*	0.336***	0.310***	0.286**
	(1.86)	(2.08)	(1.66)	(2.76)	(2.77)	(2.38)
Import value		0.091***	0.084***		0.111***	0.100***
		(7.28)	(6.15)		(8.16)	(7.04)
$\Delta_{27-31} Price$		−0.128**	−0.118*		−0.126**	−0.111
		(−2.51)	(−1.83)		(−2.34)	(−1.57)
Fixed effects						
Industry			$\checkmark$			$\checkmark$
R^2	0.01	0.18	0.24	0.03	0.22	0.29
N	261	261	261	213	213	213

Notes: *t*-statistics in parentheses. All standard errors are robust. Significance levels: *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.
Source: Author's own calculation. The underlying data are from the 1927, 1931, and 1933 issues of Direction générale des douanes fédérales, *Statistique annuelle du commerce*.

in which R_g is an indicator taking the value of one if import controls were introduced on good g, M_g is the total value of imports for good g in 1931, ΔP_g is its average price change between 1927 and 1931, and I_i is a fixed effect for industry i. The variable $S_{Off\,gold,\,g}$ is defined as the share of imports from countries that devalued between the end of 1931 and 1933. Most accurately, this specification is estimated by a logit model as likelihood functions are seldom strictly linear. As results from such a model differ little from those of a linear probability in this case, however, the linear probability model is chosen for ease of interpretation.[101]

Table 3 suggests that the discriminatory element in the introduction of Swiss quotas was strong. The first specification suggests that moving the share of countries with depreciated currencies for an imported good from zero to one would have increased the probability of the imposition of an import restriction by about 20 per cent. This magnitude is hardly affected when we control for the change in prices, the total value, and industry fixed effects. The remaining three columns show the results when agricultural goods are excluded. The coefficient of interest increases in both economic and statistical significance, suggesting that the protection of farmers, a traditionally well-represented group, was another important motive for the introduction of quotas. Especially for non-agricultural goods, though, Swiss policymakers applied the quota and licensing system in a profoundly discriminatory manner against countries that had left the gold standard.

However, quotas were not the only commercial policy weapon employed in a discriminatory manner. As discussed in section II, French policymakers retaliated against countries with depreciated currencies by imposing retaliatory tariffs. The manner in which French statisticians recorded tariff revenues provides a unique opportunity to quantify this response. To the best of the author's knowledge, France was the only country among the main economic powers to record tariff revenues by trading partner during this period. It is thus possible to distinguish empirically between discriminatory and non-discriminatory tariff increases.

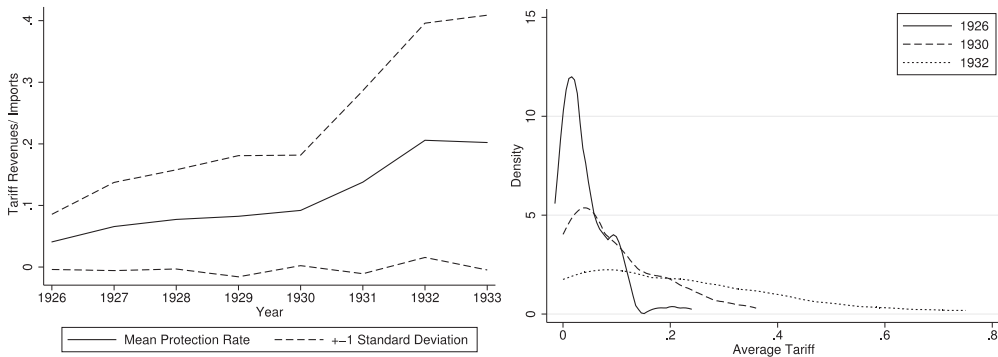[101] Results for the logit model are shown in online app. S1.

Figure 2. *Heterogeneity in French tariff setting*

Source: Author's own calculation based on Ministère des Finances, *Tableau général du Commerce*, 1926–33.

French data on bilateral import values and tariff revenues for the years 1926–33 were transcribed from various issues of the *Tableau général du Commerce*.[102] From these data, we can calculate the average *bilateral* protection rate $tr_{i,t} = \frac{R_{i,t}}{M_{i,t}}$, where R is the tariff revenue and M is the value of imports from trading partner i at year t. If the data permitted it, it would have been preferable to employ even more disaggregated tariff data on the country–good level.[103] However, the aggregate counterpart of the bilateral protection rate, the average protection rate, usually provides a good proxy for protectionism.[104] Furthermore, tariffs remained a popular commercial policy tool until at least 1932.

A first glance at the data (figure 2) illustrates the important difference between this and many other studies on protectionism.[105] Covering virtually all French imports, the left panel plots the mean tariff rate and its standard deviation for a balanced panel of 72 French trading partners for the period 1926–33. Most studies on protectionism focus on a measure similar to the solid line above: the average protection rate.[106] In contrast, this study focuses on the variation around the mean as captured by the annual standard deviation in the graph. This variation can be thought of as the level of discretion applied by policymakers, and the figure demonstrates how it increased substantially over the years. The right-hand panel of figure 2 provides another way of understanding this intuition. It

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[102] Ministère des Finances, *Tableau général du Commerce*. For unknown reasons, the French statisticians halted their data collection efforts after 1933. This is not of great concern for this analysis as it focuses on the cross-sections of 1930 and 1932. Another caveat regarding the data is worth mentioning. Unfortunately, the *Tableaus* themselves do not include any information on whether revenues from the surtax (section II) are included. However, a government memorandum from 1933 suggests that this is the case. See Ministère des Finances, *Observations Preliminaires*, pp. 133, 427.

[103] For its potential relevance, see the now classic and then fierce debate between Nye, 'Myth', and Irwin, 'Comment on Nye'.

[104] See O'Rourke, 'Tariffs and growth', pp. 462–3.

[105] For example, Clemens and Williamson, 'Tariff-growth correlation'; Eichengreen and Irwin, 'Slide to protectionism'.

[106] Conventionally, researchers define the average protection rate T as the sum of tariff revenues R_j of country i from n trading partners j divided by the sum of i's imports M from n trading partners j. Hence it represents a trade-weighted average $T = \sum_{j=1}^{n} R_j / \sum_{j=1}^{n} M_j$. In contrast, the graph displays the (unweighted) average of the protection rate against all countries in the sample, which is $T = \frac{\sum_{j=1}^{n} R_j / M_j}{n}$.

plots kernel densities, a form of smoothed histograms, for three different cross-sections. Suppose that French policymakers, just like their British counterparts, had introduced a general *ad valorem* tariff of 10 per cent in 1932. Ignoring potential substitution effects between goods, this would have simply shifted the distribution of 1930 along the x-axis by 0.1 without altering its shape. However, the distribution of bilateral protection rates for 1932 is substantially flatter than that for 1930. Hence, the discretion used in the imposition of tariffs must have increased.

Did the beggar-my-neighbour penalty drive this evolution of bilateral protection rates? Akin to the analysis of the trade costs, the structure of the data facilitates a difference-in-differences approach. Dropping 1931 as the year of the treatment, the following model compares the cross-sections of 1930 and 1932:

$$\ln(1 + tr_{it}) = \alpha + \beta GS_{off} + c_i + t_t + \varepsilon_{it} \tag{3}$$

where tr_{it} is the bilateral protection rate against trading partner i and $\ln(1 + tr_{it})$ the logarithm of the corresponding mark-up. GS_{off} is an indicator variable capturing whether trading partner i had left the gold standard. It is zero for all countries in 1930 and one for the treated countries in 1932.[107] c_i and t_t are country and time fixed effects respectively and α the constant, which make the above equation a difference-in-differences approach. The time fixed effect t_{1932} captures the non-discriminatory tariff increase, whereas β measures the beggar-my-neighbour penalty. Comparison of the two coefficients will inform us about the relative magnitude of retaliatory tariff policies in response to the devaluations.[108]

Table 4 displays the results for various subsamples. The estimates for the full sample imply a beggar-my-neighbour penalty of $e^{0.0903} - 1 \approx 9.5\%$. Columns 2–4 introduce various sample restrictions to analyse the robustness of the results.[109] The coefficient for the treatment variable GS_{off} ranges from about 0.07 to 0.09 across specifications and remains significant throughout. The point estimate is smaller when the French colonies are excluded as this drops the part of the control group facing low tariffs. Depending on the point of view, their inclusion might lead to an overestimation of the retaliatory effect. Thus, the more conservative estimate in column 2 is preferred. It implies a beggar-my-neighbour penalty of $e^{0.0736} - 1 \approx 7.5\%$ *ad valorem*.

Across specifications, the coefficient for the time fixed effect capturing the non-discretionary tariff increase is consistently smaller than the penalty. The preferred specification implies a non-discriminatory tariff increase of $e^{t_{1932}} - 1 \approx 5\%$. Given the relatively small sample size, we should not overemphasize this difference of the point estimates. However, their comparison suggests that the beggar-my-neighbour

[107] For a clean difference-in-differences estimate of the effect of the 1931 devaluations, the few countries that either devalued earlier or were not on the gold standard during this period at all are excluded. This restriction implies that Honduras—which adhered to the gold standard in 1932, but not in 1930—is included in the above sample. For the virtually unchanged results excluding Honduras, see online app. S1.

[108] This model does not take retaliation against foreign tariffs into account. However, countries leaving the gold standard became relatively less protectionist, as Eichengreen and Irwin, 'Slide to protectionism', show. Hence, any bias arising from this omission should thus bias strongly against finding significant effects for retaliation against currency depreciation.

[109] It remains stable when colonies are dropped (col. 2), small trading partners are excluded (col. 3), or both of these restrictions are applied (col. 4). The parallel trend assumption is met to a reasonable degree for most subsamples and particularly for the most restrictive sample (4). See online app. S1 for the corresponding graphs and additional robustness checks.

Table 4.   *The relative magnitude of the beggar-my-neighbour penalty*

Dependent variable:	$ln(1+$tr$)$				Imports
Estimator	(OLS)	(OLS)	(OLS)	(OLS)	(PPML)
Sample	(1)	(2)	(3)	(4)	(5)
Restriction	None	No colonies	Import share >0.5%	Restrictions (2&3)	None
GS_{off}	0.0903***	0.0736**	0.0911**	0.0680*	−0.3007**
	(3.95)	(2.47)	(2.71)	(1.94)	(−2.22)
t_{1932}	0.0334***	0.0501**	0.0258***	0.0489***	−0.4408***
	(2.74)	(2.22)	(3.15)	(4.34)	(−3.72)
R^2	0.52	0.55	0.51	0.53	
Pseudo R^2					0.99
N	120	86	56	40	120

Notes: t-statistics in parentheses. Country fixed effects and constant included but not shown. Robust standard errors applied. Significance levels: *$p<0.10$, **$p<0.05$, ***$p<0.01$.
Source: Author's own calculation. Underlying data are from the 1930 and 1932 issues of Ministère des Finances, *Tableau général du Commerce*.

penalty was at least as large as the non-discriminatory increase in protectionism. The French beggar-my-neighbour penalty was thus sizeable and, just as in the case of the trade cost estimation, comparable in magnitude to the average tariff reductions achieved by modern trade treaties.

If the penalty was important for the increase in protectionism, what were its effects on trade? For the French data, we can test its significance directly. Column 5 shows the estimate of the treatment effect on imports using the Poisson pseudo maximum likelihood (PPML) estimator.[110] The specification mirrors that for tariffs and can be thought of as a simple import demand function by countries. The coefficient is −0.3 and significant at the 5 per cent level, thus suggesting a relative reduction of imports by $e^{-.3} - 1 \approx -26\%$. Yet this exercise may fall short of properly capturing the effect of the beggar-my-neighbour penalty on imports. First, the estimation is not theory-consistent, because it omits a multilateral resistance term, and thus it might lead to biased coefficients.[111] Second, it only measures the relative effect. Third, and most importantly, it is confined to the case of France. To gauge the effects of the penalty on trade across gold bloc countries, it is thus more promising to employ the estimated tariff and trade cost changes in a back-of-the-envelope calculation.

A calculation of this sort has been used to verify the consistency of estimates of the effects of regional trade agreements, tariff elasticities, and tariffs in the empirical trade literature.[112] Analogously, we divide the world into group *OG*, which suffers a beggar-my-neighbour penalty of 7.5 per cent, and *G*, which just pays the non-discriminatory tariff increase of 5 per cent in 1932. Both groups face the following cost $\tau_{1930}^{G,OG}$ for exporting a good to a gold bloc country in 1930:

$$\tau_{1930}^{G,OG} = 1 + \kappa + tr_{1930} \tag{4}$$

[110] Santos Silva and Tenreyro, 'Log of gravity'.
[111] See Head and Mayer, 'Gravity equations'.
[112] Ibid., p. 165. Except for a small extension, the following calculation mirrors their calculation for a regional free trade agreement.

in which $\kappa = 0.36$ captures the *ad valorem* equivalent of the home preference[113] and tr_{1930} captures the initial tariff level.[114] In the second period (1932), group G stays on the gold standard and pays only the non-discriminatory tariff increase $\triangle tr_{1932}$ on top of $\tau_{1930}^{G,OG}$:

$$\tau_{1932}^{G} = 1 + \kappa + tr_{1930} + \triangle tr_{1932} \tag{5}$$

In contrast, group OG now faces the additional beggar-my-neighbour penalty η:

$$\tau_{1932}^{OG} = 1 + \kappa + tr_{1930} + \triangle tr_{1932} + \eta \tag{6}$$

Assuming a price elasticity $\varepsilon = -5.3$,[115] the decrease in the gold bloc country's imports from the respective groups in 1932 relative to 1930 can be calculated as:

$$\rho_{G}^{1932} = \epsilon \left(ln\,\tau_{1932}^{G} - \ln \tau_{1930}^{G,OG} \right) \tag{7}$$

and

$$\rho_{OG}^{1932} = \epsilon \left(ln\,\tau_{1932}^{OG} - \ln \tau_{1930}^{G,OG} \right) \tag{8}$$

The effect of the beggar-my-neighbour penalty on imports of the gold bloc country from group OG relative to group G is thus captured by:

$$\rho_{BMN}^{relative} = \epsilon \left(\ln \tau_{1932}^{OG} - \ln \tau_{1932}^{G} \right) \tag{9}$$

For ease of interpretation, it is useful to convert the ρ-coefficients into percentage terms: $\Delta M_r = e^{\rho_{BMN}^{relative}} - 1$. The corresponding absolute fall in imports ΔM_a for the gold bloc country can be captured by weighing the respective fall in trade for the two groups with the import shares m_{1930}^{G} and m_{1930}^{OG}:[116]

$$\Delta M_a = m_{1930}^{G}(e^{\rho_{G}^{1932}} - 1) + m_{1930}^{OG}(e^{\rho_{OG}^{1932}} - 1) \tag{10}$$

Naturally, the counterfactual fall in absolute trade in the absence of the beggar-my-neighbour penalty can be calculated as ΔM_{cf} by setting $\eta = 0$.

Table 5 presents the data and results for the simulation based on the French tariff data and trade cost data for the other gold bloc countries. The results, which are reassuringly close to the empirical estimate, suggest that the beggar-my-neighbour penalty reduced French imports from those who left the gold standard relative to those who did not by $\Delta M_r \approx 22\%$. The corresponding effect for the remaining gold bloc countries is around 16 per cent. Albeit slightly smaller, the magnitude

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[113] Ibid., p. 164.
[114] For countries other than France, Clemens and Williamson, 'Tariff-growth correlation', and Mitchell, *Historical statistics*, provide initial tariff levels.
[115] The median point estimate is from the meta-study by Head and Mayer, 'Gravity equations', p. 164.
[116] Calculated from Gowa and Hicks, 'Politics'.

Table 5. *The beggar-my-neighbour penalty's effect on trade*

Country	Import share m_{1930}^{OG}	Trade cost parameters			Effects on trade			
		tr_{1930}	Δtr_{1932}	η	ΔM_r	ΔM_a	ΔM_{cf}	ΔM_{obs}
			Simulation based on tariff data					
France	63	10	5	7.5	−22	−27	−16	−28
			Simulation based on trade costs					
Belgium	52	5	5	5.1	−16	−24	−17	−34
Italy	63	11	2	5.1	−16	−17	−8	−40
The Netherlands	69	3	1	5.1	−16	−15	−4	−32
Switzerland	58	11	1	5.1	−16	−11	−2	−15

Notes: All data are in percentages. Parameters: m_{1930}^{OG}: import share of countries that will go off the gold standard in 1931 as of 1930; tr_{1930}: initial tariff level in 1930; Δtr_{1932}: non-discriminatory tariff increase between 1930 and 1932; η: beggar-my-neighbour penalty; ΔM_r: relative fall in imports for countries receiving penalty; ΔM_a: absolute fall in trade as predicted by calculation; ΔMcf: counterfactual fall in trade in the absence of the beggar-my-neighbour penalty; ΔM_{obs}: observed fall in imports.
Sources: m_{1930}^{OG}: Gowa and Hicks, 'Politics'. tr_{1930}: for countries other than France, Clemens and Williamson, 'Tariff-growth correlation', and Mitchell, *Historical statistics*, provide initial tariff levels. For France, the sources are the same as those underlying fig. 2. Δtr_{1932}: see underlying estimates in tab. 4 for France and tab. 2 for all others. For η: see underlying estimates in tab. 4 for France and tab. 1 for all others. ΔM_{obs}: nominal import data are from Statistisches Reichsamt, *Handbuch*, and deflated by the US GDP deflator by Johnston and Williamson, 'GDP'. All other variables are my own calculations.

of the penalty is comparable to that of the effects found for regional free trade agreements in the gravity literature.[117]

Beyond analysing the relative effects, which is common in the trade literature, discussing absolute effects is informative in its own right. Ultimately, two factors determine the importance of the beggar-my-neighbour penalty for the fall in trade in the 1930s: the force of the penalty and the number of countries receiving it. The ΔM_a column displays the absolute loss of imports as predicted by the back-of-the-envelope calculation. It is particularly informative to compare these effects to the ΔM_{cf} column, which draws out the relevant counterfactual—the change in total imports in the absence of the beggar-my-neighbour penalty. In the case of France, absolute imports would have dropped 11 per cent less than they actually did. For the trade cost data, the corresponding effects on total imports range from 7 to 11 per cent. These results suggest that the penalties in response to the devaluations did not just have large relative effects. Given that many countries received them, their effects on overall imports were substantial. Beggar-my-neighbour penalties in the 1930s contributed significantly to the fall in trade.

The final column contrasts these simulation results with the observed fall in imports.[118] Even though this comparison is approximate at best,[119] it provides a useful plausibility check and highlights the significance of the results. In the case of France, Belgium, and Switzerland, the observed fall corresponds reasonably well to the results from the simulation. On the other hand, the simulation underestimates substantially the fall in imports in the Netherlands and Italy. One among many

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[117] See Head and Mayer, 'Gravity equations', p. 160. Given the large dispersion of estimates of the price elasticity, there is a degree of uncertainty in this estimate.

[118] In order to ensure consistency with the trade cost data, the nominal import data were transcribed from Statistisches Reichsamt, *Handbuch,* and deflated by the US GDP deflator by Johnston and Williamson, 'GDP'.

[119] Two main effects other than protectionism affect the observed change. First, income losses translate into a decrease in imports. Second, overvaluation, which occurred and was indeed a huge problem in gold bloc countries, increases import demand. Both effects work in different directions with respect to the fall in trade and thus the overall effect is unclear.

possible reasons[120] is that assuming the same parameter for the penalty across gold bloc countries may not reflect the heterogeneity of their responses. Nevertheless, the fact that the actual fall is under- rather than over-estimated suggests that these effects are plausible in magnitude even if they cannot fully explain the fall in trade.

In sum, the beggar-my-neighbour penalties in response to the 1931 devaluations were fierce and their effects on trade were large. Across the gold bloc, the penalty ranged between 5 and 7.5 per cent *ad valorem*, whereas the general increase in tariffs amounted to 2.3 to 5 per cent. The corresponding decrease in imports from those receiving the penalty relative to those who did not varied between 15 and 20 per cent. The respective reductions in total imports were between 6 and 11 per cent. Because 1932 marked a first plateau rather than the culmination of protectionism, the cumulative effects of the subsequent retaliatory tit-for-tat policies certainly added to this significant initial fall in trade.

IV

In response to the currency depreciations of 1931, countries that remained on the gold standard introduced discriminatory trade policies. The estimated sizes of these beggar-my-neighbour penalties were large by historical and modern standards, as comparisons with contemporary non-discriminatory increases in protectionism and recent regional trade agreements illustrate. Correspondingly, their effects on trade were considerable in both relative and absolute terms. What are the historiographical and political implications of these findings?

First, they provide a complementary explanation for the rise of protectionism during the interwar period. From a commercial policy perspective, the devaluations were a doubled-edged sword. While facilitating a faster recovery and less protectionism in devaluing countries, they directly fostered protectionism abroad and opened the doors for a third phase of commercial warfare. In this phase, the nature of protectionism shifted from general to discriminatory. This is not to question the trilemma framework of Eichengreen and Irwin,[121] but rather to provide a complementary explanation for protectionism in the 1930s and perhaps to clarify why the previous literature and contemporaries have painted a much more chaotic picture of this commercial policy episode.

Second, the high estimated costs of the unilateral currency devaluations provide an explanation for the scepticism of contemporaries towards flexible exchange rates. Their political economy implications, though not limited to trade policy, were important for the course of monetary history in the twentieth century. Highlighting the cost of floating as supposedly witnessed in the 1930s, Ragnar Nurkse's post-mortem analysis of the international currency experience in the interwar period laid the intellectual foundations for the postwar monetary order by making the case for a fixed exchange rate regime with adjustable pegs.[122] Even though Keynes himself had made the case against fixed exchange rates in the early 1920s and was

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[120] They include, first, that real exchange rate effects and demand effects due to falling GDP do not cancel each other out; second, that the limitations of the trade cost data affect the estimation of the non-discriminatory increase in a substantial manner; and third, that the imprecision of historical national accounts introduces a large measurement error in the calculation of changes in trade costs.

[121] Eichengreen and Irwin, 'Slide to protectionism'.

[122] Bordo and James, 'Haberler versus Nurkse'; Nurkse, *Currency experience*.

actively involved in designing the postwar monetary system, the very possibility of adopting a system of flexible exchange rates was not seriously discussed at the Bretton Woods conference because of the recent historical experience.[123] It could thus be argued that the architects of the postwar monetary order had mistaken the economic and political costs of breaking up a fixed exchange rate regime for the potential disadvantages of a flexible exchange rate system. The magnitude of these costs, as evidenced by this article, certainly played a role in this conflation and confusion.

Finally, the findings of this study lead to a refinement of the current interpretation of the unilateral currency depreciations of the 1930s. Rightfully reversing Nurkse's interpretation, the modern literature portrays this period as the prime example of the failure of fixed exchange rate regimes. A more thorough understanding of the historical episode and of the advantages of flexible exchange rates certainly supports such an interpretation of the interwar experience as a whole.[124] Yet the fading memory of the costs of the sudden break-up of the interwar gold standard may also have played an important role in the dominance of this interpretation.[125] While the early gold standard literature acknowledged these costs,[126] the subsequent literature started to ignore them. This is neither innocent nor innocuous: while one can certainly interpret the interwar experience as a case against having rigid fixed exchange rate systems in the first place, the early 1930s also provide an example of how costly the uncoordinated break-up of such a regime can be. The unilateral devaluations were thus a success and a failure at the same time—a success because their net benefit was certainly still positive and perhaps they were the only available option,[127] and a failure because the costs of non-cooperation, the gap between potential and realized gains, was so large. When drawing policy lessons from this period, it is thus important to keep their success *and* failure in mind. The economics underlying overvalued currencies, deflation, depreciation, and retaliation may remain broadly the same, but policy environments change. Thus, unilateral devaluations may or may not be the second-best policy option in circumstances other than the 1930s.

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[123] Irwin, 'Missing Bretton Woods debate'. Similarly, Haberler had made the theoretical case against fixed exchange rates but failed to be an outspoken proponent of floating exchange rates, as Bordo and James, 'Haberler versus Nurkse', report. Irwin, 'Missing Bretton Woods debate', argues that the consensus only began to shift after the Bretton Woods system began to operate.

[124] Eichengreen, *Golden fetters*.

[125] The transition of Haberler's view on the policy implications of the 1930s, as discussed in Bordo and James, 'Haberler versus Nurkse', may be seen as a case in point.

[126] Eichengreen and Sachs, 'Exchange rates'.

[127] Eichengreen, 'Currency war', p. 431, convincingly makes the point that 'effective international coordination was impossible to achieve'.

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Supporting information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

S1. Robustness checks and descriptive statistics
S2. Data and replication files