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Forthcoming in Contemporary Policy Issues, No. 4, October 1983.

EXCHANGE RATES AND TRADE POLICY

PAUL R. FLACCO,* LEROY O. LANEY,** MARIE C. THURSBY,*** and THOMAS D. WILLETT****

Interrelationships between exchange-rate behavior and trade-policy issues have gained much public attention. Many economists expected that flexible exchange rates would reduce protectionist pressures. However, there have been frequent charges that an alleged overvalued dollar has been exacerbating the recent U.S. recession. Such concerns have led to numerous proposals for trade restrictions.

Initial sections of this paper briefly review the long history of economic analysis on these issues. The authors cite the impossibility of accurately estimating equilibrium exchange rates as the most fundamental difficulty in evaluating exchange-rate performance and its implications for trade policy. Section IV shows that resource-reallocation costs of exchange-rate fluctuations have not been nearly so great as many early critics of floating had feared. Section V focuses on macroeconomics. It questions assertions that the dollar is overvalued, that its overvaluation is a major cause of trade-deficit and domestic employment problems, and that heavy official management of the dollar would be a useful strategy.

I. INTRODUCTION

Over the past several years, considerable public attention has focused on the interrelationships between exchange-rate behavior and trade policy issues. There have been frequent charges that the dollar's alleged overvaluation has been a major cause of the recent recession's depth in the United States. Some have even argued that adopting floating exchange rates has undercut the relevance of traditional international-trade theory. Such concerns have stimulated numerous policy proposals. Some have advocated heavy U.S. intervention in the foreign-exchange market. Others have urged placing political pressure or even adopting retaliatory measures against countries like Japan in response to perceived beggar-thy-neighbor exchange-rate practices. Furthermore, the dollar's alleged overvaluation has been used as an additional rationale for adopting protectionist measures to aid particular domestic industries, such as autos and steel.

While the visibility of exchange-rate-related aspects of trade policy has increased greatly in the United States in recent years, analysis of such issues has a long history. A most important objective at the Bretton Woods conferences was to create a post-war international monetary structure with an exchange-rate system which would help promote liberal trade policies. The hope was to reduce the probabilities of repeating the disastrous 1930s trade wars. For a considerable time, the Bretton Woods system was highly successful in meeting this objective. As the post-war period progressed, however, the exchange-rate regime of the adjustable peg adopted at Bretton Woods became increasingly brittle. Countries gradually began adopting trade restrictions to protect their fixed exchange rates, a major purpose of which had been to promote liberal trade. This gradual transformation of exchange-rate fixity from a means to an end played an integral role in the malfunctioning and eventual breakdown of the Bretton Woods system.[1]

Meanwhile, economists had devoted considerable attention to ways in which floating exchange rates would influence trade policies. The pessimistic view held that floating exchange rates would lead to a breakdown of international economic cooperation and a repeat of the 1930s trade warfare. Fortunately, despite the additional pressures of the oil shock, this pessimistic scenario has not come to pass.

The optimistic view suggested that by removing the persistent exchange-rate disequilibrium under the adjustable peg, floating rates would be a powerful force for liberalizing trade and capital restrictions. Unfortunately, this optimistic scenario has not come to pass either. The substantial variability of major exchange rates has led to frequent charges that private speculation in the foreign-exchange markets has generated disequilibrium, pushing rates substantially to overvalued or undervalued levels. Thus, exchange-rate-related arguments for restrictive trade policies have not disappeared.

Adoption of flexible exchange rates among the major industrial countries has been accompanied by increases in both protectionist pressures and exchange-rate volatility. Not only can exchange-rate movements generate protectionist pressures, but both expected and actual implementation of protectionist policies can stimulate exchange rate movements. On balance, we believe that flexible rates have done a good deal more to reduce than to increase the incidence of protectionist policies. We also believe that the major causes of both increased protectionist pressures and exchange-rate volatility are to be found in domestic political considerations and the instabilities in national economic policies which they have generated.[2]

In our judgment, the most fundamental difficulty in evaluating our current flexible exchange-rate system's performance in general, and its implications for trade policy in particular concerns the impossibility of accurately estimating equilibrium exchange rates. While there is no dearth of statements about what the equilibrium currency values should be within quite narrow ranges, such statements are usually implicitly or explictly based on highly over-simplified models of exchange-rate determination. Recent careful research has shown that these models have quite limited empirical content.[3] As a consequence, we cannot easily determine whether private speculation typically has been stabilizing, as supporters of flexible rates tend to believe, or has often been destabilizing, as critics usually argue. Of course, the historical debate over the performance of flexible rates during the inter-war period mirrors exactly these same difficulties. In the following two sections, we briefly survey the literature on these subjects.

II. SPECULATION AND EXCHANGE-RATE VOLATILITY

Probably the greatest historical objection to flexible exchange rates has been the belief that private speculation will make them extremely volatile. After the 1920s and 1930s experience,[4] many felt that without officially imposed limits to rate changes, speculation was more likely to be destabilizing than stabilizing. The prevailing view was not that volatility in capital flows and exchange rates were a reflection of underlying economic, financial, and political instability, but rather that speculation was an independent cause of instability. For example, Haberler, in his important 1945 article, stated that freely flexible rates would "incite capital flight and violent fluctuation."[5] In the same year, Nurkse wrote his influential study on the *Condition of International Monetary Equilibrium*, which presumed flexible rates would give rise to disequilibrating speculation.[6] This view became widely adopted by academics, as well as by government officials and business people.

Almost a lone dissenter in this view was Frank Graham, who took the position that one-way speculation was inevitable under a fixed exchange rate. Graham argued that speculators ". . . are then presented with that rare and greatly desired phenomenon, a 'sure thing.'" Later, Haberler[7] emphasized this point as applied to the Bretton Woods par-value system, and discussion of this one-way speculative option soon became a standard argument used by the adjustable-peg system's critics.

A major problem with the early discussions of speculation was that the standard definition of destabilizing speculation was a statistical one. An exchange rate which changed little was considered stable. This view was sharply challenged by Friedman in his 1953 article on the case for flexible exchange rates. In reviewing the 1930s experience, he pointed out that "... in retrospect,... the speculators were 'right' ... there is at least as much reason to call them 'stabilizing' as to call the 'destabilizing.'" The contribution here was not just in dispelling the widespread view that 1930s speculation was destabilizing. In advocating an economic definition of stabilizing speculation, it raised considerably the debate's analytical level by referring to "equilibrating" and "disequilibrating" as movements toward or away from equilibrium.[10]

If Friedman's definition is used to evaluate welfare effects of alternative exchange-rate systems, the choice between a floating-rate and par-value system rests largely on the relative merits of private and official speculation. More recent analysis has stressed that for freely floating rates to operate well, it is not just necessary that destabilizing speculation be avoided. Sufficient private stabilizing speculation must be present.[11] Otherwise, temporary, reversible disturbances cause undesirable exchange-rate fluctuations, which should have been speculated out. And nonreversible disturbances cause excessively large exchange-rate changes in the short run because trade elasticities are much lower in the short run than in the long run. In fact, with a complete absence of speculation, the foreign-exchange market probably would be dynamically unstable.

Experience with floating rates suggests that the foreign-exchange markets have not been dominated by destabilizing, or insufficiently stabilizing, speculation. It also suggests that the major cause of observed exchange-rate volatility has been the instability of underlying economic and financial conditions.[12] Evidence on speculative efficiency is sufficiently mixed, however, to suggest that private speculation has not always behaved ideally. Thus, the case for some official management of floating rates cannot be ruled out, although there are also episodes in which official management appears to have contributed to, rather than reduced, exchange rate instability.[13]

It is clear that the market has had far from perfect foresight. However, there is little systematic evidence that official exchange-rate targeting by major industrial countries will produce less disequilibrium than the private market.[14]

III. Floating Rates, Trade and Exchange Controls

Economists' views on trade and exchange restrictions have gone through an evolution similar to those on speculation. During the 1930s, critics of floating typically argued that exchange-rate fluctuations were a major cause of trade restrictions imposed during that period. For example, Lord Robbins' 1935 article was particularly critical of exchange-rate flexibility, stating that...

> In the early days of the present regime of a paper pound, it was fashionable to say that we could not go back to the gold standard until the various obstacles to international trade, in the shape of the more excessive tariffs and the various quota restrictions and license schemes, had all been swept away. There is no doubt that it was the general prevalence of views of this sort which prevented us from taking any steps toward stabilization in 1932 when the position of sterling vis-a-vis both the dollar and the Gold Block was probably more favorable than it is ever likely to be in the future. But at the present time, this particular argument is dropping into the background. The bitter experience of the World Economic Conference has shown that, unless the future of exchange rates is tolerably certain, it is quite hopeless to expect any substantial abolition of the obstacles to trade. You cannot negotiate about tariff rates effectively unless you have some idea of the future course of values.[15]

Later, in his 1944 study, Nurske pointed out that the 1930s beggar-thy-neighbor policies were the result of countries' trying to maintain particular disequilibrium rates rather than policies necessarily coexistent with floating exchange rates.[16] Moreover, opinions began to change because of the post-war experience with the Bretton Woods par-value system. In his 1954 convertibility study, Haberler noted that the adjustable peg has proved "much more vulnerable. . . than the system of freely floating rates."[17] He pointed out that countries' reluctance to change their par value, when differing inflation rates dictated an equilibrium exchange-rate change, would necessarily lead to inconvertibility or trade restrictions. For this reason, advocates have argued that floating rates could actually reduce the risks of controls over trade and payments that exist under an officially pegged rate.[18]

In addition, floating-rate advocates pointed out that under the Bretton Woods system, a durable framework of cooperation had been built up, so that floating rates need not lead to the breakdown of international cooperation. This view is supported by the durability of cooperation since generally pegged rates broke down in the early 1970s. Despite the very trying circumstances of the oil shock, which occurred soon after the adoption of generalized floating, international economic cooperation has remained strong. The incidence of clear-cut beggar-thy-neighbor policies has been rare, and few would argue that the oil shock could have been managed under pegged rates without substantially more trade restrictions than in fact occurred.[19] Counter to the hopes of economists such as Friedman, protectionist sentiment has increased since generalized floating was adopted.[20] However, this has been due primarily to other causes.[21] It is hard to conceive that industrial countries could have gotten through the turbulent decade of the 1970s as well as they did without the institution of exchange-rate flexibility. Trade distortions, protectionist pressures, and delayed financial impacts experienced by countries that continued to maintain adjustably fixed rates during the 1970s help to illustrate this point.

IV. REALLOCATION EFFECTS OF EXCHANGE-RATE FLUCTUATIONS

Traditionally, a most influential argument against floating exchange rates has been the concern that exchange-rate volatility would impose substantial resource-allocation costs on domestic economies. According to that argument, as exchange rates go up and down, resources are wrenched back and forth from one industry to another, generating high frictional unemployment and other costs.[22] Unemployment has tended to be high during the current system of widespread managed floating, and exchange rates often have been quite volatile. However, it does not appear that large, rapid resource shifts accompanying exchange-rate fluctuations have been a major cause of unemployment. Amid the many criticisms of our experience with floating, no published study of which we are aware has attempted to show that floating has caused an unemployment problem.[23]

A common explanation for the lack of great short-run resource-allocation responsiveness, even to sizeable exchange-rate movements, is that firms distinguish between those expected to be permanent and those expected to be only temporary. Accordingly, little adjustment is made to the latter.[24] While such behavior is seemingly quite plausible, rapid, sizeable exchange-rate movements are largely inconsistent with an efficient foreign-exchange market. With sufficient stabilizing private speculation, exchange-rate fluctuations generally will not reflect temporary developments. Otherwise, profit opportunities would exist from buying temporarily undervalued currencies and selling temporarily overvalued currencies. Thus, in efficient markets, expected changes in exchange rates would be limited primarily to trends.

There are several necessary caveats to this proposition. These involve the possibilities of efficient risk premiums and stock-flow interactions, and cases where exchange-rate overshooting mirrors temporary changes in international interest-rate differentials, as pointed out by Rudiger Dornbusch.[25] However, while the empirical evidence available to date is far from definitive, it suggests that most of the observed exchange-rate volatility among the major industrial countries has been unanticipated. Therefore, it cannot be accounted for either by destabilizing, or insufficiently stabilizing, private speculation or by interest-rate-induced overshooting.

This suggests that, although individual business firms may view particular exchange-rate movements as temporary, it is unlikely that the market as a whole typically would do so. Thus, we need to look elsewhere for a full explanation of why there does not appear to have been a great deal of short-run volatility in resource allocation in response to exchange-rate fluctuations. We believe that much of this explanation can be found by taking into account uncertainty about future price and exchange-rate changes, and the costs of making short-run adjustments. Even though one assumes that the current price is always equal to the ~~mean~~ expected future price, where there are adjustment costs which rise with the speed of adjustment, responses to shifts in price incentives will be dampened.[26] Furthermore, where there are significant asymmetrical cost effects to changing employment levels or the capital stock (such as training and severance pay or costs of selling plant and equipment), rational adjustments to changing conditions under uncertainty are likely to be dampened further.[27]

These propositions about the effects of uncertainty and exchange-rate fluctuations in dampening resource reallocation responsiveness should hold even if the fluctuations result from erratic destabilizing speculation, rather than from efficient speculative responses to disturbances in underlying conditions. Of course, the economic welfare effects of these two cases differ greatly. Where the cause of exchange-rate fluctuations is destabilizing speculation, the resulting reallocation costs to the economy are a dead-weight loss, which must be added to the static disequilibrium costs of incorrect price signals.

On the other hand, where speculation is efficient and economic decision makers have a correct perception of the underlying probability distribution, and where private and social costs are equal, profit-maximizing firms will adjust to changing exchange rates in a socially efficient manner.[28] Early predictions that flexible rates would lead to considerable resource reallocation and frictional unemployment may have stemmed from implicit assumptions that firms would respond to exchange-rate changes under flexible rates as they did under pegged rates. That is, firms would perceive the changes as being "permanent" for many years (the distribution of expected future rates would be narrow). Under this assumption, firms would not modify their responses as they would if future exchange-rate behavior were perceived as being a good deal more uncertain.

A second source of potential microeconomic inefficiency resulting from efficient exchange-rate fluctuations is possible divergencies between private and social costs. Where employment and resource-allocation decisions are made by firms which do not bear the full marginal costs of their decisions, exchange rate fluctuations may create incentives for greater- or less-than-optimal short-run resource responsiveness.[29] For example, where there is short-run wage inflexibility, the marginal cost curve facing the firm may be a good deal more elastic than the social cost curve. In such circumstances, exchange-rate fluctuations in response to changing expectations about medium-term equilibrium conditions would cause greater transitional unemployment than would be socially optimal. As the recent literature on labor contracting and firm pricing emphasizes, however, short-run wage and price rigidity often results from implicit or explicit longer-term contracting considerations. These serve in part as risk-sharing arrangements, which promote efficiency.[30]

Another example concerns the effects of unemployment insurance in shifting layoff costs to the taxpayer from firms and workers alike. As a consequence, the private marginal cost curve facing the firm at below-average output may be much more elastic than the social cost curve. Excessive short-run adjustments in response to changing exchange rates would result.[31] This can present a potential second best case for limiting exchange-rate fluctuations to less than would occur in an efficient foreign-exchange market. In Richard Cooper's words, it would "create the possibility that the welfare-maximizing rate will fluctuate less than the efficient market rate."[32]

We would caution, however, against jumping quickly to policy recommendations for systematic official interventions in the foreign-exchange market to lean against the wind on these grounds. Changes in real exchange rates are only one source of shifts in demand for firms. Even if official intervention could be effective in systematically limiting the range of short-run fluctuations in exchange rates, this could still leave a major domestic problem of excessive temporary unemployment from fluctuations in domestic conditions. And it is not at all clear at present whether the benefit-cost ratio of such an intervention strategy would be greater than one. This analysis does further highlight, however, the need for far greater attention to structural and government policy factors which contribute to substantial divergencies in private and social costs of resource adjustments and temporary unemployment.

V. EXCHANGE RATES, THE TRADE BALANCE, AND DOMESTIC ~~DEVELOPMENT~~ EMPLOYMENT

There have been frequent charges that the strong dollar has been a major cause of the high unemployment and depressed economic conditions in the U.S. over the last several years.[33] Likewise, protectionist advocates often point to the aggregate trade deficit as a major cause of domestic distress. It is certainly true that a strong dollar and a trade deficit are mixed blessings. Public discussion of these "problems" ~~have~~ has often been seriously misleading, however, because they have been based on faulty conceptual frameworks. A comprehensive analysis of these issues is not possible here, but several comments on some of the most expressed concerns are offered.

One essential point is that a strong dollar is not necessarily an overvalued dollar. While the dollar frequently has been described as being overvalued or out of line, implying a need for action, the actual evidence usually presented to demonstrate this overvaluation is far from overwhelming.

As indicated earlier, most statements that correct or equilibrium exchange rates can be calculated precisely are based on assumptions that have not stood up well to systematic empirical testing. There are sound economic reasons why the dollar was weak in the late 1970s and strong in the 1980s.[34] Much, though not all, of the explanation lies in the shift of monetary policy from ease to tightness and the current and expected large budget deficits. We have no strong basis for denying that the fall and rise of the dollar went too far in terms of reasonable expectations about the underlying fundamentals. But neither is the evidence clear that these fluctuations in the dollar overshot equilibrium levels. Certainly the dollar's fall and rise was much greater than could be explained by changing relative inflation rates. However, equilibrium exchange rates are influenced by many factors beyond prices.

The standard definition of overvaluation used by economists is that the current exchange rate is at a disequilibrium level. This could result from official pegging or destabilizing speculation. Current charges of overvaluation also often appear to reflect views about structural objectives for our international accounts. For example, some argue that the dollar is overvalued with respect to the exchange rate needed to achieve a particular trade or current account balance. Such views also often reflect the popular misconception that trade and current account surpluses are always good and deficits are always bad.

As economists have pointed out time and time again, this is just not the case.[35] One frequently hears reminders that we must import in order that others be able to pay for our exports. However, from the standpoint of economic analysis, the relationship is just the reverse. Exports must be given up to obtain imports. A country is unlikely to be able to secure financing to import in excess of exports indefinitely. Whether a trade deficit is good or bad at a particular time will depend on the current and projected states of the domestic economy and of international capital flows.

One set of criteria involves desired patterns for international lending and borrowing. Another involves the international sector's influence on domestic macroeconomic stabilization objectives. Neither criteria suggests a general assumption that the trade and current account should always be in balance or in surplus. For example, it is true that dollar appreciation in response to tight money and easy fiscal policy in the U.S. did retard exports and stimulate imports, thus deepening our recession. It also led, however, to a much more rapid reduction in our inflation rate. It is not obvious that the dollar's appreciation worsened short-term tradeoffs between inflation and unemployment.[36]

Furthermore, we cannot safely assume that all trade-deficit increases have substantial harmful effects on domestic employment. A considerable part of the recent increase in U.S. import payments has been for oil. But surely tighter restrictions on oil imports would have decreased, rather than increased, domestic production and employment in the short run.

Normally, we should not be concerned about the increases in imports that result from domestic economic recovery. Yet one of the nation's leading publications states that "While the strong business recovery creates substantial demand for goods in domestic markets, it is intensifying the foreign trade problem."[37] The nature of the foreign-trade problem is left unclear. However, the reader's feeling that we do have a problem is further enhanced by the comment that because "Recovery in the U.S. is stronger and faster than recoveries in the other industrialized economies. . . the U.S. trade balance is coming under increasing pressure from a rising tide of imports. . ."

Yet this is a perfect example of the useful role the international sector can play in stabilizing domestic economic fluctuations. The popular press generally focuses on the destabilizing effects which international influences may have on the domestic economy. However, there is a great deal of economic literature on the role which the international sector can play as an automatic stabilizer of the domestic economy. And empirical research indicates that stabilizing influences have dominated as often as destabilizing ones for the United States over the past several decades.[38] Indeed, the article just quoted gives an explicit example of this stabilizing role when it states that "The adverse trade balance has kept the recovery from turning into a runaway boom." In other words, our international sector is helping to reduce the danger which has concerned many economists that too rapid an economic upturn would not be sustainable.

There may be, however, some reasons for concern about the structure of our trade position implied by the prospect of continuing large budget deficits. To a substantial degree, budget deficits have a counterpart in current account deficits, which tend to increase protectionist pressures. In a real sense, loose fiscal policy, through generating a high exchange rate, taxes exports and subsidizes imports. This problem needs to be attacked directly, however, not through attempts at using official intervention to hold down the dollar or by adopting compensating protectionist trade measures.

Except perhaps at times of extreme uncertainty, to influence substantially the value of the dollar would require massive official intervention. Even the effects of this probably would be temporary. Furthermore, it would bring back the danger, so prevalent under the adjustable-peg system, of disrupting and distorting trade flows by delaying needed adjustment. While it may be argued plausibly that governments should have learned to avoid these mistakes, the recent example of Mexico graphically illustrates that this is not necessarily the case.

Attention in the press has focused primarily on the effects of the recent peso devaluation in disrupting trade and tourist flows, especially along the U.S. Mexican border. However, these were, in fact, largely needed corrections to the increasingly distorted trade patterns which had been generated by the increasing overvaluation of the peso. It was the abruptness of the devaluation which was disruptive. The change in economic incentives which it created was essential.

As a final point, charges that the dollar is significantly overvalued because of foreign countries' official manipulation of exchange rates to maintain competitive advantage are much easier to make than to validate.[39] Japan, for example, has followed a rather consistent pattern of leaning against the wind in its exchange-market intervention policies, rather than systematically intervening to undervalue the yen. While manipulation may be taking place, it is being implemented through subtle, indirect channels which are difficult to monitor.[40]

In summary, we concede that there probably are elements of truth in arguments that market forces and foreign policies may have contributed to pushing the dollar too high. However, most of the dollar's strength is due to U.S. macroeconomic policies. It is primarily on those policies that those who advocate a stronger U.S. trade position should focus.

VI. CONCLUDING REMARKS

In this paper, we have not been able to deal with all of the important interrelationships between trade and exchange-rate policy.[41] However, we hope that we have illustrated that such relationships are important. More widespread public knowledge of the economic analysis and research in this area could lead to substantial improvements in public debates of these issues.

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1. On these points, see Thursby and Willett (1982), Willett (1977), and the references cited there.

2. For a discussion of the major causes of the increase in protectionist pressures during the 1970s, see Amacher, Tollison, and Willett (1979, pp. 55-66) and the references cited there. On beggar-thy-neighbor policies and exchange rate surveillance under floating rates, see Willett (1977).

3. For recent discussions and extensive references, see Kahn and Willett (forthcoming), Willett (1981a) and Willett (1981b), and the contributions to Dreyer, Haberler, and Willett (1982).

4. See, for example, Haberler (1945, pp. 308-318), Robbins (1935, pp. 5-15), and Nurkse (1944).

5. Haberler (1945, op. cit.).

6. For a more comprehensive review of the extensive literature on the behavior of speculation in the foreign-exchange markets before World War II, see Wonnacott (1965) and Yeager (1976).

7. Graham (1940, p. 19).

8. Haberler (loc. cit., 1954).

9. Friedman (1953, pp. 176-177).

10. Even so, in the empirical literature, there has been a tendency to define stabilizing and destabilizing speculation in terms of the effect on exchange-rate variability. This is a very unsatisfactory definition as it can lead to the conclusion that ideal speculation is destabilizing when the equilibrium rate changes. The definition put forward by Freidman does not suffer from this conceptual flaw, although it does, of course, have the problem that we do not have a unique objective measure of equilibrium. For a thorough critique of the literature on variability and definition of destabilizing speculation, see Kohlhagen (1979, pp. 321-340).

11. See, for example, Britton (1970, pp. 91-96) and McKinnon (1976, pp. 79-114).

12. See the discussion and references cited in the articles by Willett and Sweeney in Dreyer, Haberler, and Willett (1982).

13. See ~~Kubarych (1978)~~ and Balbach (1978).

14. See Argy (1982) and Taylor (1982).

15. Robbins (1935, pp. 5-15). See also Rist (1935, pp. 391-403), Anderson (1935, pp. 282-293), and Keynes (1935, pp. 67-74).

16. Nurkse (1944).

17. Haberler (1954, p. 24).

18. See, for example, Friedman (1953), Meade (1955, pp. 3-27), Lutz (~~1954~~, pp. 175-185), and Machlup (1972). 1966 / e

19. Blackhurst and Tumlir (1980).

20. Artus and Young (1979, pp. 654-698).

21. See Willett (1977).

22. For a review of the literature on this subject, see Thursby and Willett (1982).

23. To date empirical studies on the effects of floating rates on resource allocation have focused primarily on the level of international trade. Again, see the review by Thursby and Willett (1982). For an interesting study of reallocation effects during the earlier Canadian experiment with floating, see Thursby (1980).

24. See, for example, Niehans (1975).

25. See Dornbusch (1976). In this latter case, the expected spot exchange-rate change just offsets the interest differential, leaving no scope for excess speculative, arbitrage profits. Thus, the whole structure of forward rates does not overshoot, and trade based on medium-term forward rates is unlikely to be affected substantially.

26. See Nickell (1978, pp. 25-49) for a discussion of the sluggish investment response of the firm when adjustment costs are present.

27. For further discussion of these points, see Willett and Flacco (1982) and references cited there. For general surveys and references to the literature on the effects of uncertainty on resource allocation, see Hey (1979) and specifically in an international context, see Pomery (1979). It is, of course, likely that adjustments from inventories will be greater when price changes are expected to be reversed soon. This may also occur to some extent with the utilization of variable factors of production, but there are adjustments which tend not to carry substantial reallocation costs. Such more rapid responsiveness of sales to temporary fluctuations in price would not be expected to be a major cause of frictional unemployment, however.

28. See, for example, Mussa (1978).

29. For earlier discussions on this point see Cooper (1977) and Willett (1978).

30. For a recent contribution and references to the rapidly growing literature on this subject, see Hall and Lillien (1979).

31. On the effects of unemployment insurance on the amount of unemployment, see, for example, Feldstein (1978b) and Feldstein (1978a). For a provocative analysis concluding that a public subsidy to unemployment insurance promotes labor mobility, see Polemauchakis and Weiss (1978).

32. Cooper (1977, p. 72).

33. See, for example, Bergsten (1981).

34. See, for example, the Willett and the Kohlhagen papers and discussion of them in Dreyer, Haberler, and Willett (1982).

35. See the discussion and references in Heyne (forthcoming).

36. On these issues, see the contributions by Willett, Branson, and Dreyer in Stubblebine and Willett (~~1982~~). e / 1983

37. Franklin (1983, p. 36).

38. See Tower and Willett (1976). On the empirical evidence on this point, see Wilett (1982b) and Harnack and Willett (1982).

39. For expressions of concern on this point, see Bergsten (1982) and De Vries (1983).

40. On the issues involved in attempting to guard against beggar-thy-neighbor exchange-rate manipulation, see Willett (1977 and 1978) and references cited there.

41. See also the recent discussions by ~~Krugman (1982)~~, McCulloch (~~1982~~), Richardson (1983), and Thursby and Willett (1982). a/e/ 1982

REFERENCES

Amacher, R. C., Tollison, R., and Willett, T. D., "The Divergence Between Theory and Practice," in *Tariffs, Quotas, and Trade*, Walter Adams, et al, eds., Institute for Contemporary Studies, San Francisco 1979.

Anderson, B., "Currency Stabilization: National and International," *Lloyds Bank Review*, May 1935, 282-293.

Argy, Victor, *Exchange-Rate Management in Theory and Practice*, Princeton Studies in International Finance, Princeton University, Princeton, No. 50, October 1982.

Artus, J. R., and Young, J. H., "Fixed and Flexible Exchange Rates: A Renewal of the Debate," International Monetary Fund *Staff Papers*, 1979, *4*, 654-698.

Balbach, A. B., "The Mechanics of Exchange Market Intervention," Federal Reserve Bank of St. Louis *Review*, 1978, 2, 2-7.

Bergsten, C. F., "What to do about the U.S.-Japan Economic Conflict," *Foreign Affairs*, 1982, 5, 1959-1975.

Bergsten, C. Fred, "The Costs of Reaganomics," *Foreign Policy*, Fall 1981, *44*, 24-36.

Blackhurst, R., and Tumlir, J., *Trade Relations Under Flexible Exchange Rates*, GATT, Geneva, 1980.

Britton, A. J. C., "The Dynamic Stability of the Foreign Exchange Market," *Economic Journal*, March 1970, 91-96.

Bruce, Briggs, "The Coming Overthrow of Free Trade," *Wall Street Journal*, February 24, 1983.

Clark, P. B., "Uncertainty, Exchange Risk, and the Level of International Trade," *Western Economic Journal*, September 1973, 302-313.

Cooper, Richard N., "I.M.F. Surveillance Over Exchange Rates," in Mundell and Pollak, eds., *The New International Monetary Syst*, Columbia University Press, New York, 1977, 69-83.

DeVries, R., "A Stronger Yen is Crucial to Recovery," *Business Week*, May 9, 1983, 14-19.

Dornbusch, Rudiger, "Expectations and Exchange Rate Dynamics," *Journal of Political Economy*, December 1976, *84*, 1161-1176.

Dreyer, Jacob S., Gottfried Haberler, and Thomas D. Willett, eds., *The International Monetary System: A Time of Turbulence*, American Enterprise Institute for Public Policy Research, Washington, 1982.

Ethier, W., "International Trade and the Forward Exchange Market," *American Economic Review*, 1973, *63*, 494-503.

Feldman, D. H. and Edward Tower, "The Welfare Economics of an Unstable Real Exchange Rate," unpublished manuscript, Duke University, 1983.

Feldstein, Martin, "The Private and Social Costs of Unemployment," *American Economic Review*, May 1978a, *68*, 155-158.

Feldstein, Martin, "The Effect of Unemployment Insurance on Temporary Layoff Unemployment," *American Economic Review*, December 1978b, *68*, 834-846.

Franklin, William R., "Business Outlook," in *Business Week*, September 12, 1983, 35-36.

Friedman, M., "The Case for Flexible Exchange Rates," in *Essays in Positive Economics*, M. Friedman, ed., University of Chicago, Chicago, 1953.

Graham, F. D., "Achilles Heel in Monetary Standards," *American Economic Review*, March 1940.

Graham, F. D. The Cause and Cure of Dollar Shortage, Princeton Essays in International Finance No. 10, Princeton University Press, Princeton, January 1949.

Haberler, G., "The Choice of Exchange Rates After the War," *American Economic Review*, June 1945, 308-318.

Haberler, G., *Currency Convertibility*, American Enterprise Institute, Washington, D. C., 1954.

Hall, Robert and D. M. Lillien, "Efficient Wage Bargains Under Uncertain Supply and Demand," *American Economic Review*, December 1979, 69, 868-879.

Harnack, Joachim and Thomas D. Willett, "The Cyclical Behavior of Exchange Rates During the Current Float," Claremont Working Paper, Department of Economics, Claremont Graduate School, Claremont, 1982.

Hause, J. C., "The Welfare Cost of Disequilibrium Exchange Rates," *Journal of Political Economy*, August 1966, 15-26.

Hey, John. *Uncertainty in Microeconomics*, New York University Press, New York, 1979.

Heyne, Paul, "Do Trade Deficits Matter?" *Cato Journal* (forthcoming, 1984).

Hooper, P., and Kohlhagen, S. W., "The Effect of Exchange Rate Uncertainty on Prices and Volume of International Trade," *Journal of International Economics*, November 1978, 483-511.

Johnson, H. G., "The Case for Flexible Exchange Rates, 1969," in *Approaches to Greater Flexibility in Exchange Rates*, George N. Halm, et al, eds., Princeton University Press, Princeton, 1970.

Kahn, Waseem, and Thomas D. Willett, "Empirical Evidence on the Monetary Approach to Exchange Rates," *Kredit und Kapital*, (forthcoming). (Available as a Claremont Working Paper).

Keynes, J. M., "The Future of the Foreign Exchanges," *Lloyds Bank Review*, December 1935, 67-74.

Kohlhagen, S. W., "The Identification of Destabilizing Foreign Exchange Speculation," *Journal of International Economics*, August 1979, 321-340.

~~Kubarych, R. "Monetary Effects of Federal Reserve Swaps," Federal Reserve Bank of New York Quarterly Review, March 28, 1983, 1-21.~~

Kuttner, B., "The Free Trade Fallacy," *The New Republic*, March 28, 1983, 16-21.

Laney, L. O., and Willett, T. D., "The International Liquidity Explosion and Worldwide Inflation: The Evidence from Sterilization Coefficient Estimates," *Journal of International Money and Finance*, 1982, 2, 141-52.

Lutz, F. A., "Money Rates of Interest, Real Rates of Interest, Capital Movements," in *Maintaining and Restoring Balance in International Payments*, W. Fellner, et al, eds., Princeton University Press, Princeton, 1966.

Machlup, F., *The Alignment of Foreign Exchange Rates*, Praeger, New York, 1969.

McCulloch, R., "Unexpected Real Consequences of Floating Exchange Rates," paper prepared for the wingspread conference on the Evolving Multiple Reserve Asset System, July 28-30, 1982.

McKinnon, R. I., "Floating Exchange Rates 1973-74: the Emperor's New Clothes," *Carnegie-Rochester Conference Series on Public Policy*, 1976, 79-114.

Meade, J., "The Case for Variable Exchange Rates," *The Three Banks Review*, September 1955, 3-27.

Mussa, Michael, "Dynamic Adjustment in the Heckscher-Ohlin-Samuelson Model," *Journal of Political Economy*, October 1978, *86*, 775-791.

Nickell, Stephen J., *The Investment Decisions of Firms*, Cambridge University Press, Cambridge, 1978.

Nickell, Stephen J., "Uncertainty and Lags in the Investment Decisions of Firms," *Review of Economic Studies*, June 1977, *44*, 249-263.

Niehans, Jurg, "Some Doubts About the Efficiency of Monetary Policy Under Flexible Exchange Rates," *Journal of International Economics*, August 1975, 5, 275-281.

Obstfeld, M., "Exchange Rates, Inflation and the Sterilization Problem: Germany 1975-81," *European*

Polemauchakis, H. M. and B. Weiss, "Fixed Wages, Layoffs, Unemployment Compensation, and Welfare," *American Economic Review*, December 1978, *68*, 909-917.
Pomery, John, "Uncertainty in International Trade," in Dornbusch and Frenkel (eds.), *International Economic Policy*, Johns Hopkins University Press, Baltimore, 1979.
Richardson, J. D., "The New Nexus Among Trade, Industrial, and Exchange Rate Policies," National Bureau of Economic Research Working Paper No. 1099, March 1983.
Rist, C., "Stabilization," *Lloyds Bank Review*, July 1935, 391-403.
Robbins, L., "The Problem of Stabilization," *Lloyds Bank Review*, December 1935, 5-15.
Smith, H. F., "Limited Protection of Trade is Vital," *Los Angeles Times*, April 12, 1983.
Sweeney, R. J., "Intervention Strategy: Implications of Purchasing Power Parity and Tests of Spot Exchange Market Efficiency," in *The International Monetary System: A Time of Turbulence*, J. S. Dreyer, G. Haberler, and T. D. Willett, eds., American Enterprise Institute, Washington, 1982 Stubblebine, William Craig and Thomas D. Willett, eds., *Reaganomics: A Mid-Term Report*, Institute for Contemporary Studies, San Francisco 1983.
Taylor, Dean, "Official Intervention in the Foreign Exchange Market, or, Bet Against the Central Bank," *Journal of Political Economy*, April 1982, *90*, 356368.
Thursby, Marie, "The Resource Reallocation Cost of Fixed and Flexible Exchange Rates," *Journal of International Economics*, February 1980, *10*, 7990.
Thursby, Marie and Thomas D. Willett, "The Effects of Flexible Exchange Rates on International Trade and Investment," Claremont Working Paper, Department of Economics, Claremont Graduate School, Claremont, 1982.
Tower, E., and Willett, T. D., *The Theory of Optimum Currency Areas and Exchange Rate Flexibility*, Princeton Special Papers in International Economics No. 11, Princeton University Press, Princeton, May 1976.
Willett, T. D., "The Causes and Effects of Exchange Rate Volatility," in *The International Monetary System: A Time of Turbulence*, J. S. Dreyer, G. Haberler, and T. D. Willett, eds., American Enterprise Institute, Washington, 1982a.
Willett, Thomas D., "The United States and World Stagflation: The Export and Import of Inflationary Pressures," in Finger and Willett, eds., *The Internationalization of the American Economy*, Special Issue of the Annals of the American Academy of Political and Social Sciences, March 1982b, *460*.
Willett, Thomas D., "Policy Research Issues in a Floating Rate World: An Assessment of Policy-Relevant Research on the Effects of International Monetary Institutions and Behavior on Macroeconomic Performance," in *International Economic Policy Research*, Papers and Proceedings of a Colloquium held in Washington, D. C., October 34, 1980. National Science Foundation, Washington, 1981a, 125158.
Willett, Thomas D., "Macroeconomic Instability and Exchange-Rate Volatility," *ORDO*, 1981b, 32, 35-50.
Willett, Thomas D., "Alternative Approaches to International Surveillance of Exchange-Rate Policies," in *Managed Exchange Rate Flexibility*, Federal Reserve Bank of Boston, Boston, 1978, 148-172.
Willett, Thomas D., *Floating Exchange Rates and International Monetary Reform*, American Enterprise Institute for Public Policy Research, Washington, 1977.
Willett, Thomas D. and Paul R. Flacco, "The Reallocation Effects of Exchange-Rate Fluctuations Under Uncertainty Where Speculation is Efficient," Claremont Working Paper, Claremont Graduate School, Claremont, 1983.
Wonnacott, P., *The Canadian Dollar*, Toronto, 1965.
Yeager, L. B., *International Monetary Relations*, Harper and Row, New York, 1976.
Report of the Working Group on Exchange Market Intervention, established at the Versailles Summit of the Heads of State and Government, June 4-6, 1982.

(seperate reference)

Add to references:

Nurkse, Ragnar, International Currency Experience, League of Nations, 1944.

Nurkse, Ragnar, Conditions of International Monetary Equilibrium, Princeton Essays in International Finance No. 4, Princeton University Press, Princeton, Spring 1945.