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One Country, One Currency?

In 1947, there were 76 countries in the world; today there are 193. The largest country in the world (China) has 1.2 billion inhabitants; the smallest (Palau) has 16,600.[1] With few exceptions, a different currency circulates in every country, even the smallest ones.

Is each country an "optimal currency area" in the sense of Mundell (1961)? It is quite unlikely that the answer is yes for both China and Palau; it is also unlikely that the number of optimal currency areas happened to be around 70 in 1946 and about 180 today. In fact, the increasing amount of trade and financial integration suggests that the number of optimal currency areas may actually have fallen in the last few decades.

Partly as a result of the proliferation of many small countries,[2] the identification of one country, one currency has recently been called into question. An additional force pushing toward *dollari-*

1. Palau is the smallest country with a seat in the United Nations.
2. Currently the median country size is about 6 million.

zation (by which we mean the use by one country of another country's currency) has been a renewed emphasis on price stability. This emphasis was natural after an unfortunate decade (the 1980s) of exceptionally high inflation rates in many developing countries and double-digit inflation in many OECD countries.

Twelve countries in Europe have adopted a single currency, and a few others (the United Kingdom and Sweden) may enter soon (although Denmark recently declined). Ecuador is adopting the dollar. Argentina and Hong Kong employ a currency board with the U.S. dollar, and El Salvador decided to dollarize. In addition, a currency union for Central America is being considered. Estonia and Bulgaria had a currency board with the German deutsche mark and now with the euro, and several other eastern European countries are considering doing the same. Currency unions that were formed much earlier include the French franc zone in Africa, the Eastern Caribbean Currency Union, Panama with the United States, and a few others.

In our formal analysis (Alesina and Barro 2000), we discuss the pros and cons of adopting a foreign currency as the domestic currency. On the basis of this cost-benefit analysis, we try to characterize how many currency unions should exist in the world.

What are the benefits to a country from adopting the currency of a foreign anchor? First, a country pretty much secures the inflation rate of the anchor. Therefore, if the country lacks the discipline and credibility to keep inflation low and stable, dollarization buys a credible policy of price stability.

There are several reasons why most countries would have difficulty on their own in attaining price stability. One is a policymaker's temptation to use monetary expansion to counter recessions. If the policymaker can raise inflation above its expected level, there is some evidence that economic activity would be temporarily stimulated. However, since the public realizes the policymaker's intentions, this temptation tends to generate high and volatile inflation

with no benefits in terms of expanded economic activity.[3] The reason is that inflation cannot systematically be above expected inflation, or, to paraphrase Abraham Lincoln, you cannot fool all of the people all of the time.

A second source of inflation is the fiscal pressure to monetize deficits. An unexpected burst of inflation reduces the real value of government debt denominated in domestic currency and, thereby, looks fiscally attractive to the government. However, knowing about this potential in advance, people bid up interest rates.

As a consequence, many countries in the 1970s and 1980s found themselves in suboptimal situations with high inflation and no benefits in terms of unemployment or fiscal revenues. In several cases, such as Argentina and Brazil, these situations degenerated into hyperinflation.

Fixed exchange rates were sometimes suggested as a cure for this problem. The idea is that the pegged nominal exchange rate would be an anchor that would limit the government's ability to inflate—because domestic inflation creates pressure for devaluation of the currency. The problem, however, is that the apparent commitment to fixed exchange rates can readily be broken, and this possibility generates speculative attacks and instability, as shown by recent experiences in Mexico, Brazil, and East Asia. In this respect, dollarization—or, in a less extreme version, a currency board—is far superior to a fixed exchange rate. A full dollarization is much harder to reverse and, therefore, ensures more credibility, lower risk premia, and greater financial stability.

The second benefit from dollarization involves the reduction in transaction costs for exchanges of goods and financial services across borders. By sharing the same currency, two countries economize on trading costs, and the larger the currency union, the larger the benefit. Money is like language—the more people speak the

3. See Barro and Gordon (1983) for a formal analysis of this problem.

same language, the easier it is to communicate; the larger the number of people sharing the same currency, the easier it is to trade.

Recent results by Rose (2000), summarized in this volume, suggest that the benefits of dollarization for trade may be quite large. Rose bases his empirical analysis on the performance of existing currency unions. His findings indicate that the sharing of a common currency may, holding other things equal, increase the volume of trade dramatically—by a factor of two to three. Although this effect is large, the magnitude accords with other empirical results that have identified a strong home bias in trade.[4] For instance, two Canadian provinces trade with each other much more than a Canadian province and a U.S. state, even after accounting for other empirical determinants of trade flows. To the extent that part of this home bias comes from sharing the same currency, one should expect large trade effects from currency unions. In addition, the home-bias phenomenon applies not only to trade but also to financial transactions.[5] Thus, adopting a currency union would also be likely to generate a large increase in cross-border financial transactions.

One frequently mentioned cost of adopting a foreign currency is the loss of an independent monetary policy for stabilization purposes. A country that dollarizes loses its ability to target its monetary policy to its own disturbances—instead, the country has to accept the policy chosen by the anchor. In principle, the cost from the lost independence is greater the less correlated a country's disturbances are with the anchor country. However, this cost may have been overstated in past discussions because it is unclear that many small, open, and developing countries actually have the ability to use independent monetary policies effectively for stabilization purposes. Many observers have raised serious doubts that developing

4. See McCallum (1995) and Helliwell (1998).

5. See Obstfeld and Rogoff (2000) for a theoretical discussion of the pervasive effects of home biases in international markets.

countries with floating exchange rates have been able to use the apparent flexibility in an efficient manner.[6]

A second cost emerges from movements in relative prices. Even if a country dollarizes, relative prices will still fluctuate. Therefore, the country's inflation rate would equal that of the foreign anchor plus the rate of change of the price of a basket of the country's goods expressed relative to that of the foreign country. Thus, price stability for the anchor does not translate exactly into price stability for its clients.

A third cost involves the loss of the seignorage revenue from a government printing its own paper money. However, this loss amounts to a redistribution from clients to anchor, rather than an overall cost. The seignorage could be returned, in full or in part, to the client.[7] In fact, the allocation of seignorage can be part of a larger compensation agreement between clients and anchor.

To understand the role of compensations, one should begin with the benchmark case in which the anchor country returns all the seignorage revenue to the dollarizing country. In this case, the anchor has no incentive to tailor its monetary policy to the interests of its clients. However, by allowing payments from the clients to the anchor, mutually beneficial transactions may occur. That is, a client may compensate the anchor for modifications of the anchor's monetary policy that reflect the client's interests. In this environment, the anchor would maximize an objective that assigns weights to the objectives of all members of the union.[8] The determination of the weights depends on country sizes and on the compensation

6. See Calvo and Reinhart (2000), which is discussed in this volume. However, Broda (2000), also summarized here, reaches different conclusions.

7. Note that a fully credible currency board can be viewed as a currency union in which the client retains the seignorage. However, moving from a currency board to a currency union may increase credibility because it is more costly to abandon the latter system than the former.

8. We can think of the European Central Bank as acting in this way.

schemes that are in place. In equilibrium, the allocation of transfers and the monetary policy of the anchor will depend on the composition of the group of clients and the correlation of their disturbances.

If compensations are feasible, then a small anchor is relatively cheap to buy. That is, a large client in search of a monetary anchor may find it advantageous to compensate a small but committed anchor. This consideration suggests that Switzerland would be a preferable anchor to the United States. Thus, it would be particularly profitable for a small country to specialize in providing the services of an anchor.

However, two other considerations may weigh in favor of large anchors. First, the reduction in trading costs is more significant the larger is the anchor. Second, the ability to commit may be dependent on size. Consider a large country, say Russia, attempting to link its currency to a small, disciplined country, such as Estonia. Ex post, the large country may pressure the small anchor to abandon its apparently committed policy. This possibility makes the arrangement less credible ex ante, so that the small country may not actually serve as a satisfactory anchor.

The argument about ex-post pressures to accommodate economic disturbances of the clients also highlights why potential anchors (such as the U.S. Federal Reserve and the European Central Bank) have been cautious in supporting unilateral adoptions of their currencies. They fear that economic crises in foreign countries will create pressures to accommodate foreign shocks, even if there are no formal obligations for these accommodations.

Finally, dollarization depends on good practice being maintained by the anchor country, for example, by the U.S. Federal Reserve or the European Central Bank. Policies in the United States and Europe have, in fact, been committed to low and stable inflation for some time—since the mid-1980s. There is some reason to believe that this state of affairs reflects permanent changes in knowledge about which monetary policies are effective and about how to

achieve near price stability. However, dollarizing clients do take the risk of deteriorations in future policies.

In summary, the countries that are most likely to benefit from adopting a foreign currency are

1. Countries with an inability to achieve monetary and price stability on their own
2. Countries with economic disturbances that are highly correlated with those of the potential anchor
3. Small countries that are highly dependent on foreign trade
4. Countries that are close in distance to potential anchors and, therefore, could potentially trade a lot with the anchor

Given these considerations, we would expect the most likely currency unions to look as follows: one anchor country credibly committed to price stability provides the currency and the monetary policy for the union; clients are countries that are close to the anchor, small, and trade a lot with the anchor.

The size of the currency union is determined by a trade-off between scale and heterogeneity. As the size of the union increases with new entrants, more and more transaction costs of trade are saved. However, as the size of the union increases, the less the monetary policy of the anchor can be tailored to each member. The marginal entrant is the client that is so far from the anchor that its benefits from commitment and trade just compensate for a monetary policy that is little correlated with the entrant's disturbances. It should be noted that we use the term *distance* in the same way as the often used *gravity model* of international trade. This empirical model shows that countries trade more if they are close not only in miles but also if they share a common language, a border, a former colonizer, and so on.

Although the model sketched above is the most natural form of currency union, other types are also possible. For instance, a group

of countries that lack a strong commitment to low inflation may choose to share a common currency to economize on trading costs. This situation is most likely to arise if a group of small countries trade heavily with one another, are close together, and are far from any potential anchor. The argument for a currency union in Central America seems to be based on this idea, although adoption of the U.S. dollar actually seems more promising.

The previous discussion suggests that, as the number of countries increases and their average size diminishes, the optimal number of currencies should increase less than proportionally to the number of countries. In fact, one can imagine cases in which, as the number of countries increases, the optimal number of currencies decreases. Consider the following example: three countries next to each other, with three currencies. Suppose that the middle country, which is the only one unable to commit to stable prices on its own, splits into two equally sized countries. The two new countries are smaller and, hence, more dependent on foreign trade. In addition, each of the two new countries is now closer geographically to one of the other two preexisting countries. It is, therefore, possible that the two new smaller countries would decide to adopt the currencies of the two larger and committed countries. The world has, therefore, moved from a situation of three countries and three currencies to a setting of four countries and two currencies.

This example highlights the point from which we started: the tendency to form a currency union is likely to increase as the number of independent countries increases, especially if these new countries are small and heavily dependent on international trade and financial integration. Probably the main factor that has retarded this tendency up to now is that, with few exceptions, countries seem politically highly attached to their individual currencies, perhaps as a symbol of national sovereignty. This behavior is somewhat puzzling, because many countries willingly share a common language, often the one of a former colonizer.

Currency unions are also politically charged because they affect regional integration and disintegration. If a country has joined a currency union, then the cost of separation to a region within the country will have diminished because the separated region can still benefit from the common currency of the union.[9] This point has been made with reference to regions of European countries in the euro area. Several commentators have noted that regional tensions within countries have been fueled by the monetary unification in Europe.

In summary, we suggest that it is unlikely that the optimal number of currency areas equals the actual number of circulating currencies, which currently is about 180. We have emphasized the trade-offs that should identify and determine the optimal number of currencies. Further empirical analysis, currently under way, can identify which groups of countries are attractive candidates for currency unions.

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