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The OCA Approach to Exchange Rate Regimes: A Perspective on Recent Developments

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I. Introduction

Interest in the theory of optimum currency areas (OCA) has waxed and waned over the years since Robert Mundell's (1961) pioneering contribution. Currently stimulated by the global currency crises and European Monetary Union (EMU) there is a tremendous resurgence of interest in using OCA theory to analyze exchange rate issues. Unless one believes that the recent financial crises were caused primarily by destabilizing speculation,[1] these crises have little relevance for the choices should be made between fixed and flexible rates. What they do highlight, however, is that high international capital mobility has made it increasingly difficult to run compromise systems based on adjustably pegged exchange rate regimes. Thus countries face increased pressure to move toward one or the other ends of the fixed versus flexible rate spectrum. This in turn greatly increases the relevance of OCA analysis for policy decisions.

At the same time there has been increasing technical criticism of the relevance of OCA theory in light of developments in macroeconomic analysis and the conditions in emerging market economies. For example, Bofinger, Svindland and Thanner conclude that "the traditional literature on optimum currency areas has to be regarded as a relic from the Keynesian paradigm" (1993, p.15), while Goldberg, Ickes, and Ryterman "…question the relevance of using optimum currency area arguments for considering the adoption of independent currencies in the FSU (Former Soviet Union}" (1994, p.295).

This paper reviews the recent developments in OCA, both positive and critical, and attempts to put them in perspective. It argues that the recent criticisms do not undermine the OCA approach, but as with the positive contributions, add to the number of considerations

[1] For a view that this was not the case, see Willett (2000). With destabilizing speculation genuinely fixed, as opposed to adjustably pegged, rates would eliminate the disturbance.

that are relevant and influence the weights which should be given to different considerations. As a result, the OCA criteria do not always give clear and unambiguous signals about what exchange rate regime a country should adopt. But this should not be any more surprising than that economists continue to disagree about optimal macroeconomic policies. Even where we cannot reach agreement about policy recommendations, theory helps us understand better why we disagree.

II. A Perspective on OCA Analysis

Some economists such as Charles Goodhart (1995) challenged the relevance of any economic criteria at all. Currency area formation they argue is dominated by political considerations. A prime example is that the recent creation of the European Monetary Union. While it was sold in part on the inaccurate assertion that monetary union was a necessary step to complete the single market, it was motivated overwhelming by political considerations.[2] It is arguable that monetary union might be economically efficient for an inner group of EU on OCA grounds, but many members of the large EMU clearly do not come close to meeting OCA criteria.[3] Rather joining EMU became seen by politicians as the distinction between first and second class European citizenship.

Political considerations certainly impose important constraints on the relevance of applications of OCA analysis. For example, in his original contribution Mundell (1961) suggested that on economic grounds it might be desirable to replace the Canadian dollar and the US dollar with two new currencies, one for the Eastern regimes of Canada and the US and one for their Western regimes. Recent statistical work by Bayoumi and Eichengreen (1994) has supported the basis for this conjecture. However, this is not a practical suggestion on political grounds. While many countries allow foreign currencies to circulate in their

[2] See, for example, Andrews and Willett (1997), Eichengreen and Frieden (1994), and Willett (1994).
[3] See De Grauve (1992).

economics, it is difficult today to imagine a national government allowing the creation of multiple domestic currencies. It is true that common currency areas are sometimes split apart as nations split apart, as has occurred recently with Czechoslovakia and Yugoslavia, but there is little reason to think that OCA considerations played any role in these desolutions. Likewise I am not aware of emphasis on OCA considerations in Canadian discussion of succession by Quebec.

Thus for practical purposes we should pursue OCA analysis from an outward perspective with respect to national political units. Practical political considerations will also often limit a country's options with respect to the terms of joining currency areas. An issue of obvious importance is who determines monetary policy within a common currency area. When Austria decided to fix the schilling to the German mark and become a part of the DM area, it would obviously have preferred the creation of a new joint currency in whose management it had some say. For this, however, Austria had to await the formation of the much broader currency area of the Euro which in turn required a very unusual set of political circumstances. The situation in North America is quite different. In the near future there is no possibility that the United States would agree to combine with Canada and Mexico to form a new common currency to complement NAFTA. As will be discussed below, such a position by the US makes sense on OCA grounds, but even if it did not, there would be no short on medium term chances of this occurring. Thus for the foreseeable future the only relevant option for Canada, Mexico, and the countries of Central and South America is the unilateral joining of the US dollar area through adoption of a hard peg like Austria to the DM, a currency broad like Argentina, or dollarization such as Ecuador and El Salvador have recently adopted.

Despite this importance of politics in determining the formation of regional currency areas, OCA analysis retains strong relevance both for normative analysis of the costs of

monetary unions[4] and for both positive and normative analysis of the choices of exchange rate regimes by individual countries. The analytic core of OCA theory is its focus on the factors which influence the relative costs and benefits of fixed versus flexible exchange rates. This makes OCA theory relevant for the choice of exchange rate regimes by countries with independent currencies, and for this purpose the economic criteria of OCA theory have considerable positive explanatory power as well as normative value.[5]

Another type of criticism is that OCA theory does not lead to a single quantifiable criterion. As the literature developed and more considerations were shown to be relevant, some concluded that the OCA approach was a dead end.[6] At the same time other economists, such as Tower and Willett (1976), suggested that the incorporation of additional considerations showed the power of OCA analysis, not as specific theory, but as an approach for thinking about exchange rate issues. In this view the greatest value of the OCA approach is that it demonstrates the fallacy of debating the virtues of fixed versus flexible exchange rates in the abstract and focuses attention instead on the factors which influence the relative costs and benefits of alternative exchange rate regimes for different countries. From this perspective one should never have expected OCA theory to lead to a single quantifiable criterion any more than that macro economic theory would lead to unambiguous strategies for optimal monetary and fiscal policies. Indeed, in his original contribution to the OCA literature, Robert Mundell (1961) was careful to note that "the idea of optimality…. is complex and difficult to quantify precisely" (p.717)

[4] To many economists it seems likely that the EMU's strategy may backfire, with the economic costs of inappropriate memberships in EMU generating more political fiction than cohesion. See, for example, Feldstein (1997), and Willett (1994).

[5] See, for example, Al-Marhubi and Willett (1998) and Bayourni and Eichengreen (1997) and (1998).

[6] See, for example, Ishiyama (1975). For valuable reviews of this and other criticisms of OCA theory, see DeGrauwe (1992) and Talvas (1994).

III. The Basic OCA Trade Off

Traditional analysis of OCA theory has typically been conceived in terms of balancing the micro benefits to be gained by enhancing the usefulness of money by expanding the effective domains of individual currencies through currency unification or fixed exchange rates against the macroeconomic costs of giving up the exchange rate as an instrument of balance of payments adjustment and therefore subjecting domestic macroeconomic policies to a binding balance of payments constraint. As Robert Mundell put it in his original development of OCA theory,

> A system of flexible exchange rates is usually presented, by its proponents, as advice whereby depreciation can take the place of unemployment when the external balance is in deficit, and appreciation can replace inflation when it is in surplus. (p. 657)

Against this must be balanced not only the diminution of the usefulness of money implied by a greater number of currencies, but also the lower effectiveness of exchange rate adjustments in highly open economies. In modern parlance this latter consideration is usually discussed in terms of whether changes in nominal exchange rates can have more than fleeting effects on real exchange rates. If not, then the only loss from giving up the freedom to make exchange rate adjustment is the possibility of protection from price inflation or deflation abroad.

In their recent survey of the OCA literature, Masson and Taylor (1993) put the basic tradeoff succinctly :

> The value of [monetary] unions clearly derives from the wider circulation of a stable currency; major benefits include reducing transaction costs, lowering price and exchange rate variability, and enhancing the anti-inflationary credibility of monetary policy… the costs of currency union for a given country involve the loss of exchange-rate flexibility, which can be seen as providing an instrument to cushion "shocks" to the economy. The traditional literature on optimum currency areas considers the circumstances in which the loss of this instrument is least costly: within currency unions exhibiting high factor mobility and wage

price flexibility, for economies that are relatively open, and for countries with a high degree of industrial diversification. (p. 38).

As Krugman (1992, 1995) has recently emphasized, most of the OCA literature has focused on the costs of balance of payments adjustments under alternative exchange rate regimes. We know relatively little about the value of the microeconomic benefits from broader currency areas other than that the marginal value of expanding currency domain will decline as the size of the domain increase.

Given the difficulties in quantitatively determining optimality in terms of OCA criteria it is perhaps best to begin analysis with the question of whether a currency domain is large enough to be viable. Where an economy is small and highly open there will be little liquidity value to the currency. There would be few nontraded goods and services so a depreciation would result primarily in a rise in domestic currency prices –under cutting the effectiveness of exchange rate changes in promoting balance of payments adjustment (except through the resulting decline in the value of real money balances which could be better accomplished through reducing the nominal money supply directly). With high domestic price variability resulting from exchange rate changes the value of the services provided by domestic currency would be sharply reduced. If there is a high level of international currency substitution (which a low degree of usefulness of the domestic currency would be likely to produce) than a flexible rate would be subject to greater fluctuations and the value of domestic currency would be further reduced. The main factors under cutting the viability of a currency are high and variable inflation, high trade ratios, and high degree of dollarization or other forms of international currency substitution.[7]

Recently economists such as Hausmann [1999] and Calvo and Reinhart [2000] have stressed the effects of the dollarization of countries financial liabilities as well as their currencies. Such dollarization increases the case for fixed rates, but in many cases such liability dollarization may have been artificially high because of the adoption of pegged

[7] Note that high openness to international financial flows per se does not have a clear effect on the case for fixed or flexible exchange rate. (See Isard (1995) and Tower and Willett (1976). What it does unambiguously do, however, is make compromise systems more difficult to operate.

exchange rates and implicit or explicit government guarantees. (See Willett (2001)). While the qualitative effects of greater currency substitution and liability dollarization are clear as yet there have been no good estimates of the quantitative magnitudes of these effects. We have no formal research literature on how small a viable currency area can be. Global monetarists such as Ron McKinnon and Robert Mundell believe that the minimum size for OCA's is quite large, but the relatively successive experiments of tiny economies such as Latvia and Slovenia with managed floats suggests that minimum viable sizes may be quite small.[8]

Advocates of exchange rate flexibility such as Friedman (1953) and Yeager (1966) were quite clear that exchange rate flexibility can only act as a second (or nth) best substitute for factor mobility and wage-price flexibility for adjustment to many types of shocks.[9] They believed, however, that there were often sufficient rigidities in economies for this second-best policy to be useful. In other words, while under ideal conditions the optimal currency area was a single world currency, under actual conditions the optimal number of currency areas was much greater.

In such a world of rigidities in domestic factor mobility and wage and price behavior, economic size and openness become a major influence on the costs and benefits of alternative exchange rate regimes. As both Mundell (1962) and McKinnon (1963) emphasized, the smaller and more open an economy, the less is the usefulness of its domestic currency and because of the high ratio of traded to non-traded goods, the less will be the effects of a given change in the nominal exchange rates on the real exchange rate.[10] On the other hand, the higher a country's marginal propensity to import, the less is the domestic real income decline

[8] After several years of flexible rates Latvia did adopt a pegged rate, implying that its government did not consider flexible rates to be optimal. Latvia was, however, able to achieve considerable disinflation during its flexible rate period.

[9] For recent discussions of the limits of exchange rate adjustment as a substitute for factor mobility and wage-price flexibility see Bofinger (1994) and Melitz (1995). Note that while Friedman (1953) has been often criticized on the assumption that he advocated flexible exchange rates for all countries, no matter how small; this was in fact not the case. He explicitly noted the problems of flexible exchange rates for tiny countries and thus was a precursor of OCA theory. For references to other precursors, see Tower and Willett (1976).

[10] While Mundell has become generally associated with the labor mobility criterion and McKinnon (1963) with this openness criterion, Mundell also explicitly discussed openness, and this is appropriately noted in McKinnon's contribution

required to achieve any given required improvement in the trade balance. Thus the smaller and more open is an economy, the more attractive is the cost benefit ratio of fixed exchange rates.

This is easy to see intuitively. A major aspect of the issue of the desirability of fixed versus adjustable exchange rates is whether given a shock that creates a conflict between internal (domestic macroeconomics) and external (balance of payments) balance, the domestic sector should be adjusted to the external sector as would have to occur under fixed exchange rates or the external sector should be forced to adjust to the domestic sector, as would occur with exchange rate adjustments. Obviously an important part of the answer lies in the relative size of the two sectors, i.e. the openness of the economy. Thus it makes considerable sense for small countries like Estonia to fix their exchange rates while large economies like the US and Japan adopt flexible rates. In the North American context, this implies the prospective benefits for fixing exchange rates are much greater for Canada and Mexico than for the US. Thus while the US would likely have no objection to policies by Canada and Mexico to fix their currencies to the US dollar, the US would be unlikely to favor the creation of a new common currency for all three countries.

The importance of a third consideration, industrial structure, was pointed to by Kenen (1967), who argued that if economies were highly diversified, they were less likely to be subject to shocks which would require a major of adjustments and hence would have less need for exchange rate adjustment. This has lead to a broad body of literature that will be discussed below.

IV. Expansion of the Criteria

Over time the list of considerations analyzed in the OCA literature has continued to grow. In a recent survey article, Talvas (1993) listed nine characteristics from the traditional literature: similarity of inflation rates, the degree of factor mobility, the openness and size of

the economy, the degree of commodity diversification, price and wage flexibility, the degree of goods market integration, fiscal integration, real exchange rate variability, and political factors-before going to discuss a number of additional considerations that have been raised in the "new" OCA theory. And this list omitted the range of shocks analyzed by Tower and Willett (1976) Aghelvi et al (1991) and emphasized in the surveys by Masson and Taylor (1993; 1994).

Looking only at the recent surveys by Bofinger (994), Masson and Taylor (1993; 1994), Talvas (1993; 1994) and Wihlborg and Willett (1991), one finds added to the list of considerations factors such as optimal public finance, the degree of international currency substitution, the new classical view of policy ineffectiveness, the informativeness of price and quantity signals from the money and financial markets, controllability of the money supply, time inconsistency problems and credibility issues and the case for using institutional arrangements to discipline national monetary and fiscal policies.[11]

Given this proliferation of considerations, attempts to simplify the analysis down to one or a few key criteria are quite understandable. Unfortunately, they have not been successful. Arguments initially presented in strong terms as to what is relevant and irrelevant generally end up in more modest terms as arguments about shifts in the relative weights which should be given to different criteria or the addition of criteria which were originally meant to be replacements of other criteria. A good example is Vaubel's (1976) intriguing argument that the crucial criterion is the variability of a country's real exchange rate since "real exchange rate changes are dearly measurable and automatically give the appropriate weights to the economic forces of which they are the result" (p. 440). While clearly an important variable to consider, Vaubel did not convincingly demonstrate that real exchange rate variability

[11] Overviews of the issues surrounding the use of the exchange rate as a nominal anchor for monetary policy are presented in Westbrook and Willett (1999) and Willett (1998).

captured all relevant considerations nor that it necessarily weighted optimally those that it does capture.[12] Thus it has become an addition to the other OCA criteria, not a replacement for them.

Consider two more examples. In their opening critique of traditional OCA theory as being a "Keynesian relic", Bofinger, Svindland and Thanner (1993) give the impression that it should be totally scrapped in favor of their proposed monetarist approach to OCA theory. Yet, by the end of their article they quite sensibly refer to the monetary analysis they provide as offering "important additional criteria" (p. 29) for OCA theory. In a similar vein, early on in his discussion of Mundell's factor mobilization criterion, Jacques Melitz (1995) argues that, "Mundell's view belongs to the era of long-run Phillip's curves and should have been abandoned when this notion fell into disrepute in the early seventies" (p.293). Within the following two paragraphs this criticism is appropriately softened to the argument that while "Labor mobility will unambiguous improve the merits of a fixed rate" because of "the flexibility of prices in the long run, Mundell's criterion of labor mobility loses much plausibility" and "…there is little reason to place labor mobility on a special pedestal in analyzing the OCA" (p.293).[13]

In a similar vein, Masson and Taylor (1994) argue that

> It is clear from the above discussion that there is no single overriding criterion…Increasingly analytical attention has therefore turned to analysis of shocks affecting economies since shock absorption combines the net influence of several of the traditional criteria. (p.35)[14]

This search, however, has not succeeded in developing more easily operationalized criteria. While a shock absorption criterion-like the narrower real exchange rate variability

[12] See Bofinger (1994).
[13] There has also been recent criticism of the labor mobility criterion on the grounds that high labor mobility may impose substantial social costs. See Melitz (1995).
[14] One of the major purposes of Tower and Willett (1976) was to integrate more systematically the literature on patterns of shocks and optimal exchange rate management into the framework of the OCA approach.

criterion-does capture the net effect of several of the traditional criteria, just how it does so is not explicitly discussed by Masson and Taylor, nor is this analyzed systematically elsewhere in the OCA literature. Thus how this composite criterion relates to the full range of OCA criteria is not yet well understood.

As Pilbeam [1991, p.36] has aptly characterized,

> The conclusions of the now vast literature on automatic stabilization under alternative exchange rate regimes and policy targets "have proved to be quite complex and the conclusions very sensitive to the model specification".

As Masson and Taylor (1993; 1994) discuss, one must distinguish whether shocks are real or nominal, permanent or temporary, and domestic or foreign. Furthermore, there is the question of whether financial market shocks occur primarily with respect to demands for money, or domestic interest-bearing assets, or for foreign assets. Despite the complicated nature of this analysis, if countries were persistently hit with only the same single type of shock, then the literature could provide a powerful criteria for choosing a particular exchange rate regime, i.e., a genuinely fixed or freely flexible exchange rate. However, as Bofinger (1994) stresses in his critique of Vaubel's real exchange rate variability criteria, the pattern of past disturbances will not always be a good guide to the pattern of future disturbances. As Guitian (1994) argues "…all economies confront both nominal and real shocks. Yet a shift in exchange rate regime in response to the nature of shocks is clearly an unworkable proposition" (p. 19).

In the early days of the new classical macroeconomics revolution, the strong policy ineffectiveness conclusions from the flexible price rational expectations models undercut the traditional rationale for being concerned with using Macro policy to correct the balance of payments. This in turn removed the need for exchange rate adjustments as a mechanism to remove balance of payments constraints and hence allow discretionary domestic macroeconomic policy. Subsequent theoretical and empirical research has strongly suggested that while in the long run one cannot trade off higher inflation for more rapid growth and

lower unemployment (indeed, higher inflation will hurt growth over the long run), in the short run tradeoffs still exist and thus there is still a plausible (if controversial) case for using macro policy instruments to help soften the effects of shocks to the economy. Thus current macroeconomic analysis suggests the prospective gains from independent macroeconomic policies are less than implied by traditional Keynesian models, but are still positive.

Against this must be balanced the increased recognition of the incentives for governments to pursue macroeconomic policies which destabilize the economy in order to reap political gains (or avoid political losses). Furthermore, even in an economy where the strong policy ineffectiveness conclusion held so that price level stability was the only short-run, as well as long—run, macroeconomic objective, it would not always follow that a fixed exchange rate based monetary rule would be the best one to follow. Only if there were price level stability abroad and no changes in equilibrium real exchange rates would this be the case. Otherwise, using the exchange rate as the economic nominal anchor could lead to imported inflation or deflation.[15] Indeed, while it has become common for younger writers to think of traditional OCA theory as dealing only with Keynesian unemployment and output stability issues, from early on, many of the contributions such as Mundell (1961), McKinnon (1963) and Tower and Willett (1976) were concerned with price level stability as well.

V. Are Exchange Rate Adjustments Ever Effective?

While one major line of attack on traditional OCA theory has challenged its Keynesian macroeconomic origins, another has challenged the effectiveness of exchange rate changes as an instrument of policy. In the early postwar period there was considerable elasticity pessimism—there were concerns that the responsiveness of quantities to changes in exchange rates were so low that the proportional changes in trade volumes would be less than the proportional changes in price, and as a result depreciation would lead to a worsening rather than an improvement in the trade balance. The empirical research of the last several decades

has suggested that this possibility is generally limited to short run J curve effects. As Goldberg, Ickles and Ryternan (1994), argue this can reduce the effectiveness of exchange rate changes for short run macroeconomic stabilization policy, but as Willett and Wihlborg (1999) point out, this does not undercut the usefulness of exchange rate changes for insulation against foreign inflation or as an instrument for longer term balance of payment adjustment.

Recent discussions of the importance of patterns of shocks have sometimes failed to distinguish between evaluations on grounds of automatic stabilization and of balance of payments adjustment. Thus, for example, according to standard stabilization analysis countries that were out of phase cyclically would make good partners, helping to dampen each other's cycles. Thus temporary asymmetrical shocks would enhance the attractiveness of a currency union. On the other hand where internal adjustment mechanisms worked poorly (due to wage and price stickiness and factor immobility), a permanent asymmetric shock would force internal macroeconomic adjustments and could be quite costly.[16]

In some cases structural characteristics may give us good clues to patterns of shocks. For example, countries where exports are heavily concentrated in agricultural products or raw materials are likely to be subject to above average variability in export earnings and thus are likely to have greater need for both higher holdings of international reserves and the use of exchange rate adjustments. Likewise, countries with extremely weak domestic political institutions and a consequent tendency toward high inflation are likely to have a strong need for exchange rate adjustments. While there are possibilities of using fixed exchange rates to promote domestic discipline, this will only work if there is already a considerable basis of domestic support for stabilization. Otherwise, efforts at fixed rates will break down and worsen the economic situation.[17]

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[15] On the other hand, with monetary stability abroad and international currency substitution as the only disturbance, a fixed exchange rate would be an optimal monetary rule. See McKinnon (1982).
[16] See Wihlborg and Willett (1999).
[17] See Willett (1998) and Westbrook and Willett (1999).

Simple statistical tests of past patterns of shocks, despite their recent popularity in the literature, are unlikely by themselves to offer good guidance to future patterns of shocks. In some cases, the combination of such statistical analysis with careful political and economic analysis of the causes of these patterns can give good clues to the future, but this is likely to be much more relevant to issues of the need for balance of payment adjustment than to the automatic stabilization properties of alternative exchange rate regimes.

Elasticities analysis is based on responses to changes in real exchange rates. Another type of critique of the effectiveness of exchange rate adjustments is the view that changes in nominal exchange rates will have only quite temporary effects on real exchange rates. Analysis of such price feedback effects has been an important component of OCA theory from the very beginning. As stressed by both Mundell (1961) and McKinnon (1963), the more open is the economy, the greater will be the effects of a devaluation on the domestic price level and the greater in turn are the likely induced effects on domestic wages. For a highly open economy the exchange rate is typically not an effective instrument because there will be little scope for nominal exchange rate changes to have a substantial impact on the real exchange rate. Likewise, as has been emphasized in the literature on the vicious circle, the more likely are initial domestic wage and price increases to be supported by accommodative monetary policy, the less effective will be exchange rate changes in promoting real adjustment.

All this analysis has been standard for decades. What has been new are arguments that such considerations apply to relatively large countries such as Britain, France, Germany, and Italy. Since the 1970s, the global monetarists such as Ronald McKinnon, Robert Mundell, and Arthur Laffer have argued that global integration has reached a point where all countries, no matter their size, are functionally small open economies. This view is highly controversial and has won only a limited number of converts (myself not included). Over the past decade, however, the increasing economic integration within Europe has contributed to the frequent espousal of this view by advocates of European monetary union. If exchange rate adjustments are no longer effective, anyway, then the costs of joining a monetary union are substantially

reduced they argue.

This view has been greatly oversold, however. The substantial devaluations and depreciations of the British pound, the Italian lira, and the Swedish krona following the 1992— 1993 European monetary crisis led to substantial sustained changes in real exchange rates. An important reason was that these depreciations were not accompanied by monetary accommodation, but this merely makes the point that exchange rate changes are not a substitute for sound domestic policies.

The recent empirical literature has found mixed results for some Western European countries, but overall it suggests that nominal exchange rate changes will have a substantial impact on real exchange rates for policy relevant time periods for most European countries.[18] Likewise, there appears to be considerable scope for nominal exchange rate changes to meaningfully affect the real exchange rate in many developing countries, as has been illustrated by the recent Asian currency depreciations. The evidence seems clear that in general there is still scope for the exchange rate to be a useful policy instrument and that its effectiveness needs to be evaluated on a case by case basis along the lines suggested by OCA theory, i.e., the smaller and more open is the economy, the stronger is the case for adopting a fixed exchange rate.

History can also be important. The more depreciation is associated with inflation in the minds of the public, the less effective and more costly are exchange rates changes likely to be. Even where public perceptions are due to false guilt by association, these perceptions can affect the short-term effects of depreciation on inflationary expectations and the degree of sense of crisis. These in turn can greatly complicate the tasks of currency and macroeconomic stabilization. Thus on these grounds exchange rate adjustments are likely to be more effective for Canada than for Mexico. Indeed throughout much of Latin America historical tendencies toward high inflation have increased the effects of depreciations on inflationary expectations above what one would expect on the basis of trade openness alone.

[18] See the analysis and references in Mast (1996) and Pappell (1994) . For the United States the evidence is overwhelming.

On the other hand, despite adverse history, the accompanying strong monetary and fiscal policy actions kept both Mexico's depreciation in 1995 and Brazil's recent depreciation from being undermined by induced inflation.

VI. Concluding Remarks

One problem which is receiving increased alternative is that of appropriate partners for countries that want to fixed their exchange rates. Ideally one would like to choose a partner or set of partners with which one has a high proportion of trade and which is likely to be relatively stable. Sometimes these criteria conflict however. Consider, for example, the recent experiences of the Russian ruble and the Baltic States. All three of the Baltic States— Estonia, Latvia, and Lithuania— are small open economies that had Russia as their dominant trading partner. With rampant inflation in Russia, however, it would have been economic folly for these countries to fix their currencies to the ruble, even apart from their strong political disincentives to do so.[19] Many countries such as New Zealand have no dominant trading partner. Often in developing countries, countries with geographic proximity do not have high levels of trade with each other, making adoption of a regional currency less attractive. This was the case with the Baltic States. Thailand presents a vivid recent example of the problems that can be generated by fixing your exchange rate to a currency (the dollar) with which trade was relatively limited. Thus Austria was quite fortunate to have Germany as a close trading partner.

On these criteria, both Canada and Mexico score well above average, having a high proportion of their trade with the United States, a country that has had one of the most stable macroeconomies in the post war period. There are still substantial problems on this score, however, because the United States has had huge fluctuations in the dollar against both the yen and the European currencies. Thus while stabilizing for a large proportion of trade,

[19] At first glance it might seem that the Baltic states were logical candidates to form a currency area among themselves. This was not the case, however. Apart from political differences that made such bonding unattractive, they had surprisingly small amounts of trade with one another. In this case, close geographic proximity was not accompanied by substantial economic integration.

fixing to the US dollar by Canada, Mexico, or the countries of Central and south America could be quite destabilizing for a nontrivial portion of trade and investment.

Another point emphasized in recent OCA literature is that the initiation of currency areas may itself affect such factors as the level of trade openness, the country and product composition of international trade, the discipline of monetary and fiscal policies and the flexibility of wages and prices. In other works the OCA criteria are endogenous.[20] In most cases these will move countries closer to meeting OCA criteria. Thus if a country is close to meeting the criteria ex ante, it may be wise to go ahead on the basis of the prediction that the criteria will indeed be meet expost. It would be dangerous to assume substantial rapid changes, however. For example, while some economists have argued that because fixed exchange rates would increase the costs of wage and price rigidities the creation of EMU will generate strong pressures to increase wage and price flexibility. This ignores, however, the public choice insight that politically powerful groups usually benefit from these rigidities and will be loath to give them up. This will often dominate the effects of aggregate economic ineffectiveness in the operation of this political process. Thus, for example, while Argentina's currency board does appear to have led to an increase in wage and price flexibility after also a decade the amount of increase has not been sufficient to eliminate high unemployment. Thus I am quite skeptical about how much increased wage and price flexibility it is reasonable to assume that joining as a currency area will produce.

It is sometimes not recognized that the OCA framework is relevant not just to the choice of exchange rate regime, but also the management of macroeconomic policies under flexible exchange rates. Specifically the more open is the economy, the greater is the weight that should be given to developments in the foreign exchange market in setting domestic monetary and fiscal policies. Given that the weight of the available empirical evidence suggests that the adverse effects of flexible rates on international trade and investment are not enormous, it would likely be wise under uncertainly to adopt a risk adverse bias against adopting permanently fixed exchange rates or a common currency. The same bias would not

[20] See Frankel and Rose (1998)

apply, however, to the choice of how much weight to give to external sector development in the formulation of national monetary and fiscal policies. On these grounds I suspect that it would be wise for Canada, Mexico and most other countries in Latin America to continue their flexible exchange rate regimes but to give considerable weight to the behavior of their currencies against the US dollar in setting their macroeconomic policies.[21]

[21] Both Canada and Mexico have recorded substantial increases in their trade ratios in recent years. From 1990 to 1997 Canada's average ratio of exports and imports to GDP rose from a little over 25 percent to almost 40 percent. Over the same period Mexico's ratios rose from a little over 19 percent to over 30 percent. Exports of both countries are highly concentrated on the US, running about 80 percent for Canada and a few percentage points higher for Mexico. Imports are a little more diversified, with about 2/3 of Canada's imports coming from the US and about ¾ for Mexico. Direct trade between Canada and Mexico is quite small.

References

Aghelvi, B. B., M. S. Khan and P. J. Montiel. 1991. "Exchange Rate Policy in Developing Countries: Some Analytical Issues." *IMF Occasional Paper* No. 78, Washington, D.C.: International Monetary Fund.

Al-Marhubi, Fahim and Thomas Willett. 1998. "Determinants of Exchange Rate Regime Choice" *Claremont Working Paper.*

Andrews, David and Thomas D. Willett. 1997. "Financial Interdependence and the State" *International Organization* Summer: 429-511.

Bayoumi, Tamim. 1994. "A Formal Theory of Optimum Currency Areas." *IMF Staff Papers,* 41(4): 537-54.

Bayoumi, Tamim, and Barry Eichengreen. 1994a. *One Money or Many? Analyzing the Prospects for Monetary Unification in Various Parts of the World*. Princeton Studies in International Finance No. 76. Princeton: Princeton University Press, September.

_____ 1994b. "Monetary and Exchange Rate Arrangements for NAFTA" *Journal of Development Economics* 43:125-165.

_____ 1997. "Optimum Currency Area and Exchange Rate Volatility" in Benjamin J. Cohen ed. *International Trade and Finance.* Cambridge: Cambridge University Press: 194-215.

_____ 1998. "Exchange Rate Volatility and Intervention: Implications of the Theory of Optimum Currency Areas." *Journal of International Economics* 45:191-209.

Bean, Charles R. 1992. "Economic and Monetary Union in Europe." *Journal of Economic Perspectives,* Fall: 31-52.

Bofinger, Peter. 1994. "Is Europe an Optimum Currency Area?" in Alfred Steinherr, ed., *30 Years of European Monetary Integration*. Pp. 38-56. London: Longman.

Bofinger, Peter, Eirik Svindland, and Benedikt Thanner. 1993. "Prospects of the Monetary Order in the Republics of the FSU," in Bofinger et al., *The Economics of New Currencies.* Pp. 10–33. London: Centre for Economic Policy Research.

Bofinger, Peter, et al. 1993. *The Economics of New Currencies.* London: Centre for Economic Policy Research.

Calvo, Guillermo, and Carmen M. Reinhart. 2000. "Fear of Floating". NBER Working Paper No. 7993. Washington, D.C.: National Bureau of Economic Research.

Cesarano, Filippo. 1997. "Currency Area and Equilibrium" *Open Economies Review* 8:51-59.

Cohen, Benjamin. J. 1998. *The Geography of Money*. Ithaca: Cornell University Press.

DeGrauwe, Paul. 1993. "The Political Economy of Monetary Union in Europe" *The World Economy* November: 653-61.

Eichengreen, Barry. 1992. *Should the Maastricht Treaty Be Saved*? Princeton Studies in International Finance No. 74. Princeton: Princeton University Press, December.

Eichengreen, Barry, and Jeffry Frieden, eds. 1994. *The Political Economy of European Monetary Unification*. Boulder, Colo.: Westview Press.

Feldstein, Martin. 1997. "EMU and International Conflict" *Foreign Affairs,* November-December: 60-73.

Frankel, Jeffrey A. and Andrew K. Rose. 1998. "The Endogeneity of the Optimum Currency Area Criteria" *Economic Journal* Vol. 108, July: 1009-25.

Friedman, Milton. 1953. "The Case for Flexible Exchange Rates" in *Essays in Positive Economics,* Chicago: University of Chicago Press.

Goldberg, Linda S., Barry W. Ickes, and Randi Ryterman. 1994. "Departures from the Ruble Zone: The Implications of Adopting Independent Currencies." *World Economy* 8(1): 293–322.

Goodhart, Charles. 1995. "The Political Economy of Monetary Union," in Peter B. Kenen, ed., *Understanding Interdependence: The Macroeconomics of the Open Economy*. Pp. 450–505. Princeton: Princeton University Press,

Guitian, Manuel. 1994. "The Choice of an Exchange Rate Regime," in Richard D. Barth and Chong-Huey Wong, eds., *Approaches to Exchange Rate Policy: Choices for Developing and*

Transition Economies. Washington, D.C.: International Monetary Fund.
Hausmann, Ricardo. 1999. "Should There Be Five Currencies or One Hundred and Five?". Foreign Policy Article, Fall 1999, p65-78.
Isard, Peter. 1995. *Exchange Rate Economics*, Cambridge: Cambridge University Press.
Kenen, Peter. 1969. "The Theory of Optimum Currency Areas: An Eclectic View," in Robert A. Mundell and Alexander K. Swoboda, eds., *Monetary Problems of the International Economy*. Pp. 41–60. Chicago: University of Chicago Press.
Krugman, Paul. 1995. "What Do We Need to Know About the International Monetary System," in Peter B. Kenen, ed., *Understanding Interdependence*. Pp. 509-30. Princeton: Princeton University Press.
Krugman, Paul. 1992. "Second Thoughts on EMU." *Japan and the World Economy* **4**: 3.
Mahdavi, Mahnaz, and Hossein Kazemi. 1996. "Indeterminancy and Volatility of Exchange Rates under Imperfect Currency Substitution." *Economic Inquiry* (January): 168-81.
Masson, Paul, and Mark P. Taylor. 1994. "Optimal Currency Areas: A Fresh Look at the Traditional Criteria," in Pierre Siklos, ed., *Varieties of Monetary Reform*. Pp. 23–44. Boston, Mass.: Kluwer.
———. 1993. "Currency Unions: A Survey of the Issues," in Paul Masson and Mark P. Taylor, eds., *Policy Issues in the Operation of Currency Unions*. Cambridge: Cambridge University Press.
Mast, Tamara. 1996. *The Impact and Feedback Effects of Nominal Exchange Rates on Real Exchange Rates: New Evidence from the European Monetary System*. Ph.D. Thesis, Claremont Graduate School.
McKinnon, Ronald I. 1982. "Currency Substitution and Instability in the World Dollar Standard." *American Economic Review* 72 (3): .
———. 1963. "Optimum Currency Areas." *American Economic Review* 53: 717–25.
Melitz, Jacques. 1995a. "The Current Impasse in Research on Optimum Currency Areas." *European Economic Review* 39: 492-500.
Melitz, Jacques. 1995b. "A Suggested Reformulation of the Theory of Optimum Currency Areas." *Open Economies Review* : .
Minford, Patrick. 1995. "Other People's Money: Cash-in-Advance Microfoundations for Optimal Currency Areas." *Journal of International Money and Finance* 14 (3): 427-40.
Mundell, Robert A. 1961. "A Theory of Optimum Currency Areas." *American Economic Review* 51: 657–65.
Papell, David. 1994. "Exchange Rates and Prices: An Empirical Analysis." *International Economic Review*, May: 397-410.
Philbeam, Keith. 1992. *International Finance*. London: Macmillan.
Talvas, George S. 1994. "The Theory of Monetary Integration," *Open Economies Review*.
———. 1993. "The New Theory of Optimum Currency Areas." *The World Economy* 16 (6):
Tower, Edward, and Thomas D. Willett. 1976. "The Theory of Optimum Currency Areas and Exchange Rate Flexibility." Special Papers in International Economics, No. 11. International Finance Section, Department of Economics, Princeton University.
Von Furstenberg, George and David Tevlis. 1993. "Growth and Income Distribution Benefits of North American Monetary Union for Mexico" *North American Journal of Economics and Finance* 4(1): 127-143
Wihlborg, Clas. 1995. *Searching for the Gains from a Monetary Union*. Helsinki: Yrjö Jahnsson European Integration Lectures No. 9, September.
Wihlborg, Clas, and Thomas D. Willett. 1991. "Optimal Currency Areas Revisited," in Clas Wihlborg, Michele Fratianni, and Thomas D. Willett, eds., *Financial Regulation and Monetary Arrangements After 1992*. Pp. . Amsterdam: North Holland.
Willett, Thomas D. (2001). "Truth in Advertising and the Great Dollarization Scam," *Journal of Policy Modeling*, Spring.
Willett, Thomas D. (2000). "International Financial Markets as Sources of Crisis or Discipline," *Princeton Essays in International Finance*.
Willett, Thomas D. and Clas G. Wihlborg. 1999. "The Relevance of the Optimum Currency Area

Approach for Exchange Rate Policies in Emerging Market Economies" in Richard J. Sweeney, Clas G. Wihlborg, and Thomas D. Willett eds. *Exchange-Rate Policies for Emerging Market Economies*. Boulder, CO. Westview Press. pp 61-79

Willett, Thomas D. 1994. "Some Often Neglected Aspects of the Political Economy of European Monetary Integration" in B. Abeyaz et al eds., *The Challenge of European Integration*. Boulder, CO. Westview Press. Pp 205-218

Yeager, Leland. 1966. *International Monetary Relations.* New York: Harper and Row.