Trade, Growth, and the Balance of Payments of Post-War Japan[a]

By

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Introduction

In a closed, mixed economy where economic policy succeeds in generating sufficient, aggregate effective demand relative to aggregate supply, the maximum rate of economic growth is a function of the pace at which the output capacity manages to increase. There are no doubt numerous factors which, directly and indirectly, affect the growth of that output capacity. In a broad sense, however, these factors are reducible to one of three categories: those which affect (1) the rate of capital accumulation; (2) the rate of increase in the size of the gainfully employed labour force; and (3) the pace and direction of technological progress. To the extent that these constituents of aggregate supply fail to become bottlenecks there should be no limit as such to the maximum rate of economic growth. Assuming that constraints from without the domestic economy are negligible, the finite range of growth rates per annum observed in the actual world (say from 2 to 15 per cent) reflect the finite rates of increase in investment, population, and technological progress that impose varying degrees of restriction upon the growth process in different national economies.

In an open economy there is yet another potential constraint upon growth, i.e., depending upon the weight of the foreign-trade sector in the national economy, the external deficit may act as a powerful brake on the pace of internal expansion. The logic behind this argument, which has been popular in Japan[1], runs something as follows: a country's imports are a function of its national income whereas the country's exports depend upon export prices and world income. If the country's national income increases much faster than world income, its imports tend to rise much more rapidly than exports because the positive price effect on exports exerted by productivity gains implied by the growth is not sufficient to induce export expansion which will be as fast as the growth of imports. The result is the emerging balance-of-payments difficulties that lead to deflationary policy measures to lower

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[1]This thesis frequently appears in Japanese government publications such as the annual *Economic White Paper and Foreign Trade White Paper* as well as in non-governmental Japanese economic literature. See, for example, Toshio Shishido, *Nihon Keizai no Seicho-Ryoku* (Growth Capacity of the Japanese Economy), Daiyamondo Sha, Tokyo, 1965, pp. 22-24.

the domestic price level (to encourage exports) and to curve down imports through curtailing domestic economic activity in order to restore external trade balance. A comparison between a group of fast-growing countries such as Western Germany and Italy and of slow-growers such as Great Britain in terms of their overall balance-of-payments experiences during the post-war period suggests, however, that *prime facie* the above simple model does not meet the empirical test.

Whether the external imbalance becomes a bottleneck in actuality does not allow an easy generalization inasmuch as the outcome depends upon the simultaneous effects of: (1) the differential growth rates at home and abroad; (2) the income elasticities of demand for imports at home and abroad; (3) the direction of technological improvement in the home country *vis-à-vis* the rest of the world (i.e., whether it is neutral, export- or import-biased in Hicks' sense); (4) changes in the general domestic price level as against those in other countries; and (5) the price elasticities of demand as well as supply with respect to imports and exports at home and abroad – assuming that the world practices free trade and that the external deficit refers to a negative balance of visible and invisible trade only. If we approach the real world by relaxing the assumption of free trade and by considering the overall balance-of-payments equilibrium rather than just the trade balance, we must take into account many other variables such as tariffs, import quota, foreign exchange restrictions, export subsidies, "voluntary" export restraints, the rate of interest in the country relative to those abroad, controls over the movement of foreign capital, institutional facts concerning the direction and magnitude of unilateral transfers, and the like that cannot be well translated in the above factors (1) to (5).

The objective of this paper is to investigate the role of foreign trade in, and the balance-of-payments aspects of, Japan's post-war economic growth through 1963. Since the nature of our inquiry is predominantly empirical, our starting propositions lack the rigour usually associated with recent models in trade-and-growth theory.[2] We put forth the following propositions as a frame of reference: (1) trade may or may not become a propulsive force of growth,[3] and whether or not external trade acts as an engine of growth depends

[2]This is largely an interpretative essay from a macroscopic viewpoint. Masahiro Tatemoto recently applied the Johnson model to study the relation between growth and the trade balance in pre-war Japan in Chapter 2 of his *Boeki no Keiryoteki Bunseki* (Econometric Analysis of Foreign Trade), University of Osaka Social and Economic Research Institute, monograph series No. 17. He concludes that during the period 1924-1934 Japan's trade balance continued to improve 0.5 per cent per annum because the drastic deterioration of terms of trade more than offset the latent import-surplus propensity of the domestic economy due to its faster rate of growth than the rest of the world. This conclusion, based upon elaborate manipulation of Johnson's rigorous basic analytical equation, seems derivable just as well, however, from the traditional time-series of Japanese exports, imports, terms of trade, national income, and world income in Figures 1 and 2 (p. 26) appearing in the same chapter of his monograph.

[3]This is a lesson, according to Kindleberger, from early stages of development in Great Britain and France. See C. P. Kindleberger, "Foreign Trade and Economic Growth: Lessons from Britain and France, 1850 to 1913", *Economic History Review*, Vol. xiv, no.2, December 1961, p. 305. This proposition is assumed to hold for a national economy in a more advanced stage of development.

more crucially upon the indigenous forces than upon forces from without[4]; (2) we assume the importance of simultaneous interaction between growth and trade, i.e., the causation runs in both ways; (3) an attempt to determine whether or not the external trade has been a leading sector tends not to be too fruitful inasmuch as the answer often depends upon the investigator's particular criterion for judging the leadingness of a given sector[5]; (4) the exogenous-versus-endogenous or autonomous-versus-induced type classification of changes in components of the balance of payments, popularized by Meade and others, is often not useful in discussing the balance-of-payments problems as they exist in the real world; (5) the trade balance alone cannot be meaningfully discussed in isolation from non-trade accounts in understanding the interplay of economic growth and the external balance[6]; and (6) in trade theory the causation usually runs from the inflow of foreign capital to growth, but equally important seems to be the impact of growth on the inflow of foreign capital which in turn helps to sustain the internal growth.

We shall first examine the statistics pertaining to Japan's post-war balance of payments and related variables in order to glean some points of observation. We then proceed to draw interpretations from those (and other) statistics. Historical and institutional backgrounds, where relevant, will be mentioned in conjunction with our analysis. A simple synthesis of our discussion will be attempted at the end.

Summary of Statistical Records

On the basis of statistics in Table I we shall make the following observations as salient features of Japan's growth, trade, and balance of payments during the period in question.

1. The rate of growth of the Japanese economy has been extraordinarily

[4]Perhaps it is difficult to discover cases wherein this is not true. See Gerald M. Meier, *International Trade and Development*, New York, Harper and Row, 1963, pp. 190-191, and A. K. Cairncross, *Factors in Economic Development*, New York, Frederick A. Praeger, 1963, pp. 209-229.

[5]For example, with respect to Japan's pre-war development Shinohara has argued that foreign trade was the leading factor whereas Lockwood has held that it was not. See Miyohei Shinohara, "Economic Development and Foreign Trade in Pre-War Japan," in C. D. Cowan (ed.), *The Economic Development of China and Japan*, New York, Frederick A. Praeger, 1964, pp. 220-248, and William W. Lockwood, *The Economic Development of Japan: Growth and Structural Change*, Princeton University Press, 1954, pp. 305-346 (especially p. 309). A debate concerning the role of trade in Japan's pre-war development is contained in Kiyoshi Kojima (ed.), *Ronso: Keizai Seicho to Nihon Boeki* (Economic Growth and Japanese Foreign Trade: a Recent Controversy), a publication sponsored by the International Economic Association of Japan, Tokyo, Kohbundo Publishing Company, 1960.

[6]Recent trade-and-growth models usually take into account only the trade balance. For example, see: Chapter 4 in Harry G. Johnson, *International Trade and Economic Growth*, London, George Allen and Unwin, 1958: J. R. Hicks, "An Inaugural Lecture", *Oxford Economic Papers*, June 1953, pp. 117-135; W. M. Corden, "Economic Expansion and International Trade: A Geometrical Approach," *Oxford Economic Papers*, June 1956, pp. 223-228; and J. Bhagwati, "International Trade and Economic Expansion", *American Economic Review*, December 1958, pp. 941-953.

TABLE 1. SELECTED ECONOMIC STATISTICS OF POST-WAR JAPAN.

	G.N.P.[a] (Y billion)	Gold & foreign exchange reserves as of end of March[b] ($ million)	Exports[c] ($ million)	Export price index[d] (1960=100)	Imports[e] ($ million)	Import price index[f] (1960=100)	U.S. Aid[g] ($ million)	Special Procurement[h] ($ million)	Net Inflow of foreign Capital[i] ($ million)
1946-1951					(5,558.0)[g]		2,086.1		
1950	16.1		820.1	91.1	974.3	110.5		148.9	
1951	18.2		1,354.5	125.4	1,995.0	143.6		591.7	
1952	20.2	930	1,272.9	111.9	2,028.2	130.0		824.2	
1953	21.7	913	1,274.8	105.8	2,409.6	113.2		809.5	
1954	22.5	637	1,629.2	102.6	2,399.4	109.9		596.2	
1955	25.0	738	2,010.6	96.1	2,741.4	100.7		556.6	
1956	26.6	839	2,500.6	99.1	3,229.7	115.6		595.4	
1957	28.4	738	2,858.0	102.9	4,283.6	124.6		549.3	
1958	29.5	629	2,876.6	98.0	3,033.1	104.4		481.5	
1959	34.4	974	3,456.5	97.8	3,599.5	98.7		470.8	91
1960	38.8	1,361	4,054.5	100.0	4,491.1	100.0		542.1	411
1961	44.3	1,997	4,285.6	97.2	5,810.4	99.0		445.9	773
1962	46.9	1,561	4,916.2	94.8	5,636.5	97.8		376.1	434
1963	52.3	1,863	5,452.1	93.7	6,736.3	98.4		347.4	655
Average annual cumulative rate of increase 1950-1963	9.3%		15.4%		15.9%				

Sources:

[a]Estimated by the Economic Planning Agency. Figures are in 1934-1936 prices, and taken from Bank of Japan, *Economic Statistics of Japan 1964*, p. 336.

[b]Based upon the Ministry of Finance statistics. Figures are taken from Bank of Japan, *Economic Statistics of Japan 1964*, p. 272. Gold and foreign exchange reserves cover only the gold and foreign exchange holdings of the Government and the Bank of Japan. Figures for 1950 and 1951 not available. For a more detailed description of the contents of reserves, see *Ibid.*

[c]Expressed f.o.b. and based upon customs clearance statistics compiled by the Ministry of Finance. Refer to merchandise exports only. Figures are taken from the Ministry of International Trade and Industry, *Tsusho Hakusho-Soron, 1964* (Foreign Trade White Paper-Part One), p. 260.

[d]Based upon customs clearance records of the Ministry of Finance. Taken from *Ibid.*

[e]Expressed c.i.f. and based upon customs clearance statistics of the Ministry of Finance. Figures taken from *Ibid.*, p. 261. Refer to merchandise imports only.

[f]Based upon customs clearance records of the Ministry of Finance. Figures taken from *Ibid.*

[g]Ministry of International Trade and Industry, *Nihon Boeki no Tenkai* (Expansion of Japanese Foreign Trade), Shoko Shuppan, 1956, pp. 99-100. Estimated by the Ministry of International Trade and Industry. Due to general disorder immediately after the war, the multiple exchange rates then in use, and lack of systematic recording of trade statistics during the period these figures are subject to errors.

[h]Special procurement here is understood in a broad sense. It includes the U.S. armed forces' yen purchase, deposit payments, construction expenditures in Okinawa, the A.I.D. expenditures in Japan, etc. Figures for 1952-1963 taken from Ministry of International Trade and Industry, *Tsusho Hakusho-Kakuron, 1964* (Foreign Trade White Paper-Part Two), p. 744. Figures for 1950 and 1951 taken from M.I.T.I., *Nihon Boeki no Tenkai* (Expansion of Japanese Foreign Trade), p. 101. The year 1950 refers to July-December.

[i]Sum of short- and long-term foreign capital balances. Taken from M.I.T.I., *Tsusho Hakusho-Kakuron, 1964*, p. 743. Figures for earlier years than 1959 are negligible.

fast. If we regard 1955 as terminal year of the recovery period[7], much of the rapid growth prior to that year may be said to be due to the elements of recovery. The Japanese economy, however, continued to expand at an accelerated pace in subsequent years. The growth rate differs from year to year, but the cumulative annual average rate of growth in real terms from 1950 through 1963 was approximately 9 per cent.

2. The volume of foreign trade also expanded rapidly. The year-to-year increases in dollar value of exports and imports expressed as percentage change from the preceding year were, on the whole, faster than the G.N.P. The foreign trade sector lagged behind other major sectors, however, in regaining the pre-war level of activity, indicating *inter alia* that the volume of Japanese foreign trade began to expand from a small base at the beginning of the post-war period.[8]

3. The ratios of exports and imports to the G.N.P. have been lower after the war than before.[9] Likewise, it is only recently that the share of Japanese exports in total world trade approached the pre-war magnitude (about 5 per cent).

4. Japanese export prices have been declining slightly in the decade of the 1950's; while there has been a more conspicuous fall in the Japanese import price index since 1957.

5. The growth of imports has been more uneven over time than exports although both variables have shown a strong upward trend.

6. The trade balance (both the visible trade balance and the visible-and-invisible trade balance) has held a deficit as a rule throughout the post-war period.[10]

7. Allowing for cyclical changes, Japan's foreign exchange reserves have been steadily rising.

8. There have been three outstanding non-trade items that have helped to sustain Japan's balance-of-payments equilibrium after the war. In chronological order they are: (a) U.S. economic aid till 1950; (b) special procurement revenues from 1950 on; and (c) inflow of foreign capital since 1960.

[7]There is no agreement as to in what precise year Japan's economic recovery was completed. The agricultural and industrial production indexes recovered their pre-war levels (1934-1936 average) by 1951, while *per capita* real income reached the pre-war height in 1953. On the basis of *per capita* stock of the nation's wealth, however, the recovery was hardly complete in 1953. If we use the 1938-1939 period as the pre-war normal, the recovery in *per capita* real income continued till 1957. See Shigeto Tsuru, "Growth and Stability of the Post-war Japanese Economy", *American Economic Review*, May 1961, p. 403-405.

[8]The volumes of exports and imports did not return to the pre-war normal (1934-1936) until around 1958-1959.

[9]These are not shown in Table 1. The year-to-year ratios differ depending upon whether current or real values are used in calculation. It will suffice to say here that in real terms the pre-war (1934-1936) ratios were in the neighbourhood of 20 per cent, whereas the post-war ratios have varied between 9 to 15 per cent. See Kiyoshi Kojima, *Nihon Boeki to Keizai Hatten*, (Japanese Foreign Trade and Economic Development), Tokyo, Kunimoto Shobo, 1958, pp. 340-342.

[10]We refer to the commodity trade balance. If we use visible trade statistics of the Bank of Japan based upon foreign exchange transactions (rather than customs clearance records) there was export surplus in 1955 and 1962.

Interpretation and Analysis

The Role of Trade in Growth

Of numerous ways through which we may interpret the role of exports in growth, that is, the impact and implications of external trade for the growth, the following three aspects seem appropriate for our purpose: (1) exports as a component of aggregate effective demand promoting the country's economic growth; (2) exports as a source of earnings of foreign exchange so as to finance imports; and (3) exports as a cushion for internal recessions.

The extent to which exports can contribute to the growth of a national economy largely depends upon the average propensity to export of that economy with respect to its G.N.P.[11] If the ratio of exports to the G.N.P. is high (such as the Netherlands and Denmark), the patterns and speed of growth of the entire economy are bound to be significantly determined by developments in the foreign trade sector. If, on the other hand, the ratio is small (such as the United States), the role of exports as demand is, in a direct, quantitative sense, prone to be correspondingly small.

One way to measure the extent of contribution of exports to growth is to take a certain time interval and compare the sizes of the G.N.P. at the beginning of the interval with, first, the G.N.P. at the end of the period as it actually happened, and with, secondly, the G.N.P. at the end of the period under the assumption that there was no increase of exports during the period. The observed difference between the two may be interpreted as a rough indicator of the contribution to the growth coming from exports.

This method, admittedly, is highly unsatisfactory at least on two accounts: first, it does not take into consideration the multiplier effect of exports; and, secondly, it unjustifiably assumes that all other components of aggregate demand (most importantly, investment) could grow as much as they did in the total absence of export expansion during the period. The validity of this assumption is dubious especially for a country like Japan whose degree of import dependence is high with respect to the majority of strategic industrial raw materials since the absence of export expansion would have meant the forced curtailment of imports of those industrial materials.

Despite these shortcomings we propose to measure the demand effect of exports by calculating the ratio $(A-B)\ /\ A$ where A is percentage increase in G.N.P. from 1953 to 1961 and B percentage increase in G.N.P. during the same period on the assumption that the level of exports remained the same throughout the period as that in 1953. The larger the ratio is, the greater is the implied contribution of exports to the growth. The ratios for a group of industrial countries appear in Table 2. We observe a high degree of rank correlation between these ratios and the export ratios.

In contrast to exports, the rates of contribution of personal consumption

[11] In the short-run analysis, however, the marginal propensity to export is more appropriate.

TABLE 2. THE DEMAND EFFECT OF EXPORTS.

	(A – B) / A x 100	Export Ratio
Canada	18.4	16.0
Denmark	31.5	23.5
France	17.1	11.5
W. Germany	15.3	16.4
Italy	25.0	11.9
Netherlands	54.4	35.3
Britain	20.2	13.7
U.S.A.	7.0	4.0
Japan	9.5	8.9

A equals percentage increase in G.N.P., 1953-1961
B equals percentage increase in G.N.P. if no exports, 1953-1961
Export ratio (%) refers to value of exports (customs clearance basis) divided by G.N.P., 1961.
Source: Adapted from Ministry of International Trade and Industry, *Tsusho Hakusho-Soron, 1963* (Foreign Trade White Paper - Part One), p. 191.

and gross domestic investments to total increase in real G.N.P. from 1950 to 1962 were 41 and 40 per cent, respectively.[12] We may contend then that to the extent the independence of the various demand components may be assumed, Japan's post-war growth was overshadowed by the expansion of investment (particularly private investment in new plant and equipment[13]) and personal consumption, and that the exports played a quantitatively minor role in contrast to what appears to have been the case of Western Germany.

The above conclusion is misleading, however, in that in addition to the aforementioned limitations the approach leaves disguised one "indirect" but nevertheless significant contribution of exports to the growth, namely, exports as a means of earning foreign exchange in order to finance imports. During the period under consideration total value of exports failed to match that of imports, but the majority of export earnings was spent on imports of industrial raw materials. Japan is critically dependent upon the foreign supply of resources in many of her key industries. For example, Japan is 100 per cent dependent upon the foreign supply of the following materials:

[12]These are estimates of the Economic Planning Agency. See Ministry of International Trade and Industry, Tsusho Hakusho-Kakuron, 1964 (Foreign Trade White Paper - Part Two), p. 154.

[13]From 1956 through 1961 gross private domestic investment in plant and equipment (exclusive of inventory changes) increased at an annual average rate of 12.5 per cent. In 1962 investment expenditures (inclusive of the public sector) accounted for as much as 36.7 per cent of Japanese G.N.P. in contrast with 15.8 per cent in the United States, and 25.1 per cent in Western Germany. In 1963 the weight of investments in her G.N.P. reached the fantastic ratio of 42 per cent, which one Japanese economist described as "unprecedented in the entire history of mankind". Some of the major characteristics of capital formation in post-war Japan are as follows: (1) Japanese capital formation proportions have been much higher than in other industrial countries. (2) The marginal capital coefficient in Japan has been rather low; this is perhaps due to the more or less continuous boom after the war and to the absence of labour shortage. (3) A very small amount has been invested in housing relative to Western standards. (4) The inventory ratio has been very high. (5) Profit rates have not been as high as commonly believed. (6) A high level of corporate savings has been possible probably because there is less pressure for Japanese firms to pay out dividends than, say, in the United States. (7) Individual and government savings have been very active. (8) The weight of public loans and investment in government expenditures has been large relative to welfare and defence. For a fuller discussion of these points, see Ryutaro Komiya, "Sengo Nihon no Shihon Chikuseki Ritsu," (Capital Formation Proportions in Post-war Japan) *Keizai Gaku Ronshu* (Journal of Economics), July 1963, pp. 21-39.

raw cotton, raw wool, bauxite, copra, phosphate ore, nickel, and crude rubber. Those major items whose import ratio (to Japan's total domestic use) exceeds 80 per cent include: iron ore, copper ore, industrial salt, and crude oil.[14] It is not difficult to envision the degree of deceleration in Japan's industrial production that would have resulted from severe shortage of resources from abroad consequent to the assumed stagnation of Japanese exports.

Another aspect of the role of trade in Japan's post-war growth is that exports have often acted as a cushion for internal recessions and presumably helped to avert drastic contractions of the economy. Certain characteristics of business fluctuations in post-war Japan are worthy of notice. The period from the end of the second World War to the Dodge deflation of 1949 may be viewed, for all practical purposes, as a period of abnormality conditioned by the massive reconstruction and rehabilitation of the economy. The classic post-defeat hyper-inflation was substantially brought to a halt by a series of stringent fiscal and monetary measures carried out under the Dodge mission's then uncontestable "recommendations". The following period of stagnation turned out to be short-lived as the commencement of the Korean War in 1950 gave an explosive thrust of demand that touched off an investment boom powerful enough to place the Japanese economy, in retrospect, in the self-sustained path of accelerated growth.

The Korean investment boom was followed by the rapid expansion of consumption expenditures and the subsequent years witnessed a seemingly unending process of innovation-oriented investment expansion through 1963. Three outstanding features of cyclical fluctuations in the post-war economy are as follows. First, thanks to the exceedingly steep, upward trend in growth, the recessions have meant the fall of G.N.P. growth rates to some moderate but still positive points rather than negative growth rates, the lowest thus far experienced being approximately 3.7 per cent. Secondly, starting from 1949 (treating this year as the beginning of the "normal" post-war period), the recessions occurred, with a somewhat remarkable consistency at four-year intervals, in 1953, 1957, 1961; and all of these were initiated by the deflationary policy measures of the Japanese government in face of the quickly aggravating balance-of-payments disequilibria.[15] In other words, these recessions were preceded by periods of explosive rise of imports induced by the accelerated growth of the domestic economy. In this sense it may be held that prior to 1964 the capacity to produce and the labour supply did not become bottlenecks to Japan's post-war growth, and the external imbalance caused by the rise of imports constituted a main strain

[14] Ministry of International Trade and Industry, *Tsusho Hakusho-Soron*, 1964 (Foreign Trade White Paper-Part One), p. 271. Small quantities of raw cotton and raw wool are domestically produced.

[15] This process has been translated into a mathematical model by M. Fukuoka, "Kokusai Shushi to Keiki-Junkan Model", (The Balance of Payments and a Model of Cyclical Growth), Chapter 5 in Ryutaro Komiya (ed.), *Sengo Nihon no Keizai Seicho* (Japan's Post-war Economic Growth), Tokyo, Iwanami Shoten, 1964, pp. 94-100.

on the growth in the short-run sense. Thirdly, Japan's post-war recessions were internally generated, largely by policy measures, rather than transmitted from abroad in the style of the 1930's. The absence of synchronization of recessions in Japan and the rest of the world added, perhaps not insignificantly, to Japan's post-war growth inasmuch as the contraction of economic activity in Japan was mitigated, if not avoided, by exports that, on the whole, continued to increase during the recession periods.

The Balance-of-Payments Equilibrium

We have observed above that Japan continued to accumulate, over the long run, foreign exchange reserves despite a persistent import surplus in the trade account. In part this is a statistical illusion in that Japanese export statistics are customarily expressed f.o.b. whereas import statistics are recorded c.i.f. Adjustment for this technicality, however, still does not alter the fact of trade deficit. (The magnitude of the trade-balance deficit was greater and more conspicuous in the earlier phase of the post-war period.) Explanation of the cumulation of foreign exchange reserves necessarily lies then in the non-trade accounts. Japan's post-war, overall balance-of-payments equilibrium has been held upon the three foundations of non-trade revenues. The first of these is United States economic aid to Japan from the end of the war to 1950, amounting to approximately $2 billion. Although on a *per capita* basis United States aid to Japan was smaller in value than to the countries of Western Europe under the Marshall Plan the aid revenue covered about 40 per cent of Japan's total imports during the period. Contribution of aid to the reconstruction of the economy should be appreciated not only in terms of its alleviating the then mounting external-trade deficit but also in terms of the extent to which it helped to promote capital accumulation in the home economy as revenue from sales of aid goods in the domestic market to the Development and Reconstruction Fund was utilized as a major source of financing loans to the strategic industries such as coal and steel.[16]

It was not long after the termination of aid programmes in 1950 that with

[16]The value of export requirements to fulfill the minimum import requirements equals the value of the latter only when the foreign-currency earning rate (defined as $a - b/a$ where a is export value and b the value of import content of the export) for that country is unitary. If it is less than one, as is generally the case, the value of exports ought to be higher than that of imports. If we designate X for the value of required exports, M for that of required imports, and r for the foreign-currency earning rate, then we have the following relationship:

$$rX = M \qquad \text{or} \qquad X = M/r$$

It is obvious that United States aid imports, which were exogenously given and for which no Japanese output had to be compensated during the period in which the aid programme continued, had a much greater impact than their face value would tend to indicate.

Contribution of the aid to Japan's recovery is undeniable. However, several qualifying remarks are in order. First, "aid" was later declared as credit; after a series of negotiations between the U.S. and Japanese governments 25 per cent was returned to the United States. Second, given the depth of devastation in Japan at the end of the war, the aid perhaps was politically unavoidable. Third, much of the aid actually consisted of unwanted surplus goods which the U.S. government was anxious to dispose of in the Pacific. Fourth, without the Marshall Plan and aid to Japan the likelihood of a depression in the United States might have been greater.

the breakout of the Korean War the special-procurement revenue became a significant, non-trade credit item in Japan's balance of payments. The volume of special procurements resulting from the military operations of the United Nations' forces in and around Japan skyrocketed with the intensification of the war, and then diminished steadily after the cessation of hostilities in Korea. In connection with the U.S.-Japan collective security programmes special procurements continued to be a source of sizeable dollar revenue – though in a decreasing proportion over time – in the later years.

From 1961 onwards the trade deficit has been largely offset by the inflow of foreign capital consisting of, first, short-term Euro-dollars and, later, long-term capital including Japan's borrowings from the International Monetary Fund as well as from commercial banks in the United States.[17] The timing of the entry of foreign capital was no accident since what appeared to be the sudden influx was a direct consequence of the extensive liberalization of government restrictions on foreign investments in Japan.

How should these three major, non-trade sources of foreign exchange (aid, special procurement, and foreign capital) be interpreted in understanding the relationship between Japan's post-war economic growth and balance of payments? There are certain similarities between the patterns of growth and the balance of payments of post-war Japan and those in the earlier decades of her industrialization. Japan's industrialization began in 1868, the first year of the Meiji period. Her modern economic growth, however, is said to have commenced after the period of Matsukata deflation (1882-1900) in which inflation and general economic disorder of the formative stage of development were brought under control by Matsukata's (then Finance Minister) orthodox, "sound" fiscal and monetary policy. In the subsequent years of Japanese development two events are important in appreciating the balance-of-payments aspects of her growth. The first is the large sum of reparations Japan claimed from China after the conclusion of the Sino-Japanese War of 1894-1895 that amounted to as much as 25 per cent of Japan's national income at the time. The second is the first World War that brought to Japan a tremendous amount of windfall profits as export orders were poured into the country while the Western world suffered supply shortage on account of the war in Europe.[18] An analogy may be attempted between these episodes of pre-war Japan and the post-war events affecting the country's balance

[17]Capital transactions, 1960-1963 were as follows: (millions of dollars)

	Long-term capital balance	Short-term capital balance
1960	2	409
1961	163	610
1962	261	172
1963	471	184

Source: M.I.T.I., *Tsusho Hakusho-Kakuron, 1964* (Foreign Trade White Paper-Part Two), p. 743.

[18]For a detailed description of the backgrounds of Japan's balance of payments and economic development around the turn of the century, see Katsumi Mitani, *Kokusai Shushi to Nihon no Seicho* (The Balance of Payments and Japan's Growth), Tokyo, Heibon Sha, 1957, pp. 73-204.

of payments. Sustained post-war growth began after the Dodge deflation of 1949 in a manner analogous to the commencement of Japan's modern economic growth after the Matsukata deflation. Some $2 billion of the United States economic aid to Japan may be equated with the war indemnity Japan received from China at the end of the nineteenth century. The apparent fortuity of the first World War profits to Japan parallels with the Korea-induced special procurements.

It would seem to be an interesting but not (in our judgment) too meaningful exercise in speculation to contemplate the ultimate consequences to Japanese development since Meiji had there been no Matsukata deflation, no Sino-Japanese War, and no first World War. Similarly, what would it have meant if there were no (or considerably less) aid from the United States, no Korean War and resultant special procurements? History unfortunately cannot be reversed in time. The aid certainly assisted capital accumulation in the recovery period. For normalization of the economy the Dodge deflation was a "correct" policy measure. Without the impetus of the Korean War the post-war take-off might have been delayed.

Without the birth of Rousseau the French Revolution might not perhaps have happened. At the same time, there would probably have been another Rousseau. The course of Japanese development and growth would have been different in the absence of the foregoing series of what appear to be the exogenous and fortuitous events influencing Japan's balance of payments. How different we do not know. It should be noted, however, that the first World War was hardly a global war in that the battle was fought in Europe, and North and South Americas, Asia, Africa, and Oceania, in a direct sense, remained unaffected. To the extent that windfall profits to Japan exceeded those to any other non-belligerent country such profits were largely due to the fairly advanced stage of development Japan had already achieved and to her capacity to supply manufactures to the outside world. From the standpoint of geographic distance Japan indeed was a least-likely candidate for the status of a beneficiary.

As regards the impact of the Korean War, special procurements were earned by Japan — rather than by, say, Taiwan and Cambodia — chiefly because of Japan's internal supply capacity, and only secondly because of her geographic propinquity to Korea. In this sense such earnings were "induced" in lieu of autonomously given. Discounting their political and ideological implications from our consideration, special procurements were quasi-exports little different, for analysis, from the U.S. government-sponsored extraordinary tourist campaign in reverse whereby thousands of American "tourists" in uniforms came to visit Japan and spent billions of dollars on goods and services in the country.[19] This observation should be appreciated

[19]The common view in Japan was that the special procurement made Japan politically more subservient to, and her economy pathologically more dependent upon political whims of, the United States. For example, see Keizai Shingi Cho, *Keizai Hakusho Fiscal 1953* (Economic White Paper), pp. 26-29 and 69.

in conjunction with the fact that the U.S. trade balance *vis-à-vis* Japan has held a persistent export surplus during the post-war period. Since Japan's exports to the United States have been the major source of dollar exchange to her, it seems reasonable to say that the U.S. export surplus *vis-à-vis* Japan has been possible largely because of the special procurements.[20]

We have noted earlier that the influx of foreign private capital began in 1961 with the Japanese government's liberalization of foreign-capital controls. This provides two observations about Japan's post-war balance-of-payments. The first is that at least up to 1961 foreign private capital had played a negligible equilibrating role in Japan's external balance, that is, Japan's post-war growth proceeded without substantial and extended borrowings from the rest of the world. This gives another parallelism to pre-war Japan in that Japanese development in the Meiji era also, on the whole, did not depend upon borrowings from abroad.

The second observation is that in the case of post-war Japan it was the internal growth that induced inflow of foreign capital rather than the other way around. Short- as well as long-term foreign investments in Japan were motivated by the higher interest rates and greater profitability of investments in Japan than elsewhere in the world. The usual assumption of the trade-and-growth model that the causation runs from the inflow of foreign capital to internal growth, by and large, does not apply to post-war Japan. For countries that have passed beyond a certain stage of economic development, the Japanese experience seems to suggest that it is more workable to treat foreign capital inflow as a function of growth rates.

We shall consider two more favourable factors behind Japan's post-war balance-of-payments equilibrium: the decline of Japanese import prices since 1957, and the lower propensity to import of the Japanese economy than before the war.

[20]Table below illustrates the trade balance between Japan and the United States, 1954-1963. Total U.S. export surplus amounted to $2,801.1 while total special procurements in the same period was $4,961.2 (see Table 1).

Trade Balance between Japan and U.S., 1954-1963 ($ million)

	Exports to Japan (f.o.b.)	Imports from Japan (f.o.b.)	Balance
1954	676.8	276.0	+ 400.8
1955	642.0	416.0	+ 226.0
1956	887.3	547.6	+ 339.7
1957	1,226.6	602.2	+ 624.4
1958	829.6	674.0	+ 155.6
1959	961.8	1,018.0	— 56.2
1960	1,335.1	1,126.5	+ 208.6
1961	1,730.4	1,075.9	+ 654.5
1962	1,408.4	1,353.2	+ 55.2
1963	1,686.9	1,494.4	+ 192.5
Total	11,384.9	8,583.8	+ 2,801.1

Based upon official foreign trade statistics of the U.S. Bureau of the Census. U.S. exports consist of only civilian merchandise of domestic U.S. origin (i.e., excluding military shipments and re-exports of foreign merchandise. U.S. imports are imports for consumption (i.e., excluding imports for re-exports).

Source: United States-Japan Trade Council, *United States Trade with Japan: 1959-1963,* Washington, D.C., 1964, p. 3.

The bulk of Japanese exports consists of manufactures whereas a large proportion of her imports are primary-industry goods and materials vitally needed for industrial production but not sufficiently available within the home market except at much higher costs than abroad. The world import price index with respect to primary goods registered a notable leap at the time of Suez crisis, but since then it has been steadily falling. The Japanese import price index, reflecting this trend, has been declining since 1957 (see Table I). Given the price inelasticity of Japanese imports, the declining trend has meant a considerable saving of foreign exchange, that is, the value of Japanese imports did not rise as fast as their volume. Kanamori has estimated that the cumulative total of foreign exchange Japan could "save" from 1956 through 1961, thanks to falling import prices, amounted to as much as $2,500 million.[21]

The idea that Japan is an acutely trade-dependent country has been prevalent in Japanese economic thought. While the importance of external trade to the Japanese economy is undeniable, the notion is not well founded if the statement is meant to suggest that there is something extraordinary about Japan's trade-dependence.[22] Using the average propensity to import with respect to the national income as a criterion, the degree of Japanese dependence upon imports is actually lower than those of comparable industrial countries such as Western Germany or Italy. Furthermore Japan's post-war average propensity to import has been lower than that for the pre-war period. The United States is just about the only industrial country in the West whose export and import ratios are extremely small (about 5 per cent). But more aptly she should be regarded as a collection of some fifty "independent" states trading with one another, each with its own fairly high propensity to trade with other states.

There are undoubtedly numerous factors responsible for the post-war decline of Japanese propensity to import, but an investigation of such factors is outside the scope of this paper. However, one observation here seems relevant: that is, the relative fixity of Japanese diet and general consumption patterns, together with the particular import policy of the government, seem to have worked effectively as deterrents to an import expansion of aggravating proportions from the standpoint of the objective of averting chronic drains on Japan's foreign exchange reserves. The general quality as well as quantity of average household consumption in Japan have grown tremendously after the war, but the average Japanese diet and household furnish-

[21] Hisao Kanamori, "Keizai Seicho to Kokusai Shushi", (Economic Growth and the Balance of Payments) in Ryutaro Komiya (ed.), *Sengo Nihon no Keizai Seicho* (Japan's Post-war Economic Growth), Tokyo, Iwanami Shoten, 1964, pp. 74-75.

[22] This theme appears often not only in general discussions but also even in scholarly treatises in Japan. For instance, notice the following quotation: "In today's world practically every nation engages in foreign trade. . . . Japan, however, is a special case. It is utterly impossible for the Japanese economy to sustain itself without external trade. While Japan is labor-abundant, the scarcity of lands and resources renders the country critically dependent upon trade . . . (Japan's acute trade-dependence) is reflected by her high export and import ratios. Foreign trade is the foundation upon which the Japanese economy is built, and is a matter of 'life or death' to the nation." (Translation by the author) Toyokichi Yumoto, *Boeki to Boeki Seisaku* (Trade and Trade Policy), Tokyo, Kobun Sha, 1965, pp. 88-89.

ing (excluding T.V., radio, washing machines, refrigerators, and other appliances) remain strongly traditional. At the same time the Japanese government has followed a policy of favouring importation of industrial raw materials and discouraging imports of consumer goods. Japanese tariff rates in general have not been excessively high, but the importation of high-quality, high-protein foreign foods and other consumer goods has been effectively regulated via the foreign-exchange allocation system under the grip of the Ministry of International Trade and Industry. Consequently, Japanese domestic prices of cheese, butter, non-fish meats, canned and pre-cooked foods, and the like have been much higher than their international prices. Without government control of consumption imports the diversification of Japanese consumer tastes might have proceeded much faster. In the case of Japan, aside from welfare implications, this would have induced an almost inevitable, sizeable increase in imports of high-grade foods along with many other consumption items, and hence corresponding balance-of-payments difficulties.

This line of reasoning does not apply to the case of importation of industrial raw materials (particularly if and when the industry in question is export-oriented such as cotton textiles in Japan) since increase in the quantity of materials imported implies a matching increase of exports due to rising world import demand for the country's products, growth of the internal export capacity and/or falling export prices reflecting productivity gains which in turn are brought about by internal capital accumulation.

In connection with Japan's lower propensity to import after the war we have focused attention on the suppressed demand for consumption imports under the investment-orientation of Japanese foreign trade policy. The lower post-war ratio of imports to the national income as such was not viewed as a factor rendering Japan's post-war external-balance conditions more favourable than before the war. From the standpoint of trade theory there seem to be no logical connections between the import ratio, on one hand, and balance-of-payments equilibrium (or the rate of economic growth), on the other. Factor endowments, comparative cost conditions, internal demand *vis-à-vis* world demand, trade and exchange-rate policies largely determine the magnitude of a country's imports, and in the long run exports and imports, in general, tend to approach each other in value. The balance-of-payments equilibrium is mainly a matter of how much is being exported relative to imports while the rate of growth is a function of productivity in utilization of inputs, imported or otherwise. The import ratio, of and by itself, is independent of these propositions.[23]

[23]For example, it does not make much sense to argue that Western Germany grew faster than, say, the Netherlands because the former's import ratio was lower than the latter's, nor can one plausibly contend that Italy had more balance-of-payments difficulties than the Netherlands because of the former's lower import ratio than the latter's.

The concept of optimal import ratio (with respect to maximum growth) has, however, been popular in Japan. See, for example: Kiyoshi Kojima, *Sekai Keizai to Nihon Boeki* (The World Economy and Japanese Foreign Trade), Tokyo, Keiso Shobo, 1962, pp. 311-399; and Hisao Kanamori, *Nihon no Boeki* (Japanese Foreign Trade), Tokyo, Shiseido, 1961, pp. 224-250.

Growth and Trade

Whether or not rapid economic growth leads to a deterioration of the country's balance of payments, in general, depends upon the income and price effects associated with the growth. The rising level of income generated by growth tends to increase the level of imports. The extent of increase in imports is a function of the income elasticity of import demand for the externally supplied goods and services. The price effect refers to a general tendency toward lower prices resulting from the productivity growth in the country. The positive price effect on the external equilibrium does not occur if wage demands and/or monopoly elements are excessive in the domestic economy. The negative income effect tends to be of an immediate and direct nature with respect to its impact upon the balance of payments, whereas the price effect is prone to come about at a slower pace because of the temporal aspect of gestation and blossoming of technological innovations. The price effect also tends to be less certain than the income effect inasmuch as it depends upon a multitude of outside developments such as price and income trends in other countries, shifts in the import functions of other countries and the like.

In a two-country model, assuming that the relative prices in the two countries remain unchanged and that the income elasticities of demand for imports are the same, then the trade balance of the faster-growing country necessarily deteriorates, *ceteris paribus*. In this event the country may restore external equilibrium by adopting a deflationary policy so as to curve down the growth rate and to lower domestic prices and/or by depreciating its national currency. In the case of post-war Japan the rate of exchange (Y360 to $1) has not been altered since April, 1949. This model, simple as it is, seems capable of explaining reasonably well the post-war balance-of-payments "crises" that led the Japanese government to adopt deflationary measures in 1953, 1957, 1961, and 1964. The short-term deterioration of Japan's balance-of-payments in those years was inevitable given the abnormally high growth rates of some 15 per cent per annum, that is, price (and other plus) effects were then incapable of offsetting the rising import demand induced by accelerated investments in the home market.[24]

Aside from these short-run developments, however, Japan's overall growth process has not been seriously hindered up to 1963 by balance-of-payments difficulties. It seems reasonable to contend that uninterrupted expansion of Japanese exports is most responsible for the absence of chronic external disequilibrium of the kind that might have substantially reduced Japan's post-war growth rates. At the same time we are inclined to believe that it was the accelerated growth itself that induced expansion of Japanese exports.

[24]There were of course other complications. Deterioration of Japan's balance of payments in 1953, for example, was in part induced by abnormal foods imports on account of bad weather. Export incapacity due to domestic boom was a partial reason for the 1961 deterioration. The former, however, was still a minor factor relative to the total picture while the latter is consistent with our argument.

We may categorize the variables and related circumstances that effect exports of a given country in the following manner. (1) If and when the terms of trade effect is absent or insignificant the more elastic the income elasticity of demand for imports of the outside world is and the faster the rise in world income, the greater will be expansion of the country's exports. (2) Assuming that technological progress throughout the world is neutral or unbiased, the slower the increase of the general price level in the country relative to price trends in the rest of the world, the greater will be increase of the country's exports. (3) The more export-biased technological progress is in the exporting country and the less import-biased investments are in the outside world, the faster will be the increase of the country's exports. (4) Assuming incomplete international specialization, the country's exports will tend to increase provided: (a) the domestic demand curve with respect to the export-competing good is price-elastic; (b) the same demand curve shifts to the left (or shifts to the right only slowly through time); (c) the domestic supply curve with respect to the export-competing good is price-elastic; (d) the same supply curve shifts to the right through time; (e) the foreign demand curve with respect to import-competing good is price-inelastic and shifts to the right through time; and (f) the foreign supply curve with respect to the import-competing good is price-inelastic and shifts to the left (or shifts to the right only slowly through time).

Japanese exports after the war have been expanding at a faster pace than that of total world trade or of world income. As a crude approximation, if a given country's exports increase at the same rate as world trade it may be said that the country demonstrates only an average performance in the world economy. Similarly, in the event that the country's exports rise only as fast as world income, the country's export expansion may be regarded for the present as a result of forces external to the domestic economy. We envision an essentially passive role for the country as a trader that responds to the rising world import demand merely in proportion to the increase in world income. Sources of such trade expansion are then found amidst developments in the outside world. This, however, has scarcely been the case of post-war Japan. The growth rates of Japanese exports since 1950 have been much higher than that of world imports or of world income. This observation suggests that the growth of world income provides only an insufficient explanation of Japanese export expansion, and that the origins of the expansion are to be found from within the Japanese economy and have much to do with the consequences and patterns of her post-war economic growth itself. The fact that the world has not witnessed a major depression since the second World War and that the post-war world economy has progressed in an atmosphere more conducive to free and active trading (despite setbacks and conflicts) among nations of the free bloc than in the 1930's is no doubt an important factor. More pertinent than this seems to be, however, the indigenous forces operating within the Japanese economy. We shall consider

two such internal aspects: the absence of excessive inflation, and the pattern of technological progress in post-war Japan.

As we noted above, Japan's exchange rate has not been depreciated since April, 1949. This is in contrast to the British and French experiences after the war. Since the 1949 rate was set so that Japan would be able to export sufficient quantities of produce to meet her balance-of-payments requirements in light of the then existing productivity levels in Japanese industries, it follows that the vigorous investments and associated productivity gains in the subsequent years meant, other things being equal, progressive improvement in relative-price aspects of Japanese exports at that exchange rate. At a given exchange rate a productivity gain does not necessarily lead to export expansion. Whether or not the domestic prices (and export prices) will decrease depends upon the intensity of wage demand and the strength of monopoly elements in the domestic economy. During the post-war period Japanese wages (especially those in large-scale manufacturing industry) have been rising rapidly. At the same time output has been increasing much faster than the labour supply, and it appears, as a whole, that the rate of increase in labour productivity has been slightly above that in wages. Table 3 indicates trends in labour productivity and wage cost in Japan, and three other industrial countries.

TABLE 3. AVERAGE ANNUAL RATE OF INCREASE IN LABOUR PRODUCTIVITY AND WAGE COST: SELECTED COUNTRIES, 1950-1961.

	Labour Productivity	Wage Cost
Japan	11.8	− 2.3
Western Germany	5.3	2.8
Italy	7.3	− 2.1
Britain	2.2	3.4

Source: Based upon data from United Nations, Statistical Yearbook. Labour productivity refers to industrial production index divided by employment index. Wage cost refers to wage index divided by labour productivity index. These methods are admittedly unsatisfactory but are assumed to manifest general trends. The employment index does not cover agriculture. The wage index refers to earnings in manufacturing in 1955 prices. The figures of money wages in selected countries upon which the index is based generally relate to earnings of all wage-earners. They normally include bonuses, taxes, social security insurance contributions payable by the employed person, and payments in kind. They normally exclude social security insurance contributions payable by the employers, family allowances, and other social security benefits.

These developments are reflected in the somewhat remarkable phenomenon, that is, stability of the Japanese wholesale price index since 1950. It is remarkable because the wholesale price index (which is more relevant than the general retail or consumer price index to the discussion of export prices), excluding its temporary upsurge during the Korean War and short-term, cyclical variations, has remained stable throughout the period since 1950 notwithstanding the conspicuous consumer-goods price inflation, at the annual average rate of about 5.5 per cent, that has persisted since 1960. One major explanation of Japan's post-war export expansion seems to be then that Japanese export prices remained at an attractively low level in the world market as accelerated investments kept lifting labour productivity upward

while wages, rising from a very low level, remained low – on the basis of the going exchange rate – relative to those in other advanced countries.

Post-war experiences of Japan, Western Germany, and Italy as against those of Great Britain seem to suggest that rapid and sustained growth is a necessary (but not sufficient) condition for avoidance of balance-of-payments difficulties of the kind that will add a severe strain to the internal equilibrium. Perhaps this is sheer tautology, and a circular argument. It is through steady growth that large-scale manufacturing industry may derive benefits of economies of scale.[25] Growth facilitates entry of new goods into the country's exports, and leads to greater adaptability to changing commodity-composition[26] and geographic-distribution aspects of world import demand. In the post-war context we live in a highly labouristic, welfare-conscious, and oligopolistic economic society. Demand for wage increase is strong throughout the advanced economies regardless of their growth rates. At the same time post-war growth of the developed countries by and large has meant a growth centreing around oligopolistic industries rather than a balanced growth with even distribution of investment expenditures all around. Oligopolists, however, are bound to resist dissolution of productivity gains into reduction of prices as was more commonly the case in the nineteenth century. The combined effect is that for a trading nation to win in international competition the only assured way is to grow and keep growing fast so that its prices, through productivity gains, will remain low relative to those of other countries.

Much of the accelerated expansion of Japanese exports since the Korean War may be interpreted as a mirror-image of the vigorous growth of domestic investments during the same period. Japan has been able to export increasing quanta of advanced industrial goods, especially products of her heavy and chemical industries, thanks to the concomitant rise in productivity and her export capacity resulting from those sustained domestic investments. Japan is said to have been favoured by the synchronization of sustained invest-

[25]If we distinguish between those industries in Japan which have been exporting increasing volumes of their output and those whose output has been exported at more modest rates: The first group includes transport equipment, precision instruments, steel, metallic goods, electrical equipment, chemicals, and general machinery; and the second group comprises textiles, ceramics, mining products, paper-pulp, and non-ferrous metals. Japanese investment statistics show that the first group has been receiving disproportionate shares of total investments in comparison with the second group. A larger share of investments went to the first group because demand (including export demand) for the products in the group was greater. In light of the fact that these products coincide with those for which world import demand has been rising faster than for those in the second group, we may still say that Japanese investments have been correctly unbalanced from the standpoint of export expansion.

[26]Recent shifts in commodity composition of Japanese exports show not only relative decline of traditionally strong items such as textiles and sundries but also the entry of new products into Japanese exports. If we classify those commodities, each of whose weight in total Japanese exports reached 0.2 per cent for the first time since 1953, as "new" export items, there have been twenty-four such items by 1961, amounting to 535.9 million dollars in value. The value of these new items (e.g., transistor radios, tape-recorders, precision instruments, heavy machinery and equipment, etc.) accounted for 13 per cent of total exports in 1961; and as much as about 18 per cent of the increase in the value of total exports, 1953-1962. See Economic Planning Agency, *Keizai Hakusho Fiscal* 1962 (Economic White Paper), p. 311.

ments primarily as the effect of her catching-up (or making-up) in technology with the more advanced West, with her investments of the autonomous (rather than acceleration) variety resulting from her quickly and effectively absorbing from abroad the post-war waves of new technological innovations, most notably, in the area of electronics. The future may witness an uninterrupted series of new innovations for, as Schumpeter believed, the horizon of technological possibilities extends almost infinitely. On the other hand, her catching-up process will inevitably slow down once the country has substantially closed the gap *vis-à-vis* the West. It seems probable therefore that Japan's domestic industrial efficiency and productivity will continue to rise only at a declining rate, which in turn may lead to the gradual slowing-down of her export expansion.

The Virtuous Circles

In his recent study Lamfalussy applies the theory of orbits or the concept of what he calls virtuous as against vicious circles in explaining the vigorous growth of the Community of Six (most notably Western Germany) in contrast to the stagnant British economy.[27] In his judgement the growth of the Community of Six has been essentially export-led, and their export-led expansion, somewhat in the style of Myrdal's circular causation in cumulative development, proceeds as follows. Comparative advantages of a country in the world market lead to expansion of its exports; the increase in exports raise the investment and saving ratios in the domestic economy; rising investments lead to faster growth and to higher levels of output and productivity; these in turn promote exports. The vicious circle in Lamfalussy's theory of orbits refers to a downward, cumulative process in which a country with stagnant exports at the outset finds itself. The theory is useful in clarifying the operating mechanism of circular causation that begins once a country moves into orbit, but says relatively little about the initial conditions that are necessary to place the country in virtuous as against vicious circles.

The foregoing discussion of trade, growth, and the balance of payments of post-war Japan in this paper seem to suggest that the theory of virtuous circles, with some modifications, is applicable to the interplay of trade and growth of the post-war Japanese economy. The role of exports was overshadowed by the quantitative aspects of domestic investments, and in this sense her post-war growth was not export-oriented. The growth, however, was in many respects sustained by exports, and at the same time much of Japanese export expansion was a consequence of the growth itself, We may synthesize these observations into the following diagrammatic abstraction. The virtuous circles of Japan's trade and growth are summarized in Figure 1. In the rectangular co-ordinate system we measure national income (Y) downward from the origin along the vertical axis. The ratio of labour pro-

[27] A. Lamfalussy, *The United Kingdom and the Six: An Essay on Economic Growth in Western Europe* (a publication of the Economic Growth Center, Yale University), Homewood, Illinois, Richard D. Irwin, 1963, pp. 110-120.

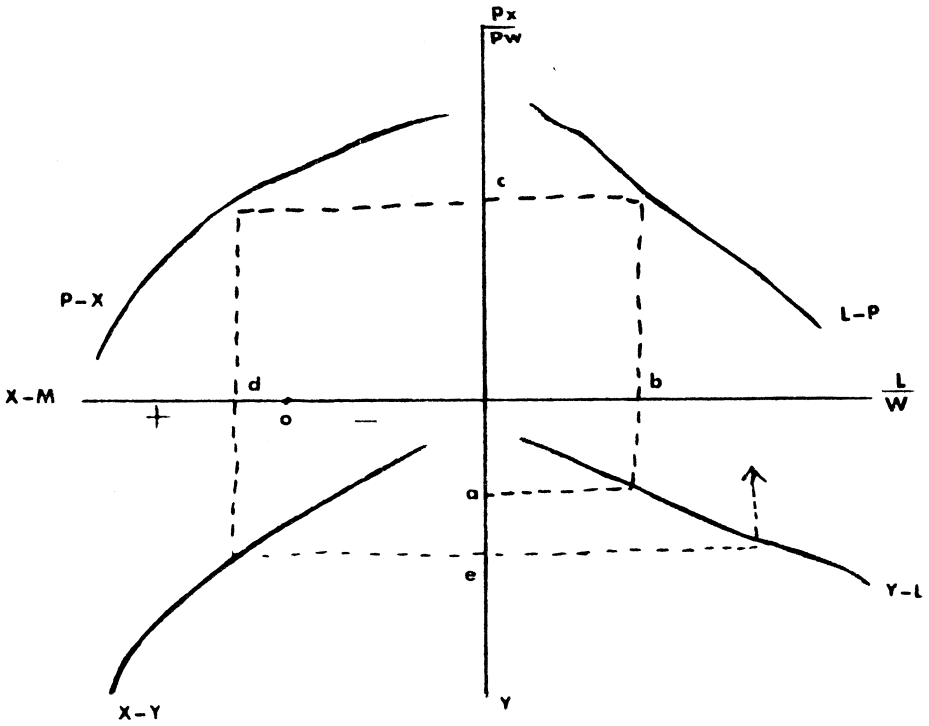

Figure 1

ductivity to wage (L/W) is measured from the origin to the right along the horizontal axis. Similarly the relative export price, that is, the ratio of export price to world export price (Px/Pw) is shown in the upward direction starting from the origin along the vertical axis. The country's net export (X-M), that is, current exports minus current imports, is measured from the origin to the left along the horizontal axis.

We assume the L/W ratio to be a function of Y, and the Y-L curve in the fourth quadrant depicts the existing functional relationship between the two variables. The position and slope of the Y-L curve are largely determined by such variables as efficacy of economic policy in generating sufficient effective demand in the domestic economy, strength of labour unions in achieving their wage objectives, the degree of competition in the home market, and the domestic saving ratio. The point of observation here is that rapid growth (a high rate of increase in Y) of and by itself does not provide automatic assurance that the L/W ratio will increase proportionately. If wage demand is excessive, for example, an incremental increase in Y does not necessarily lead to a corresponding, incremental increase in the L/W ratio.

The relative export price (Px/Pw) is assumed to be a function of the L/W ratio. The L-P curve expressing the function in the first quadrant has

a negative slope on the assumption that competition in the home market with respect to exports is sufficient so that increase in the L/W ratio results in the lowering of the country's export prices relative to world prices. To the extent that monopoly elements persist in the domestic economy the L-P curve tends to shift to the left and/or to become steeper.

In the second quadrant the P-X curve shows a relation between the relative export price and net export. Net export, which begins as a negative value at the origin, continues to increase as we move to the left on the x-axis. There are a number of determinants of the P-X curve, but for our purpose it suffices to say that the more elastic the price elasticity of the world import demand with respect to the country's produce, the flatter the curve tends to become, and that devaluation of the country's currency as well as increase in the income elasticity of world import demand cause a leftward shift of the P-X function. The slope of the curve becomes steeper towards the lower end of the curve on the assumption that, in the context of incomplete international specialization and impure and imperfect free-trading, export expansion led by the growth-induced decline in relative export price is subjected to a certain law of diminishing marginal increase with respect to time for economic as well as non-economic reasons (e.g., the tariff in-

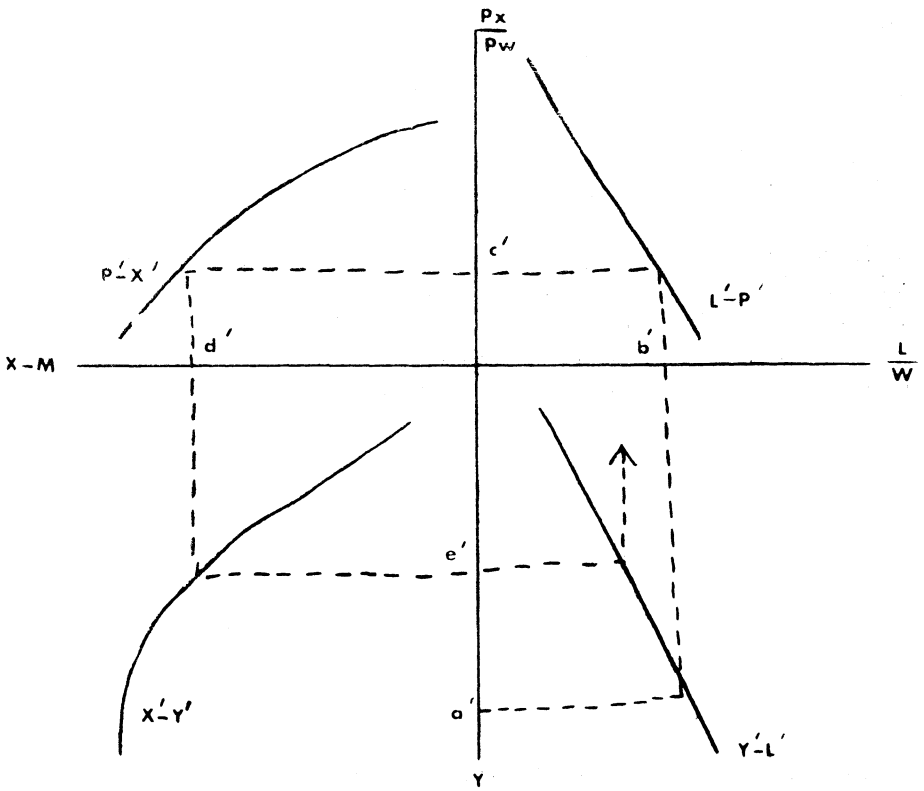

Figure 2

crease abroad to prevent "excessive invasion" of foreign goods), whereas the country's imports are to increase in a relatively fixed proportion to the national income.

Continuing to move counter-clockwise, the X-Y curve connects the two variables: net export and national income. The curve is drawn on the assumption that the greater the trade deficit the stronger will be the pressure for the government to invoke deflationary measures, and that export surplus tends to promote growth, up to a certain point, through raising the domestic investment and saving ratios.

The case of a country in orbit of virtuous circles may be illustrated as follows. We start with a certain level of national income such as point a. The absence of wage-inflation gives the L/W ratio at point b. Given sufficient competition, the relative export price of c results, and at this relative price level exports increase to such an extent that the net export is at d, which in turn leads to a higher level of national income at e. This process continues in the manner of cumulative development, generating a higher level of income after each round as long as the functions remain the same.

If the functions shift to those shown in Figure 2, a vicious circle sets in. To avoid repetition we shall not explain the causes of these shifts. We merely note that, starting from a, the country is in orbit of vicious circles, and suffers a cumulative downward movement of the economy.

With proper qualifications the theory of virtuous circles contained in Figure 1 seems effectively to account for the pattern of trade and growth of post-war Japan.[28] One such qualification is that Japan's trade balance has, by and large, been negative whereas in Figure 1 point d is located in the positive range. Could Japan enter and stay in orbit of virtuous circles without the aforementioned, substantial non-trade credit items such as aid and special procurements? In light of labour-supply conditions, entrepreneurship, and technological innovations in post-war Japan, it does not seem unreasonable to speculate that the case might not have been materially different. In all probability, however, such a situation would have made imminent downward adjustment of Japan's exchange rate in order to avoid her balance-of-payments difficulties.

[28] A systematic discussion of the initial conditions determining the functions (applicable to Japan), however, is beyond the scope of this essay.