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III. BUSINESS CYCLES AND THE BRITISH TRADE BALANCE, 1883-1955

Introduction

Comparison with American experience is our main purpose in analyzing the cyclical behavior of the British trade balance. Great Britain presents a strikingly different picture from the United States in the composition of its exports and imports, the structure of its balance of payments, and in the role of foreign trade in its economy. It is interesting to find out, therefore, how these contrasts are reflected in trade balance cycles. For instance, was the relation of the British balance to British business cycles as close as that of the American balance to American cycles? Was it also an inverse relationship? Was the effect of world cycles similar for the two countries?

Our data again are quarterly totals of official monthly statistics. However, in contrast to the American, the British balance is defined as the difference between *net* exports and *net* imports.¹

The balance series has been adjusted for seasonal fluctuations. For the interwar period current pounds have been converted into pounds of 1930 parity, for the same reasons given above for the conversion of dollars. For the period after World War II, the balance was computed in pounds of 1954 parity. We exclude from our averages the two World War periods and the period of distortion caused by the coal strike of 1926.

Excess Imports. The first characteristic of the British trade balance is, of course, the excess of imports over exports. Over the whole period covered, 1883 to 1954, there was not one quarter with an export surplus and the quarterly deficit was never less than £17 million. From 1883 to 1912 the deficit averaged about £34 million per quarter (Table 10); in the interwar period about twice as much (£66 million of 1930 parity); and from 1948 to 1954, £99 million per quarter (1930 parity). From 1886 to 1903 the trend of the balance was downward (i.e. the deficit rose); this was followed by a steep increase to 1907. There was no trend over the remaining years before World War I, nor over the interwar period, nor from 1948 to 1954.

Stability. A second, less well-known feature of the British balance, and again one which distinguishes it sharply from the American balance is its relative stability. Comparison of average *absolute* quarterly changes in the two balances between balance cycle turning points shows that the British balance before World War I changed on the average by about £2.9 million per quarter, and the American by about £4.2 million. In the

¹Net exports and imports exclude re-exports. Exports are f.o.b., imports c.i.f. values. For detail on sources see Table B-1.

Table 10 *United States and Great Britain, 1879-1938*

TRADE BALANCE: COMPARISON OF CYCLICAL VARIABILITY

(for both countries in millions of pounds of 1930 parity)

	<i>Average Quarterly Trade Balance</i> (1)	<i>Average Change per Quarter during Trade Balance Cycles</i> (2)	<i>Column 2 as Percentage of Average Exports plus Imports</i> (3)
United States, 1879-1895	4.8	3.1	3.9
Great Britain, 1883-1894	-26.8	3.0	2.1
United States, 1896-1913	25.0	5.3	3.7
Great Britain, 1895-1912	-38.5	2.8	1.4
United States, 1879-1913	15.2	4.2	3.7
Great Britain, 1883-1912	-33.8	2.9	1.6
United States, 1922-1938	26.3	9.9	3.3
Great Britain, 1922-1937	-65.8	5.9	2.0

Seasonally adjusted.

The quarterly change of the trade balance during a trade balance cycle equals the total rise of the balance from its trough to its peak plus its total fall to the subsequent trough, divided by the number of quarters covered.

Source: For the United States, see Table A-1. For Great Britain, see Table B-1.

interwar period, quarterly British balance movements were £5.9 million, or about 60 per cent of the American. But this comparison understates the relative stability of the British balance, since British foreign trade was much larger than American. Taking this into account, we find that the quarterly cyclical change in the British trade balance, 1883-1912, was 1.6 per cent of the average quarterly value of exports plus imports; in the inter-war period the ratio was 2.0 per cent. Cyclical movements in the American balance, however, were 3.7 and 3.3 per cent of American foreign trade in these two periods (Table 10).

This greater stability of the British balance is by no means surprising. We know that United States cycles in general had much wider swings than the British.² Exports and imports, in particular, fluctuated less than half as much (percentagewise) in Britain as in the United States.

Moreover, the dependence of the British economy on foreign trade caused exports and imports to change mostly in the same direction. Particularly, British business expansions, which caused imports to rise, were

²W. C. Mitchell, Draft of a Chapter on Foreign Commerce, unpublished manuscript, p. 14. "The magnitudes here are much smaller than we found in the corresponding American figures. That is the usual, though not invariable, result of comparing the violence of cyclical waves on the two sides of the Atlantic."

almost always simultaneous with world expansions, which raised exports. It is likely that the trade balance will tend to fluctuate less under such circumstances than in a country less dependent on exports.³ The high import-content of British exports also accounts for part of the parallelism.

Balance and Cycles. In this chapter the periods before and after World War I are discussed separately because of the shift in the relation between the British trade balance and British business cycles which took place after World War I. We find that the balance rose and fell *with* the British economy from 1883 to 1914 and in opposite directions thereafter.

Business Cycles and the British Trade Balance, 1883-1913

Conformity. Inspection of Chart 9 gives the impression that the mild fluctuation of the balance, 1883-1913, bears little relationship to business cycles. Analysis, on the contrary, reveals high conformity; the conformity index is +78 (Table 11). The balance falls in four of five contractions. In five expansions it rises three times, and twice declines less than in adjoining contractions.

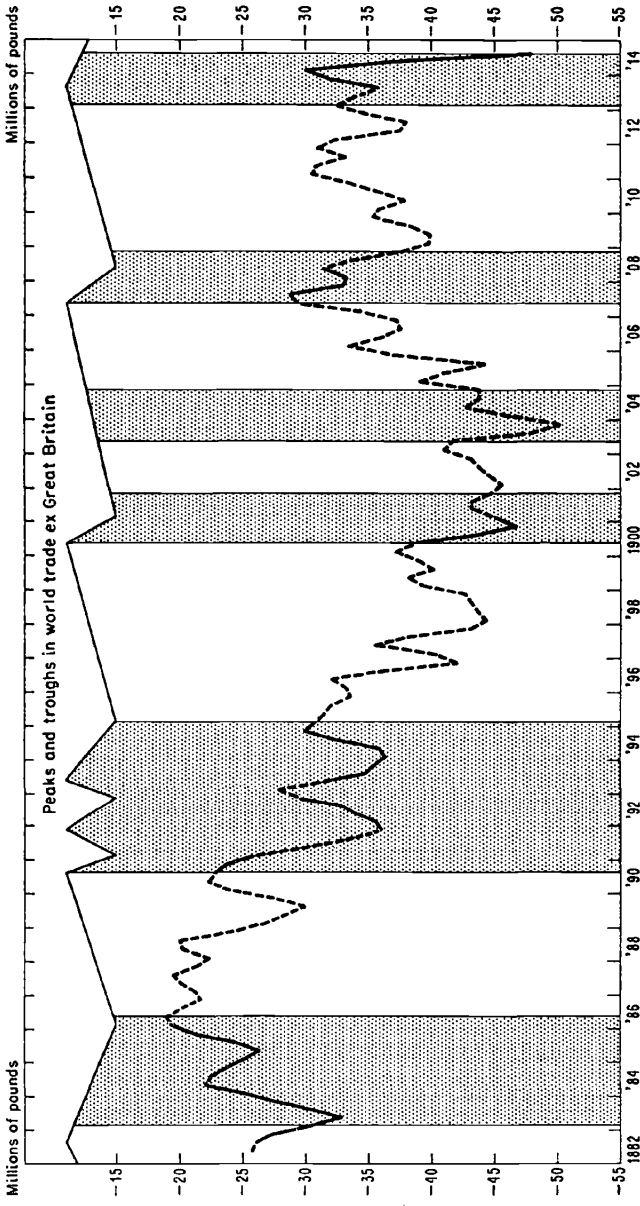
Cycle Pattern. The apparent contradiction is due to the fact that the balance moved irregularly during certain business cycle stages, but quite regularly and by large amounts in others; the latter movements account for the high conformity of balance changes to business cycles. Charts 10 and 11 reveal the sharp contrast. Rises of the balance between stages were as frequent as declines from mid-contraction to the last expansion stage before the peak. Around the peak, however, the picture is quite different.

Pattern at Business Peaks. Here a most regular pattern is evident. The balance rose in the last stage of expansion before *each* of the five business peaks, and declined without exception in the following first stage of contraction; finally it rose again, in four of five contractions, to their midpoints. What makes this perfectly systematic behavior more impressive is the amplitude of these changes. In the average quarter before the peak, the balance rose by about £1.6 million; at the start of business contractions, the average decline amounted to £3.3 million per quarter. This compares to an average (negative) balance of about £34 million, and to average rises or falls of no more than £270,000 between stages I, II, and III, and between stages VII and VIII (Tables 10 and B-3). This very close association between balance movements and business cycles around the latter's peaks is one feature the American and British balances share. But the directions of the movements are reversed. While the United States balance fell before and recovered right after business peaks, the British balance behaved in the opposite fashion.

³But relative degrees of expansion and elasticities *could* be such that large balance movements could result from export and import changes in the same direction.

Chart 9 *Great Britain, Quarterly, 1882-1914*

TRADE BALANCE IN RELATION TO CYCLES IN WORLD TRADE AND DOMESTIC BUSINESS



Seasonally adjusted and smoothed by three-quarter moving averages with double weight for center quarter. Broken lines in trade balance cycles denote expansions in world trade (ex Great Britain). Shaded periods are British business contractions.

Source: Charts in this section are based on Table B-1. For turns in world trade see Section IV.

Table 11 Great Britain, 1883-1938

EXPORTS, IMPORTS AND TRADE BALANCE: CHANGE DURING DOMESTIC BUSINESS CYCLES

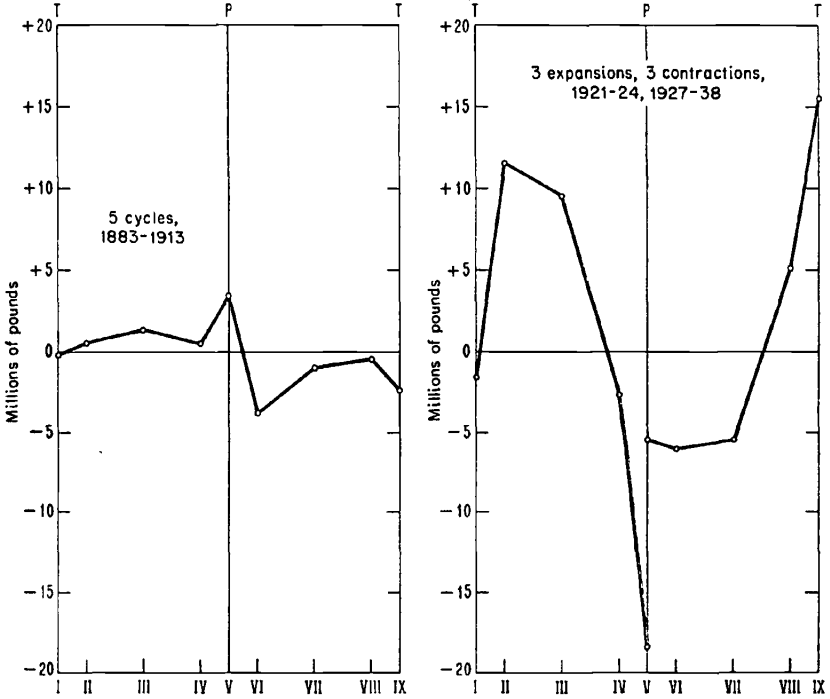
PERIOD AND BUSINESS CYCLE PHASE	NUMBER OF PHASES COVERED	NUMBER OF QUARTERS COVERED	CONFORMITY INDEXES			AVERAGE CHANGE IN BALANCE OF TRADE (millions of pounds of 1930 parity)	
			Exports	Imports	Balance of Trade	Per Cycle Phase	Per Quarter ^a
1883-1913							
Expansion	5	71	+100	+100	+20	+5.02	+35
Contraction	5	49	+60	+60	+60	-5.60	-57
Whole Cycle	4 2/2	120	+78	+56	+78		
1921-24, 1927-38							
Expansion	3	38	+100	+100	-100	-16.50	-1.31
Contraction	3	21	+33	+100	-100	+20.97	+3.00
Whole Cycle	2 2/2	59	+100	+100	-100		

Seasonally adjusted. Conformity indexes are constructed by rating a rise during business expansion or fall during contraction plus 100, the opposite changes minus 100, and averaging the ratings for all phases covered, see text.
^aWeighted average.

Source: Business cycle turns from National Bureau of Economic Research. Balance of trade from Table B-1. Quarterly exports and imports from same source as balance of trade, see notes to Table B-1.

Chart 10 *Great Britain, 1883-1938*

TRADE BALANCE: AVERAGE BUSINESS CYCLE PATTERNS
(as absolute deviations from cycle averages)



Pounds of 1930 parity.
 Roman numerals indicate business cycle stages, see text.

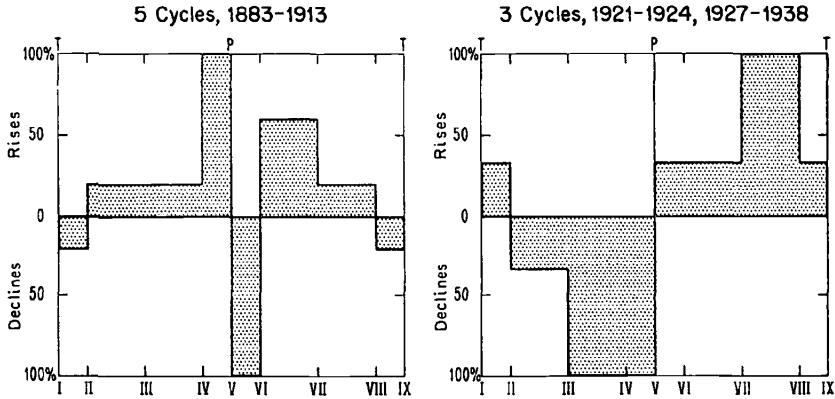
Pattern in Business Contractions. Two of the five contractions which the British economy suffered between 1880 and World War I were of long duration (thirteen and eighteen quarters), while each of the three others lasted only six quarters. These differences obscure some of the systematic features of balance movements which appear only upon close examination.

Chart 11 shows that the perfectly regular balance decline at the beginning of contractions is followed by an almost equally regular rise (four times out of five) to mid-contractions⁴ — a rise which, however, was not

⁴Chart 9 shows that the same initial fall and subsequent rise occurred also in a sixth case — the contraction of 1913 to 1914 — which is excluded from our averages because of the outbreak of World War I.

Chart 11 *Great Britain, 1883-1938*

TRADE BALANCE: NET NUMBER OF RISES OR FALLS BETWEEN STAGES OF THE DOMESTIC BUSINESS CYCLE (as percentage of cycles covered)



Pounds of 1930 parity.
Roman numerals indicate business cycle stages, see text.

large enough to offset the preceding decline. In short phases, this rise continues in the second half of the contraction almost to the trough. In long phases, however, it is interrupted by a second sharp decline and resumed only in the final year before the cycle trough. Thus the different behavior of the balance in the second half of different contractions (Chart 11) seems to be associated with different *durations* of these phases. Surprising regularity appears when the movements of the balance are compared over a fixed period: the last year before the trough. Tables 12 and 13 bring out the pattern of the British balance during years which preceded business troughs. In all five cases (whether the contraction was long or brief), the balance rose between the fourth and third, and between the third and second quarters before troughs; and fell over the last quarter.

Applying these findings to the analysis by cycle stages, we see that in British reference contractions the trade balance first took a sharp dip and then partly recovered. In short phases, this recovery merges into the balance rise which characterizes all last years of contractions. In long phases, the recovery of the earlier half of contraction is separated from that in the last contraction-year by a second sharp decline.

In sum we find that the cyclical pattern of the British trade balance before World War I was both regular and complex.

Table 12 *Great Britain, 1883-1913*

EXPORTS, IMPORTS AND TRADE BALANCE: CHANGE DURING THE FOUR QUARTERS PRECEDING DOMESTIC BUSINESS CYCLE TROUGHS AND DURING TOTAL CONTRACTIONS

DATE OF BUSINESS CYCLE TROUGHS ^a	DIRECTION OF CHANGE ^b				AVERAGE CHANGE PER QUARTER (millions of pounds)		NO. OF QUARTERS, TOTAL CONTRACTION
	T-4 to T-3	T-3 to T-2	T-2 to T-1	T-1 to T	4 Quarters Preceding Trough	Total Contraction	
	EXPORTS						
1886/II	+	-	+	-	0	-0.57	13
1895/I	-	-	+	-	-0.32	-0.71	18
1901/IV	+	-	-	-	-0.44	-0.95	6
1904/IV	+	+	+	+	+1.51	+0.87	6
1908/IV	-	-	-	-	-3.78	-3.23	6
Average					-0.61	-0.92	
Weighted Average					-0.61	-0.82	
IMPORTS							
1886/II	-	-	-	+	-2.12	-1.23	13
1895/I	-	-	-	+	-1.55	-0.17	18
1901/IV	-	-	-	+	-2.00	+0.08	6
1904/IV	-	-	+	+	+0.82	+2.92	6
1908/IV	-	-	+	-	-3.68	+1.85	6
Average					-1.71	+0.69	
Weighted Average					-1.71	-0.25	
BALANCE OF TRADE							
1886/II	+	+	+	-	+2.12	+0.66	13
1895/I	+	+	+	-	+1.25	-0.54	18
1901/IV	+	+	+	-	+1.55	-1.03	6
1904/IV	+	+	-	-	+0.68	-2.05	6
1908/IV	+	+	-	-	-0.10	-1.38	6
Average					+1.10	-0.87	
Weighted Average					+1.10	-0.57	

^aYear and quarter.

^bT-4, T-3, T-2, and T-1 indicate 4th, 3rd, 2nd, and 1st quarters preceding business cycle trough (T).

Seasonally adjusted.

Source: Same as Table 11.

Table 13 *Great Britain, 1883-1913*

LEAD (–) OR LAG (+) OF TRADE BALANCE AND OF WORLD TRADE CYCLES AT TURNS IN DOMESTIC BUSINESS CYCLE

DATE OF DOMESTIC BUSINESS CYCLE TURNS ^a	NUMBER OF QUARTERS	
	<i>Trade Balance Turns</i>	<i>World Cycle Turns</i>
Troughs		
1886/II	–4	–1
1895/I	–4	0
1901/IV	–4	–3
1904/IV	–4	no related turn
1908/IV	+1	–2
Peaks		
1883/I	–2 ^b	–2
1890/III	–1	+5
1900/II	–1	–1
1903/II	0	no related turn
1907/II	+1	+1
1913/I	+4	+2

Seasonally adjusted.

^aYear and quarter.

^bTentative.

Source: Same as Table 11. World chronology, see text, Section IV.

The regularity points to the close relation between British foreign trade and British business cycles. The complexity indicates that contrasts between different stages of a given cycle phase may be as large as contrasts between cycle phases. This is why such generalizations as “the British balance in depressions” must be used cautiously. As to the positive conformity of the balance, our findings agree broadly with those of Knapp and Lichtenberg, and with Taussig’s and Cairncross’ views.⁵

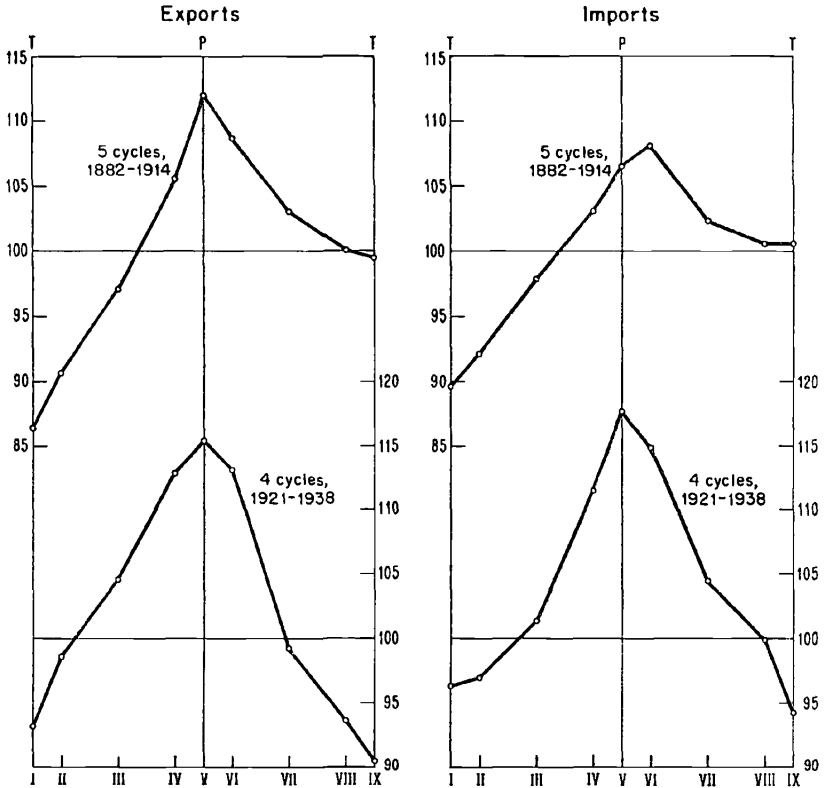
⁵Our findings may be compared to the available information on British trade balance fluctuations in the first half of the 19th century. Gayer, Rostow and Schwartz in *Growth and Fluctuation of the British Economy, 1790-1850*, Oxford University Press, 1952, find that in this period the British balance moved *inversely* to British business cycles. This contrasts with opposite behavior in the latter part of the century. But the findings also show that this conformity must *not* be interpreted to mean that the balance and business cycles moved in the same direction most of the time.

Knapp’s findings (J. A. Knapp, “Balance of Payments and the Trade Cycle,” prepared for the Royal Institute of International Affairs, mimeographed, London, 1943, p. 2) agree with those of Gayer, Rostow and Schwartz for the period from 1801 to the 1830’s, when fluctuations of the British balance (in current pounds) around its trend were inversely related to business cycles. From the 1830’s to the end of the 1860’s, however, Knapp finds no regular cyclical pattern in the deviation of the trade balance from its trend.

Chart 12 Great Britain, 1882-1938

EXPORTS AND IMPORTS: AVERAGE BUSINESS CYCLE PATTERNS

(as percentage of cycle averages)



Current pounds sterling.

Roman numerals indicate business cycle stages, see text.

The Balance Pattern in Terms of Exports and Imports, 1883-1913

In what respect did British exports and imports move differently from American, or from expected simple patterns? Until completion of the analysis of trade prices and quantities in both countries, we can present only a partial and tentative answer (Chart 12).

Expansion. That the British balance — in contrast to the American — rose more (or fell less) in British business expansions than in contractions seems largely due to the different development of exports in late business prosperity. In the United States this was a phase when export values rose only slightly or even fell, despite firm or rising prices, because of shrinking quantities. In Britain, however, export values rose on the average

more in the second than in the first half of expansions. What happened as a rule was that prices rose, often sharply, and that quantities sold also increased though more slowly than in the earlier stages of expansions.

Why British exports behaved differently in business booms from American exports is an interesting question which cannot be answered without detailed investigation of the two countries' exports. Low elasticity of supply of major British exports may explain their large price rises in periods of increasing demand. But the question remains why foreign sales of British goods continued to grow with rising prices while those of American goods did not. The answer may lie in the differing commodity composition of the two countries' exports, which may have meant higher income elasticity of world demand for British than for American export goods.⁶

Or the explanation could be that toward the end of American business expansions, domestic demand for American export goods may have risen more than foreign demand; while on the contrary, world demand for British goods might have increased more than British demand at the close of British business expansions. According to this hypothesis, British prices would have risen mainly due to foreign expansion, American prices because of domestic expansion. But this does not answer the question why world demand for British goods accelerated relative to British demand just at the end of British business expansions. Was it British foreign lending which sustained the demand for British goods in such periods? If so, we would have here an interesting example of the terms of trade turning in favor of the capital-transferring nation.⁷

Contraction. Our next problem is the sudden and radical balance decline which set in at British business peaks and which contrasts with the immediate improvement in the American balance at American business peaks. The unexpected main cause of the contrast is the behavior of imports. Though declining exports also were a regular feature of incipient British recessions, rising imports accounted for the larger part of the balance decline. During the first stage of each of the five business contractions, imports continued to grow, sometimes growing faster in this than in any other cycle stage. At times this increase is due largely to the higher value of food imports, which can in some cases be partly explained by large

⁶See R. M. Lichtenberg's discussion of this question, *op. cit.*, particularly p. 173.

⁷An attempt to prove close correlation between British capital exports and exports of iron and steel, 1880-1913, was made by Silverman. He compares year to year changes in annual series, and concludes that "close connection (is) clearly brought out." I find change in the same direction in 21 of 32 years only, but more detailed analysis might still reveal close relation at certain cycle stages. See A. G. Silverman, "Some International Trade Factors for Great Britain, 1880-1913", *Review of Economic Statistics*, 1931.

rises in cereal prices. But the value of imports other than food also kept growing after several business peaks.

Detailed analysis of American and British imports is required in order to explain their different movements after business cycle peaks. These different movements are one important cause of the contrast between the two balance patterns, and have to my knowledge gone unnoticed. That Britain at the beginning of business recessions increased its imports while its exports declined is noteworthy. It means that an incipient British business contraction affected the rest of the world differently in these years than in the interwar period and differently from an American recession.

In the next stage of British contractions the balance pattern was "normal." Imports fell, and fell enough to outweigh the decline of exports and to reverse the direction of the balance. These inverse balance changes did not last very long, however. In long contractions, they were interrupted by a second dip of the balance as exports shrank even more than imports; and were resumed only during the last contraction year. In short contractions, they lasted almost to the trough.

This improvement of the balance before business troughs seems plausible enough. Of course, one thinks, an increase of exports must have preceded British expansions and this means a larger trade balance. But, as so often occurs in this study, our expectations are not fulfilled. Exports continued to decline, though at the somewhat reduced rate of £0.6 million per quarter against £0.8 for the whole of contractions (Table 12). It is the accelerated fall in imports which is the main cause of the improved balance at this stage. In each of the five contractions imports fell more (or rose less) over the last year of contraction than over contraction as a whole. Their average quarterly decline in contractions was £0.2 million, but £1.7 million in the last year.

The lead of the balance at business troughs might easily be considered as an indication of a lead of world against British cycles. But the fact that the lead is due to falling imports and not to rising exports argues against this interpretation. Actually, balance troughs lead not only troughs in the British economy but also world troughs.

Finally, the balance decline which occurred every time over the last quarter before business troughs was due in four of the five cases to an upturn in imports.

To summarize: The positive conformity of the British balance does *not* mean that over the whole length of British expansions and contractions the growth or decline of exports exceeded the corresponding import changes. Instead, in business expansions export and import rises alternately outweighed each other until the very last stage, when indeed excess growth of exports was the rule. In contraction, the positive balance con-

formity was due more to import rises than to decline of exports. Both the initial and the terminal balance declines are thus explained. Moreover, balance improvement was as regular a feature of certain stages of business contractions as balance decline was of others; here the large import drop was the explanation. What at first glance seems the most plausible feature of contractions — a large decline of exports — was actually the exception.

World Cycles and the British Trade Balance, 1883-1913

We shall now examine world cycles in order to find out how far they can explain the cycle pattern of the British balance and its contrast to the American pattern.⁸ We also want to know whether world cycles affected British and American trade similarly.

British Expansions. We found above that the United States balance moved differently in co- than in counter-expansions. Such a distinction is meaningless for the British balance since Britain in fifty-five years, from 1883 to 1938, never expanded in the face of world contraction except in the two years following devaluation of the pound in 1931. With this exception, all British expansions were co-expansions and what was said about expansions in general applies to them.

The absence of counter-expansions explains some of the contrast in the patterns of the two countries' balances. In co-expansions, both British and American balances rose more often than they fell. However, the contrast between the two balances still shows up in the average rate of change, which is positive for Britain (Table 14) and negative for the United States.

But if the absence of world contractions during British expansions explains to some extent why the British balance was more likely than the American balance to rise in such phases, it cannot account for the main difference — between the last stages of expansions in the two countries. Even in co-expansions the American balance declined before business peaks, while the British rose sharply even in times when its general trend was downward.

If British business expansions were in their final stage regularly outpaced by foreign ones, this might explain trade balance rises. However, whether such a relative retardation of British expansions did actually take place has not been established. The nature of the balance rises was not of the kind to fit in well with this hypothesis. On the contrary, some experts believe that British expansions outpaced those abroad.⁹

⁸Like the American, the British balance has been smoothed for this purpose by a three-quarter moving average, with the quarters weighted one, two, one.

⁹See, e.g., Hawtrey in *Papers in English Monetary History*, ed. by T. S. Ashton and R. S. Sayers, Oxford, 1953, p. 159.

Table 14 *Great Britain, 1883-1955*

TRADE BALANCE: CHANGE DURING CO- AND COUNTER-PHASES OF CYCLES IN
WORLD TRADE AND DOMESTIC BUSINESS

PERIOD AND CYCLE PHASE	NUMBER OF QUARTERS COVERED ^a	NUMBER OF RISES OR FALLS						WEIGHTED AVERAGE CHANGE PER QUARTER IN BALANCE OF TRADE (millions of pounds) ^b
		<i>Exports</i>		<i>Imports</i>		<i>Balance of Trade</i>		
		R	F	R	F	R	F	
1883-1913								
Counter-Expansion	0	—	—	—	—	—	—	—
Counter-Contraction	18	1	5	5	1	1	5	-1.3
Co-Expansion	71	5	0	5	0	3	2	+0.2
Co-Contraction	32	0	6	2	4	3	3	+0.2
1920-1938								
Counter-Expansion	8	0	1	0	1	1	0	+0.6
Counter-Contraction	9	1	1	0	2	2	0	+2.3
Co-Expansion	30	3	0	3	0	0	3	-2.3
Co-Contraction	20	0	3	0	3	3	0	+3.8
1948-1955								
Counter-Expansion	7	1	1	1	1	2	0	+4.5
Counter-Contraction	3	1	0	1	0	1	0	+8.8
Co-Expansion	16	2	0	2	0	0	2	-12.9
Co-Contraction	2	0	1	0	1	1	0	+41.0

Co-phases: Periods when world cycle and domestic business cycle move in same direction.

Counter-phases: Periods when world cycle and domestic business cycle move in opposite direction.

Seasonally adjusted, and smoothed by three-quarter moving averages with double weight for center quarter.

^aA few quarters were excluded because of their extraordinary character; see Table 15.

^bFor 1931-1938 in pounds of 1930 parity. For 1948-1955 in pounds of 1954 parity.

Source: Same as Table 11. World chronology, see text, Section IV.

Table 15 *Great Britain, 1883-1955*

TRADE BALANCE: CHANGE DURING INDIVIDUAL CO- AND COUNTER-PHASES OF CYCLES IN WORLD TRADE AND DOMESTIC BUSINESS (millions of pounds)^a

TERMINAL QUARTER OF CYCLE PHASE	CO-EXPANSION		COUNTER- EXPANSION		COUNTER- CONTRACTION		CO-CONTRACTION	
	<i>Number of Quarters</i>	<i>Change per Quarter</i>	<i>Number of Quarters</i>	<i>Change per Quarter</i>	<i>Number of Quarters</i>	<i>Change per Quarter</i>	<i>Number of Quarters</i>	<i>Change per Quarter</i>
1886/I							12	+0.9
1890/III	17	-0.2						
1891/I							2	-1.1
1891/IV					3	-3.4		
1892/IV							4	+1.6
1893/II					2	-0.8		
1895/I							7	+0.1
1900/II	21	-0.4						
1901/I							3	-2.1
1901/IV					3	+0.1		
1903/II	6	+0.5						
1904/IV					6	-0.4		
1907/II	10	+1.4						
1908/II							4	-0.5
1908/IV					2	-3.1		
1913/I	17	+0.3						
1913/III					2	-1.6		
1921/II							4	+3.6
1924/IV	14	-2.3						
1925/IV					4	+2.3		
1926/II							2	excluded
1927/II	2	excluded						
1928/III					5	+2.4		
1929/III	4	-2.8						
1932/III							12	+4.1
1934/III			8	+0.6				
1937/III	12	-2.1						
1938/III							4	+3.0
1950/I			5	+5.6				
1951/II	5	-35.5						
1952/I					3	+8.8		
1952/III							2	+41.0
1953/I			2	+1.7				
1955/IV	11	-2.6						

Co-phases: Periods when world cycle and domestic business cycle move in same direction.

Counter-phases: Periods when world cycle and domestic business cycle move in opposite direction.

^aFor 1931-1938 in pounds of 1930 parity. For 1948-1955 in pounds of 1954 parity.

Source: Same as Table 11. World chronology, see text, Section IV.

Co- and Counter-Contractions. While British expansion did not occur during world contraction, British contractions were often simultaneous with world expansions. In fact, about one-third of British contraction quarters were periods of expansion in the rest of the world, and the number of counter-contractions was the same as that of co-contractions. With one exception, counter-contractions lasted not more than two or three quarters, and three such contractions may be viewed as leads of British against world peaks and of world against British troughs. Another three counter-contractions, however, began and ended while British contraction continued.

Did the trade balance move differently in these counter-contractions than in co-contractions? And if so, can this contrast help to explain the regular sequence of balance falls and rises that, as we found, characterizes the balance in British contractions?

One would surmise that — as in the United States — the balance must have improved in counter-contractions, since world expansion should promote exports and domestic depression stifle imports. But Table 14 shows the opposite. The balance *fell* regularly,¹⁰ and the fall was due to perverse behavior of both exports and imports; the former fell, the latter rose in five of six such cases. The explanation lies in the movements of prices. On the one hand, falling prices of exports outweighed the rise in export quantities which world expansion brought about, so that export values sank. (The brief increase in world demand evidently could not stem the fall in prices caused by domestic stagnation.¹¹) On the other hand, import prices increased more than quantities fell: a rise in the price of grain (wheat, flour) was typical. In brief, such counter-contractions were characterized by an adverse turn in the terms of trade, which outweighed the effects of world and domestic cycles on trade quantities.

On the other hand, balance rises and declines were equally frequent in the phases where world contraction accompanied the British economic decline. Characteristically, the rises occurred in the three longer phases, the declines in the three shorter ones. The contrast was not due to exports, which fell in every case, but to imports, which declined sharply in protracted contractions due to falling prices. Long co-contractions thus were the only phases in which the British balance moved inversely to British cycles. In other words, in British contraction the British trade balance fared best when things were worst, i.e. when world trade shrank and the depression was a protracted one. When the co-contraction was brief, or when world trade expanded, the balance sank.

¹⁰With the exception of one very small rise, in a phase with very mild world expansion.

¹¹The price of coal fell in each such phase, textile prices in some.

Though their effects were partly the opposite of what we would expect, world fluctuations clearly did affect the British trade balance in business contractions, but not enough to account for the pattern of the balance. Co- and counter-contractions are not distributed over the stages of British contractions in a manner which would explain the different movements of the balance in these stages. For instance, the contrast between the initial decline and the later rise of the balance in contraction can hardly be attributed to different incidence of the world cycle.

In sum, the absence of world contractions during British expansions accounts for part of the balance rises,¹² and the presence of world expansions during British contractions for part of the balance declines. But the remaining, perhaps larger part of the balance movements must be associated with the cycles in the British economy itself.

Cyclical Fluctuations in the British Trade Balance: Interwar Period and Post-World-War-II

Stability. It would seem reasonable to expect that the British trade balance after World War I would be much less stable than before, but that the relation of its movements to business cycles would remain essentially the same. Yet the contrary is more nearly true. Though the changes in the balance in terms of pound sterling had about doubled, they were not larger (when related to exports and imports) than they were in the period 1883 to 1894; and on this basis were still only around 60 per cent of those of the American balance (Table 10).

Pattern. But while the balance remained comparatively stable, its cyclical pattern changed completely (Charts 10, 11). Instead of improving in business expansion and declining in contraction, as before 1914, it now fell in every expansion and rose in every contraction; its index of conformity changed from +78 to -100 (Table 11).

Why the change? The interwar period was short and, in addition, one of its cycles shows such extraordinary features due to the coal strike that it was excluded. This leaves us with only three cycles to observe — three cycles during which British trade was deeply affected, first by revaluation then by devaluation of the pound, first by recovery from World War I then by the Great Depression. Despite this, the behavior of the trade balance in these three cycles shows enough regularity to indicate a pattern for the interwar period. This new balance pattern is characterized by a large fall in the second half of expansion (which occurred each time and which resembles that of the American balance), and by a rise in the later part of contraction.

¹²This assumes, perhaps wrongly in view of the experience in counter-contractions, that counter-expansions would have depressed the British balance.

What caused this reversal of balance cycles? The first guess is that the relation of British business cycles to world cycles has changed. However, the fact that the behavior of the balance has also changed in regard to world cycles forces us to look for another explanation, which seems to lie in the changed relations of British foreign trade to British business cycles. The two main aspects of this change are: first, in business expansions before 1914, exports rose much more than imports; in those of the interwar period, imports rose more than exports. Second, in the later period imports fell more than in the earlier, during British business contractions. Both these changes are primarily due to the changed pattern of prices. In British depressions before World War I import prices had a tendency to rise; in the interwar period they fell steeply and thus account for the large drops in import values. In British expansions, on the other hand, the rise in export prices had, in the earlier period, averaged half as much again as that of import prices. In the later period, however, export prices fell while those of imports rose somewhat, accounting largely for the changed ratio of export to import growth. Thus in the interwar period the absolute change in the value of exports was smaller in each cycle phase than that of imports, while before 1914 the reverse was true.¹³ In short, the new inverse movements of the terms of trade led, in the absence of compensating quantity changes, to the new inverse conformity of the balance.

The National Bureau of Economic Research's business cycle chronology for Great Britain has not been carried beyond 1938. In its place we use, despite misgivings, the official monthly index of production as adjusted by Thor Hultgren.¹⁴ This index shows from 1948 to 1955 only one business peak, in 1951, and one trough, in 1952. A second peak in 1955 is tentative.

The trade balance conformed inversely to these "business cycles." At the 1951 peak it reached the lowest level of the decade, and rose steeply to the business trough of 1952. At the tentative business peak of 1955 it was again much lower than at the preceding trough.

World Cycles and the British Trade Balance: Interwar Period and Post-World-War-II

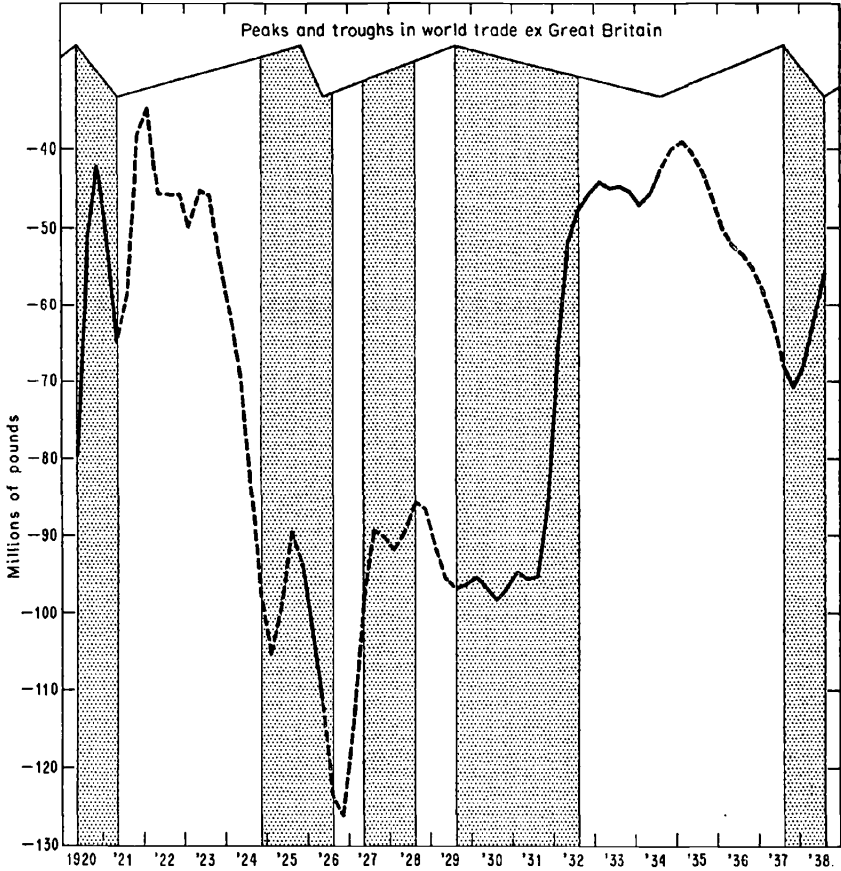
The change in the cyclical behavior of the British trade balance after World War I can be traced in each of the combinations of British and world cycle phases (Chart 13).

¹³Relative change was still larger in exports than in imports, but in view of the latter's larger size this does not preclude inverse balance conformity.

¹⁴*Transport and the State of Trade in Britain*, National Bureau of Economic Research, Occasional Paper 40, 1953.

Chart 13 *Great Britain, Quarterly, 1920-1938*

TRADE BALANCE IN RELATION TO CYCLES IN WORLD TRADE AND DOMESTIC BUSINESS



Seasonally adjusted with the exception of 1920-1922, and smoothed by three-quarter moving averages with double weight for center quarter.

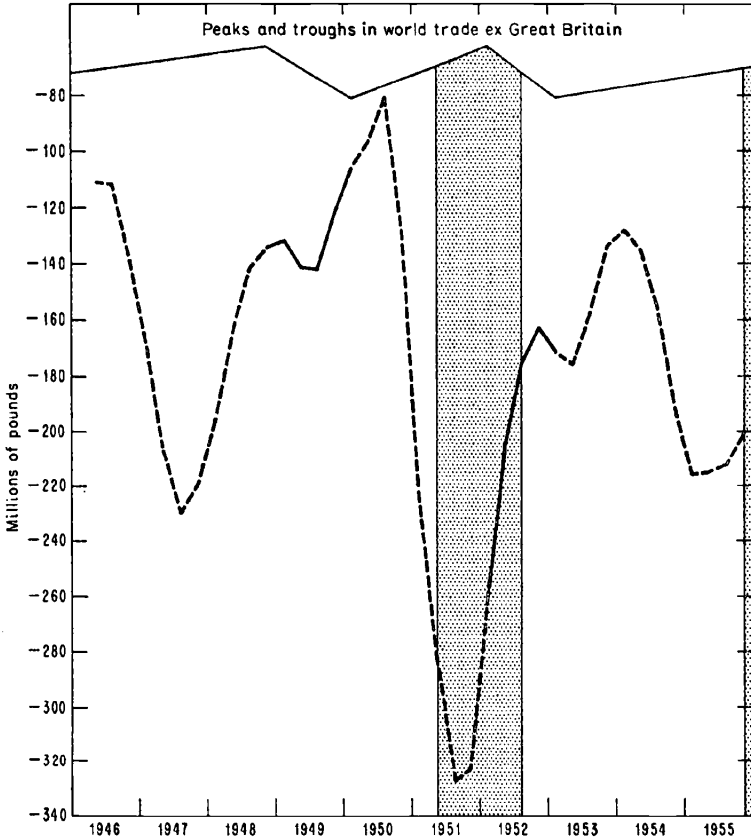
Broken lines in trade balance cycles denote expansions in world trade (ex Great Britain). Shaded periods are British business contractions.

Pounds of 1930 parity.

British Expansions. On the assumption of import conformity and also according to American experience, one would be inclined to attribute the fall of the balance in times of British prosperity to falling world trade, i.e. to counter-expansions. Quite on the contrary, however, the balance rose in the single counter-expansion and fell in each of the three co-expansions.

Chart 14 *Great Britain, Quarterly, 1946-1955*

TRADE BALANCE IN RELATION TO CYCLES IN WORLD TRADE AND DOMESTIC BUSINESS



Seasonally adjusted and smoothed by three-quarter moving averages with double weight for center quarter.
 Broken lines in trade balance cycles denote expansions in world trade (ex Great Britain). Shaded periods are British business contractions.
 Pounds of 1954 parity.

In the latter, the rise in exports was too modest to offset the rise in imports. The former, the only expansion of the British economy which occurred in the face of world contraction, was the result of the devaluation of sterling in 1931. In this case, the fall in exports did not equal that in imports.

A similar pattern seems to prevail after World War II. The first counter-

expansion, in 1949, was again associated with devaluation; and again the balance rose. A second brief counter-expansion in 1952-53 left the balance more or less unchanged. In two co-expansions, 1950 to 1951, and 1953 to 1955, the balance fell sharply (Chart 14 and Table 15).

British Contractions. Just as the balance decline in British interwar expansions is not explained by world contractions, so the balance rise in British contractions is not explained by world expansion. There were three co-contractions, and two counter-contractions in this period. In all five cases the balance improved (see Table 14). But, contrary to the United States balance and contrary to the assumption of import conformity, the British balance improved more when world trade declined than when world trade expanded. The explanation, as stated above, is that the balance improvement was mainly due to improved terms of trade. The fall in import prices exceeded the fall in export prices, and caused a relatively large fall in import values while export values fell less or even increased. The fall in imports was larger in co- than in counter-contractions and therefore the balance rise was larger in the former.

Again after World War II the British balance rose in the single co-contraction and in the single counter-contraction, chiefly because of the falling value of imports (resulting from both lower prices and reduced quantities¹⁵).

In summary, relations between British trade balance movements and British and world business cycles are not simple. Yet surprisingly regular features appear when we distinguish between periods and between cycle stages. Before World War I we find positive conformity of the balance to British business cycles; a sharp rise before every business peak and a fall immediately afterwards; a rise in the last year of business contraction and a dip in the last quarter before business turns up. But in the interwar period and so far as we can tell, after World War II, conformity is 100 per cent inverse; there is always a steep decline before and a rise after the peak. This latter pattern broadly resembles that of the American balance, 1880 to 1955.

It is somewhat surprising that it should be the British balance before World War I which, in this sense, is an exception. This conflicts with some widely held if somewhat vague views. For instance, the effect of cyclical fluctuations on a country's foreign trade balance is often thought to depend on the degree to which the country is industrialized. On this theory, we would expect the British balance to behave in the same fashion in the earlier as in the later period, and the American balance in the earlier period to behave differently. The same applies to the supposed effect of a coun-

¹⁵See Samuel I. Katz, "Sterling's Recurring Postwar Payments Crises," *Journal of Political Economy*, June 1955.

try's creditor-debtor status. Both countries were creditors in the interwar period; hence if creditor-debtor status were decisive, the United States balance in the earlier period, and not the British, ought again to be the exception.

Another conclusion to be drawn from the contrast between the movements of the British balance before and after World War I is that findings about the later period cannot be applied to the earlier one.

The explanation of the change in the cyclical pattern of the British foreign trade balance is not found in changed relations of world cycles to British business cycles, but in the changed effect of a given business cycle situation on British foreign trade. This change in turn seems to be due chiefly to a shift in price patterns. The reversal, after World War I, of the balance pattern around cycle peaks is clearly due to prices. The next question is, therefore, why export and import prices moved differently in later than in earlier British business cycles. Perhaps the analysis we plan to make of the cycle patterns of these prices and their components will throw light on this question.

IV. WORLD CYCLES

Introduction

In this section we shall discuss the world cycle chronology which we devised for the analysis of foreign trade fluctuations. We believe that the world cycles indicate, however roughly, the direction in which world demand moved and how it affected American and British foreign trade. But it should be stressed that we do not regard these world cycles as anything but a tool for gaining some additional insights into a nation's foreign trade cycles. In analysis of international financial transactions, for instance, differently defined world cycles may well be preferred. Nor does the question whether a "truly international cycle" exists concern us here.¹ We are merely assuming that world cycles as we use them reflect those foreign fluctuations affecting a country's foreign trade.

The term "world" is used loosely in this section. More exactly, we refer to the world ex United States in the analysis of American trade, and to the world ex Great Britain in the analysis of British trade.

Since American trade is our main concern, the following experiments with various approaches to a world cycle chronology deal with the world ex United States. The method adopted for the United States was then applied to Great Britain.

¹For a discussion of this concept, see Oskar Morgenstern, *International Financial Transactions and Business Cycles*, Princeton University Press for the National Bureau of Economic Research, 1959, Chapter 1, Section 6.