

What Remains of the Case for Flexible Exchange Rates?

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1. INTRODUCTION

In the 1950s and 1960s, there was much support among academic economists for abandoning the Bretton Woods System in favour of a system of flexible exchange rates. Such proposals had their opponents, of course, some of whom, for example Robert Triffin (1960), believed that, if anything, the Bretton Woods System granted too much, rather than too little, scope to individual national governments to vary their exchange rates. Nevertheless, at that time, the weight of professional opinion was against them, and when exchange rate flexibility was adopted in the 1970s, economists by and large welcomed it. This change in policy regime was not, however, the outcome of reforms undertaken in the light of academic arguments; although these did have some influence in some places, not least the United Kingdom.¹ Nevertheless, the single most important factor leading to the demise of the Bretton Woods System was not the acceptance of any academic arguments about how to make the international monetary system function more smoothly. It was something much more down to earth, namely the unwillingness of certain governments, notably that of West Germany, to accept the balance of payments and hence domestic inflationary consequences of United States fiscal and monetary policies associated with the Vietnam War.

Though the introduction of flexible rates was widely expected to usher in a period of international monetary stability, the fact is that the system was not introduced in auspicious circumstances. It was not created by careful design, but as

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¹There, in his 1972 budget speech the Chancellor of the Exchequer Mr Anthony Barber explicitly committed himself to allowing the sterling to float should balance of payments problems look like interfering with the experiment in generating demand led growth he was then setting in motion. A fuller account of this episode is given in Laidler (1976).

an *ad hoc* response to pre-existing instability, which a fixed rate system had failed to discipline and with which it was incapable of coping. It is not surprising, therefore, particularly if we give ourselves the benefit of a little hindsight, that experience with flexible rates has proved something of a disappointment to many of their advocates. Even if we allow for the difficult circumstances in which the system was introduced, however, we must still recognize that exchange rates have, from the very outset, moved around far more than shifts in relative domestic price levels could possibly justify. There is still room to argue that the exchange rate system has simply amplified disturbances originating elsewhere, rather than being in and of itself a source of instability, but there can be no denying that such amplification has nevertheless in and of itself created enormous difficulties. For example, fluctuations in the international value of the dollar in all likelihood had their origins in the conduct of United States fiscal and monetary policies, rather than in any instability inherent in international financial markets, but that has been small comfort to countries who have had to cope with the effects of such fluctuations on the real value of their international indebtedness.

The exchange rate regime may well be the messenger who brings bad news, rather than the cause of that news, but it has nevertheless turned out to be an extremely tactless messenger, small wonder, then, that there is by now considerable disillusionment with flexible exchange rates, and that the system has become something of a minority taste among practical politicians and bureaucrats. The European Monetary System has been far more successful than its opponents originally expected precisely because European politicians, seeing advantages in exchange rate stability which they had earlier failed to appreciate, are willing to put its maintenance high on their policy agenda. On a wider scale, participants in Economic Summit after Economic Summit regularly pay lip service to the merits of greater exchange rate stability, and may, as did the Europeans, in due course begin to match their words with policy actions.

Perhaps then, if the world does move away from exchange rate flexibility in the next few years, that will have as much to do with practical matters and as little to do with academic fashion as did its adoption in the first place. But the academic debate has not stood still in the last two decades, and here too the case for exchange rate flexibility has not fared well. Many of the older elements in that case are now in disrepute, and a whole array of new considerations arising from recent developments in pure monetary theory appear to cast doubt on the fundamental viability of such a system. If the academic defenders of fixed exchange rates looked like a rather old fashioned minority in the 1960s, then so perhaps now do the academic defenders of exchange rate flexibility. In this lecture it is my purpose to outline these developments in academic opinion. I shall discuss, in turn, traditional elements in the fixed versus flexible exchange rate debate, the idea of "currency substitution" which lies

at the heart of its modern version, and the relevance of the so-called "legal restrictions" approach to monetary theory. Finally, and at the risk of myself appearing a little old fashioned, I shall suggest that there is, after all, still something to be said for exchange rate flexibility.

2. TRADITIONAL ARGUMENTS

It has long been recognized that, as far as pure economic theory is concerned, the best monetary system would involve the use of a single currency. The argument here is no less valid for being straightforward. It may be cast in terms of a simple, and well known, *reductio ad absurdum*. If the use of separate currencies whose relative prices can fluctuate is the best form of monetary arrangement among nations which trade with one another, why is it not also the best arrangement among regions of the same nation; among towns of the same region; among sections of the same town; among streets of the same section; or among individuals living on the same street? It is when this last question is put that the nature of the argument becomes clear. The very idea of transactions among individuals using as many monies as individuals is ridiculous. The whole point of the existence of money is to facilitate exchange, to overcome the well-known difficulties of barter, and to that end a single unit of account and means of exchange which all parties to a system of exchange may use is surely of the essence.

A single unit of account economises on record keeping and communications costs associated with trade; a single means of exchange economises on the search costs that would, in its absence, be incurred in finding willing partners with whom to engage in barter; and further cost savings may be realised by using the means of exchange as a unit of account, hence reducing by half the number of relative prices in the economy. Furthermore, a "nation" is a political entity with no self-evident significance for economics. As far as pure economic theory is concerned, trade is trade, and that which happens to take place across political boundaries is no different from any other kind. Computational and transactions costs are smaller the smaller the number of separate currencies involved in mediating trade, regardless of whether it is domestic, international, or a mixture of the two. It follows, then, as was asserted at the outset, that, from the point of view of economic efficiency, the best monetary arrangement for a world-wide economy is a single currency.

Now a single world currency is too much to expect, but the argument just presented suggests that it behoves those responsible for designing international monetary arrangements to approximate this ideal as closely as possible; and it is evident that a system of national currencies freely convertible at fixed exchange rates is a closer approximation than an otherwise similar system in which exchange rates are flexible, and hence subject to variation. To be sure foreign exchange transactions are not costless even at fixed rates of exchange, but when the rates in question

are indeed fixed, a potentially important source of uncertainty to whose reduction real resources would otherwise be devoted is removed. Only if the uncertainty associated with flexible exchange rates was entirely a reflection of problems which would manifest themselves elsewhere under fixed rates would this argument be invalid. The tendency of flexible rate systems to amplify certain disturbances alluded to above, and to be discussed again later, makes this defence of exchange rate flexibility a dubious one, to say the least, and I do not wish to rely on it here.

Now the logic of the foregoing arguments is indisputable. Hence any case that might be made for flexible exchange rates must either rest on some assumptions about market frictions that are not normally made in fundamental discussions of the advantages of monetary exchange, or have an important non-economic component to it. In fact both elements were present in traditional arguments for flexible exchange rates. In particular there was always, and of necessity, a strong political undertone to them, stemming from the simple fact that they took as their starting point a world economy made up of nations.² To recognize the existence of these political entities in a debate about an apparently economic issue is to introduce extra-economic considerations into that debate from the outset, because, as we have already noted, the nation is not an economic concept. Furthermore, traditional arguments for flexible exchange rates all begin, more often implicitly than explicitly, by denying that economic activity co-ordinated by monetary exchange functions "as if" the economy was entirely made up of a system of interlinked perfectly competitive markets. To assume the contrary is also to assume the relevance of that famous theorem concerning the Pareto optimality of competitive equilibrium, and hence (if one accepts the Pareto criterion as laying down appropriate standards for the conduct of policy) to assume as well that whatever the *political* role of government in the organization of the nation state, it has no *economic* role.

Those departures of real world economies from the *textbook* competitive ideal, which provide an essential part of the case for flexible rates, are well understood. They come into view the moment one considers the institutional arrangements required to render a competitive economy a viable form of economic organization in anything resembling the real world. For voluntary exchange to take place, there must exist well defined property rights that can be exchanged, a rule of law which ensures that such rights cannot be transferred by the application of physical force or deception, and so on. At the very minimum, then, a competitive economy requires the support of a so-called "night-watchman state". Furthermore, if there exists more than one such state in the world, the means of ensuring that property rights cannot be violated by outside invaders must also be put in place in each of them. The

²The political element in the case was, more often than not, left implicit. It is worth emphasising, therefore that Milton Friedman's famous 1953 essay on this topic paid careful and explicit attention to it.

competitive model either ignores these problems altogether, or assumes that they are solved without encroaching upon the economy's endowment of productive resources. Even a night-watchman state, however, would in fact use up resources with an opportunity cost in the market economy which it supports, resources which must be provided from within the system. In short, as Adam Smith knew very well, the state can only provide "Justice and Arms" if it has command over "Revenue".³

In levying taxes, the state cannot avoid questions about the ethics of distribution. There are principles which enable these questions to be settled, but choices nevertheless have to be made of the principles themselves. A tax system designed according to the "benefit" principle will not be the same as one based on "ability to pay" criteria, and within these broad categories there is enormous scope for detailed variations among alternative schemes. And none of this is to mention all those other economic problems which require the state's attention, and which provide staple topics of that branch of our discipline known as Public Finance — public goods, externalities which cannot be dealt with by tinkering with the nature of property rights, the weighting and representation of the interests of future generations, etc. Considerations such as these imply that, while a minimal state is all that is absolutely necessary to any form of economic organization remotely resembling the textbook competitive model, something considerably more than that is both conceivable, intellectually defensible, and, crucially, likely to be encountered in practice.

Economic analysis postulates that agents are self interested, and it should also postulate that they carry that self-interestedness into their political activities as well. There is no analogue in political science, however, to the economist's competitive model which deals with a uniquely best design for a set of social mechanisms guaranteed to convert the pursuit of individual self-interest into the creation of some collective good. In the world of nation states, which is the only one in which it makes sense to discuss international monetary arrangements in the first place, there obviously exist different political systems (even within the western liberal tradition, which hardly exhausts the possibilities). In the absence of any criterion to select the "best" solution to such problems, these systems in turn are likely to mediate the distributional conflicts which must arise over the design of public policy in different ways. It is therefore sensible to put some premium on accommodating differences among national policies when designing the institutional framework of international relations; and it is precisely at this point that the principles of the Classical theory of public finance, which do not usually loom large in discussions of international monetary arrangements, turn out to be quite basic to one of the few elements in the traditional case for flexible exchange rates which still retains validity in the light of modern macroeconomic theory.

³ The reference here is, of course, to Adam Smith's celebrated "Glasgow lectures" of 1763.

Those principles note that seignorage is a potential source of revenue to any government, and hence tell us that the question of how much, if any, revenue should be raised from the inflation tax ought not to be settled in isolation from the design of the tax-expenditure system as a whole. However, different political systems are likely to yield different choices about tax-expenditure systems, and hence about inflation.⁴ Such different choices in turn can only be accommodated within an international monetary system which permits exchange rates to move in order to reconcile them. This is not to deny that a case can be mounted to the effect that, for a particular country, it might be unwise to choose an inflation rate different from that ruling elsewhere, or even to deny that the citizens of such a country might, through their political processes, choose to give up inflation as a flexible source of government revenue by adopting a fixed exchange rate on the currency of some other country. It is, however, to argue that, so long as the design of the tax-expenditure system is a matter of legitimate political concern within a nation state, so must be the choice of the inflation rate, and this argument represents a valid element in the traditional case for maintaining exchange rate flexibility.

Very few economists would argue that the need for the minimal institutions of the night-watchman state is the only departure of real world economies from the textbook competitive ideal that we need to take notice of. As was noted earlier, various frictions, usually assumed away in discussions of the fundamentals of monetary theory, have an important place in the traditional case for flexible exchange rates. The frictions in question are those which provide the subject matter of short-run macroeconomics. Price and wage stickiness, and/or information problems, are of the essence in macroeconomic models in the "Keynesian" tradition, whose policy applications take it for granted that some, or all, of such problems characterize actual economies and require government action to offset their consequences. When such short-run analysis is applied to open economies, an array of arguments about the merits of flexible exchange rates naturally emerge, and indeed they played a larger role in the traditional case in favour of exchange rate flexibility than those having to do with optimal taxation. All of the arguments in question are nowadays controversial, and, in my view, some of them are, indeed always were, downright dangerous.

The most dangerous argument of all at one time played a central role in the case for flexible exchange rates. It starts from the simple fact, already noted, that such a system permits individual nations to choose their own inflation rates through their political processes. I have argued that, *as far as the design of tax-expenditure systems is concerned*, this is a virtue of flexible rates, but the matter has, more often in the past than nowadays, been carried much further than that. If one believes that the unemployment rate is a legitimate target of macroeconomic policy, and crucially,

⁴Marty (1976) presents a pioneering analysis of inflation in the context of the theory of optimal taxation.

if one also believes, as most economists did in the 1960s, that it varies systematically with the rate of inflation, then it follows at once that the authorities are faced with a policy menu in which inflation and unemployment may be traded off against one another. If different nations' political processes, for good or bad reasons, result in different combinations of inflation and unemployment being selected, then exchange rate flexibility is required to reconcile those choices internationally.

The flaw in this argument for exchange rate flexibility was fully exposed by Sumner (1976) and is by now widely recognized. It lies in the idea that the inflation-unemployment trade-off, the "Phillips curve", is a permanent component of the economy's structure. It is now twenty years since Phelps (1967) and Friedman (1968) pointed out that, if expectations about inflation respond to experience, and tend to catch up to reality, then this trade-off will be at best a temporary phenomenon; and it is more than ten years since Sargent and Wallace (1976) building on the seminal work of Lucas (1972), showed that even a temporary trade-off would vanish if economic agents came rationally to anticipate the conduct of macro-stabilization policy. If there are no gains to be made on the unemployment front, though, from varying the inflation rate, there is no benefit along such lines to be had from maintaining an appropriate exchange rate regime. One very important component of the case for flexible exchange rates, as it used to be presented, no longer stands.

One other aspect of the traditional case for maintaining exchange rate flexibility, stemming from concerns about unemployment as a macro-policy goal nevertheless remains, but, as I shall argue, its strength depends upon certain empirical judgements, rather than on the logic of any economic model. It rests upon the observation (whose validity is by no means universally accepted) that money wages and output prices are much more costly to change, and hence slow to move in the face of shocks, than is a market determined exchange rate.⁵ The latter is said to be, to use Hicksian terminology, a "flex-price", while the former are judged to include a significant proportion of "fix-prices". If we accept this proposition, even if only for the sake of argument, it is easy to show that an open economy will respond to various shocks in different ways, depending upon the exchange rate regime it has adopted. In particular, the susceptibility of unemployment to real shocks will be diminished, and to monetary shocks enhanced, by a flexible exchange rate.

Consider the impact of some real shock — a foreign taste or technology change for example — that renders a country's exports less marketable. Regardless of the exchange rate regime, domestic real income, and particularly the real incomes of factors employed in export industries, must be reduced. Under a fixed exchange rate regime, this must involve a fall (certainly relative to where they would have been, and perhaps absolutely) in money wages and in some prices too. If these are

⁵ Thus new-classical analysis in the spirit of Lucas and Sargent and Wallace denies the relevance of such rigidities.

sticky, the adjustment process might be accompanied by transitional, but not necessarily trivial, unemployment. Under a flexible exchange rate some at least of the burden of adjustment will be thrown into the foreign exchange market, and real incomes will be reduced by the relatively painless mechanism of an exchange rate depreciation. Two caveats, however, must immediately be offered here. First, it cannot be claimed that all adjustment will be thrown onto the exchange rate; real shocks usually require a change in the structure of domestic relative wages and prices and these may prove difficult even under flexible rates. Second, the argument hinges crucially upon rigidities being in *money* wages. In an economy characterized by *real* wage rigidity, the response of money wages to exchange rate changes is to move to eliminate their real effects. Such an economy would be thrown into a vicious circle of inflation and depreciation if it attempted to adjust to a negative real shock by varying its exchange rate, and hence would be better off maintaining a fixed rate. Here though, if real wage resistance persisted, it would be the unemployment rate which would have to bear the brunt of any adjustment.

Even if these last two qualifications to the argument are judged relatively unimportant, and flexible exchange rates are regarded as helpful in dealing with the impact of real shocks on an economy characterized by money wage and price stickiness, it must also be recognized that the very characteristics that are helpful in this context create problems in the face of a monetary shock. The exchange-rate "overshooting" effects which Dornbusch (1976) analysed arise from precisely the same differential in speeds of adjustment of the exchange rate and domestic money prices which renders a flexible exchange rate so helpful in the case of a real shock. The argument is usually cast in terms of a country whose monetary authorities cut back on the rate of monetary expansion in order to slow their inflation rate. Such a country will, under flexible exchange rates (and capital mobility) see its currency appreciate in anticipation of the lower domestic inflation that such a policy will generate, particularly since the initial impact of monetary tightening on domestic interest rates will be to drive them up relative to those ruling abroad. As a result, export and import competing industries, hampered by an inability to adjust money wages to cope with this premature appreciation, will find themselves at a temporary, but not necessarily unimportant competitive disadvantage during the transition to a new long run equilibrium. They would not encounter such a disadvantage under a fixed exchange rate.⁶

⁶Note that the case of "overshooting" proper, in which the exchange rate moves immediately to a value beyond its ultimate equilibrium value is a special case which may, but need not necessarily, arise in the case of wage and price stickiness. However, the tendency for the exchange rate to move ahead of wages and prices as all three adjust to a new equilibrium is a more general phenomenon, and always creates the kind of short-term, but not necessarily trivial, competitive problems referred to here.

Now to put the overshooting argument in this way can easily leave the impression that such unfortunate consequences of wage and price stickiness can be avoided if only the domestic authorities refrain from inflicting shocks on their own economy. However, this impression is misleading. The crucial factor which sets in motion overshooting effects is a change in the relative degrees of monetary tightness ruling at home and abroad. Such a change can surely arise from domestic policies, but it can also be instigated abroad. Thus an *easing* of monetary policy abroad, associated with an expected speedup of foreign inflation, will have exactly the same effects as a similar degree of *tightening* of domestic policy. Thus, this analysis of "exchange rate overshooting" provides a formal basis for the observation, made earlier, that a system of flexible exchange rates tends to amplify the effects of certain shocks, now as we may more precisely say, monetary shocks; or, to put the same point another way, it demonstrates that the alleged capacity of a flexible rate system to insulate the home economy from foreign shocks is at best limited to the long run effects of monetary shocks and the short run effects of real shocks. Such a regime can do nothing about the long-run consequences of real changes in tastes and technology, while it actually makes some of the short run effects of foreign monetary instability worse.

Now one could go into considerably more detail about the traditional case for flexible exchange rates than I have in the last few pages, but my purpose has not been to produce a detailed survey of what are, after all, well known arguments, but simply to remind the reader of their general nature. When all is said and done, the traditional case for flexible exchange rates amounts to the following: a nation which wishes to have control over its own inflation rate must operate a flexible exchange rate. If it does so, it might also benefit from an enhanced ability to adjust more (though not perfectly) smoothly to real shocks, although this must be traded off against the possibility that monetary shocks will have their temporary real effects enhanced. Whether these latter considerations contribute or detract from the case for flexible rates must depend upon a judgement about the likely relative frequency of real and monetary shocks, about the degree of wage-price stickiness that characterizes the economy, and about the extent to which the stickiness in question is of money rather than real wages and prices.

If there were no more to the debate about exchange rate regimes than this, it would hardly have been worthwhile to write this lecture. However, in recent years, certain new ideals have entered the literature of monetary economics, have been applied to questions concerning the international monetary system, and do, I believe, lead to certain fresh insights into the old debate about flexible exchange rates. Central to these ideas, which have had the label "New Monetary Economics" attached to them, is the notion of "currency substitution", and it is to this topic that I now turn.

CURRENCY SUBSTITUTION

The notion of currency substitution originated in an unpublished 1973 paper by Russell S. Boyer entitled "Nickels and Dimes", and the arguments which he presented there remain the most useful in explaining its fundamental characteristics.⁷ Boyer imagined a simple closed economy in which trade was mediated by monetary exchange, and noted that, according to usual neoclassical maximising principles, there would exist in that economy a well defined demand for a stock of real money balances. He went on to point out, again quite conventionally, that given a certain stock of nominal fiat money, the price of goods in terms of that money would be determined by the interaction of the nominal money supply with the above-mentioned demand for real balances.

At this point, however, Boyer posed a deceptively simple question: namely, what would happen if there existed in this economy two, instead of one, forms of fiat money, called, as the title of his paper suggests, nickels and dimes respectively? Clearly, the demand for real balances would not be affected by this change, so that, given exogenously fixed nominal quantities of the two monies, and, utterly crucially, *with a fixed relative price between them*, the nominal money stock would be determined interchangeably in units of one or the other. The price level too would then be determined in units of both monies. What, however, Boyer went on to ask, would determine the relative price ruling between the two fiat monies, which has to be fixed for the above argument to go through? In the simple economy which he imagined, the answer was: "Nothing". Any price of nickels in terms of dimes between zero and infinity would be equally compatible with overall equilibrium between the supply and demand for money.

Boyer's analysis must have seemed to readers in the early 1970s to be quite other-worldly but it turns out to be an extremely useful starting point for a search for a deeper understanding of the issues involved in the debate about flexible exchange rates than is to be had from the conventional arguments outlined earlier in this lecture. As I have already noted, a nation is a political, not an economic, entity, so it does no violence to Boyer's analysis to think of his closed economy as consisting of two nations, each with a domestic fiat money, called, shall we say "dollars" and "yen". If we recast the vocabulary of his analysis in this way, we do not change its logical properties. However, we now see that Boyer's model predicts that, under a flexible regime, the exchange rate between the two currencies, and the price levels of goods in terms of them, are completely indeterminate. The only variables which the model ties down are the world-wide stock of real balances and its distribution

⁷The basic ideas of this paper were incorporated in Boyer (1978), but only became widely known with the publication of Girton and Roper (1981), a paper which explicitly and generously acknowledged Boyer's contribution.

between the two countries. Now one must be careful about how one interprets the significance of these conclusions. Boyer certainly did not intend them to be treated as predictions about the world we live in. Rather he sought to raise questions about what factors, ignored in his model, might nevertheless be at work in the real world to remove, or at least mitigate, the tendency to exchange rate indeterminacy that he had uncovered.

The most obvious possibility here is the intervention in the foreign exchange market which, in the real world, monetary authorities do indeed undertake. We have already seen that, with the relative price of two nominal monies pegged, Boyer's framework becomes an almost trivially simple, not to say conventional, neoclassical model of price level determination. The real world analogue of such pegging in his model is of course a fixed exchange rate regime, so one way of reading his results is as a warning that a fundamental indeterminacy is inherent flexible rates but not under a fixed exchange rate system. Interpreted this way, Boyer's analysis of currency substitution provides a new component for the case against exchange rate flexibility. The indeterminacy in question here, be it noted, is in the static equilibrium value of the exchange rate, but an argument about the dynamic properties of the exchange market may be mounted which tends to remove this indeterminacy in a rather special way, as we shall now see.

Recall that the demand for any asset depends, among other things, upon its own rate of return relative to that yielded by close substitutes, and recall too that, in the basic currency substitution model, nickels and dimes (dollars and yen) are perfect substitutes for each other. Suppose we start off at some historically given relative price between the two monies, and assume that, once more as a result of unanalysed past events, the price levels in terms of each of them stand at their equilibrium levels. Then suppose we set in motion a version of a quite standard stability experiment. Specifically, let us disturb the initial equilibrium by forcing some exogenous change on the relative price of the two monies while leaving their prices in terms of goods unchanged, (though free to move). Clearly, to restore the initial equilibrium, one money would have to appreciate and the other depreciate. If agents came to expect that to happen, however, they would also change their estimates of the yields to be earned by holding the two monies. *Given perfect substitutability between them*, there would be an immediate and complete flight from the depreciating to the appreciating money, and the model would go to a solution in which one nominal money was quite valueless. In short, if we begin with two monies, and do not peg the exchange rate between them (thereby artificially creating one money) we create a world in which the slightest disturbance to any equilibrium in which two monies exist will immediately take us to a single money equilibrium. Of the infinite array of static equilibrium solutions to Boyer's model, then, only two corner solutions turn out to be dynamically stable. If we take this result seriously, then, the choice of

exchange rate regime seems to boil down to one between pegged rates or a single currency for the international economy.

It would, however, be premature to stop at this point, because there are other ways of modifying Boyer's analysis than those so far taken.⁸ Thus, we could note that, the above-mentioned implications of Boyer's analysis notwithstanding, we do encounter in the real world cases of exchange rate flexibility among fiat monies in which the currencies in question continue to co-exist despite differences, and variations in the differences, among their own rates of return. From the point of view of the *mechanics* of the Boyer model, the accommodation of this observation is easy to achieve and quite uncontroversial. All that is required is the postulate that the two currencies be less than perfect substitutes for one another, that the elasticities of demand for each them with respect to the rate of return differential ruling between them be less than infinite. This modification is enough to produce separate real demands for the two currencies and therefore, for given nominal quantities of the two, a determinate exchange rate between them. It is, in short, sufficient to convert Boyer's model into a simple version of the conventional two-country framework for studying flexible exchange rates which, with various further extensions, produces all of the conventional results outlined in the first substantive section of this paper. The mechanics here may be uncontroversial, but there is scope for a great deal of debate about the source of the imperfect substitutability that underlies those mechanics, debate which is of considerable relevance to questions about the desirability of flexible exchange rates.

LEGAL RESTRICTIONS

Perhaps the most radical development in monetary theory in recent years has

⁸ Although it is of more historical than current interest, it is worth noting explicitly that we could replace Boyer's (realistic for the late twentieth century) assumption of competing fiat monies with one (extremely relevant to the economic history of the 19th century and earlier) of competing commodity monies. In this case, considerations of moving the commodities in question between their monetary and non-monetary uses, and of altering their overall quantities by current production enter to complicate matters. Even so, it is worth noting that Gresham's law, which states that, *with their relative mint price fixed*, the bad (overvalued relative to its cost of production or value in some other non-monetary use) metal will drive out the good, so that a bimetallic system will degenerate to monometalism, is closely related to the proposition that substitution between fiat currencies will, *when their relative price is not fixed* lead to one of them becoming dominant. I do not have space in the paper to deal with these matters, but the reader who is interested in following them up will find that the extensive late 19th-early 20th century literature dealing with the determination of exchange rates between gold and silver standard countries, and the properties of fixed-mint-price gold and silver bimetalism has analysed them thoroughly. Alfred Marshall's 1887-88 evidence to the Gold and Silver Commission, and Chapter VII of Irving Fisher's (1911) *Purchasing Power of Money* between them provide an admirable survey of the principle results achieved there.

been what Hall (1982) has called "the New Monetary Economics", henceforth to be referred to as NME, whose most visible exponents are Thomas J. Sargent and Neil Wallace (1982) and their associates. They take the co-existence of a non-(or low-) interest bearing asset such as money with other income earning securities to be a key fact that monetary theory must deal with, and they offer two basic explanations of the phenomenon. In the case of money which itself represents a claim, either on some real resource or income stream, current or deferred, its desirability is said to stem from the desirability of this "backing". This strand in the NME harks back to the turn of the century anti-quantity-theory analysis of J. Lawrence Laughlin, although the stress which Sargent and Wallace lay on the viability of the fiscal regime as a determinant of the quality of money's backing gives an original twist to their treatment of this idea.⁹

Even so, questions of the relevance of money's backing do not arise in the case of pure fiat money. Here the NME, particularly as articulated by Wallace (1988), attributes the existence of a distinct demand for money to the existence of "legal restrictions" imposed by government on the otherwise voluntary market activity of individuals. Commercial banks are required to hold central bank money as a reserve against their own liabilities; legal tender laws force agents to transact in terms of central bank money, or commercial bank liabilities directly convertible into it; tax regulations specify that liabilities to the government may only be discharged by transferring these assets; and so on. Such restrictions exist, so it is suggested, in order to enable government to collect revenues through seignorage, and play no role in promoting the economic welfare of individuals. Because governments are at best national in scope, each country has its own regulation-created money for which there exists a distinct, again regulation-created, demand. Thus, the demand for money function as we know it, perhaps the most intensely studied of all empirical relationships is the product, not of any fundamental economic process, but of government intervention in market activity.

If this argument of Wallace is valid, it is of profound significance for our conventional treatment of the flexible versus fixed exchange rates debate. This debate does, after all, concern the desirability of alternative forms of government intervention (or lack thereof) in market transactions involving the use of national monies. The nature, and stability, of the aggregate demand for real balances function contained in the models of national economies we use to address these issues is often crucial to their behaviour. If that function itself is the creation of government intervention in market processes, then it is inappropriate to assume that it is invariant to changes in regulations involving trans-border monetary transactions; economic

⁹ See Gorton and Roper (1978) for an accessible account of Laughlin's work. Knut Wicksell's (1906) *Lectures . . . (vol. 2.)*, Irving Fisher's (1911) *Purchasing Power of Money*, as well as Ludwig von Mises (1912) *Theory of Money and Credit* all contain rebuttals of it, which are (in my view at least) both effective and still worth reading.

models which do so are at best irrelevant to, and perhaps misleading about, questions concerning the design of the international monetary system; and our best guide to understanding the issues is the "deeper" (so-called) *a priori* analysis of the NME. That analysis, though, as Karekan and Wallace (1978) have explicitly argued, tells us that, in the absence of legal restrictions which, as such things usually do, disturb the Pareto optimality of the economy's equilibrium, we are back in Boyer's world of perfect currency substitution whose static properties yield indeterminate equilibrium exchange rates, and whose dynamics produce a single dominant currency.

Now I find the "legal restrictions" version of the NME a hard doctrine to swallow. It is, as Wallace has suggested, an "oversimplification", and I would add, as he would not, a misleading one. Nevertheless, one must be careful in criticising it. Its weakness is not that the factors upon which it focusses are irrelevant in the monetary systems which we encounter in the real world. Rather it is that the approach focusses on them alone, to the exclusion of other relevant matters. Just as the "backing" theory of the value of money converts one relevant influence on money's current desirability — in this instance its expected future command over utility yielding resources — into the sole relevant influence, so too does the legal restrictions hypothesis. No one could, or should, deny that reserve requirements affect the demand for central bank liabilities, or that laws forbidding domestic residents to hold bank accounts denominated in anything other than domestic currency affect the demand for bank deposits; nor should they deny that changes in such regulations have the potential to shift empirically estimated demand for money functions. To the extent that the NME has reminded economists who had forgotten that the prevailing legal framework affects the demand for money function, so that the "Lucas critique" is as potentially relevant there as anywhere else, it is valuable.¹⁰ To the extent that it treats national laws and regulations as the sole source of demand for distinct national currencies, however, it goes, as I shall now argue, too far.

When applied to questions about the international monetary system, the legal restrictions approach starts by picturing the world economy as an integrated competitive entity, upon various regions of which different monetary regulations are imposed by *dei ex machina* called "governments"; but the actual international economy, and the monetary system which goes with it, did not evolve in this way.¹¹ To the extent that the history of that economy is important to understanding its current configuration, so too is the contrast here between theory and practice. To put it crudely, theory starts with an integrated world economy but economic history

¹⁰ But I hasten to add that those engaged on empirical work on the demand for money have not neglected the influence of changing regulations on the stability of the relationship, as a glance at Judd and Scadding's well known (1982) survey paper will soon confirm.

¹¹ See Haberler (1980) for a commentary on the empirical relevance of Karekan and Wallace's application of currency substitution ideas to the fixed versus flexible exchange rate issue which deals in more detail with some of the issues raised here.

tells us that the world economy has evolved, in fits and starts to be sure, from a collection of rather self contained entities towards an integrated whole. Moreover the evolution of monetary institutions was both piecemeal and local. In large measure, the restrictions which interfere with the attainment of the textbook ideal of a single-money-for-a-single-economy ideal were already there before anything much resembling a single world economy evolved. Moreover the institutional characteristics defined by formally legal restrictions were not usually created by them. The role of law here, as Menger (1892) long ago argued, has more often been to codify practices and obligations which had already evolved as social conventions.

In my view, the real problem facing those seeking to understand the international monetary system and to comment on its appropriate configuration is to understand why the pattern of growing integration among national economies over time has not found a closer parallel in the integration of their monetary systems. The evolution of institutions surrounding the provision and regulation of the means of exchange (and which ought not to be confused with asset markets in general) seems to parallel that of political rather than other economic institutions. To oversimplify the last thirty years or so of history, the world economy (or at least the western world economy) became more integrated as far as trade and goods and services is concerned. However, with the slow decline of United States' political dominance, the world polity became more fragmented. So too did the international monetary system, as the United States Dollar based Bretton Woods System gave way to the current flexible exchange rate regime. A proponent of the legal restrictions approach would presumably put this latter development down to a growing desire on the part of national governments to maintain, and indeed extend control over their seignorage income. As I shall now go on to argue, the reason why monetary developments have mimicked political rather than other economic changes is perhaps deeper than this, lying in the public-good nature of money, and the tendencies to natural monopoly inherent in its provision, factors which the NME ignores.

MONEY AS A PUBLIC GOOD

The NME has one important feature in common with the Monetarist and Keynesian economics which preceded it: whatever the words accompanying its theoretical arguments might say about money's role in mediating market transactions, the theoretical arguments themselves treat money as a store of value pure and simple. Though modern monetary economists, no matter what specific doctrines they might subscribe to, will always in their verbal arguments identify money's means of exchange role as crucial, the logical structure of their models tells a different story altogether. In Keynesian or Monetarist models, just as much as in the more precise constructions of the NME, the individual agent's demand for a stock of money is treated as the demand for an asset pure and simple, and its quantity is

derived by considering its private return relative to that on other stores of value. The benefits derived by agents from holding money are thus treated as being purely private in nature. If the services yielded by money are treated like this, however, any government action which impinges upon individual choices about holding money cannot help but appear as an (economically) unwarranted interference with maximizing behaviour. But money *is*, after all, a means of exchange, and a system of monetary exchange *is* in every bit as fundamental to the operation of any economy based on voluntary trade as is a system of well defined and protected property rights. The fact that our conventional models of the demand for money do not take account of this fact do not make it any the less true.

Individual agents cannot each choose their own monetary system; they do have to participate in a common set of arrangements; and it is also true that particular individuals cannot be excluded from using the system once it is in place. The monetary system does appear, therefore, to have the requisite characteristics to be analysed as a "public good".¹² To say that a monetary system is a public good does not mean that the *provision* of a means of exchange should be included automatically in the functions of the "night-watchman" state. The theory of public goods tells us only that the demand for them must be articulated collectively. It does not also say that they must be collectively provided, or that their provision should be regulated. Indeed the literature dealing with the competitive provision of money, usually associated with the names Friedrich von Hayek (1976) and Laurence White (1984), which has much in common with the NME, argues that private sector competitive provision of the economy's means of exchange is quite feasible. To say that a particular solution to a problem is feasible, however, is not to say that it is also the best solution available. As I shall now argue, there are good reasons to suppose that, in the specific case of money, government participation in its supply and control is defensible, and that the imposition of certain legal restrictions on the monetary system, far from being unjustifiable and welfare reducing, are economically desirable.

To begin with, monetary exchange involves agents in surrendering their property rights in utility yielding goods and services for money, in the expectation that the money in question will in due course be accepted as payment for other goods and services, and the acceptability of money is overwhelmingly a matter of social convention rather than law. Nevertheless, part of the problem of ensuring that the property rights which are traded in a market economy are well defined involves clear specification of what acts do and do not constitute their transfer, so that disputes can be settled in a non-arbitrary fashion as and when they arise. A clear legal definition of what action does, or does not, suffice to discharge a debt is of the

¹² See Weldon (1973) for an early and much neglected analysis of money along these lines.

essence here, and legal tender laws offer just that. Those laws do not prevent agents voluntarily contracting to discharge obligations in other ways, but they do prevent one party to a bargain being coerced into such contracts, and they do help define what agreements are and are not enforceable at law in the event of a failure of one party or another to comply with them. Legal tender laws are thus part of the framework which defines property rights and hence help to make voluntary exchange feasible. They play a role similar to that of a government guarantee of weight and fineness stamped on a gold coin in a commodity money system in increasing the informational efficiency of the economy's exchange mechanisms.

Modern work on competitive money, such as that of White, recognizes that a system in which the means of exchange consists mainly of the liabilities (whether notes or deposits) of a competitive banking system requires some primary money to serve as the reserve base of the system. While such a reserve asset could be defined by social convention, it would, as the foregoing arguments suggest, be better if that convention became clearly defined in law. Moreover, in a fiat money world, it is hard to see that the provision of base money would not be a natural monopoly. After all, its primary function is to settle clearing balances among the institutions who provide the public with a means of exchange, and it has been well known since the work of Edgeworth (1888) on "The Mathematical Theory of Banking" that there exist economies of scale in this activity, stemming from the law of large numbers. It is surely uncontroversial that a necessary (though not of course sufficient) condition for a natural monopoly to promote the public rather than the private good, is that it be regulated, or operated directly by, government. A private profit maximising organization that had a monopoly over the provision of primary money would be a seignorage maximizer, aiming to generate a rate of inflation which would drive the nominal interest rate to a level at which the elasticity of demand for real balances was equal to -1 . There is no reason whatsoever to believe that the resulting inflation rate would be a socially desirable one.¹³

Now the reader will note that to argue, as I do here, that one base money is better than more than one is to present a variation on the theme encapsulated in the *reductio ad absurdum* with which the second section of this paper began. That same reader will also note that to argue that the rate of seignorage generated should be a prime consideration in judging the activities of whatever agent provides that base money is to restate what I have earlier termed the one valid element in the traditional case for flexible exchange rates. However, the discussions of the last few pages have, I believe, done more than merely repeat old arguments. They have also provided those arguments with deeper and more secure foundations. I have argued that money's means of exchange and unit of account functions, unlike the

¹³ And this is not to mention that the provider of base money also has a role to play as a lender of last resort.

pure store of value role stressed by modern monetary theory, lend a public character to the services it provides. If this insight is accepted, then it follows that government becomes involved in the provision of money not simply because the inflation tax is a useful source of revenue (though it might be), but because the provision and regulation of the monetary system is a basic function of even the night-watchman state, and that the evolution of the monetary system tends to follow that of political, rather than economic activity, because its maintenance presents problems which cannot by their very nature be dealt with by the decentralized market activities of individual agents.

The implications of the foregoing, somewhat esoteric, arguments for the fixed versus flexible exchange rate debate are easily drawn out. They amount to the proposition that the provision of a monetary system requires the intervention of government. Since effective governments exist at the level of the nation state, rather than of the world as a whole, we should expect to observe a series of national currencies rather than one world money. It would be going too far, however, to build on this observation a case that an international monetary system *must* be based on national monies linked by flexible exchange rates. Monetary nationalism may be a natural and obvious choice for an individual government, but it is not the only one open. The provision of police services is a proper function for local government, but that does not mean that every town and village should organize its own force; and "contracting-out" the provision and regulation of primary money to some other government, either by adopting its currency outright as in the case of one or two countries with the U.S. dollar, or by the more usual adoption of a fixed exchange rate on some other country is a viable option.

If we look at the operation of a fixed exchange rate system as a form of contracting out government services, however, we put debates about the choice of exchange rate regime in a useful perspective. This point of view first of all enables us to see that, in the absence of some supra-national entity whose legitimate authority is recognized by the nation states of the world, the idea of a single world money will remain just that: an idea. It also forces us to consider the possibility that, just as the extent of the contracting out of services among private parties, firms, local governments, and so on depends upon the ease with which contracts can be enforced, and the degree of trust existing among the parties, so does the viability of arrangements to contract-out the provision of monetary services among nations by way of fixed exchange rates among national currencies. Given the absence of an effective supra-national monetary authority to enforce good behaviour on the international suppliers of primary monies (which are called key currencies when they are provided to an international as opposed to domestic market), it is hard to imagine many governments entering into irrevocable arrangements to fix their exchange rates. If there is to be exchange rate pegging in the real world then, the peg is going to be

adjustable, and the less trust there is in the future good behaviour of the authority providing a potential key currency, the more adjustable will it be. A flexible exchange rate is simply the limiting, no contracting out for want of trustworthy suppliers, case of this general tendency.

CONCLUSIONS

One conclusion of this paper is that very little indeed remains of the traditional case for flexible exchange rates. Their alleged capacity for permitting individual countries to exploit an inflation unemployment trade-off, which did so much to make flexible exchange rates attractive in the 1960s, has long since been shown to be non-existent. Though they can help an open economy cope with certain types of real shocks in the presence of money wage and price stickiness, their operation also turns out to amplify the consequences of monetary disturbances elsewhere in the world. Any preference for flexible exchange rates that stems from their insulating properties, then, must hinge upon an empirical judgement about the likely sources and sizes of disturbances in the world and domestic economies, and not upon any general theoretical proposition.

Nevertheless, there is another conclusion to be drawn as well, namely that there exists a strong, though by no means overwhelming, political presumption in favour of a flexible exchange rate regime. To maintain a flexible exchange rate is to retain domestic control over a matter of inherent political importance, namely the conduct of monetary policy, and to move towards exchange rate fixity is to begin to entrust the conduct of such policy to others. Where supranational political bodies which deal with economic policy exist and are respected, and/or where a consensus develops between countries as to what constitute desirable goals, then the "contracting out" of monetary policy becomes feasible. That is why the European Monetary System has proved viable in recent years. It also becomes feasible where there exists trust that a particular country will conduct its policy in a responsible fashion. That is why the international gold exchange standard (based on the pound sterling) flourished before the First World War, and the Bretton Woods System (based on the U.S. dollar) worked so well after the Second. However, in the absence of trust among nations in the responsibility with which their monetary policies will be conducted, fixed exchange rates are impossible. It is in this observation that the remaining, but still considerable, strength of the case for flexible exchange rates resides.

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the requisite characteristics to be analyzed as a *public good*". Professor Laidler also adds that "it has been known since the work of Edgeworth . . . that there exist economies of scale in this activity [and that] it is surely uncontroversial that a necessary (though not of course sufficient) condition for a natural monopoly to promote the public rather than the private good, is that it be regulated, or operated directly by government". This raises a host of interesting issues which, in my view are worth pursuing in light of recent advances in general equilibrium theory with increasing returns; see Cornet's (1988) introduction for an overview and detailed references. In particular, the recent work on Lindahl-Hotelling equilibria (Khan-Vohra (1987)) shows the viability of an equilibrium concept which considers both the presence of public goods as well as the fact that these public goods are produced under increasing returns to scale. Essentially, the concept uses Hotelling's prescription whereby the production of commodities produced under increasing returns are regulated and marginal costs at these production levels are given to the convex sector to be taken as parameters. If these commodities are also public goods, then one relies on personalized prices as advocated by Wicksell, Lindahl, Allais and Samuelson, to cover the marginal costs of producing these commodities. Of course, as is well understood, there is the "free rider" problem under which individual agents have an incentive to misrepresent their preferences and understate their demand for the public good. Presumably, this is less acute in the context of the creation of a monetary authority. At any rate, there have been impressive recent advances in the theory of mechanism design and this literature may be relevant here; see Maskin (1985) for a survey. However, even abstaining from these difficulties, it is far from clear whether production should be regulated at marginal cost prices or, as advocated by Boiteaux, at average cost prices. Vohra (1988) has some interesting examples in this connection.

In summary, I learnt a lot from Professor Laidler's paper from thinking, even at this superficial level, on issues raised by him.

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Comments on “What Remains of the Case for Flexible Exchange Rates?”

Professor Laidler's paper is thought provoking, timely and has far reaching implications not only to the economies of the developed nations but, more importantly, to the World Monetary System at large. This paper raises some very crucial and important questions regarding the desirability and the effectiveness of the fixed versus flexible exchange rate systems in the present day politico-economic world.

Professor Laidler starts his paper by arguing that an international monetary arrangement with currency unification (or single world currency) promotes economic efficiency and that a fixed exchange rate rather than a flexible exchange rate system is the one largely closer to a world economy with a single currency, and therefore a monetary arrangement with a fixed exchange rate would be economically efficient. He further argued that since it is difficult to achieve, and even more difficult to sustain, a monetary union without political integration, a currency unification and hence a fixed exchange rate would be impracticable if not impossible. Therefore, he finally concluded that the desirability and sustainability of the current flexible exchange rate system “is much more a matter of what is politically feasible than economically desirable”. (p. 19).

Professor Laidler's lengthy discussion on his disenchantment with the views proposed by the proponents of the school of “New Monetary Economics (NME)” on the issues of “Currency Substitution” and the “Money as Public Good” are very refreshing, philosophical and have implications which I believe are significant contributions to the literature. My comments are therefore, focused on these two issues.

On the issue of “currency substitution”, Professor Laidler noted that under the flexible exchange rate system, if two (or more) international currencies are perfect substitutes, then there is an indeterminacy of exchange rate. In order to solve this possible instability in the exchange rate determination, he proposed that the two currencies be assumed to be less than perfect substitutes. In his paper he, however, did not provide, any explanation as to how the two currencies could be made less than perfect substitute. Tobin (1978), on the other hand suggested, “to throw some sand in the wheels of our excessively efficient international money markets” to introduce imperfections in the substitutability of the currencies. Tobin particularly proposed a uniform proportional tax on all spot rate conversions of the currencies.

This proposal, to a large extent, is expected to eliminate massive short term capital flows and thus allow the basic balance to determine the exchange rate. Although Tobin's *tax proposal* to avoid exchange rate indeterminacy seems simple and attractive, it has also been criticized by Dornbusch (1983) on the grounds that such a proposal may have limited applicability. In particular, Dornbusch (1983) argued that the increase in interest rate in the presence of Tobin's tax would be much higher for a country which is experiencing a current account deficit and it wishes to adopt an interest rate policy to eliminate current account imbalances. Consequently, as Dornbusch (1983), p. 72 notes that such a country would now "suffer the burden of financing the deficit and the Tobin tax".

I agree with Professor Laidler's argument with respect to the *public-good* nature of money and that the role of government should be a factor to take into consideration in the provision and regulation of the monetary system. It is also true that without some "supranational" government a global fixed exchange rate system is impracticable. But when considering the current problems of the international monetary system, we however, observe the dominant role played by the large industrialized countries (specifically, the G7 countries) creating an environment with strong implications for the process of negotiating a monetary regime as well as for the interplay of monetary policies under a given monetary regime. In situations such as this, the economic theory of perfect competition would be inadequate to solve the complex problems of the international monetary system. In fact, as suggested by Hamada (1985), one has to take into account explicitly the "political process of adopting and reforming the international monetary system endogenously". I think it is in this context that Professor Laidler concluded his paper stating the success of a given regime "is much a matter of what is politically feasible than economically desirable."

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