

## **Is Optimum Currency Area Theory Irrelevant for Economies in Transition?**

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### **Abstract**

The traditional optimum currency theory arguments and associated criteria for choosing fixed versus flexible exchange rates on independent currencies which emphasize the potential role of the exchange rate for output and balance-of-payments stabilization may not be relevant for transition economies. This paper argues that it is doubtful that employment and output will be substantially influenced by exchange rates in countries in early stages of transition. Strong skepticism also is voiced concerning the selection of particular exchange rate regimes as mechanisms for achieving inflation stabilization. For countries in the early stages of transition, an exchange rate regime should be selected on the basis of sustainability and consistency with specific reform objectives.

The views expressed in this paper are those of the author and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.

## I. INTRODUCTION

Countries view the establishment of an independent currency as an important element of national sovereignty. Beyond this nontrivial symbolism, the economics of independent currencies with fixed versus flexible exchange rates has long been debated. One influential line of reasoning is routed in "optimal currency area" theory, originally associated with Robert Mundell (1961), Ronald McKinnon (1963) and Peter Kenen (1969). According to this approach, an independent currency and an independent monetary policy are potentially useful stabilization tools, especially when other stabilization instruments are lacking or inadequate. The arguments of optimal currency area theory and the indicators of which conditions make a country well-suited for an independent monetary policy were launched from a strong Keynesian tradition for the industrialized countries of the mid-twentieth century.

In general, the traditional optimal currency area (OCA) approach presents a set of conditions under which a country stands the greatest chance of benefiting from having an independent currency with a flexible or adjustable exchange rate.<sup>1</sup> Exchange rates would be used for adjusting the relative price of two countries' goods either for the purpose of output stabilization or for freeing domestic macroeconomic policies from a balance of payments constraint. The idea is that exchange rate movements can adjust relative prices (and relative demand for a countries' goods and workers) and be most useful when particular OCA reference criteria are satisfied. These criteria include: asymmetric shocks among countries; the inability of cross-border labor flows to contribute substantially to the smoothing of employment cycles; and the absence of other fiscal-based methods for achieving output or balance-of-payments stabilization in response to shocks.

The Keynesian traditions in which the optimal currency area arguments were developed allowed for a setting with highly elastic goods supply and internationally price

elastic demand for goods. In this climate, a positive adjustment in employment and income, along with an improvement in the trade balance, would be elicited in a devaluing country. A nominal depreciation would, given a high degree of short-run price stickiness, be particularly useful when it leads to rapid real exchange rate changes, and when output, employment, and the balance of payments are highly sensitive to relative price movements.

In the present paper it is argued that the supply elasticities required for the exchange rate to be an effective stabilization tool simply may not be present during early stages of economic transition. Employment is not likely to rapidly adjust and even the (foreign and domestic) elasticities of demand for goods are undetermined. In such an economic environment, the traditional optimal stabilization policy criteria applied to output and/or balance of payments targets may not be relevant for the transition economy's decision about whether or not to implement or maintain an independent currency. Thus, it does not matter whether transition economies satisfy the reference criteria that point to optimum conditions for introducing independent currencies. The traditional optimum currency area criteria, interpreted in terms of optimal real stabilization policy, are only useful if *the exchange rate is able to effectively perform the task of short-term stabilization (output or balance-of-payments) to which it is assigned.*

Although I make an argument based on "elasticity pessimism", these reservations may be vitiated if economic reforms rapidly create market conditions that are contrary to (and more responsive to stimuli than) those that we stress. The short-term effectiveness of exchange rates in stabilization may increase in the future, at which time the optimal currency area reference criteria would warrant serious scrutiny as useful guides to the tradeoffs in exchange rate regime selection.

If the choice of exchange rate regime and degree of currency independence are not to be determined according to their functions as output and/or balance-of-payments stabilizers, are there other important criteria which should influence this potentially important decision? The issue of monetary discipline under alternative exchange rate regimes is often offered.<sup>2</sup> But, evidence supporting the role of fixed exchange rates in inducing greater monetary discipline is mixed. It is not obvious that tendencies toward inflating are endogenous with respect to the exchange rate regime, especially in transition economies. The issue of price stability as the target objective of the exchange rate regime choice remains empirically open to debate.

Instead, I argue that an exchange rate regime should be adopted with credibility and sustainability in mind. Since the symbolic importance of a national currency is nontrivial, a regime should be adopted which enables a currency to maintain its real value. An independent currency with a fixed nominal exchange rate or a crawling peg can be desirable for a country that is able to contain inflation. A country with strong inflation tendencies either would need to implement an independent currency with a more flexible exchange rate, or relinquish monetary autonomy to a country with more conservative and credible monetary policies.<sup>3</sup>

Finally, an independent currency can aid serious efforts of economic reform through its signaling function. This argument, initially expounded by Goldberg, Ickes, and Ryterman (1994, 1995) in relation to the countries of the former Soviet Union, emphasizes that there are conditions under which an independent currency can reinforce or can undermine the credibility of announced reform trajectories.

## II. THE OPTIMAL CURRENCY AREA APPROACH

The early "optimal currency area" literature, following from the seminal work of Robert Mundell (1961), associates the importance of establishing an independent currency (with a flexible exchange rate) with the role of an independent money supply and an adjustable relative price of a country's output for the purpose of employment and output stabilization. The merits of departing from a common currency area often are presented in terms of the role of exchange-rate flexibility as an instrument to allow domestic macroeconomic policies to be used for economic stabilization.

The reasoning behind this approach is best expressed using an example. Consider a scenario where two countries are contemplating discarding their pre-existing unified currency and instead introducing monetary autonomy and flexible exchange rates.<sup>4</sup> Both countries are subject to output disturbances, due to natural forces or even imported from exogenous third countries. These disturbances may be expansionary or contractionary, and may be correlated across countries. Suppose one country receives a negative shock leading to unemployment. The issue is whether the exchange rate and independent monetary policy can be used to mitigate some of the negative effects of the shock. McKinnon (1963) adds that these issues are most relevant for open economies, so that the degree of openness to external trade also is an important factor in assessing the value of an independent currency with an adjustable exchange rate.

Tower and Willett (1976) argue that the potential importance of the exchange rate as an automatic stabilizer depends on whether the output disturbances affecting a country are positively correlated with those of its trading partners. If so, a depreciation of the first country's currency relative to the second country will not be an effective tool for output stabilization. In periods of unemployment, neither country is able to benefit from the automatic stabilizer function of the exchange rate, since both countries have an incentive

to devalue. Neither country would succeed at shift the relative prices of goods in its favor in order to reallocate demand toward its goods and smooth its output and employment.

By contrast, if the output disturbances of the two countries are negatively correlated it is possible for a flexible exchange rate to shift relative bilateral prices and thereby reorient the demand for traded goods toward the more depressed economy. In this way, the flexible exchange rate and independent monetary policies can operate as effective stabilization tools. According to this approach, an independent currency imbues a country with an expanded capacity to respond to shocks, especially when shocks have varied impacts across countries. The commonality and correlations among output shocks therefore is held as an important indicator of whether independent currency policies should be pursued. Kenen (1969) also argued that regions with a highly diversified production base should be better equipped to maintain a currency union than regions with low production diversification. The rationale is that countries without a diversified production base are more likely to be subjected to macroeconomic shocks and could potentially utilize the exchange rate tool to a larger degree.

According to the standard argument in the traditional optimal currency area paradigm, if nominal wages are rigid downward, nominal exchange-rate flexibility may be desirable. For example, if an economy experiences a negative demand shock and nominal wage rigidity is absent, the real wage would fall and employment would remain the same. With nominal-wage rigidity, output and employment will fall since sticky real wages exceed the value added of the workers. By contrast, under exchange rate flexibility, a depreciation of the domestic currency increases domestic prices and lowers real wages, thereby alleviating the distortions that result from nominal wage rigidity. Thus, another OCA criterion for independent currencies is the extent of downward real wage flexibility within a country.

The need for the exchange rate as a stabilization tool also depends on whether there exist other tools for output adjustment. In addition to the aforementioned point about wage rigidities, another possible mechanism for dealing with unemployment could be automatic inter-country transfers such as those that would be provided by a fiscal federalist entity. In the event of less than perfectly correlated transitory shocks, the country with the less favorable position could receive a transfer from its partner.<sup>5</sup> Alternatively, if workers from the adversely effected economy are willing and able to move across borders, this lessens the necessity of the exchange rate as an instrument of stabilization.

In sum, even if the exchange rate is a potentially effective stabilization tool, if it is a redundant tool then the case for independent currencies is weakened. Redundancy can arise if alternative mechanisms lead to rapid adjustment following disturbances. Such alternative mechanisms include: mobility of labor and other productive inputs; or, agreed upon mechanisms for cross-country transfers (such as a type of fiscal federalist system).

The "New" Optimal Currency Area Theory: The traditional optimal currency area approach draws its insights largely from an economic environment in which there exists short-run price stickiness and employment adjustment to shocks, accompanied by a longer-run inflation-employment tradeoff. Supply is assumed to be highly elastic, once demand is stimulated.

The fundamental advances in macroeconomics over the past three decades have, to some degree, been incorporated in the "new" optimal currency area theory. In general, the basic economic insights from the traditional optimal currency area approach withstand this modernization. Wihlborg and Willett (1991), deGrauwe (1992), and Tavlas (1993) survey the attempts to introduce into the OCA literature recent advances,

including: expectations formation, incentive compatibility, and political economy tradeoffs. Mainly, these approaches modify and modernize the conditions used for evaluating the appropriateness of alternative exchange rate regimes.<sup>6</sup>

Aizenman and Flood (1992) go beyond the early literature by highlighting supply-side driven disturbances, rather than the traditional Keynesian demand-side disturbances emphasized in much of the literature. When labor can move across regions (with some cost) and there are sticky nominal wages, the case against independent currencies with flexible exchange rates is even stronger than posited by Mundell. The result arises because supply-side shocks drive a wedge between the productivity of labor in different countries. This implies that there are strong efficiency reasons for labor to move across borders.

Efficiency gains possible under fixed exchange rates or a common currency area lead to monetary equilibrium in which labor moves across countries. By contrast, a flexible exchange rate will discourage labor mobility and provide an environment in which productivity differences are not exploited. Thus, Aizenman and Flood provide conditions under which foregoing currency independence can be welfare enhancing. In contrast to the more neutral result from Mundell, Aizenman and Flood show that the presence of labor mobility weakens the case for independent currencies with adjustable exchange rates.

### III. APPLYING THE TRADITIONAL ARGUMENTS FOR TRANSITION ECONOMIES

The broad historic appeal of the traditional optimal currency area arguments has led scholars to apply the reference criteria to recent debates over developed and transition economy exchange rate regime choice. For example, the appropriate form and size of a European common currency area was examined by Bayoumi and Eichengreen (1993) and



Bean (1992). Other scholars have applied the optimal currency areas to transition economies.

I argue that such applications are premature in economies in the early stages of transition. Both Gros (1993) and Willett and Al-Marhubi (1994) focus their analysis on the former Soviet Union. Gros undertakes an analysis of the mobility of labor, the incidence of shocks, and the rigidity of prices, i.e. the basic Mundellian criteria. Willett and Al-Marhubi emphasize a set of criteria which embed the view of using the exchange rate regime as a facilitator of monetary discipline. The criteria that they emphasize are country size, country openness and inflationary histories. The data examined by Willett and Al-Marhubi suggest that the case for independent currencies and flexible exchange rates is weaker for small open economies (Estonia) than for large countries (Ukraine), and less appropriate for countries that have a stronger history of inflation than the core country of the union.

The premise that the exchange rate regime plays a useful role in aiding inflation stabilization is investigated further in Section IV. If, for now, we accept this premise, it still is essential to recognize that inflation histories of the transition economies in the early 1990s can yield very misleading rankings about future inflation tendencies. These countries historically could not engage in independent monetary policies and more recently have undergone price adjustments which need not reflect persistent tendencies toward inflation. Such inflation histories may generate misleading conclusions: it is more appropriate to carefully examine the country characteristics which generally are associated with inflation tendencies. In Section IV we discuss methods for speculating on country tendencies toward using inflation as a means of budgetary finance.

Goldberg, Ickes, and Ryterman (1994, 1995) voice considerable skepticism about the optimal currency area criteria applied to countries at the stages of reform which

characterize the countries of the former Soviet Union. Before turning to these arguments, first consider the conclusions that would arise from applying the full set of OCA criteria to the former Soviet Union. One OCA criteria focuses on the role of a stabilizing fiscal federalist center of a common currency area. If an effective center does not exist, the case for independent currencies is strengthened. Thus, in the integrated Soviet Union individual currencies were undesirable. In the dissolved union, Russia does not pursue the objective of stabilizing output in the non-Russian republics. This strengthens the justification for independent flexible exchange rate currencies.<sup>7</sup>

The desirability of independent currencies and flexible exchange rates among countries of the FSU are reinforced by the observation that there are impediments to broad inter-regional labor flows. Labor mobility is not likely to automatically stabilize output shocks both within large countries like Russia, and across the FSU. Labor mobility will not serve the objective of equalizing real wages across countries.

However, labor mobility may not be important if there nonetheless exists real wage flexibility across countries of the former Soviet Union. There appears to be evidence of substantial real wage flexibility across regions and across countries. *If* this real wage flexibility also leads to production and employment stabilization, an empirically open question at this point, the traditional optimal currency area approach would suggest that there is less support for introducing independent currencies with freely floating exchange rates.

The natural diversity of the broad set of countries in the former Soviet Union might lead to the conclusion that the shocks affecting these countries will not be highly correlated or at least would be substantially different. In this case, independent currencies with adjustable or flexible exchange rates might be deemed attractive. However, the legacy of the Soviet system remains pervasive in these early years of transition and the

support of independent currencies is weakened to the extent that there remain strong dependencies among the more industrialized western countries, i.e., Ukraine, Belarus, Russia, and the more agricultural economies of Central Asia. The vestiges of the Soviet infrastructure lead to a high degree of transmission of shocks between countries. If and when these countries establish more diversified customer and supplier networks, the optimal currency area case for independent currencies will receive stronger support.

On balance, the traditional optimal currency area criteria suggest that the countries of the former Soviet Union should have independent currencies with adjustable exchange rates between these currencies. An exception to this result may arise if countries remain very closely intertwined through industrial ties so that the shocks to each country are highly positively correlated.

#### Elasticity Pessimism for the Transition Economies

The type of application of the optimal currency area criteria presented above is misguided unless it can first be established that the reference criteria are appropriate. The operating premise of the optimal currency area approach is that the case for independent currencies and flexible exchange rates is strengthened when other mechanisms for stabilization are lacking. This premise does not have global validity. The lack of alternative instruments or mechanisms for output and/or balance of payments stabilization does not demonstrate that the exchange rate is able to effectively aid in stabilization.<sup>8</sup> Before applying the optimal currency area criteria for optimal stabilization policy, a distinct necessary condition must be satisfied: *will nominal exchange rate movements have timely and significant effects on a country's output and/or balance of payments?*

Two main issues therefore must be addressed on the issue of applicability of the OCA criteria in the context of these objectives. First, is it the case that nominal exchange

rate movements are associated with real exchange rate movements? Second, can it be established that real exchange rate movements, i.e. adjustments in a country's terms of trade, lead to demand adjustments which then are met by a timely supply-side response? The supply-side response is needed for real output effects and real export adjustment through the balance of payments. If the answers to these queries are negative, then issues other than output, employment, and balance of payments stabilization should receive considerably more weight than the optimal currency area themes in the exchange rate regime debate.

It is not at all apparent that the real exchange rate adjustment and the real output adjustment requirements will be satisfied in the early stages of reform of countries of the former Soviet Union. First, consider the issue of whether real exchange rate movements are likely to elicit large and significant production adjustment. Given the structure of enterprises in these countries -- and the early transition status of these enterprises, it is unlikely that real exchange-rate movements will trigger rapid production responses. Ryterman (1992, 1993) argues that enterprises have been pursuing a pattern of behavior based on "survival" constraints which leads to a strong reluctance among enterprises to dramatically alter their supplier and distribution networks, or their production base.

If an adverse terms-of-trade shock, such as one that can be induced by real exchange rate appreciation, the survival behavior would limit the real output implications. Enterprises can provide their adversely affected trading partners with large volumes of inter-enterprise credit, with the hope that the government will bail-out enterprises that are unable to collect debts in arrears.<sup>9</sup> Thereafter, the "creditor" enterprise will not readily shift its business to alternative partners: such a reorientation of a producer network could lower expected future paybacks from those enterprises in arrears. Overall, the survival behavior will weaken the cross-country reorientation of demand for industrial

and intermediate goods in response to exchange rate movements, and therefore weakens the exchange rate elasticity of the balance of payments.

The current status of transition and prevailing modes of enterprise behavior imply that producers have a reduced focus on their bottom line of profits and losses. Instead of undertaking real production and employment adjustments in response to stimuli, the enterprises may be more willing to adjust prices. The high "pass through" of nominal exchange-rate movements implies that real exchange rate movements will be mitigated.

A weak link between nominal and real exchange rate movements also can be fostered by the competitive structure of production, which also is a vestige of the centrally planned system. Brown, Ickes, and Ryterman (1993) show that production in the former Soviet Union is characterized by enterprises that have large local market shares. Unlike the conventional view -- that monopoly is achieved by having few competing firms throughout a country-- concentration in the former Soviet Union arises mainly because of a poor distribution system which creates powerful local markets. Concentrated market power leads to monopolistic pricing behavior, with consequent low output sensitivity. The poor infrastructural networks which contribute to the monopolistic behavior are unlike to facilitate ease in reallocation of demand by the recipients of the price changes that are passed through by enterprises. Again, these points underscore the theme that nominal exchange rate adjustments are unlikely to lead to a substantial real output response in the short to medium run.

These arguments, which yield an elasticity pessimism about the output and balance-of-payments stabilization value of exchange rates, could be substantially weakened if rapid industrial reform and demonopolization of industry occurred in the former Soviet Union. However, we doubt that the economic conditions emphasized above will disappear in the near future. The survival behavior and concentrated market

power of large producers will persist as long as there are: barriers to the entry of new firms and of existing firms into new markets; economic uncertainty; lack of information about potential suppliers and customers; absence of working real estate and capital markets; inadequate legal guidelines and instruments; and a poor system of communication and payments. These problems may be reinforced by the growth of local governments, which often enact local controls and further impede free domestic trade.

The elasticity pessimism remains acute for the many countries of the former Soviet Union and the transition economies of Central and Eastern Europe. Problems in the payments system continue to hamper inter-republican and international trade. Bottlenecks in the payments systems also have sometimes hampered foreign exchange markets and real transactions in Central and Eastern Europe.<sup>10</sup>

The continued under-development of the banking and financial system means that it is difficult in arranging payments across the countries of the former Soviet Union, Central Europe, Eastern Europe, and with Western trading partners. Such difficulties contribute to long and variable lags in the receipt of payments for goods, and also sometimes lead to the requirement that import transactions (for example) are paid in full before goods are shipped. This reduces the sensitivity of trade volumes to exchange rates. Efforts to circumvent the payments system using barter transactions also limits the effectiveness of the exchange-rate instrument, since it reduces the sensitivity of the decision to export to fluctuations in the nominal exchange rate. These insensitivities are compounded in trade activities with those countries of the former Soviet Union that are immersed in ethnic and regional conflicts. Nonetheless, ongoing improvements in the payment and settlements systems are aiding foreign exchange transactions and market development in Bulgaria, the Czech Republic, and Poland, markets, and will work toward facilitating more rapid response of trade and settlements to relative price movements.

As a final point, although I have argued that elasticity pessimism is relevant for transition economies, it also is important to note that the elasticity pessimism arguments may have broader relevance for other developing economies. Rose (1990), for example, uses data for thirty developing countries, finds that changes in the real exchange rate do not have a significant effect on the trade balance. Reinhart (1994), using data for twelve developing countries, shows that relative prices are a significant determinant of trade and income for the majority of developing countries, but the price elasticities of output are very low. The consequence of these studies is that a very large devaluation would be required for eliciting a large trade and output adjustment in most developing countries. This suggests that our elasticity pessimism as a reason for doubting the relevance of the traditional optimal stabilization policy criteria may extend well beyond the transition economies.

#### IV. THE EXCHANGE RATE REGIME AND INFLATION CONTROL: MIXED RESULTS

If the optimal degree of currency independence is not determined by the output value of the exchange rate tool, perhaps more modern arguments about the link between currency regime and central bank monetary discipline have greater relevance for transition economies. In both academic and policy circles a credibly fixed exchange rate system often is viewed as being able to provide a nominal anchor to an economy and to impose monetary discipline on potentially lax central bankers.<sup>11</sup> Whether or not the announcement of a pegged exchange rate enhances the degree of central bank commitment to a conservative monetary policy (and to the fixed exchange rate regime) depends on the specific institutional and political arrangements of the country making the exchange regime announcement.<sup>12</sup>

If history is to be the guide, the widespread studies and evidence surveyed by Quirk (1994) shows that the choice of an exchange rate regime (fixed versus floating) *per se* does not give a clear indication of the likely success of a government at controlling inflation. Edwards (1993) and Ghosh, Gulde, Ostry and Wolf (1995) find that fixed exchange rate regimes have been associated with financial discipline. However, Edwards demonstrates that this history of financial discipline also has preceded the exchange rate regime. Fajgenbaum and Quirk (1991) also find that exchange rate anchor policies used in the Western Hemisphere through 1990 were not successful in containing inflation, except in countries with pre-existing low inflation situations. By contrast, a group of independently floating countries overwhelmingly experienced improvements in their balance of payments and inflation performance.

The national sovereignty symbolism of an independent currency is important to the population of a country. But, as I earlier noted, the pride a country takes in its currency is likely to be related to the ability of this currency to maintain its value. This, in turn, depends on the likelihood that the new monetary authorities will resist pressures for printing money. A country must be able to deal with the inconsistencies between its expenditure plans and the availability of resources for financing this spending. By eliminating monetary autonomy, a government signals some optimism about its ability to exercise restraint. This optimism may be made into law with mechanisms such as currency boards. However, as we have observed from the studies examining the inflation-exchange rate regime relationship, history suggests that, on balance, monetary discipline does not occur simply *because* a fixed exchange rate regime is implemented.

In a broader discussion of the lessons to be learned from fixed exchange rates, Svensson (1994) discusses regime credibility and the incentives for monetary discipline, or the lack of it, in the context of the European Monetary Union in its various stages.



First, fixed exchange rate regimes can be particularly fragile, especially when there are asymmetric real shocks to the countries whose currencies are linked together. Second, conditions may arise wherein monetary discipline is procyclical and less under a fixed exchange rate regime than under floating. Third, real exchange rate variability from real shocks, combined with downward wage and price rigidity, may result in an inflation bias under fixed rates because nominal devaluation ultimately may be required. Ultimately, Svensson correctly argues that fixed exchange rates are not a shortcut to price stability and the only way to truly build policy credibility is by having a consistent, responsible and credible set of economic policies.

In assessing the appropriate choice of exchange rate and the conditions for policy credibility, one must take into account the political climate and commitment to reform on a country by country level. There are specific country features, some transitory and others more endemic, which are associated with high reliance on inflation. These characteristics also may shed light on the conditions likely to be associated with sustaining a controlled exchange rate regime, if such a regime is implemented. Indeed, if it is unlikely from the inception that a controlled exchange rate regime will be unsustainable, implementing the controlled exchange rate regime may be counter-productive: the very pride that having an independent currency was intended to foster will be eroded.

Is there any way to predict the inflation tendencies of a particular transition economy? An obvious candidate is evidence on the inflation histories of specific transition economies of East and Central Europe and of the former Soviet Union. But, this data is likely to give misleading results and be a flawed indicator of future tendencies to maintain monetary discipline and sustain controlled exchange rate regimes. First, observed inflation in the early 1990s reflects price reforms as well as excess money

creation and therefore could yield misleading rankings of countries. Those countries were highly most progressive in price liberalization and reforms could incorrectly appear to be most irresponsible in managing their money supply. Second, the ability of a country to internally cover its' budgetary needs will become evident only after the country implements and stabilizes a system of taxation, achieves a tax base, establishes a position in private international capital markets, and realizes a less transitory regime of government to government transfers.

An alternative approach for statistically identifying likely candidates for undisciplined money creation is based on using data from other countries all over the world. Empirical results on cross-country reliances on seignorage may provide useful lessons about potential inflationary tendencies in the transition economies.<sup>13</sup> Government reliance on seignorage has been quite widespread. Between the 1960s and the 1980s, evidence from countries around the world shows that the ratio of seignorage to total government revenues was substantial for some countries, sometimes in excess of 10 percent. During this period there were basically two types of countries that relied heavily on inflationary finance: those with "active" and "passive" seignorage collection. "Seignorage use is active in the high inflation countries, such as Argentina, Uruguay, Chile and Brazil. It is passive in the rapidly growing countries, such as many members of OPEC. In the passive case, seignorage is obtained by providing high-powered money to meet the rapidly growing demand, without necessarily having high inflation." (Fischer 1982: 301) found that between 1971 and 1982 thirty-five percent of the 79 economies examined relied on seignorage for more than 10 percent of their total government revenues (Cukierman, Edwards and Tabellini, 1992).

There are particular country characteristics associated with tendencies toward using inflation finance. Inflation and seignorage reliance have been shown empirically to

be strongly inversely related to the efficiency of tax collection systems, and positively correlated with political instability (Cukierman, Edwards and Tabellini, 1992). Transition economies have inherited very inefficient tax collection systems. Moreover, the observed turnover of governments and battles for power in newly formed governments grappling with young democratic institutions will increase pressures for populist fiscal spending. At least for the early years of transition and reform, these key characteristics suggest that monetary conservatism will be relatively difficult to achieve in economies with significant budgetary demands.

Cross-country differences in likely seignorage reliances also will depend upon the sectoral composition of production and the ability of a government to collect taxes in particular sectors. Country reliance on seignorage significantly increases with the share of agricultural output in an economy, with the degree of urbanization, and with observed political polarization and instability. Reliance on seignorage declines with the extent of industrialization and the dependence of an economy on foreign trade. The agricultural sector is viewed as a more difficult target for administering taxes than, for example, mining and manufacturing sectors. The degree of urbanization is viewed as reflecting the ease with which market activities can move underground and evade taxes.<sup>14</sup> Of course, the need for seignorage as a source of budget finance also depends on the extent to which other countries provide independent financial support and transfers to the transition economy. In the former Soviet Union, countries which were formerly the recipients of large net transfers from Russia are most likely to be financially strapped in the early transition years (Goldberg, Ickes and Ryterman 1994; 1995).

For those countries with tendencies toward inflating, controlled exchange rate regimes will neither be viable, sustainable, or -- based on historical lessons -- lead to central bank discipline. If a country is in pursuit of a sustainable regime, it is left with the

choice between a degree of unrestrained exchange rates (such as that which a floating rate regime or adjustable peg would provide) or almost complete abandonment of monetary autonomy as arises with a currency board.<sup>15</sup>

#### V. CONCLUDING REMARKS

Despite my pessimism about the real effects of the exchange rate for output and inflation, there still remains a potentially important reason for having an independent currency and a flexible exchange rate regime. If the new currency is properly managed, it can reinforce a desired reform trajectory. Goldberg, Ickes, and Ryterman (1994) emphasize that control over the money supply can serve as a signal of commitment to an economic reform agenda and therefore aid current agendas for stabilization. This theme also is taken up by other authors in this volume. The discussion of currency boards, in particular, indicates that such considerations are important.

Monetary independence is important in order to signal that a comprehensive economic reform will be undertaken. This decision begins to address a key problem in the transition: governments have difficulty making their reform programs credible. Adopting a new currency signifies a break with the past. If combined with a comprehensive reform package, the independent currency can improve the country's situation. Overall gains can arise if the new currency is successful in enhancing the credibility of the reform package.

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## ENDNOTES

<sup>1</sup> Quirk (1994) provides a useful and thoughtful discussion of the classification of exchange rate systems into various headings of fixity and flexibility.

<sup>2</sup> Willett and Al-Marhubi (1994) argue that the case against independent currencies with flexible rates are grouped under four broad headings: (i) Exchange rate adjustments will not work to promote economic adjustments; (ii) Fixed exchange rates are needed to provide a nominal anchor for controlling domestic inflation; (iii) Destabilizing speculation and shifts in capital flows will general exchange rate misalignments and excessive volatility, thus hurting international trade and distorting resource allocation; and (iv) Flexible exchange rates promote economic warfare and make economic integration impossible.

<sup>3</sup> For insights into which country characteristics are associated with reduced monetary discipline, we appeal to the work by Cukierman, Edwards and Tabellini (1992).

<sup>4</sup> Alternatively, the initial situation may be one of distinct currencies with non-discretionary monetary policy and fixed exchange rates.

<sup>5</sup> Transfers are less likely to be sustained in the event of permanent shocks, and provide more scope for competitive devaluation.

<sup>6</sup> Bayoumi (1994), for example, embeds the traditional Mundellian insights into a general equilibrium model with regionally differentiated goods.

<sup>7</sup> The exception to this discussion of transition economies is East Germany. Since the former East Germany is stabilized by the former West Germany, this Mundellian criterion suggests that a single currency could exist between East and West Germany.

<sup>8</sup> This section draws on material from Goldberg, Ickes, and Ryterman (1994).

<sup>9</sup> For a detailed discussion of survival constraints on enterprises and the evolution of inter-enterprise arrears in Russia see Ickes and Ryterman (1993).

<sup>10</sup> See Balino, Dhawan, and Sundarajan (1994).

<sup>11</sup> For recent discussions see Edwards (1993), Calvo and Vegh (1993), and the paper in this volume by Westbrook and Willett.

<sup>12</sup> Currency boards, wherein there is full foreign exchange backing of the domestic currency, are intended to provide credibility to a fixed exchange rate regime while imposing a strict rule-based monetary policy. Such regimes have been implemented in Argentina (1992), Estonia (1993), and Lithuania (1994). Currency boards provide a country with the symbolism of a national currency, but almost completely eliminate monetary autonomy. Most of the studies of nominal anchors and inflation predate these recent experiences with currency boards.



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<sup>13</sup>Seignorage, often called the inflation tax because it taxes existing holders of money balances. When a country prints money to pay for its expenditures, it generates inflation, lowering the real value of the payments.

<sup>14</sup>Cukierman, Edwards, and Tabellini (1992).

<sup>15</sup>See Bennett (1993) and the papers by Dubaskas and by Ross in this volume on the operation of currency boards in Estonia and Lithuania.