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Volume Author/Editor: Ilse Mintz

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Chapter Author: Ilse Mintz

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I. INTRODUCTION

Object of the Study

Economists, historians, and policymakers have long been interested in the reactions of trade balances to business fluctuations. Today this interest is keener than ever. Nevertheless, little is known about the actual relations of trade balance changes to business cycles. Few empirical investigations shed light on trade balance cycles despite availability of much of the required data. The present study attempts to fill this gap by analyzing the cyclical fluctuations in the American and in the British foreign trade balances. It deals largely with the period from 1880 to 1938, while the larger project on foreign trade and business cycles of which it forms a part will cover the full period from 1880 to 1958.[1]

The facts developed here may help to resolve the contradictions on balance cycles existing in the literature. Some economists hold, for instance, that the British balance improved in British prosperity, some that it deteriorated; a third view is that trade balances show no cyclical fluctuations. Elaborate theories have been erected on tacit assumptions about balance cycles not founded on reality. Wrong guesses are not surprising here. Trade balance changes depend on many factors, some still unexplored. Thus conflicting opinions may be due in part to different assumptions about the international character of business cycles, on which little is known. An author who assumes, for instance, that United States and world expansions usually occur simultaneously will expect a different balance pattern than one who assumes that United States expansions often

[1]This larger project, we found, requires the collection of a mass of new data on American foreign trade. Price and quantity indexes for United States exports and imports are not available prior to the 1920's, and breakdowns of values by commodity classes are available for fiscal years only until 1906. Since an analysis of cycles in trade values cannot achieve much as long as movements of underlying prices and quantities are not known, the National Bureau of Economic Research decided to provide the necessary data. Under the direction of Robert Lipsey, price and quantity indexes of American exports and imports, 1879 to 1923, are being constructed – a big task which will require some time to be complete. The present study of trade balance cycles is therefore incomplete insofar as such cycles cannot yet be interpreted in terms of the component series. The cyclical aspects of international financial relationships have recently been thoroughly analyzed by Oskar Morgenstern in *International Financial Transactions and Business Cycles*, Princeton University Press for the National Bureau of Economic Research, 1958.

occur during world contractions.[2] Another source of mistaken guesses is reliance on the simple assumption that imports move with domestic, exports with foreign business cycles. Though this is often correct, it does not hold in all cases; sometimes even the contrary is true. Before World War I, for instance, the British balance *fell* regularly when a British recession (which should reduce imports) coincided with world expansion (which should increase exports).

There are very few empirical investigations on cycles in the American trade balance before 1914. Indeed, little can be added to the following comments made by Wesley Mitchell in his 1913 volume with the help of annual data.[3]

"It is occasionally said that prosperity works its own undoing through the effects it produces upon foreign commerce. The argument is that, by encouraging imports and discouraging exports, prosperity reduces a favorable and augments an unfavorable balance of trade upon merchandise account, and therefore tends to produce an outflow of gold. In turn, the latter reduces bank reserves, causes a restriction of credit, and so brings the movement of expansion to a close.

". . . The figures do not give unequivocal support to the above stated theory. (For example, England's excess of imports was greater in the dull years 1901-04 than in the brisk years 1905-07; America's excess of exports rose with the rise in prosperity from 1904 to 1907; France . . .; Germany . . .). But the cases which support the theory are more numerous. As a rule the excess of exports in America has fallen at the culmination of a period of prosperity and risen in the subsequent period of depression. Mutatis mutandis the rule holds good also for France and Germany. The truth seems to be that prosperity in a given country does stimulate imports and check exports; but that this effect is often offset by counter-influences, such as fluctuations in the harvest and business conditions among customer and competitor nations."

We find occasional remarks by other authors. For instance, Schumpeter says that according to his pure model he would expect imports to grow

[2]Jacob Viner has argued for the necessity of this distinction in *Studies in the Theory of International Trade,* Harper, 1937: ". . . attempts such as are to be encountered in the literature to formulate a simple and precise pattern of relationship between cyclical fluctuations and specific elements of the international mechanism without discrimination between the situations here differentiated seem to me to be based on an excessive simplification of the problem."

[3]Wesley C. Mitchell, *Business Cycles,* University of California Press.

Recently North has found that – as far as can be seen from annual data – the United States trade balance moved inversely to business cycles in the period 1820 to 1860. Douglass C. North, "The United States Balance of Payments, 1790-1860" *Trends in the American Economy in the Nineteenth Century,* Studies in Income and Wealth, Volume Twenty-Four, to be published by Princeton University Press for the National Bureau of Economic Research.

and exports to decline in the positive phase of the business cycle, and opposite behavior in the negative phase. "Traces of this show in many instances for the United States from 1872-78, 1881-82, 1907."[4] Thus he, like Mitchell, saw a tendency toward inverse conformity of the American balance to American business cycles.

But such insights are far from constituting a recognized body of knowledge. This is well illustrated by the fact that the most important recent work on the subject, Neisser and Modigliani's *National Income and International Trade,* discusses the period before World War I without even mentioning Mitchell's and Schumpeter's view that the American balance tends to move inversely to American business.[5]

Without an established view on the cyclical behavior of the balance, there can of course be no generally accepted opinion on the questions whether, to what degree, at what times business cycles were transmitted via the balance from or to the United States. A widely held view is that American cycles before World War I were highly independent of foreign cycles. Their "singularly different rhythm is a frequently mentioned phenomenon of considerable interest."[6]

Cycles in the annual British trade balances of the same period have been analyzed in two unpublished papers. R. Lichtenberg compares year to year movements of the balance to those of business (defined by National Bureau of Economic Research reference dates), and finds that both move predominantly in the same direction.[7] J. A. Knapp found that the "British balance of trade improves in booms and deteriorates in slumps relatively to trend."[8] These findings agree with F. W. Taussig's view that the British trade balance moved closely with foreign investment, and the latter with the cycles in the British economy.[9] But again opinion has not crystallized. Neisser and Modigliani, for example, express the contrary opinion without remarking at all on such views as Taussig's. They say of the period under discussion: ". . . if it was Britain whose income *decreases* – the ensuing *improvement* in the British trade balance . . ."[10]

[4]J. A. Schumpeter, *Business Cycles,* McGraw-Hill, 1939, pp. 666-667.

[5]H. Neisser and F. Modigliani, *National Income and International Trade,* University of Illinois Press, 1953.

[6]Oskar Morgenstern, *op. cit.*

[7]R. Lichtenberg, *Great Britain's Balance of Payments, 1868 to 1912,* Harvard dissertation, 1952.

[8]J. A. Knapp, "Balance of Payments and the Trade Cycle," prepared for the Royal Institute of International Affairs, mimeographed, London, 1943.

[9]F. W. Taussig, *International Trade,* Macmillan, 1927, pp. 238, 239. Another example is A. K. Cairncross, *Home and Foreign Investment, 1870 to 1913,* Cambridge University Press, 1953, who also assumes positive conformity of the British balance to British business cycles; see, for instance, page 205.

[10]Neisser and Modigliani, *op. cit.,* p. 133, italics mine.

When so little is known on the relatively simple question of how British trade balance changes were related to business cycles, it is not surprising to find a lack of agreement on the much-debated question of whether business cycles were transmitted mostly from or mostly to Great Britain. Some opinions are based on the assumption of positive, some on inverse balance conformity. An explicit statement is rare.

The view that British cycles caused cycles in "weaker countries" is held, for instance, by R. Triffin. His theory is that in depressions prices of British imports declined more than those of its exports, and that Britain thus reversed its balance at the expense of foreign countries. This implies improvement of the British balance in depressions.[11]

Many others maintain, on the contrary, that British cycles were imported. Thus Schumpeter held that British "cycles tended to shape in function of foreign business situations," and Beveridge developed the interesting theory that foreign harvest fluctuations are at the root of British business cycles.[12]

We are better informed on the interwar period, thanks mainly to the above-mentioned work by Neisser and Modigliani and, among others, to the earlier book by T. Chang.[13] These studies offer estimates of the average annual changes in different countries' trade balances which were associated, in the interwar period, with changes in income, employment, or similar variables. Though such estimates are of interest to us, they are not designed to answer our questions. They cannot inform us on the balance movements' conformity to business cycles, their cyclical timing, or on distinctions between different cycle stages.

That such equations cannot tell us, for example, whether a country's balance typically rose or fell in business expansions may be illustrated by Chang's findings.[14] They show that American expansions were associated on the average with world expansions of less than half their size (com-

[11]R. Triffin, "National Central Banking and the International Economy," *Review of Economic Studies,* 1946-1947, p. 62.

[12]J. A. Schumpeter, *op. cit.,* p. 367. W. Beveridge, *Full Employment,* Norton, 1945.

[13]T. Chang, *Cyclical Movements in the Balance of Payments,* Cambridge University Press, 1951. A study of the 1920's is Arthur Bloomfield, "Mechanism of Adjustments of the United States Balance of Payments, 1919-1929", *Quarterly Journal of Economics,* May 1943. In this Bloomfield recognized the inverse behavior of the balance. The behavior of the Canadian trade balance in the later part of the interwar period has recently been described by E. Marcus in *Canada and the International Business Cycle, 1927-1939,* New York, Bookmen Associates, 1954. Marcus finds (p. 203) that "contrary to traditional theoretical expectations, an increased current account balance was associated with a *decreasing* level of internal activity, and a weaker current account balance with *improving* internal activity." It should be noted that in the period mentioned, the American balance shows exceptional behavior.

[14]Chang, *Ibid.,* pp. 124, 149.

paring percentage rises in real incomes) and with rising trade balances. For Great Britain it is found that a 1 per cent rise in home employment was accompanied on the average by a 1.74 per cent increase in world real income and by a £5 million improvement in the balance. Chang concludes that both balances show alternate cyclical surpluses and deficits in relation to prosperity and depression. In fact both balances fell more often in expansions than they rose.

On the international transmission of the cycles of the interwar period via foreign trade, we find again a wide range of opinion. Some believe that the effects of foreign trade were more important as causes of fluctuations than was any other factor;[15] others consider them negligible. Neisser and Modigliani distinguish between the decades of the 1920's and the 1930's. In their opinion, transmission was weak in the former and much stronger in the latter period.

On the direction of transmission, the prevalent view seems to be that the main source of world economic instability was United States trade, while British cycles, on the contrary, were largely determined by foreign business conditions.[16] But Neisser and Modigliani find "that a change in United States income . . . has only a small effect on the other members' incomes, while a change in British income is generally transmitted to a comparatively high degree: other countries' exports are affected only slightly by a change in United States income, but are strongly influenced by a change in that of the United Kingdom." (*Op. cit.*, pp. 126, 127.) The coefficients for 1928, for instance, associate a fall in United States income by one dollar with a fall in the income of seven industrial countries by five cents when incomes of other countries are assumed constant, and by seven cents when such incomes are assumed to change too. If it was British income that fell by one dollar, however, the decline in the income of the same countries was estimated at fifty-five cents or sixty-four cents. Yet Neisser and Modigliani refer later to "the spreading of the American depression over the world, both via prices and via the volume of United States imports (working through the d_2 or d_3 reaction)". (*Op. cit.*, page 134. The d_2 and d_3 reactions are described by the coefficients given above.)

Scope and Method

The present study deals with quarterly American and British trade balances from about 1880 to date. By trade balances we mean the values of exported minus the values of imported merchandise. We use official data

[15]See, e.g., J. J. Polak, *An International Economic System*, Chicago University Press, 1954.

[16]See, e.g., Chang, *op. cit.*, pp. 91, 126.

as described in footnotes to Tables A-1 and B-1. Despite their shortcomings, these can be regarded as among the best statistics available. As W. C. Mitchell said: "Mercantilism has produced at least one wholesome result: it has led governments to keep relatively full and careful records of imports and exports. No other type of trade has so long or so adequate a statistical record. Of course the economist who is using these data for any purpose complains of their defects; by the nature of his calling he is an ungrateful creature who must begin an investigation by pointing out the limits of the data in scope and in reliability. We follow this time-honored precedent; but we wish that the available records of domestic production and exchange were equal to those of foreign trade".[17]

The study is limited to visible trade. Lack of data made it impossible to present a cyclical analysis of service transactions. This is regrettable, but merchandise trade is so large a part of the international transactions of the two countries that it seems well worth analyzing even when the behavior of other transactions is not known. Moreover, a brief study of available data on services upholds the decisive role of merchandise trade in determining the movements of the whole balance on current account.

Apparently, fluctuations of service balances seldom offset changes in trade balances in either the United States or Great Britain. Consequently, the balance on current account (the sum of trade and service balances) as a rule moved in the same direction as the trade balance (Table 1).

This observation is based on official series for service transactions available annually for both countries since the 1920's; for the United States quarterly and for Great Britain semiannually, since World War II.[18] The parallel movement of trade and current account balances is also found in the figures for the period before 1913. But the data for changes in service balances in this period can only be regarded as guided guesses. The British series was constructed by Albert H. Imlah in order to derive an annual series of British foreign investment. Imlah comments on his estimates: ". . . the most that can be hoped for is that quinquennial or decennial averages are fair approximations."[19] The same goes for the sole American series, 1880 to 1913, assembled by Matthew Simon for the years 1880 to 1900 and by Paul D. Dickens for 1900 to 1913, both again for the purpose

[17]Wesley C. Mitchell, Draft of a Chapter on Foreign Commerce, unpublished manuscript, p. 1.

Oskar Morgenstern's recent sharp criticism of trade statistics applies to data on trade between individual countries, not to total trade. Clearly it is one thing to record all goods leaving or entering a country and quite another thing to classify such goods accurately by country of sale or purchase.

[18]For description of series and sources, see Notes for Table 1.

[19]Albert H. Imlah, "British Balance of Payments and Export of Capital, 1816-1913," *Economic History Review*, 1952, p. 222. An alternative series by Cairncross, *op. cit.*, shows substantially the same picture.

Table 1 *United States and Great Britain, 1880-1956*[a]

TRADE, SERVICE AND CURRENT ACCOUNT BALANCES *(millions of dollars or pounds)*

COUNTRY AND PERIOD	TIME UNIT	AVERAGE BALANCE		AVERAGE CHANGE IN BALANCE		OPPOSITE MOVEMENTS AS % OF TOTAL NUMBER OF CHANGES: TRADE BALANCE VS.	
		Trade	*Service*	*Trade*	*Service*	*Service Balance*	*Current Account Balance*
United States:							
1880-1900	Fiscal year	+167	—213	114	16	45	5
1900-1913	Calendar year	+499	—449	113	26	77	15
1922-1938	Calendar year	+574	+214	301	76	62	0
1948-1955	Quarter	+768	+425	488	93	18	0
Great Britain:							
1882-1913	Calendar year	—135	+224	13	9	48	13
1922-1938	Calendar year	—342	+366	52	39	62	6
1949-1956	Half-year	—343	+228	163	69	36	14

[a]War years are omitted in this and all subsequent tables.

Definitions

Trade balance: Merchandise exports minus merchandise imports. Gold excluded. Shipments of military equipment under Mutual Security Program excluded from United States balance, 1950-1955.

Service balance: Net receipts from transportation, travel, investment, and miscellaneous services, exclusive of: private remittances from United States balances, 1922-1956; military transactions from United States balances, 1948-1955; government transactions from British balances, 1949-1956.

Current account balance: Sum of trade and service balances.

Changes in balances are differences between consecutive annual balances, or between balances for same quarters or halves of consecutive years. Signs were disregarded in averaging changes.

Sources, United States

Trade balance: See sources cited for Table A-1.

Service balance:

1880-1900: M. Simon, "The United States Balance of Payments," *Trends in the American Economy in the Nineteenth Century*, Studies in Income and Wealth, Volume Twenty-four, to be published by Princeton University Press for the National Bureau of Economic Research.

1900-1913: P. D. Dickens, *The Transition Period in American Financing: 1897-1914* (unpublished doctoral dissertation, George Washington University, 1933). Adjusted and revised by R. W. Goldsmith, *A Study of Saving in the United States*, Princeton University Press, 1955, Vol. 1, p. 1079.

1922-1952: Department of Commerce, *Balance of Payments of the United States, 1919-1953.*

1953-1955: *Survey of Current Business*, June, 1956, p. 24.

Sources, Great Britain

Trade balance:

1882-1913: A. H. Imlah, "British Balance of Payments and Export of Capital, 1816-1913," *Economic History Review*, Second Series, Vol. V, No. 2 (1952), pp. 237-239.

1922-1955: See import and export sources cited in Table B-1.

1956: United Nations, *Monthly Bulletin of Statistics*, October, 1957, p. 100.

Service balance:

1882-1913: A. H. Imlah, as cited just above.

1922-1938: League of Nations, *Balances of Payments.*

1949-1956: Great Britain, Treasury, *United Kingdom Balance of Payments.*

of estimating annual net capital movements.[20] Simon notes that in view of the necessity to make arbitrary assumptions "the direction of the movement over periods of varying duration, rather than the absolute level at one point in time, may be more meaningful."

Despite their shortcomings, all our figures agree in several respects. In each of the six observed instances trade and current account balances moved together, and in none was this due to parallelism of the service and the trade balances. In about half of all observed instances, the latter improved when the former sank, or vice versa. (That these unlike movements are less frequent in the most recent period may reflect a real change or merely improved data.)

It is always the comparative smallness of changes in the service balances which prevents them from offsetting the large trade balance fluctuations. Service balances were, on the average, larger than trade balances in the earlier years and smaller in the later ones. But whatever their level, they fluctuate less than the corresponding trade balances. It is likely that the shortcomings of the data exaggerate the stability of the service balances, particularly for the earlier years. However, in part this stability is real. It may be due to stability of some major components of these balances or, more probably, to their offsetting movements.[21]

The relation of the United States trade balance, 1945 to 1955, to net foreign investment defined as a component of Gross National Product is shown on Chart 1. The main components of net foreign investment are the trade and service balances less the net outflow of gifts.[22]

[20]Matthew Simon, "The United States Balance of Payments, 1861-1900," *Trends in the American Economy ni the Nineteenth Century,* Studies in Income and Wealth, Volume Twenty-Four, to be published by Princeton University Press for the National Bureau of Economic Research.

Paul D. Dickens, *The Transition Period in American Financing; 1897-1914,* (unpublished doctoral dissertation, George Washington University, 1933). Adjusted and revised by Raymond W. Goldsmith, *A Study of Saving in the United States,* Princeton University Press, 1955, Vol. 1, p. 1079.

[21]Similar observations have been made by other investigators. Neisser and Modigliani exclude invisible trade, though in their case data would have been available since they deal with annual series and with relatively recent years. Their reason for excluding service transactions is that the service balance "has generally fluctuated within narrow limits, and that its changes have usually been small in comparison with the changes in gold and capital movements." Moreover, in their period of observation, this balance showed "no correlation with trade balances except in 1931. Thus, while the current invisible item weighed heavily in the balance of payments of some countries, they could not play a significant role in offsetting trade-balance *changes.*" (*Op. cit.,* p. 25.)

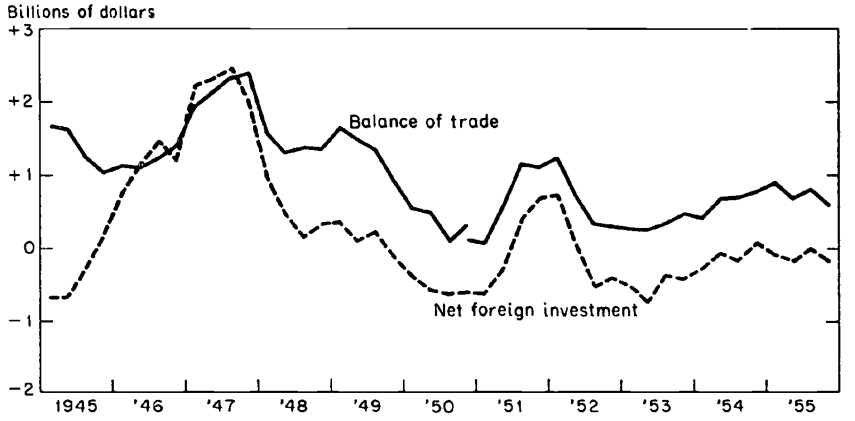
T. Chang, *op. cit.,* does include movements of invisible items but finds that they did not offset changes in the trade balance in the United States or Great Britain.

Cf. also J. A. Knapp, *op. cit.,* p. 1.

[22]The trade balance included in net foreign investment differs somewhat from the balance referred to in this paper.

Chart 1 *United States, Quarterly, 1945-1955*

TRADE BALANCE AND NET FOREIGN INVESTMENT



Seasonally adjusted.
Source: Department of Commerce.

We deal then with trade balances, and shall describe their fluctuations in relation to national and international business cycles. We use the Burns-Mitchell method of cycle analysis,[23] and an adaptation of this method which we devised for dealing with the special problems of international economics. The necessity for such an adaptation, i.e. of the inclusion of international cycles, was indicated clearly by the unsatisfactory results obtained by Mitchell and others who treated foreign trade like purely domestic economic series exclusively in the domestic cycle framework.

We explored the possibility of ascertaining and dating international cycles and of thus arriving at a chronology of world business cycles, analogous to our national reference dates.[24] The great obstacle is, of course, the paucity of global data beyond the most recent past, and the difficulty of combining national figures with due regard to variations in the size of individual countries and in the amplitudes of their fluctuations. Lack of information has prevented not only establishment of a world cycle chronology, but even agreement on the question whether the international economy has fluctuated sufficiently in unison over the last seventy years to justify the concept of world cycles.

Exploration of several possible ways of determining world turning

[23]A. F. Burns and W. C. Mitchell, *Measuring Business Cycles*, National Bureau of Economic Research, 1946.

[24]In this we benefited from experiments made by Rollin F. Bennett at the National Bureau of Economic Research in 1940.

points led to the decision to use world imports for our purposes. A discussion of this choice and description of the construction of the series will be found in Section IV. Here it suffices to state that, to account for influences from abroad on foreign trade, global imports seemed the most appropriate of the few available series. More accurately, for the analysis of United States trade, we use turns in imports of the world outside the United States; and, for British trade, we use turns in imports of the world outside Great Britain.

The world chronology is used in combination with national reference cycles. The phases of the latter are classified by simultaneous world cycle phases. We thus distinguish four phase-combinations: two in which world and national economy move in the same directions, and two in which they move in opposite directions. We regard these world reference dates merely as a tool for the analysis of foreign trade. For the study of other types of international activities, different definitions of world cycles may be preferable. We do not claim that our world import cycles represent "true" world cycles. Their justification must lie in the insights they afford us. We found that their use shed far more light on foreign trade cycles than their crude nature would have led us to expect and than can be obtained from the use of the national framework alone.

II. BUSINESS CYCLES AND THE UNITED STATES TRADE BALANCE, 1879-1955

Introduction

Did the American trade balance fluctuate in cycles over the last seventy years; or over part of that time? If so, what is the relation of such balance cycles to American business cycles? Is it a close or a loose relation; positive or inverse? Do balance turns lead or lag business turns? And what about foreign economic fluctuations: do they affect the American trade balance in a systematic fashion? These are some of the questions which we shall try to answer in this section.

Our data are quarterly totals of the official monthly statistics. These define the United States trade balance as the excess of total exports over general imports.[1] The series has been adjusted for seasonal fluctuations. For comparability to the earlier years of the interwar period, values for 1933 to 1938 have been converted from current dollars into dollars of 1930 parity, i.e. dollars worth 0.048 ounces of gold. This was also necessary for relating the series to world imports, which are measured, until

[1]Total exports include re-exports, total imports include imports into warehouses. Both exports and imports are declared f.o.b. values.