Thoughts on the Yen-Dollar Exchange Rate[*]

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One hears loose talk that Japan must export because Japanese workers and farmers earn too little to buy back Japan's domestic production. This is convenient doctrine for those who want to restrict imports from Japan, and we may expect to hear it indefinitely, but it is almost 100 per cent false. The reason Japan must export is that she must import some 20 per cent of her staple food supply, plus most of the raw materials for most of her principal exports, and needs exports to pay for these imports. A few specific commodity percentages may be of interest here. Japan imports on the average 11 per cent of her rice, 46 per cent of her wheat, 88 per cent of her iron ore, 28 per cent of her coking coal, 97 per cent of her petroleum, 61 per cent of her soy beans, and 79 per cent of her salt. Japan is like Great Britain minus coal and iron; her basic assets are almost limited to man power and electricity. The essential nature of her imports and exports makes the price elasticities of both her import demand and her export supply much less than they would otherwise be; in this essay we neglect both as near zero.

Any increase in Japan's standard of life makes Japan's foreign exchange problem not less but more acute, as the Japanese Government realizes better than its critics. It increases Japan's demand for exports, including food and textile fibers, as the Japanese eat and dress better. At the same time it decreases Japan's supply of nearly all her exports, as the Japanese themselves buy more of these things. The better Japan lives, the more difficult it is to pay for imports. Japan's *Jimmu Keiki* of 1955—56 foundered in just this way, as indicated in this running quotation from a British source: [1]

"As the hectic boom progressed, the swollen demands of industry for imported raw materials came up headlong against Japan's inability to pay for them by selling enough exports. As the reserves of foreign exchange fell, the government was forced to slow the economy down.

"This experience was a sample of the dilemma Japan faces. The nation's industry can give the Japanese a steadily improving standard of life— if Japan can pay for enough raw material from abroad. If it cannot, the same process may occur again and again; first an acceleration of investment and production, to keep pace with the population statistics, and then a painful thud as the balance of payments runs into trouble."

The actual figures for recent years do not show Japan in a particularly precarious balance of payments position. After losing $ 194 million of foreign exchange when the Korean War ended in 1953, she accumulated $ 887 million in the next three years and lost $ 533 million in 1957.[2] These figures however conceal one major difficulty, Japan's dependence on "special dollar receipts" which arise from the presence in Japan of American troops now being reduced in accordance with Japan's desires. Were it not for these special dollar receipts, representing to many Japanese the price of reduced independence, the balance of payments figures (*ceteris paribus*) would have shown Japan losing a total of $ 2,356 million of foreign exchange in the period 1953—57 inclusive.[3]

Can this unhappy situation be remedied in any way be exchange rate manipulations ? The yen-dollar rate, keystone of Japan's foreign exchange system, was set at 360 to one in April 1949. There has been no subsequent depreciation, despite the devaluation of most competing Commonwealth and European currencies at least once during the subsequent decade.

1) *The Economist* (London), March 8, 1958. (The statistics quoted in the preceding paragraph are from the same source.)

2) Bank of Japan, *Economic Statistics of Japan*, 1957, Table 135, p. 263 f. During 1958 the 1957 drain was reversed, as inventories of imported raw materials were permitted to decline.

3) *Ibid.*, Table 132, p. 259 f. Preliminary estimates suggest that the loss of foreign exchange due to the reduction of the American armed forces in Japan approximates $ 200,000 per day. (*Japan Times*, July 23, 1958).

There has been some sentiment in Japan in favor of yen devaluation, to permit Japan to increase exports by cutting their dollar prices. There have been occasional suggestions that upward revaluation might help, decreasing import costs by lowering their yen prices. But devaluation would at the same time raise import prices in yen, while upward revaluation would raise export prices in dollars. The advantages and disavantages of these proposals have seemed to cancel out and nothing has been done along either line. Rather, some export industies have been favored by a number of special *ad hoc* devices: preferentially low interest rates on loans, preferential access to credit, special tax treatment, award of profitable import licenses for unrelated products, linking of import quotas to exports, and so on.

If we ignore the Japanese demand for foreign currency as being highly inelastic with respect to exchange rates, a very simple form of the complex theory of the relations between exchange rates and balances of payments can be applied to the Japanese case.[4] The important variable then becomes the foreign or dollar demand for yen, relative to the price of yen in terms of dollars, which is the reciprocal of the yen-dollar rate. When this demand is expressed as a curve such as the two parts of our Figure I, the total amount of dollars obtained at any exchange rate is the rectangular area under the curve. If the dollar price of the Japanese yen is 1/360, as at P, total dollar receipts are (OP×OQ) at that rate.
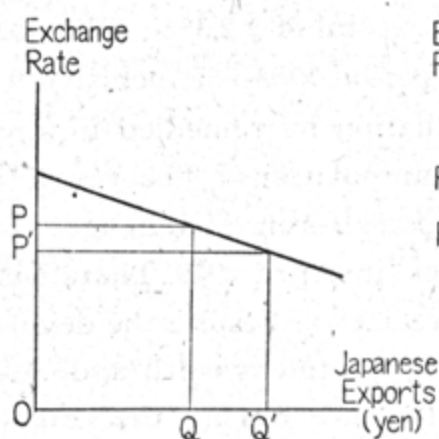

Figure I-A　　**Figure I-B**
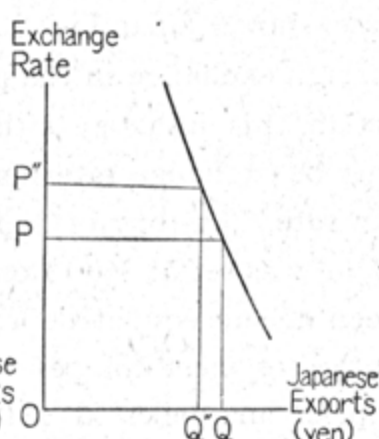
If as in Figure I-A, the demand function for yen (meaning Japanese goods in foreign currency) is *elastic* with respect to the exchange rate,[5] a fall in the dollar price of the yen to 1/400, or P′, will increase total Japanese dollar receipts, since (OP′×OQ′) is an area larger than (OP×OQ). This is the nub of the case for devaluation when (as in Japan) export supply and import demand are both inelastic and need not be considered in a first approximation. But if as in Figure I-B, the foreign demand function for yen is *inelastic*, dollar receipts can be increased by upward revaluation of the yen to 1/320 or P″, since (OP″×OQ″) is an area larger than (OP×OQ). This is the nub of the case for upward revaluation of the yen under the same simplified conditions.
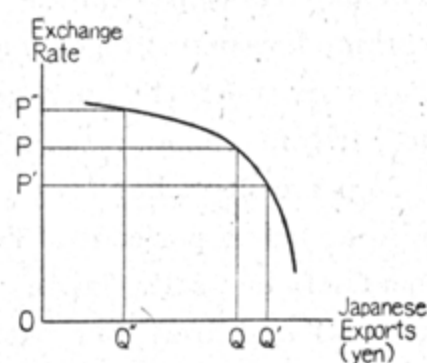

Figure II

A diagnosis of the Japanese dilemma, and of a reason why Japan hesitates to tamper with the exchange rate, is presented as Figure II. If Japan devalues, the yen prices of imported raw materials will rise. The yen prices of imported foods will also rise, and yen wage rates will probably rise too. The final result is that the dollar prices of Japanese exports will fall very little after these adjustments take place, little more will be taken in the world market, and accordingly the demand curve will be inelastic below OP. In the diagram (OP′×OQ′) is smaller than (OP×OQ) and nothing is accomplished by devaluation.

Now consider an upward revaluation to lower the yen prices of imported food and raw materials. The

4) Let η be the elasticity of world demand for the currency of country a with respect to its exchange rate, and let e be the elasticity of supply of a-currency with respect to the same variable. Let η' and and e' be similar elasticities of demand and supply of "world" or non-a currency, still with respect to the same variable. Then one form of the so-called Marshall-Lerner inequality states that devaluation by country a will improve or worsen its balance of payments position according as:　　$(\eta+\eta')+(e+e')\gtreqless 1$

In the present approximation we are ignoring all terms but η as close to zero.

5) The demand function for yen in terms of the exchange rate has an elasticity by one less than the demand function for Japanese goods in terms of their yen prices. This arises from the fact that:

$$\frac{d(pq)}{dp}\cdot\frac{p}{pq}=\frac{p}{q}\frac{dq}{dp}+1$$

trouble here is that the yen prices of Japanese exports will probably not fall proportionately. Money wages in many export trades are held up by powerful trade unions. Money prices of many export prices are likewise administered by monopolistic or cartel arrangements of various kinds. If the yen prices of Japanese exports do not fall proportionately with the prices of imported raw materials, their world or dollar prices will rise when the yen is revalued upward. If the dollar prices of Japanese exports rise the quantity sold will fall drastically, since most of these exports are highly competitive all over the world with products of a number of other countries. On Figure II, the demand function for yen in terms of dollars is therefore drawn as elastic when the yen is priced above OP. There is a kind of kink or corner in the neighborhood of the existing exchange rate OP.[6] $(OP'' \times OQ'')$ like $(OP' \times OQ')$ is less than the initial exchange earnings $(OP \times OQ)$. There is little scope for over-all exchange rate manipulation.

<p style="text-align:center">*   *   *</p>

Such a situation as is depicted on Figure II may not be unusual, although it is not considered in standard theoretical treatments of international exchange rates. It may indeed have played some part in backing many experiments with quantitative import controls, exchange controls, and multiple exchange rates. It is the last of these alternatives, namely a simple double exchange rate, which I should like to consider for Japan.

Consider two specific proposals. Proposal 1 : Pay all exporters a genaralized export subsidy of say ¥40 for each dollar of exports either anywhere in the world or only to convertible-currency areas, while taking care to avoid re-importing and while keeping the present rate for other transactions. This would give exporters the advantage of a 400-to-1 rate in cutting dollar prices while maintaining yen prices. It would not entail any offsetting rise in the prices of imported foodstuffs and raw materials. Or as an alternative, Proposal 2 : Pay all importers of the

major industrial raw materials (and possibly also a few food staples) a subsidy of say ¥40 for each dollar of imports, while taking care to avoid re-exporting and keeping the present rate for other transactions. This would provide Japanese exporters the advantage of a 320-to-1 exchange rate in cheaper raw materials. It might also provide Japanese workers the advantage of cheaper food and higher real wages, without the disadvantages of a dearer yen in international markets.

Proposal 1, the export subsidy, has certain advantages over Proposal 2, the import subsidy. The Japanese Government gets more for its money by focussing the subsidy directly on exports, while import subsidies also assist imports which are in no way linked to exports. Conflict is avoided with the downward rigidity of Japanese yen cost prices and wage rates, which would presumably be maintained despite import subsidies. Conflict is also avoided with the Japanese farm and mining blocs, which are interested in high food and mineral prices.

Proposal 2 also has certain advantages over Proposal 1. Strictly speaking, it does not involve "dumping," whereas the export-subsidy plan comes under the rubric of "exchange dumping" and would arouse the greater volume end vehemence of foreign denunciation. Conflict is avoided with Japanese domestic consumers, who are disconcerted by measures diverting production from domestic sales to the world market. Urban support for the taxation necessary for any type of subsidy could be obtained more easily if, as in the import subsidy case, it could be linked to lower food prices. An import subsidy might also cost less, since only selected imports rather than total imports would receive it.

The reactions of other countries and of such international organizations as the International Monetary Fund and GATT must also be considered. These would certainly look with disfavor upon any generalized export subsidy. It is not clear how the Fund would translate such disapproval into effective sanctions, but GATT disapproval can be translated readily into discrimination against Japanese exports. An import subsidy not falling within the accepted definition of "dumping" would meet with less opposition, particularly if it should lead to increased Japanese markets for raw material exporters. (We have ignored this possibility in concentrating upon the world demand for yen.)

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6) This represents an application in international trade of the well-known "kinked demand curve" developed originally as an aid in the exposition of oligopoly price. See P. M. Sweezy, "Demand under Conditions of Oligopoly," *Journ. Pol. Econ.*, August 1939, and M. Bronfenbrenner, "Applications of the Discontinuous Oligopoly Demand Curve," *Ibid.*, June 1940.

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Like any other subsidy, each of the subsidies suggested here must be paid for. The payment may involve higher taxes, open inflation, suppressed inflation with direct controls, or some combination of the three. Its net cost will surely fall short of its gross cost by permitting the elimination of some of the expensive special gadgets and favors to special export interests which we have mentioned in passing. How the Japanese might choose to divide the cost of either export or import subsidies between taxation, inflation, and direct controls I cannot say. Taxation to rescue the balance of payments should be easier to "sell" the Japanese than to citizens of a more self-sufficient country like the United States.

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When I have presented the main arguments of this paper orally in America a crucial question is sometimes forthcoming from my orthodox listeners.

·'What do these proposals accomplish which cannot be accomplished by downward pressure on Japanese wage and profit rates, which are higher in many export trades than in the rest of the economy, or by economic pressure on Japanese practices of hiring surplus labor?" To which I have answered, nothing and yet everything. On paper, the answer is nothing; the deflationary orthodox proposals are simpler and neater. In practice, the answer is everything. These proposals preserve what has been called the "social equilibrium" of Japanese society. They resolve conflicts particularly between the wage rates and labor practices necessary for Japanese international equilibrium and the wage rates and labor practices necessary for conformity to Japanese ethical notions of industrial fair dealing. In short they may preserve Japanese capitalism under circumstances where orthodox proposals require revolution from the Right to avoid revolution from the Left if they should be attempted in practice.