

The anatomy of a trade collapse: The UK, 1929-33

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Abstract

A recent literature explores the nature and causes of the 2008-09 collapse in international trade. The decline was particularly great for automobiles and industrial supplies; it occurred largely along the intensive margin; quantities fell by more than prices; and prices fell less for differentiated products. Do these 'stylized facts' hold for all trade collapses? This paper uses detailed, commodity-specific information on UK imports 1929-33, to compare the Great Depression and with the Great Recession. It also compares the free trading collapse of 1929-31 with the protectionist collapse of 1931-3, to examine the relative importance of protection for UK trade patterns.

(100rds)

1 Introduction

The “Great Trade Collapse” (GTC) of 2008-9 has given rise to an extensive literature analyzing its nature and causes (a notable early contribution was Baldwin 2009). Several facts about the collapse are now commonly accepted:¹

First, there was no great increase in protection during the GTC, implying that protection can only have played a modest role in explaining it (Kee et al. 2011).

Second, the GTC was by far the most severe post-war trade collapse, and stands out as being unusually synchronized (Martins and Araújo 2009).

Third, the GTC was far more the result of a decline in the quantity of goods traded, than of a fall in traded goods prices (Levchenko et al. 2010; Bricongne et al. 2012).

Fourth, the GTC was overwhelmingly due to changes along the intensive margin, rather than the extensive margin (as predicted by Schott 2009; see Levchenko et al. 2010; Haddad et al. 2010; Bricongne et al. 2012).²

Fifth, the GTC saw imports in some sectors fall more rapidly than others. Trade in goods fell by much more than trade in services; trade in automobiles and industrial supplies fell a lot, while trade in consumer goods and agricultural goods fell by a lot less (Levchenko et al. 2010; Bricongne et al. 2012); durable goods trade fell by

¹ Stylized facts two through five below are discussed by Bems et al. (2013).

² That is, it was due more to exports of previously traded goods falling (but not vanishing), than to a decline in the number of goods exported. This is consistent with the more general argument of Bernard et al. (2009) that short-run (i.e. one-year) changes in trade over time are dominated by changes in the intensive margin.

more than non-durable goods trade (Levchenko et al. 2010; Gopinath et al. 2012).³ It is commonly accepted that such compositional effects can help to explain the size of the GTC, especially when taken in conjunction with the existence of vertical supply chains and inter-industry linkages (O'Rourke 2009; Bems et al. 2010, 2011; Bussière et al. 2013; Bems et al. 2013; Eaton et al. 2016).

Sixth, the relative contributions of price and quantity to the GTC varied across sectors. In the case of the US, import and export prices of differentiated goods barely declined, implying that the entire fall in the value of differentiated goods trade was due to a fall in quantity; non-differentiated goods prices fell significantly, however, and thus contributed to the trade collapse in those products (Gopinath et al. 2012; see also Haddad et al. 2010).

And seventh, Levchenko et al. (2010) find that in the case of the US, the collapse in trade was geographically quite well-balanced, in the sense that imports and exports fell by a lot for all major trading partners.

[Figure 1 about here]

Bems et al., Haddad et al. and Levchenko et al. describe these facts as “stylized facts”, but is that really the case? In particular, do these facts merely reflect the idiosyncratic features of the world economy in 2008, or are they in some sense

³ Chen and Juvenal (2018) provide evidence that high quality Argentinian wine exports fell by more than low quality exports, and suggest that this may be indicative of a broader phenomenon.

“typical” of great trade collapses? It is difficult to know, absent information on other great trade collapses, which is why it is surprising that there has not been more research to date comparing the experience of 2008-9 with that of the Great Depression. In an early contribution, written in “real time”, Eichengreen and O’Rourke (2009) explicitly compared the world trade and industrial output collapses of the Great Depression and Great Recession. They found that at the time of writing (April 2009), world industrial output was falling as steeply as it had done during the first year of the Great Depression (Figure 1, panel B), while world trade was falling even more sharply (panel A). However, shortly afterwards the Great Recession bottomed out, reflecting the superior macroeconomic response of 2009, as compared with its interwar counterpart. Both industrial output and trade has recovered to their pre-crisis levels within three years. Strikingly, while in the 1930s industrial output eventually recovered to its pre-crisis level, world trade never did.

Almunia et al. (2010) took the comparison further, and highlighted the potential importance of compositional factors in explaining the violence of the GTC. During the interwar period, the world economy was still largely divided between an industrial “North” and a primary-commodity-producing “South”, while during the Great Depression it was industrial output (along with output of semi-manufactured raw materials and non-agricultural primary products) that collapsed, not agricultural output (which remained stable). Similarly, it was manufacturing trade, rather than non-manufacturing trade, that collapsed after

1929. These divergent trends in output and trade translated into a terms of trade gain for the North, and a terms of trade collapse for the South, but they also had implications for the overall magnitude of the trade collapse. Almunia et al. (2010) point out that while manufacturing accounted for 70% of world merchandise trade in 2007, it only accounted for 44% in 1929. Had the composition of interwar trade been the same as in 2007, the trade collapse of 1929-30 would have been as big as that experienced during 2008-9.

Since then, there has been comparatively little work comparing the GTC with the trade collapse of 1929-33.⁴ In particular, no-one has asked whether the earlier trade collapse shared the same features as the later one. This paper does that, using detailed information from a variety of sources on UK trade between 1929 and 1933. We find that while the two trade collapses differ in important aspects – notably the role played by deflation in driving the decline in aggregate import values – in other respects they are remarkably similar. These similarities suggest that explanations of the GTC emphasizing compositional demand effects may also be relevant in explaining the 1930s trade collapse. Some of the divergence between the two episodes is due to the shift towards protection which occurred in the UK at the end of 1931, and so another focus of the paper will be to contrast the largely free trading trade collapse of 1929-31 with the protectionist collapse of 1931-33.

We use three types of data in our analysis: Macroeconomic data from the Bank of England (Thomas and Dimsdale 2017), data from a sample on country- and

⁴ Exceptions include Jacks et al. (2009) and Eaton et al. (2011).

commodity specific trade flows and tariffs for 1924-38 from de Bromhead et al. (forthcoming) and a newly collected dataset for import and export values and quantities between 1929 and 1933.⁵

The paper is most obviously related to a large literature on trade during the Great Depression, some of it going back to the 1930s and 1940s. A lot of work has naturally focused on the protectionism of the period: Gordon (1941), League of Nations (1942), and Irwin (2012) provide excellent introductions to the subject. Several authors have explored the impact of protection on trade flows, or the geographical composition of trade, or sectoral output, or aggregate output (e.g. Eichengreen and Irwin 1995, Irwin 1998, Kitson and Solomou 1990, Madsen 2001, Estevadeordal et al. 2003, Clemens and Williamson 2004, Gowa and Hicks 2013, Jacks 2014, de Bromhead et al. forthcoming). Most of these contributions were written before the Great Recession and Great Trade Collapse, and therefore were not interested in the compositional details that are the focus of this paper.

We begin with a discussion of interwar UK trade policy.

2 Trade policy during the Great Depression⁶

Notwithstanding several departures from 19th century practice (e.g. the 1915 McKenna Duty, the 1920 Dyestuffs Industry Act, the 1921 Safeguarding of

⁵ See appendix 1 for details.

⁶ This section draws on de Bromhead et al. (forthcoming), which provides a detailed account of interwar British trade policy and its consequences.

Industries Act, and so forth), British trade policy remained predominantly liberal until 1931. However, in November of that year the Abnormal Importations Act allowed the Board of Trade to impose tariffs of up to 100% *ad valorem* on manufactured goods from outside the Empire, and the Horticultural Products (Emergency Duties) Act soon allowed the Minister of Agriculture to impose similar duties on non-Empire fruit, flowers and vegetables.

In February 1932 an Import Duties Act imposed a general 10% tariff on goods not already subject to duties, though some important primary imports were exempted. Goods from British colonies were exempted, while imports from the self-governing Dominions were temporarily exempted pending the outcome of the Ottawa conference due to begin in July. The new Import Duties Advisory Committee could impose additional duties.

The Ottawa conference led to a series of bilateral trade agreements between the participants, the UK signing agreements with Canada, Australia, New Zealand, South Africa, Newfoundland, India and Southern Rhodesia. Broadly speaking, Britain agreed to maintain or raise tariffs imposed on foreign imports under the terms of the 1932 Import Duties Act, and not to reduce the 10% *ad valorem* tariff without the consent of the Dominions; to continue to exempt Empire products from these tariffs; and to introduce or enhance Imperial Preference on a wide range of agricultural commodities and raw materials of special interest to the Dominions, by raising duties or by protecting goods that had previously been duty free such as wheat. In addition, quotas were introduced for several agricultural

commodities, on the basis that policy needed to serve the interests of “the home producer first, Empire producers second, and foreign producers last” (Richardson 1936, p. 138).

[Figure 2 about here]

[Figure 3 about here]

De Bromhead et al. (forthcoming) analyze a sample of 258 goods imported into the UK from 42 countries, between 1924 and 1938. The sample accounts for roughly half of total British imports, and is representative of British imports during the period. UK imports during this period can be usefully divided into four broad categories: agricultural products such as wheat or meat; manufactured goods such as copper or machinery; raw materials such as coal, fertilizers, raw cotton or oilseeds; and “exotic” or “colonial” goods, on which revenue tariffs were levied. (Tariffs on goods such as tea, coffee, sugar and tobacco were traditionally very high, reflecting highly inelastic demand.)⁷ Figure 2 plots the share of imports in each of these four broad categories that were subject to duties of one kind or another during the interwar period. As can be seen, the shift towards protection in

⁷ Raw silk and petroleum were also included in this category, since although they were raw materials, they became subject to tariffs that were much higher than the tariffs applied to raw materials generally, presumably for revenue-raising reasons. Full details of this four-category classification are provided in de Bromhead et al. (2017), Appendix 1.

1931 mostly involved an increase in agricultural tariffs (which had been previously non-existent) and manufacturing tariffs. Figure 3 shows that these tariffs discriminated heavily in favor of Empire countries, and against the rest of the world. Empire suppliers faced no agricultural tariffs at all after 1931, and manufacturing tariffs averaging less than five percent, while foreign countries faced steadily rising agricultural tariffs (as well as quotas in some sectors), and manufacturing tariffs averaging over 20 percent.

In summary: the UK trade collapse of 1929-33 took place under two very different trade policy regimes, a broadly liberal one from 1929-31, and a protectionist one from 1931-33 which saw not only a substantial increase in protection, but active discrimination in favor of the British Empire, and against the rest of the world. The first fact about the GTC clearly does not apply to the interwar period.

3 The 1929-33 trade collapse in comparative perspective

Before comparing the UK trade collapse of 1929-33 and the American GTC of 2008-9, some macroeconomic context is in order. According to Bolt et al. (2018), US GDP fell by 3.6% between 2008 and 2009 and then started to recover.⁸ In contrast, British real GDP per capita fell in two consecutive years between 1929

⁸ All figures are computed using their rgdnpapc series.

and 1931, declining by a total of 6.6% (1.1% in the first year and 5.6% in the second). It then bottomed out and grew by 2.7% between 1931 and 1933. While extremely serious, the 1929-31 decline was smaller than the decline in output experienced during the post-war recession of 1919-21. This recession was the deepest recession in UK history, real GDP per capita fell by a total of 21.3% between 1918 and 1921 (Bolt et al. 2018), and nominal GDP is estimated to have fallen by close to 25% between August 1920 and May 1921 alone (Mitchell et. al. 2012). The causes of the recession have been debated, with both supply-side and demand-side of explanations for the slump put forward in the literature.

The deflationary implications of Britain's decision in December 1918 to return to gold at the pre-war parity have long been associated with poor post-war economic performance in Britain. Achieving this goal required a reduction in the price level, prices having risen considerably as a result of wartime inflation. The government employed both monetary and fiscal policies in pursuit of this aim, with the Bank of England raising interest rates from 5% to 7% between 1918 and 1920, while government expenditure was cut by 75% between 1918 and 1921 (Morys 2014). Real interest rates were significantly higher, with the annual rate of consumer price deflation reaching 14% by 1922 (Thomas and Dimsdale 2017). On the supply side, a fall in hours worked of 13%, without a corresponding fall in wages, resulted in higher unemployment and lower productivity (Broadberry 1986).⁹ Others have suggested that the 1920-21 recession was due to the bursting of a speculative

⁹ This conclusion has been challenged by Glynn and Booth (2000) however.

financial bubble that had inflated in the immediate aftermath of the war (Dow 2000). More recent studies emphasize that the 1921 coal strike and subsequent coal rationing also played a significant role in the severity of the downturn (Mitchell et. al 2012). Such domestic crisis had obvious consequences for imports and exports, especially in an international environment with very different monetary policies, exchange rate insecurities and increasing protectionism.

[Figure 4 about here]

How did the trade collapse of 1929-33 compare with previous and subsequent declines in trade, including the trade collapse of 2008-9? The first row in Figure 4 plots annual log changes in the value of UK exports and imports since 1870, in the left and right hand panels respectively. The data were taken from the Bank of England's *A Millennium of UK Data* (Thomas and Dimsdale 2017, accessed 13 August 2018). The two shaded areas represent the two world wars, while the two vertical (red) lines represent the onset of the Great Depression in 1929, and the Great Recession in 2008. As can be seen, the largest one year drop in the value of imports during this period came in 1921 (0.53 log points). However, the cumulative 4 year decline from 1929 to 1933 was slightly larger (0.54 log points). By contrast, the decline in 2009 was much smaller (just 0.076 log points, as compared with 0.142 log points in 1930). The contrast between the trade collapses of the Great Depression and Great Recession emerges even more clearly when it comes to

exports. Once again, the largest single fall in the value of trade came in 1921 (0.61 log points), while the cumulative decline from 1929-33 was 0.65 log points, and exports fell in 2009 by just 0.054 log points (as compared with 0.216 log points in 1930).

Figure 5 plots import and export shares of GDP in the UK. As can be seen, the plunge in the trade ratio after 1929 dwarfs both even the 1921 decline, while the ratio actually rose after 2008 (only declining in 2014). 1921 aside, the Great Depression clearly stands out as the period that saw the greatest UK trade collapse over the past century and a half. In comparison, the UK's Great Recession trade collapse was a much smaller, and shorter-lived affair.

[Figure 5 about here]

4 Prices versus quantities during the interwar trade collapse

The nature of the 1929-33 and 2008-9 trade collapses were very different. The Great Depression saw substantial deflation, while the Great Recession did not. Prices of food and raw materials, in particular, fell sharply across the globe after 1929, while manufacturing prices fell by less. Given the international division of

labor of the time, between a manufacturing-exporting North and a primary-product-exporting South, this implied that the terms of trade moved sharply in favor of the former, and against the latter. These forces were very much at work in the case of the UK. In 1929, manufactures accounted for 80 percent of its exports, but just 24 percent of its imports, while agricultural goods and raw materials accounted for 64 percent of UK imports, but only 19 percent of its exports.¹⁰

The middle row of Figure 4 plots annual log changes in export and import prices, respectively, from 1870 to 2015. Once again 1921 stands out as an exceptional year, but that episode aside, import price declines were greater during the Great Depression than at any other time. Export price falls during 1929-33 were less exceptional, but were still substantial. In sharp contrast, import and export prices actually increased slightly in 2009. Figure 6 shows the impressive improvement in the UK's terms of trade after 1929.

[Figure 6 about here]

Given the magnitude of price declines during the Great Depression, trade quantities fell by substantially less than trade values. This can be seen in the bottom two panels of Figure 4 which plots annual log changes in the volume of UK exports and imports, respectively. As can be seen, the volume of UK imports remained steady in 1930 and 1931, before dropping by 0.114 log points in 1932.

¹⁰ See Table 3 below.

This decline was, admittedly, smaller than those experienced, not only in 1921 as before (0.125 log points), but in 1917, 1941, and 1942. On the other hand, it was slightly larger than the decline experienced in 2009 (0.096 log points). Once again, 1921 aside, 1932 saw the greatest peacetime decline in UK imports, expressed in volume terms, during the period (though 1929 was not far behind). Export volumes fell by even more during the Great Depression: by a cumulative 0.37 log points during 1930 and 1931, as compared with 0.091 log points in 2008-9 (and 0.23 log points in 1921).

[Table 1 about here]

Table 1 summarizes the discussion to date. Falling import prices accounted for no less than 83% of the decline in the value of imports between 1929 and 1933. They accounted for essentially all of the decline in every year bar 1932, when they only accounted for 40%. Falling export prices accounted for 42% of the export collapse during the Great Depression. In sharp contrast, the UK trade collapse during the Great Recession was entirely accounted for by falling trade volumes. Our third stylized fact regarding the GTC clearly does not apply to the earlier episode.

5 Intensive versus extensive margins

What were the relative contributions of the intensive and extensive margins to the

Great Depression trade collapse? In order to answer this question, we need detailed information on commodity-level trade, by country. As already mentioned, in a companion paper (de Bromhead et al., forthcoming) we construct such a dataset, for a sample of 258 product categories imported from 42 countries. The data for 1929-33 are taken from the 1933 volume of the Annual Statement of the Trade of the United Kingdom (Statistical Office, H.M. Customs and Excise Department 1935). The number of varieties (i.e. particular goods imported from particular countries) imported into the UK was 1338 in 1929, 1354 in 1930, 1339 in 1931, 1319 in 1932 and 1298 in 1933. The total number of varieties imported was thus stable between 1929 and 1931, the years when the bulk of the decline in trade took place, and fell by only 3% between 1929 and 1933.

Alternatively, the decline in UK imports between 1929 and 1933 can be decomposed in the manner of Kehoe and Ruhl (2013, p. 380). In de Bromhead et al. (forthcoming), we compute the log change of the total imports of those varieties which are traded in both years, which we take to be the intensive margin, and compare this with the log change in the total value of all imports, and find that the intensive margin can account for the entire decline in trade (de Bromhead et al. forthcoming). This is true not only for imports overall, but for trade coming from both the Empire and the rest of the world. Despite the many differences between the two trade collapses, the fourth fact about the GTC seems to apply to the interwar period as well. Indeed, it applies not just at a one or two year horizon, but at a longer 4 year horizon as well.

6 **The composition of two great trade collapses**

Levchenko et al. (2010) divide US trade flows during the GTC into 10 categories, depending on sector and end-use, and distinguishing between durable and non-durable goods. These are: foods, feeds, and beverages; industrial supplies and materials (both durable, and non-durable); petroleum and products; automotive vehicles, engines, and parts; other consumer goods (both durable, and non-durable); other capital goods (aircraft, computers, and other); and other goods. They find that trade in automobiles declined very sharply, on both the export and import side; that trade in industrial supplies was also particularly badly hit; that the value of petroleum imports (there were no exports) fell more than any other category; and that trade fell by much less in the food and consumer goods categories (especially non-durable consumer goods).

Did these divergent trends reflect a variety of idiosyncratic factors, or more fundamental features of the economy, having to do, for example, with investor and consumer responses in the face of a large and unexpected shock, or the differential impact of credit constraints on various sectors? The official UK trade statistics break down UK exports and imports into 1418 and 1627 categories, respectively (not including parcel post which we excluded from the analysis) (Statistical Office, H.M. Customs and Excise Department 1935). We divided these trade flows into the

same 9 categories as Levchenko et al. (2010) (that is to say, we excluded computers, which were not relevant in the earlier period).¹¹ The classifications used by Levchenko et al. (2010), as well as by Gopinath et al. (2012) (see later), are based on the “Net Exports of Goods and Services” account in the *National Income and Product Accounts* (NIPA) provided by the U.S. Bureau of Economic Analysis.

We use the tables provided in the NIPA handbook (Bureau of Economic Analysis 2016, Tables 8-B, 5-A and 6-B) to match British interwar trade data onto these classifications.¹² We distinguish between durable and non-durable goods in the same way as the Bureau of Economic Analysis (2016, p. 5-4) BEA (2016, chapter 5, p. 5-4), defining durable goods as those that have “an average useful life of at least 3 years”.¹³ Finally, we calculated the decline in trade for each of these nine categories, for both 1929-31 and 1931-33.

[Figure 7 about here]

¹¹ There were only ten computers, properly defined, in the world by 1946 (Marks, 2016, p. 178)

¹² To do this, the fine-grained North American Industrial Classification System (NAICS) underlying NIPA was used (see <http://www.statcan.gc.ca/eng/subjects/standard/naics/2017/introduction>), and especially the detailed 2017 North American Product Classification System (NAPCS) table available at <https://www.naics.com/napcs-north-american-product-classification-system/> (last accessed 24 June 2017). This links products to NAICS defined industries.

¹³ To distinguish durable from non-durable goods we used the Statistics Canada *Variant of NAICS 2012 - Durable / non-durable manufacturing industries* available at <http://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=128494> (last accessed 24 June 2017). We grouped raw materials according to the durability/non-durability of the intermediate and final goods produced by the main industries transforming them, which is consistent with NIPA. In practice, we follow the same classification as the post-2009 literature we are referring to.

The results are plotted in Figure 7. In both panels, the percentage changes in trade during the GTC, taken from Levchenko et al. (2010), are plotted on the horizontal axis, while percentage changes in trade during the Great Depression are plotted on the vertical axis. The top panel plots the cumulative changes between 1929 and 1931, while the lower panel plots changes during 1931-33. Sectors experiencing larger percentage declines in output are shown on the left (2008-9) or bottom (1929-33) of the graphs.

As can be seen, the composition of the 2008-9 American, and 1929-31 UK, trade collapses was strikingly similar, despite the fact that we are considering two different countries in very different eras. Automobiles and industrial supplies were the most affected in both cases, consumer goods and food the least. The correlation across categories between the extents of the import collapses is positive and strong. The correlation is also clearly positive for exports, with trade in industrial supplies and automobiles being severely hit in both crises, and aircraft and consumer non-durables not being as badly affected.

The lower panel of Figure 7 tells a different story however: the cross-category correlation between the US GTC, and the UK trade collapse of 1931-33, was actually negative. One possible explanation is protectionism; another is the fact that the British economy started to recover following the UK's departure from gold in September 1931. The fact that the value of investment fell more sharply in both periods than did the value of consumption perhaps argues more in favor of the

former than the latter explanation (Feinstein 1972, Table 2, p. T9). Whatever the reason, the reversal of the correlation between the two periods is striking, and reflects, for example, the fact that consumer goods imports plummeted after 1931. We would argue that the 1929-31 experience more clearly matches that of 2008-9: this was a trade collapse coinciding with a more general economic collapse, in a broadly free-trading environment. And so it is suggestive that the composition of the 1929-31 and 2008-9 trade collapses was so similar.

7 Price changes during the two trade collapses

The sixth feature of the GTC of 2008-9 has to do with the differing price changes for different types of goods. In particular, Gopinath et al. (2012) find that while US exports and imports of non-differentiated goods saw a 16% price decline on average, differentiated goods prices fell on average by approximately only 1%. Was this an idiosyncratic feature of the US economy in 2008-9, or did something similar occur in 1929-33?

It was possible to calculate unit values for 1196 of the 1418 export categories listed in the UK trade statistics, and for 1329 of the 1627 import categories. Since unit values are famously volatile, we followed Gopinath et al. (2012, p. 307) and excluded all unit value series where prices changed by more than 2 log points. This left us with 1191 export price series, and 1327 import price series. We then classified these price series in the same way as Gopinath et al., distinguishing

between manufactures and non-manufactures, and then classifying manufactured goods by end-use; by durability; and by whether the goods were differentiated or not, using the classification in Rauch (1999).¹⁴ Goods that could not be unambiguously assigned to one category were excluded from the analysis.¹⁵ Finally, we calculated the median price change within each category.

[Table 2 about here]

The results are presented in Table 2.¹⁶ As can be seen, non-differentiated export and import prices fell by roughly 15-17% between 1929 and 1931, rather similar to the price changes experienced during 2008-9. However, differentiated goods prices also fell, though by much less (9-10%).¹⁷ Breaking these aggregate findings down, it seems as though the big difference between 2008-9 and 1929-31 concerned non-manufactures, and nondurable manufactured goods. For these two broad categories, prices of differentiated and non-differentiated goods fell by very similar amounts between 1929 and 1931. However, prices for durable, differentiated, manufactured goods only fell by 2-3%, much less than the 14-15% price decline for non-differentiated durable manufactures. It seems as though what was true more broadly in 2008-9 was only true for durable manufactures in 1929-

¹⁴ We did so using the same sources as those listed in footnote 14.

¹⁵ These were typically goods described as “not elsewhere specified”. Keeping these goods in the analysis, and allocating their price changes to all relevant categories, left the results almost entirely unchanged. Details available on request.

¹⁶ Results for the entire period 1929-33 are reported in appendix 2.

¹⁷ The differences are statistically significant at the 5% level using Mood’s median test.

31.

Prices also fell more for non-differentiated than for differentiated imports between 1931 and 1933,¹⁸ and prices did not fall at all for differentiated, durable, imported manufactured goods. The two sub-periods thus resembled each other on the import side. However, according to our calculations, prices of exported differentiated goods fell by more than non-differentiated goods between 1931 and 1933, and in particular for nondurable manufactures and durable intermediate goods in the second period.¹⁹ This prompted a closer inspection of the data. While this finding was not driven by outliers²⁰ and is confined to exports in the sub-period 1931-33, a number of goods experienced large price declines between 1931 and 1933, including rubber products and some intermediate textiles. While a good-by-good explanation of price changes is beyond the scope of the paper, the secondary literature indicates that the price of manufactured rubber products, for example, may have been related to falling raw materials prices and a highly-competitive market in these products (Woodruff 1955).

It may also be that some goods that were classified by Rauch as non-differentiated in the late 20th century were in fact differentiated during the interwar period, since standardization might not yet have occurred in those particular product categories. In that case, Table 2 may be systematically under-stating price declines

¹⁸ The difference is once again statistically significant.

¹⁹ The differences are once more statistically significant.

²⁰ We have explored the data in greater depth than presented here, but do not find it to be caused by outliers or other issues with the raw data. The mass of the density of price changes for non-differentiated goods simply lies to the right of the density for differentiated goods, hence reflecting less unfavorable price changes.

for goods that were in fact non-differentiated, and systematically under-stating the difference between the price experiences of non-differentiated and differentiated goods.²¹

8 The geography of two trade collapses

Levchenko et al. (2010) find, for the US, that the GTC was remarkably balanced across trading partners. Was the same true for the UK during 1929-33? Table 3 gives the percentage changes in nominal trade flows for each of the four broad categories defined in section 2, distinguishing between exports to and imports from the British Empire, on the one hand, and the rest of the world on the other.

[Table 3 about here]

As can be seen, between 1929 and 1931 the trade collapse was geographically balanced, in the sense that trade flows between the UK and the Empire fell by roughly the same amount as trade flows between the UK and the rest of the world.²² Consistent with what we saw earlier, imports of industrial raw materials

²¹ A modification of the Rauch classification for the 1920s and 1930s is beyond the scope of the paper and would also affect comparability with the results on the 2008-09 collapse.

²² The one exception concerns British exports of colonial goods such as sugar and tobacco: re-exports to the Empire remained roughly constant, while re-exports to the rest of the world rose dramatically.

were particularly badly hit, but they fell by very similar amounts from both the Empire and from foreign countries. The picture was very different between 1931 and 1933. Exports to the two groups of countries fell by roughly similar amounts (although manufactured exports to the Empire remained constant, while those to the rest of the world fell by 7%). However, while imports from the Empire rose slightly, imports from the rest of the world fell by 30%. This difference between imports from the Empire and from the rest of the world was general across all four broad categories; it was largest for manufactures, and smallest for colonial goods. Table 4 shows that the prices of goods traded with the Empire and rest of the world fell very similarly, on average, suggesting that the shift towards the former and away from the latter evident in Table 3 was due above all to a relative shift in real trade flows.²³

[Table 4 about here]

[Figure 8 about here]

²³ This British shift towards empire was mirrored by a more general balkanization or international trade, that was the subject of much contemporary discussion: see for example Hilgerdt (1935, 1943); Condliffe (1941), or more recently Latham (1981, Chapter 3) and the many references in de Bromhead et al. (2017).

Figure 8 provides an alternative perspective on the same issue. It plots imperial versus foreign percentage changes in export and import flows, in 1929-31 and 1931-33, for the same nine categories that we considered in section 6. As can be seen, during 1929-31 categories that saw their trade fall by more *vis à vis* the Empire also saw larger declines *vis à vis* the rest of the world: the same underlying forces were lowering trade with both groups of countries. The same remained true after 1931, although the weighted correlation is slightly weaker after 1931 than before, and more categories move into the positive change zone for Empire in comparison to foreign goods.

9 Conclusion

The GTC of 2008-9 and the trade collapse of 1929-33 took place in very different economic environments. The Great Recession was violent indeed, but much shorter-lived than the Great Depression. The interwar gold standard implied worldwide deflation, of a sort not seen in the later crisis. Trade policies remained broadly liberal during 2008-9, in sharp contest with the dramatic switch to protection experienced after 1929 worldwide (and after 1931 in the UK).

These differences mattered for the nature of the two trade collapses, in a number of ways. Most obviously, price declines accounted for a larger share of the interwar trade collapse, than they did of the 2008-9 GTC. And after 1931, discriminatory

trade policies meant that the UK trade collapse became geographically imbalanced, in contrast to the US GTC experience.

While the macroeconomic context was different, in particular as regards aggregate price movements, many of the more microeconomic features of the two trade collapses are remarkably similar, however. This is especially the case if we compare the GTC with the UK trade collapse of 1929-31, which, like the GTC, was driven by a worldwide collapse in incomes and output, and took place in a country pursuing generally liberal trade policies. Both trade collapses took place along the intensive rather than the extensive margin (section 5); the same types of goods were particularly badly hit in both instances (section 6); and prices of differentiated durable manufactured goods barely fell on either occasion (section 7).

These similarities between the experiences of two different countries separated by no less than eight decades suggest that common factors may have been at work in each: in particular they are supportive of theoretical accounts of the GTC emphasizing the composition of expenditure changes during major economic crises, or the relative sizes of firms operating closer to or further away from the margin between exporting or not.

It should be emphasized, however, that we have only provided evidence for one major interwar economy, the United Kingdom, in much the same way as many writers on the GTC have focused on the US. It remains to be seen whether the features of the 1929-33 British trade collapse that we have uncovered were common to other British trade collapses, notably that of 1921, or to trade collapses

in other economies during the interwar period.

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Appendix 1: Data sources.

In this paper, we use three types of sources.

In sections 3 and 4 we use the long-run database by the Bank of England called “A millennium of macroeconomic data for the UK”, version 3.1 (Thomas and Dimsdale 2017). We specifically use the series on export and import volumes, spliced export and spliced import price deflator and terms of trade from sheet A.35 (“trade volumes and prices”). These are expressed in 2013 prices and as 2013=1 in the mentioned source.

In sections 2 and 5 we use the 258 commodity dataset compiled by and documented in de Bromhead et al. (2017), especially appendix 1. This dataset covers all identifiable imports into the United Kingdom falling into 38 (of a total of 150) SITC 3-digit categories as defined in the original Standard International Trade Classification (Statistical Office of the United Nations 1951), at the most disaggregated level possible, coming from 42 countries in the years 1924 to 1929.

Full lists of countries and SITC groups and goods within them are given in the

appendices to de Bromhead et al. (2017) and the dataset is available at <https://cepr.org/content/trade-depression/uk-interwar-trade-data> (last accessed 5 July 2018). That dataset contains values of imports and ad valorem tariff equivalents by country for each of the 258 goods. These imports cover on average about 51 percent of UK imports. We use this dataset to present ad valorem average tariffs per broad group of commodities, ‘agriculture’, ‘manufactures’, ‘raw materials’ and ‘exotics’ (revenue goods) in section 2 (see appendix to de Bromhead et al. for how these are defined), and to calculate the intensive and extensive margins of trade and the number of varieties with import value > 0 in section 5, a variety being one of the 258 goods imported from one of the 42 countries covered.

Because over time the classification and granularity of goods recorded in the UK trade statistics changed significantly, these 258 goods correspond to more than 800 items that appear in the trade statistics and fit our sampling strategy. Because of the changes over time, it was not possible to calculate consistent price series at the level of the 258 goods over time. We used the volumes of the United Kingdom trade statistics corresponding to 1928, 1933 and 1938 for the collection of this data, each providing information on imports in the current and the four preceding years (see e.g., Statistical Office, H.M. Customs and Excise Department, 1935).

In sections 6, 7, and 8 we use a newly compiled dataset on the imports and exports of all items into the United Kingdom in the years 1929 to 1933, as given in Statistical Office, H.M. Customs and Excise Department (1935). These contain information on the total value and quantity of imports per item, disaggregated by

‘British countries’ (‘Empire’) and ‘foreign countries’ (‘Foreign’).

Classification changes within the 1933 trade statistics were small and subdivided or aggregated items could be consolidated to construct coherent five-year series, 1627 for imports and 1418 for exports. For these, we have import and export values. We divide these, where possible, by the quantity imported and hence arrive at unit values, which we call ‘prices’ in the text. Since a number of items entered the statistics by value only, we have 1329 unit value series for imports and 1196 unit value series for exports. We calculate further such series of values and prices at the ‘empire’ and ‘foreign’ level.

We also group the items, following the papers we refer to, into the broad categories ‘agriculture’, ‘manufactures’, ‘raw materials’ and ‘exotics’ (revenue goods) following de Bromhead et al. (2017, Appendix 1) and into the broad classifications of the US National Income and Product Accounts (NIPA) as done in Levchenko et al. (2010) and Gopinath et al. (2012). For this, we use the fine-grained North American Industrial Classification System (NAICS) underlying NIPA (see <http://www.statcan.gc.ca/eng/subjects/standard/naics/2017/introduction>), and especially the detailed 2017 North American Product Classification System (NAPCS) table available at <https://www.naics.com/napcs-north-american-product-classification-system/> (last accessed 24 June 2017), which links products to NAICS defined industries. Following those authors, we also group our commodities into ‘differentiated’ and ‘non-differentiated’ (using Rauch 1999) and into ‘durable and non-durable’. To distinguish durable from non-durable goods we

used the Statistics Canada Variant of NAICS 2012 - Durable/non-durable manufacturing industries available at <http://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=128494> (last accessed 24 June 2017). We grouped raw materials according to the durability/nondurability of the intermediate and final goods produced by the main industries transforming them, which is consistent with NIPA. In practice, we follow the same classification as the post-2009 literature we are referring to.

Appendix 2: Table 2, 1929-33.

Appendix table 2 about here

Year	Real GDP	Imports				Exports			
		Value	Price	Quantity	Price share	Value	Price	Quantity	Price share
1921	-9.711	-0.531	-0.406	-0.125	76.428	-0.606	-0.375	-0.231	61.868
1930	-0.796	-0.142	-0.129	-0.013	91.153	-0.216	-0.065	-0.151	29.921
1931	-4.639	-0.173	-0.209	0.036	120.922	-0.334	-0.118	-0.215	35.434
1932	0.068	-0.192	-0.078	-0.114	40.724	-0.089	-0.067	-0.022	75.141
1933	3.180	-0.036	-0.035	-0.001	96.832	-0.007	-0.023	0.016	335.134
2009	-4.328	-0.076	0.021	-0.096	-27.281	-0.054	0.037	-0.091	-68.764

Table 1: Decomposing three trade collapses

Source: authors' calculations, based on Bank of England (2017, accessed 13 August 2018.)

Note: Real GDP is Real UK GDP at 2013 market prices. The Real GDP column quotes per cent changes and the value, price, and quantity columns all report log point changes in the respective series.

	1929-31					
	Exports			Imports		
	All	Nondiff.	Diff.	All	Nondiff.	Diff.
All goods	-11.4	-15.4	-9.5	-12.9	-16.7	-9.1
Nonmanufactures	-19.3	-18.1	-20.5	-19.4	-18.6	-21.9
Nondurable manufactures	-16.1	-16.1	-15.8	-16.6	-17.0	-15.9
Durable manufactures	-6.0	-15.0	-3.0	-5.4	-14.2	-2.2
Manufactures						
Consumption, nondurable	-15.5	-47.4	-14.7	-15.4	-41.3	-14.9
Intermediate, nondurable	-13.5	-12.2	-14.4	-12.6	-12.0	-12.9
Capital, durable	0.8	NA	1.2	1.5	NA	1.6
Consumption, durable	-10.0	-16.9	-9.0	-7.3	-25.5	-6.2
Intermediate, durable	-8.6	-13.6	-4.4	-8.1	-17.9	-4.9
	1931-33					
	Exports			Imports		
	All	Nondiff.	Diff.	All	Nondiff.	Diff.
All goods	-7.8	-5.1	-9.7	-8.8	-10.9	-5.9
Nonmanufactures	-4.9	-5.0	-2.9	-11.1	-10.9	-12.0
Nondurable manufactures	-7.7	-4.9	-10.1	-11.3	-11.0	-11.9
Durable manufactures	-8.0	-7.2	-8.6	-2.0	-10.9	1.5
Manufactures						
Consumption, nondurable	-12.7	7.1	-13.2	-12.3	-5.2	-12.6
Intermediate, nondurable	-8.9	-5.7	-10.4	-11.9	-11.6	-12.6
Capital, durable	-5.5	NA	-5.5	10.6	NA	11.2
Consumption, durable	-13.5	-17.1	-13.6	-4.0	-53.2	0.8
Intermediate, durable	-8.4	-5.5	-11.0	-3.4	-6.3	-0.5

Table 2: UK import and export price changes, 1929-33 (percent) Source: authors' calculations, based on the data in Statistical Office, H.M. Customs and Excise Department (1935).

	Exports			Imports		
	Share of total (1929)	Percent change	Percent change	Share of total (1929)	Percent change	Percent change
		1929- 31	1931- 33		1929- 31	1931- 33
All Countries	1.00	-47.06	-5.45	1.00	-29.44	-21.44
<i>Agriculture</i>	0.07	-34.06	-29.85	0.36	-20.47	-20.65
<i>Manufactures</i>	0.80	-49.38	-3.85	0.24	-20.02	-47.59
<i>Raw Materials</i>	0.12	-39.96	-2.41	0.28	-49.08	3.72
<i>Colonial</i>	0.01	-42.66	38.10	0.12	-30.07	-6.14
Foreign	1.00	-46.10	-6.76	1.00	-28.73	-30.44
<i>Agriculture</i>	0.05	-32.09	-26.96	0.34	-23.03	-29.50
<i>Manufactures</i>	0.75	-48.50	-7.38	0.30	-19.27	-53.87
<i>Raw Materials</i>	0.19	-41.29	-2.63	0.24	-46.20	-1.00
<i>Colonial</i>	0.01	-34.38	74.65	0.11	-34.23	-7.11
Empire	1.00	-48.27	-3.72	1.00	-31.19	1.02
<i>Agriculture</i>	0.10	-35.49	-32.08	0.40	-15.11	-3.85
<i>Manufactures</i>	0.86	-50.35	0.19	0.09	-26.14	6.53
<i>Raw Materials</i>	0.03	-30.28	-1.10	0.36	-53.78	12.68
<i>Colonial</i>	0.02	-49.59	-1.70	0.15	-22.94	-4.70

Table 3: Nominal UK trade flows, Empire versus foreign, 1929-33

Source: authors' calculations, based on the data in Statistical Office, H.M. Customs and Excise Department (1935).

1929-31						
	Exports			Imports		
	All	Empire	Foreign	All	Empire	Foreign
All	-11.4	-10.4	-11.9	-12.9	-15.2	-13.2
Agriculture	-17.2	-16.0	-13.1	-15.6	-18.7	-16.4
Manufactures	-9.6	-8.4	-10.7	-9.4	-8.2	-9.7
Raw Materials	-21.4	-17.8	-19.8	-22.3	-24.2	-23.3
Colonial	-17.5	-8.7	-18.8	-24.8	-17.9	-25.6
1931-33						
	Exports			Imports		
	All	Empire	Foreign	All	Empire	Foreign
All	-7.8	-8.1	-7.6	-8.8	-9.8	-7.5
Agriculture	-3.9	-3.4	-5.2	-11.3	-11.6	-9.8
Manufactures	-9.0	-9.5	-8.4	-5.5	-6.5	-5.5
Raw Materials	-6.6	-5.3	-5.9	-12.0	-15.0	-9.6
Colonial	-6.6	-6.1	-5.2	-10.8	-14.5	-4.9

Table 4: UK import and export price changes, 1929-33 (percent)

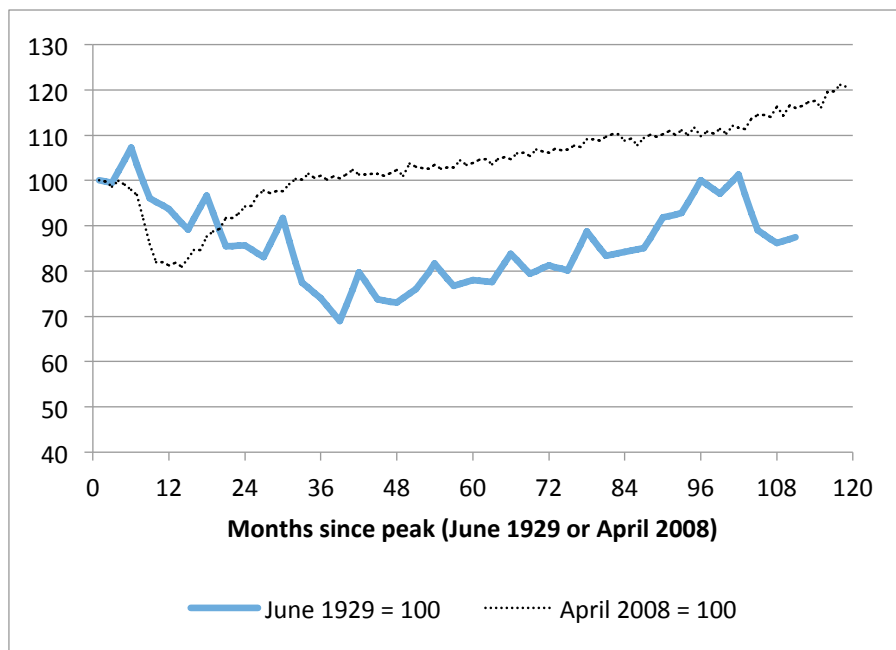
Source: authors' calculations, based on the data in Statistical Office, H.M. Customs and Excise Department (1935).

	1929-33					
	Exports			Imports		
	All	Nondiff.	Diff.	All	Nondiff.	Diff.
All goods	-18.6	-20.8	-17.5	-23.4	-28.1	-16.0
Nonmanufactures	-21.4	-21.2	-21.4	-31.7	-30.2	-36.0
Nondurable manufactures	-23.8	-20.5	-26.2	-29.6	-29.5	-30.2
Durable manufactures	-11.8	-21.7	-10.1	-6.8	-23.4	2.7
Manufactures						
Consumption, nondurable	-29.4	-43.3	-29.0	-26.6	-44.4	-26.4
Intermediate, nondurable	-23.6	-17.1	-26.0	-23.8	-23.2	-25.6
Capital, durable	-3.5	NA	-3.0	11.4	NA	12.3
Consumption, durable	-22.0	-28.6	-18.5	-6.2	-71.1	-1.1
Intermediate, durable	-15.3	-20.6	-12.5	-14.4	-23.5	-2.0

Table A.1: Version of Table 2 for period 1929-33

Sources: see Table 2

A. World trade



B. World industrial output

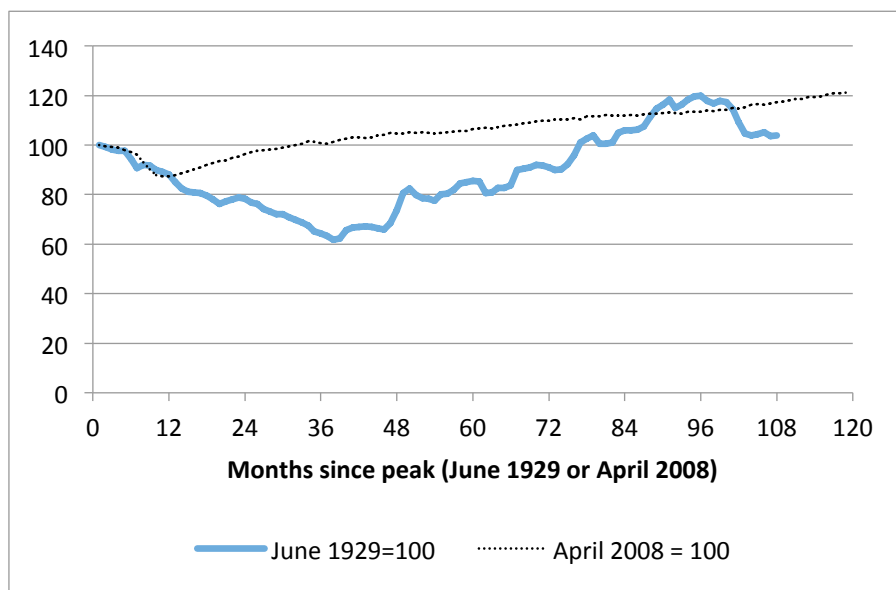


Figure 1: World trade and industrial output during two crises

Source: Eichengreen and O'Rourke (2009), updated.

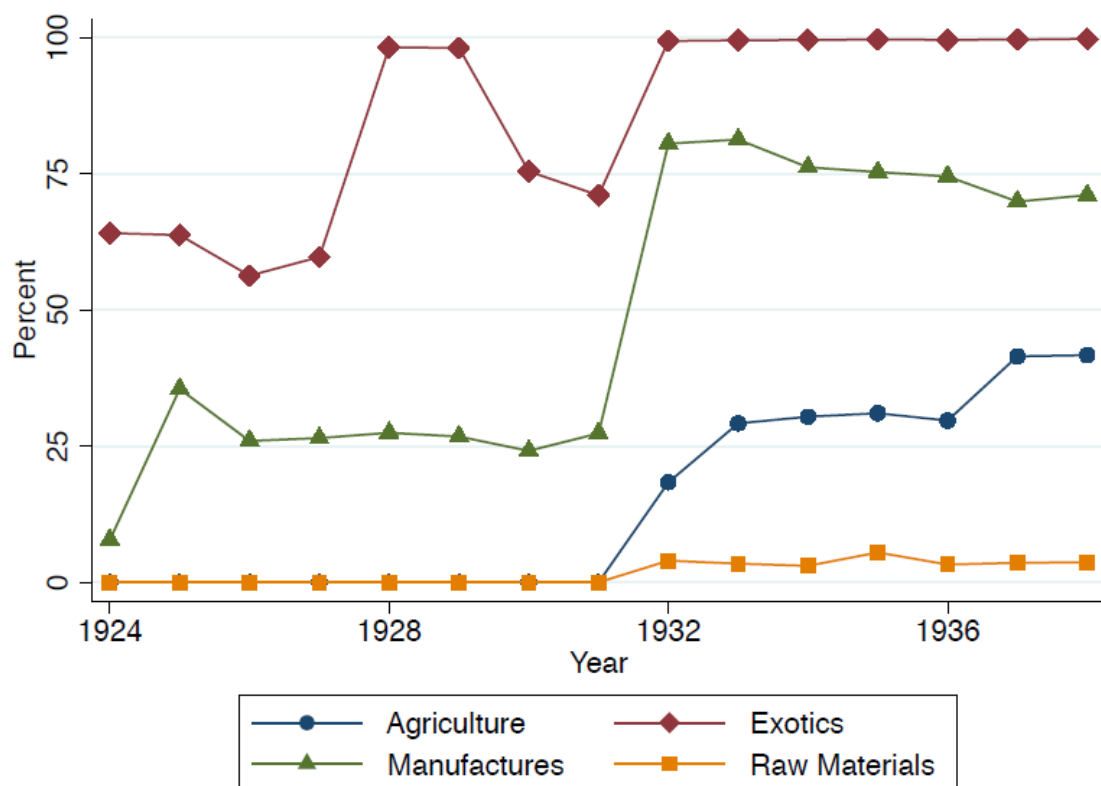


Figure 2: Share of imports subjects to import tariffs, by broad category

Source: data underlying the Bromhead et al. (2017).

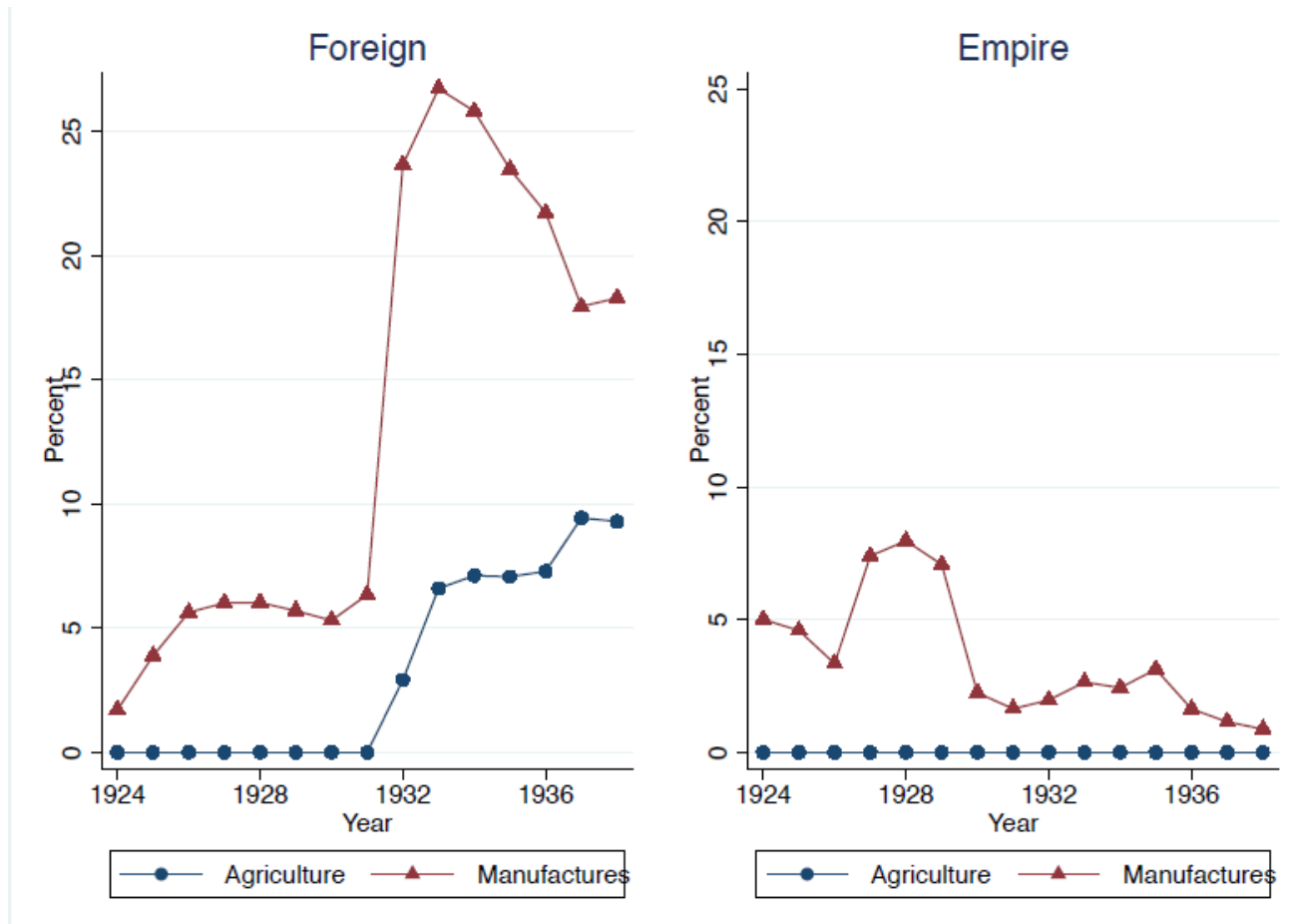


Figure 3: Weighted tariff rates by broad category, 1924-1938

Source: data underlying de Bromhead et al. (forthcoming).

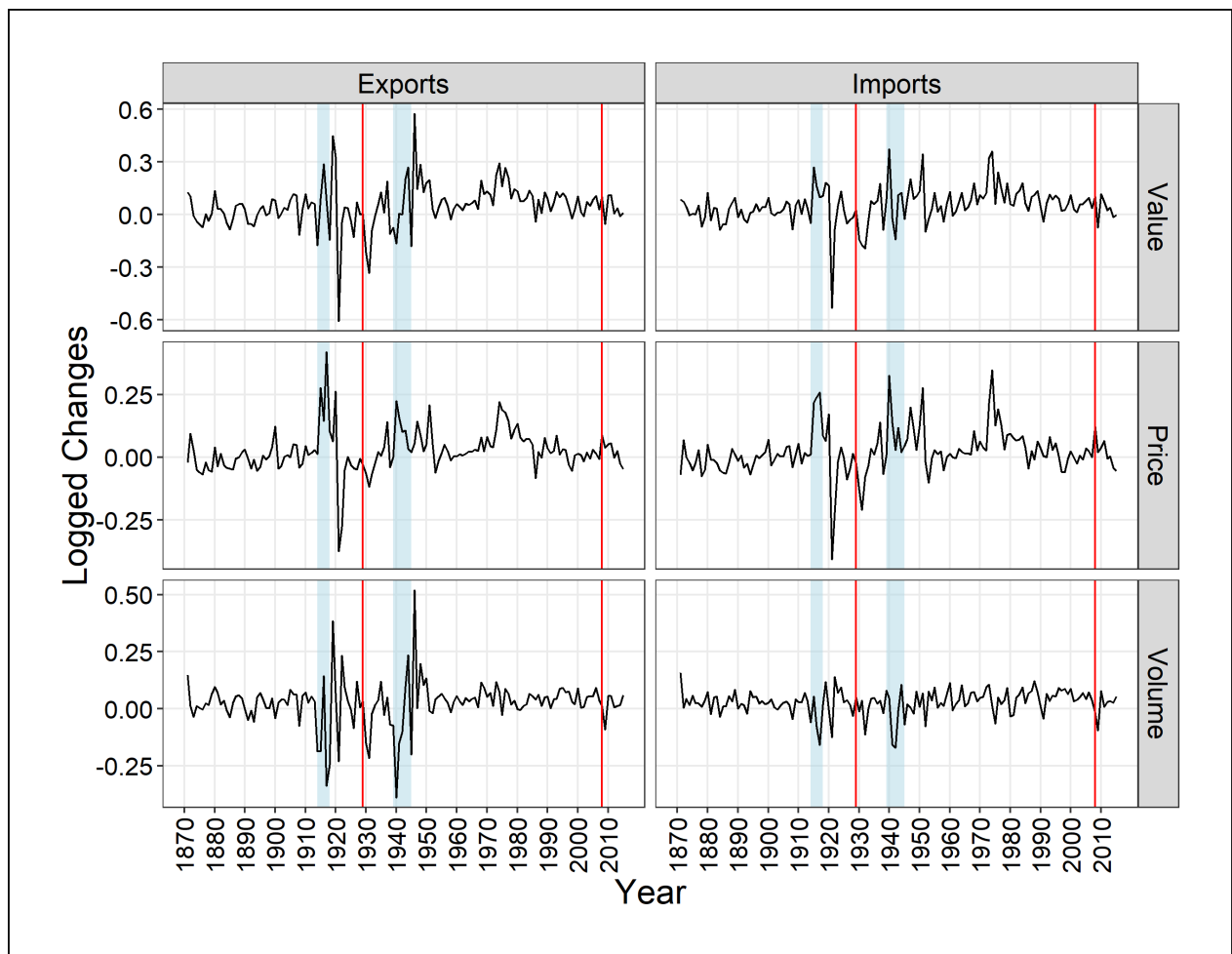


Figure 4: Annual changes in UK exports and imports stratified by value, volume, and price 1870-2016

Source: Thomas and Dimsdale (2017, accessed 13 August 2018.)

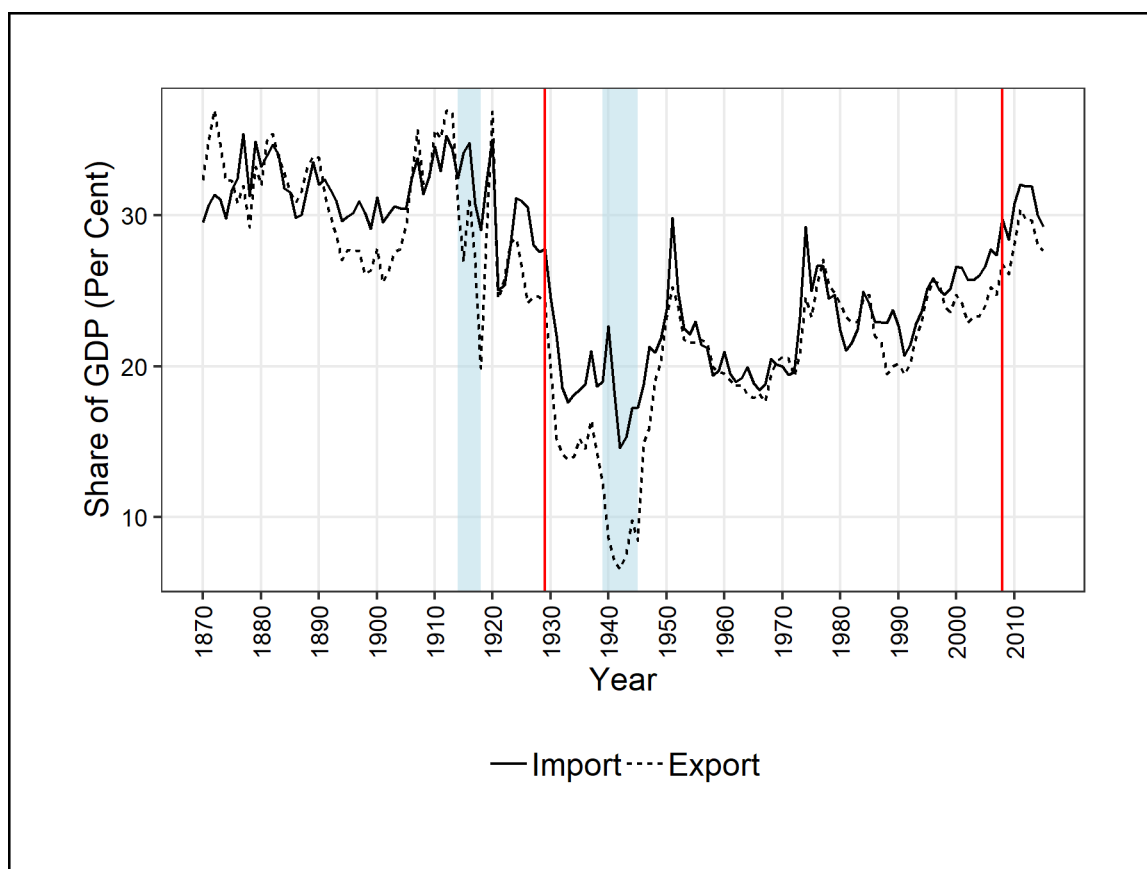


Figure 5: UK trade to GDP ratios, 1870-2016

Source: Thomas and Dimsdale (2017, accessed 13 August 2018.)

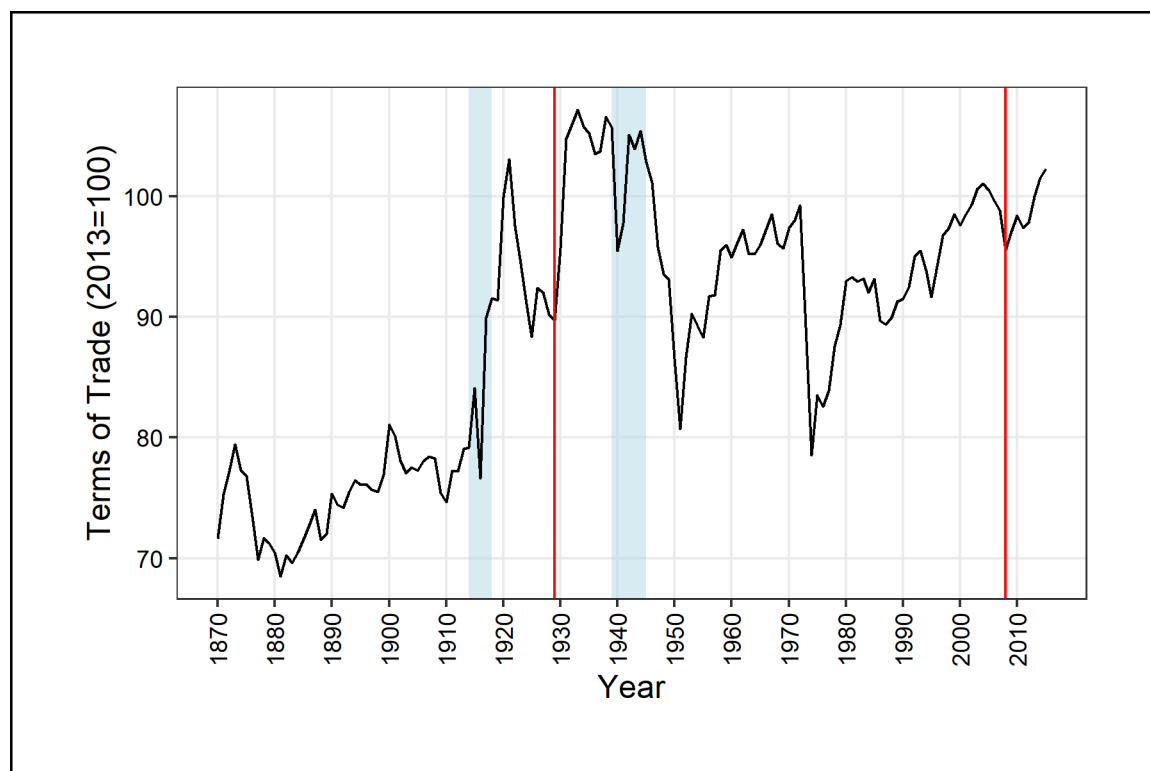


Figure 6: UK terms of trade, 1870-2016

Source: Thomas and Dimsdale (2017, accessed 13 August 2018.)

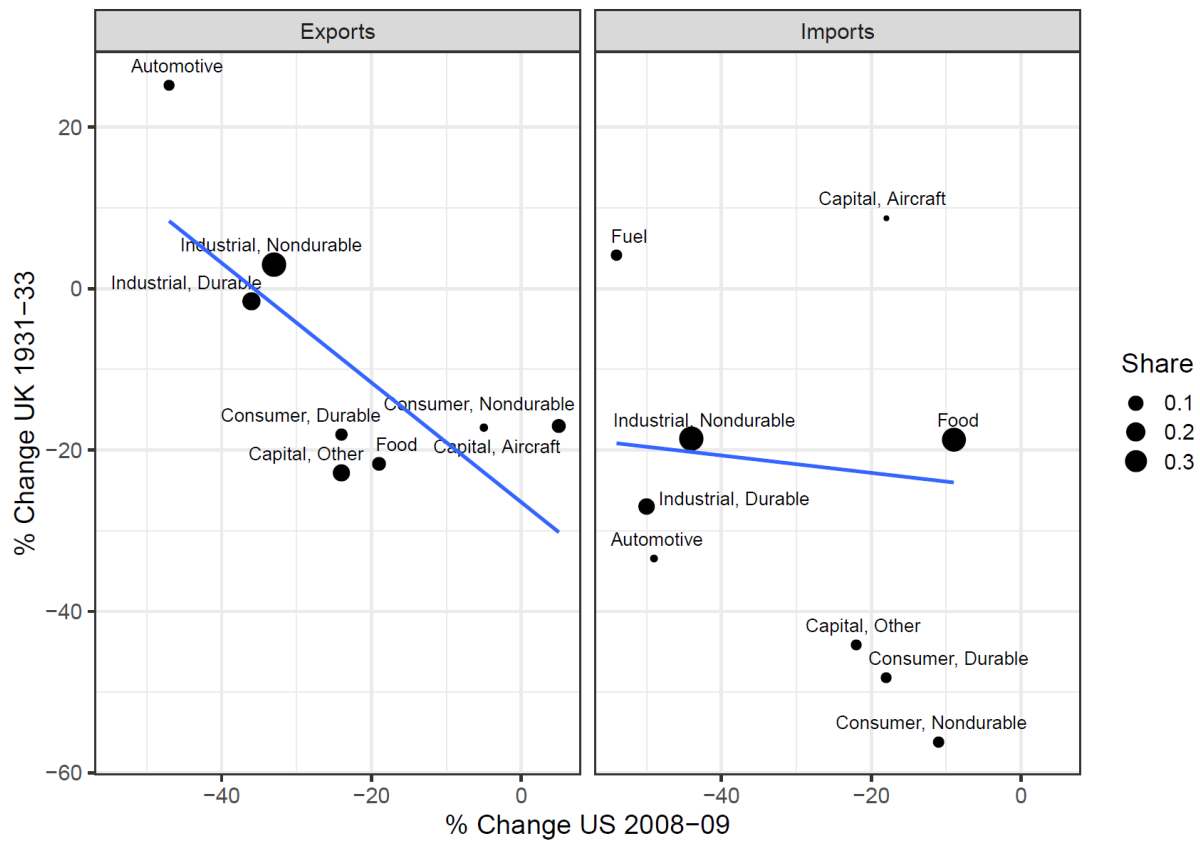
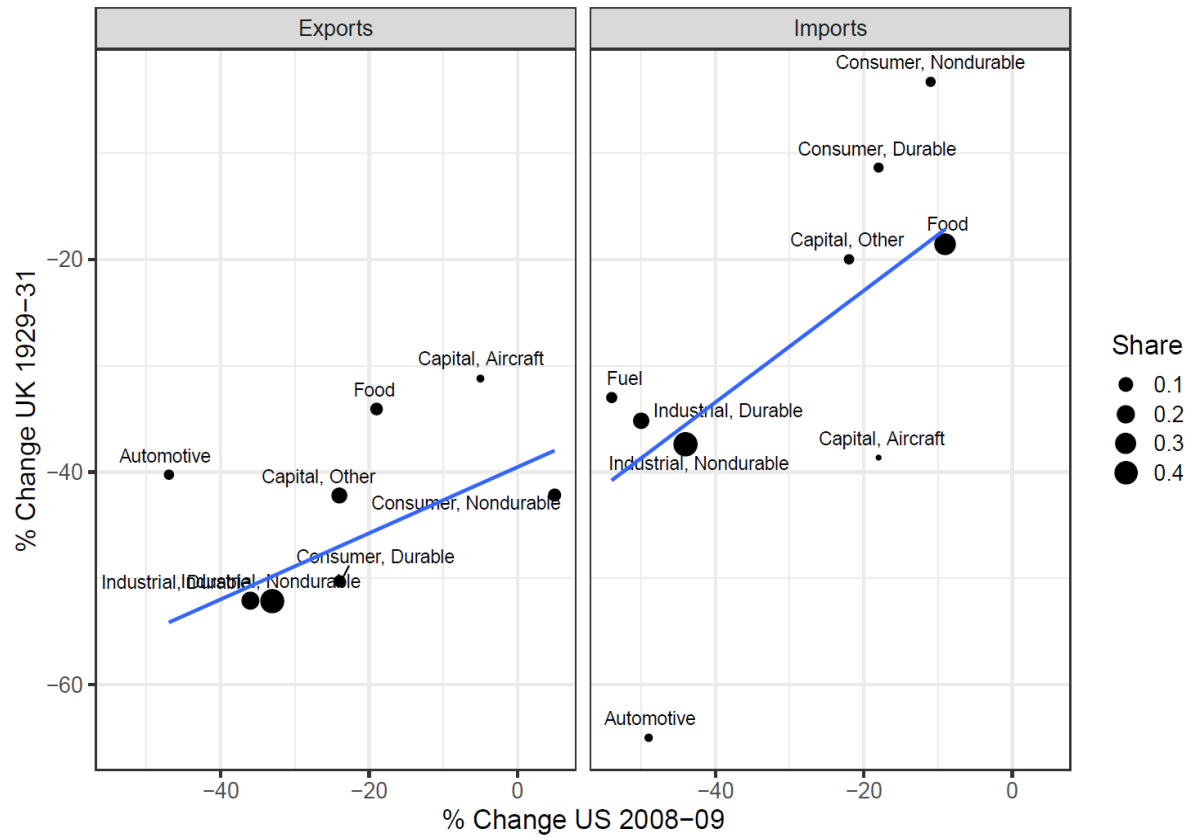


Figure 7: Nominal changes in trade, 1929-33 and 2008-9

Note: Regression line based on weighted regressions.

Source: authors' calculations, based on Statistical Office, H.M. Customs and Excise Department (1935), and Levchenko et al. (2010).

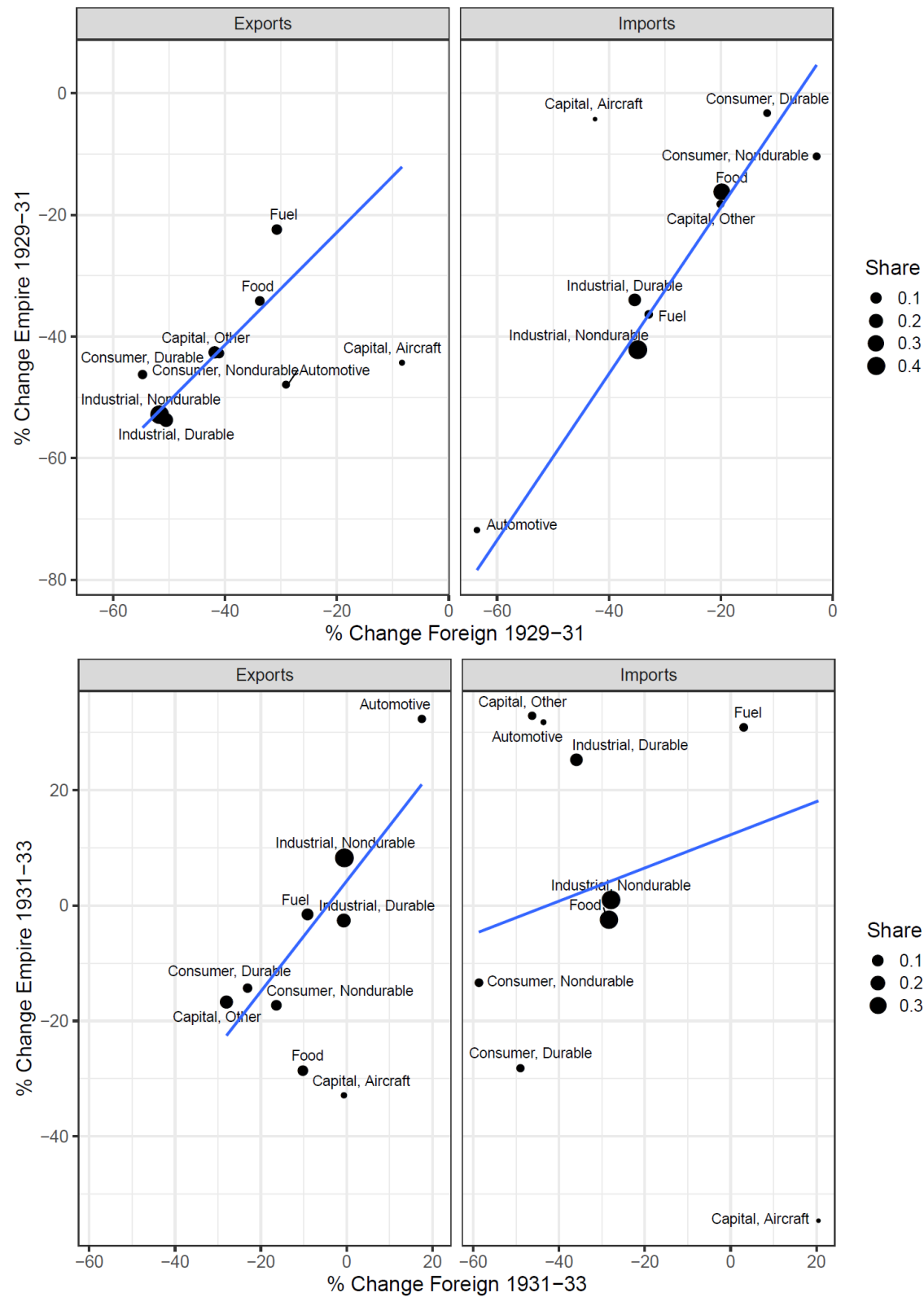


Figure 8: Nominal changes in trade, Empire versus foreign, 1929-33
 Note: Regression line based on weighted regressions.

Source: authors' calculations, based on Statistical Office, H.M. Customs and Excise Department (1935).