
Currency Substitution in High Inflation Countries

GUILLERMO A. CALVO AND CARLOS A. VÉGH

Currency substitution—the use in a given country of multiple currencies as media of exchange—raises major and often controversial policy questions: *Should currency substitution be encouraged or discouraged? How does it affect the choice of a nominal anchor? What is its impact on the level and variability of the inflation tax? Unfortunately, there are few clear-cut answers to these questions.*

Few national currencies survive the destructive power of high inflation. Like a crippling disease that leaves no part of an organism untouched, high inflation severely hinders the ability of a currency to perform its basic functions as a store of value, a unit of account, and a medium of exchange. Indeed, a currency whose value declines over time, often in an unpredictable manner, is ill suited to serve as a store of value. Nominal prices with an ever-increasing number of digits make the use of a currency as a *unit of account* inconvenient and devoid of much meaning. Sellers become reluctant to accept as a *medium of exchange* a currency with uncertain value.

Unlike an organism that is unique and cannot be replaced, substitutes for a sick currency are easy to come by. Some currencies, such as the US dollar, enjoy worldwide recognition and have earned a reputation for being

relatively successful in maintaining their purchasing power over time. Not surprisingly, then, the public turns to a foreign money in its quest for a healthy currency. Currency substitution—the use of a foreign currency as a medium of exchange—is pervasive in high inflation countries. In many Latin American countries, for instance, the US dollar is widely used in conducting transactions, especially those involving “big-ticket” items. This explains the use of the term “dollarization” when referring to the phenomenon of currency substitution in Latin America. This term, however, is also frequently used to refer to the use of a foreign currency as a unit of account and a store of value.

Unfortunately, the extent of currency substitution is difficult to quantify since there are usually no data on foreign currency circulating in an economy. Only some rough, and admittedly crude, estimates exist. In Uruguay, for instance, theft reports filed with the police suggest that the ratio of dollars to domestic currency might be as high as three to one. In Bolivia, a recent study estimates that the ratio of circulating dollars to M2 reached 0.8 in 1985. Because of a lack of data, the share of foreign currency deposits in total financial assets (computed as M2 in domestic currency plus foreign currency deposits) is commonly used as a proxy for currency substitution. During the 1980s, this share surpassed 50 percent in Bolivia, Peru, and Uruguay, and remains very high, as documented in numerous studies. For instance, this share was almost 60 percent in Bolivia in 1990, and 83 percent in Uruguay in 1991.

The phenomenon of currency substitution is nothing new: large quantities of foreign currencies circulated in most of the economies that suffered hyperinflation after the two world wars. In Germany, for instance, it has been estimated that by October 1923, the real value of foreign currencies circulating was at least equal to and perhaps several times the

real value of the domestic currency. Even though during most of these hyperinflations, governments attempted to impose foreign exchange controls to prevent a flight from the currency, the public managed to circumvent these controls and resorted to foreign currency to satisfy most of their needs.

The presence of currency substitution raises important, and often controversial, policy questions.

- Should currency substitution be encouraged or discouraged? One argument holds that interest rates should be increased to induce people to hold the local currency, while another advocates full adoption of a foreign currency as the only legal tender (as in Panama).

- The presence of foreign money implies that the relevant money supply—which includes the domestic value of foreign currency circulating in the economy—has a component that cannot be controlled. Might this hamper the ability of policymakers to reduce inflation, as it makes it more difficult to establish a nominal anchor? Understanding how currency substitution affects the choice of a nominal anchor is thus key in the fight against inflation.

- Since currency substitution results from the need to resort to inflation to finance chronic budget deficits, what are the effects of currency substitution on the ability of the government to raise revenues from money creation?

This article analyzes these important issues and examines the main policy choices.

Discourage currency substitution?

The policy of discouraging currency substitution tends to be favored by governments that rely heavily on revenues from money creation. If successful, such a policy would increase the demand for domestic money and thus attenuate the inflationary consequences of a given budget deficit.

A popular method of discouraging the use of foreign currencies in Latin American countries—most notably Brazil—consists of paying attractive interest rates on demand deposits. This is an ineffective method of discouraging the use of foreign currency because it amounts to paying interest on domestic money. The demand for domestic money is likely to increase, but if the fundamental problems leading to high inflation are not being quickly resolved, such a method only postpones the “moment of truth,” and contributes to magnifying the eventual inflationary explosion.

An extreme measure designed to prevent the use of a foreign currency—which was adopted in Bolivia (1982), Mexico (1982), and Peru (1985)—is the forced conversion into domestic currency of the stock of foreign currency deposits in the domestic financial system. Such forced de-dollarization has often had effects opposite to those intended by the authorities. In Bolivia, for instance, the authorities expected that this measure would reduce the demand for dollars and increase the tax base for the inflation tax. Instead, it seems to have stimulated capital flight and driven the “dollarized” economy underground. With the stabilization plan of 1985, the official de-dollarization program ended.

Despite the negative assessment of measures destined to discourage the demand for foreign currency, the case for *encouraging* its demand is also less than obvious. An extreme form would be for a country to give up its own money and adopt a foreign currency (*full dollarization*). This type of solution is usually proposed after several failed stabilization programs. By removing the power to produce high-powered money from the central bank, it is hoped that inflation will be stopped in its tracks. In principle, a fully dollarized economy should inherit the inflation rate of the foreign currency that has been adopted. Such a system should also command higher credibility than a fixed exchange rate because it represents a higher degree of commitment to a stable money.

It has also been argued that full dollarization should provide the domestic government with more discipline. Presumably, this means that a government that cannot resort to inflationary finance will feel constrained to “put its house in order,” rather than find alternative sources of finance (such as domestic debt). While there may be some merit to this argument—avoiding temptation is the first step toward abstinence—we tend to believe that policies follow discipline rather than the other way around. In other words, the exchange rate regime does not guarantee that a government will follow the fiscal policies needed to sustain such a regime, as countless balance of pay-

ments crises attest. The recent events in the European Monetary System certainly support this view.

Full dollarization may be criticized on several grounds. First, there is never a complete guarantee that the system will not be discontinued in the future. Liberia, for instance, had the same dollar-based monetary system as Panama until the mid-1980s, when political upheaval and large budget deficits forced a *de facto* abandonment of the system. A large external shock could also lead a government to renege on its commitment in order to recover the use of the exchange rate as a policy instrument. Thus, it would be naïve to expect that full dollarization would result in a quick equalization of prices and interest rates with the rest of the world, as credibility problems are not likely to go away immediately.

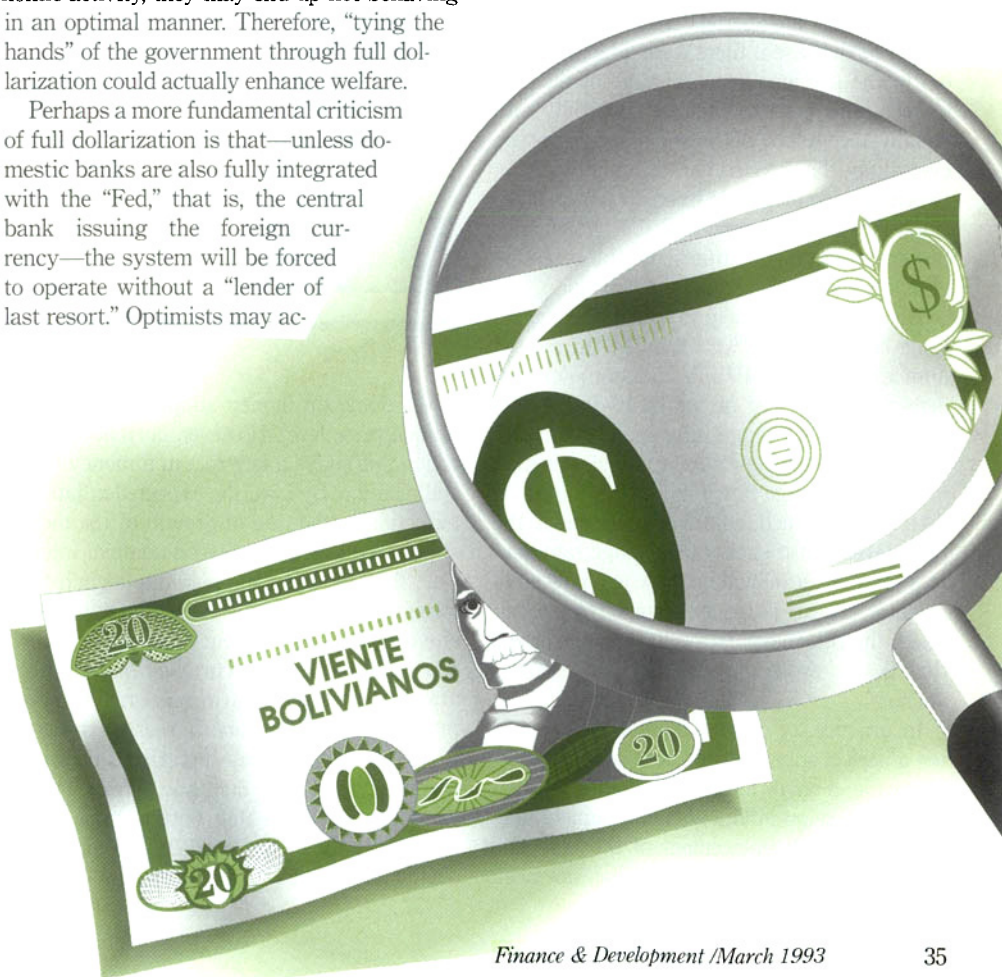
A traditional argument against full dollarization is that the government gives up revenues from the inflation tax. In many countries, seigniorage constitutes over 20 percent of total revenues. From a public finance point of view, replacing the revenues from inflation by conventional taxes could indeed lead to welfare losses if an inefficient tax system made it optimal to resort to the inflation tax. However, since governments may be tempted to renege on announced policies in order to secure short-term gains in terms of, for instance, higher economic activity, they may end up not behaving in an optimal manner. Therefore, “tying the hands” of the government through full dollarization could actually enhance welfare.

Perhaps a more fundamental criticism of full dollarization is that—unless domestic banks are also fully integrated with the “Fed,” that is, the central bank issuing the foreign currency—the system will be forced to operate without a “lender of last resort.” Optimists may ac-

tually argue that this is all for the better because the lack of a lender of last resort will impose stricter discipline on the domestic banking system. However, the most likely outcome is that, as soon as the domestic financial system threatens to collapse, rules will be relaxed and the banking system bailed out, which could lead to, at least, a temporary abandonment of full dollarization.

Short of full dollarization, the greatest drawback of encouraging the use of foreign money is that it would worsen the inflationary impact of a given fiscal deficit, by reducing the base of the inflation tax (given by the stock of real domestic money balances). In addition, if encouraging the use of foreign money takes the form of allowing individuals to hold “dollar” bank accounts, the same financial vulnerability mentioned in connection with full dollarization could be created.

In sum, there does not seem to be a strong general case for or against discouraging the use of foreign currencies. Hence, except under specific circumstances, policymakers should probably refrain from imposing measures designed to influence through artificial means the use of a foreign currency. Naturally, a greater use of domestic money that reflected increased confidence in government policy would be welcome. But, in this case, the greater use of domestic money would be a



consequence of good policies, and not an indication that encouraging the use of domestic money is a good policy in and of itself.

Choice of the nominal anchor

Since currency substitution is a by-product of high inflation, putting an end to inflation is a necessary condition to ensuring a return to the domestic currency. In an open economy, an inflation stabilization plan can be based on controlling either the exchange rate (exchange rate-based stabilization) or the money supply (money-based stabilization), thus letting the exchange rate float. The question arises as to the effects of currency substitution on the choice of the nominal anchor.

The conventional wisdom on this issue is that if there are substantial holdings of foreign money in circulation, fixed exchange rates provide a more effective nominal anchor. The reason is that, as a first approximation, the relevant concept of money includes holdings of the foreign currency. Thus, if the exchange rate is allowed to vary, the monetary authority would not be able to control the money supply (inclusive of foreign exchange) in terms of domestic currency. Conceivably, if domestic prices double, a depreciation of the domestic currency could accommodate the nominal money supply to the higher nominal money demand provoked by the doubling of prices. This line of argument is only strictly correct if both monies are perfect substitutes. This would be the case if there were no legal barriers to the use and free exchange of the two monies, and the two monies were fully and equally recognized as means of payment by everybody. Thus, once the exchange rate between the two monies is fixed, their risk characteristics are the same and the two monies become perfect substitutes. In this extreme case, the system has no nominal anchor.

An example may help to clarify the central issue. Suppose the US government erased the number "10" from \$10 bills and let the market determine the price of the ex-10-dollar bills (that is, their exchange rate) against all other dollar bills. A moment's reflection shows that, given an exchange rate, total money supply is determined, which, in turn, pins down the price level. But if such an exchange rate doubles, the price level will increase to a new equilibrium. Hence, if the exchange rate is not fixed, the price level is totally undetermined; that is, the system is left with no nominal anchor.

In practice, of course, foreign currency is not a perfect substitute for domestic currency. If it were, a small increase in domestic inflation over foreign inflation should immediately provoke a total replacement of the domestic for the foreign currency, which has not been

observed. However, the case of perfect substitution is still useful because it illustrates the fragility of the money supply as the nominal anchor in situations of extreme currency substitution. Moreover, perfect substitution might be a reasonable description of reality in the medium run, after enough time has elapsed for the financial system and the transactions technology to adapt to the use of the foreign currency. Under these circumstances, the gradual evolution of a currency substitution process under floating exchange rates might eventually lead to a highly unstable situation as the system loses its nominal anchor.

When currency substitutability is *imperfect*, the system is not left without a nominal anchor under floating exchange rates, since a



Guillermo A. Calvo
from Argentina, is a Senior Advisor in the IMF's Research Department. He holds a PhD from Yale University.



Carlo A. Végh
from Uruguay, is an Economist in the IMF's Research Department. He received his PhD from the University of Chicago.

given domestic money supply determines a unique price level. However, currency substitution still plays a key role in a money-based stabilization. By lowering expected inflation, a reduction in the rate of growth of the money supply reduces the domestic nominal interest rate, thus inducing the public to switch from foreign to domestic currency. The public's desire to sell foreign currency leads to an appreciation of the domestic currency. Moreover, the attempt by the public to increase real domestic money balances provokes a recession because, to the extent that domestic prices and wages are sticky, the real domestic money supply cannot increase, so that output must fall to equilibrate the money market. The higher the elasticity of substitution between domestic

and foreign currency, the larger the appreciation of the domestic currency and the more pronounced the recession.

In the case of exchange rate-based stabilization, the domestic money supply can adjust instantaneously (assuming high capital mobility), which prevents the recession that results from money-based stabilization. Hence, a fully credible stabilization (in the sense that the public expects the lower rate of devaluation to be maintained for the indefinite future) will reduce inflation instantaneously with no real costs. If there is no credibility, currency substitution does not alter the boom-recession cycle predicted by some theoretical models and observed in chronic inflation countries.

To summarize, a high degree of currency substitution seems to significantly strengthen the case in favor of fixed exchange rates, particularly if an early deceleration of inflation contributes significantly to the credibility of the stabilization program. This is more likely to happen under predetermined exchange rates because the exchange rate "anchors" the price of traded goods.

Even if inflation is successfully brought down, evidence for Latin American countries (such as Bolivia, Mexico, Peru, and Uruguay) suggests that the demand for domestic money may not go all the way back to the levels observed prior to stabilization. The dollarization processes seem to exhibit "hysteresis," or irreversibility, in the sense that dollarization ratios do not fall once inflation has been reduced. For the same level of inflation, the public holds less domestic money than before.

This irreversibility in the process of currency substitution is most likely related to the role played by financial adaptation. High inflation forces the gradual development of new financial instruments and institutions (foreign currency deposits being one of the manifestations of this process) that decrease the demand for domestic money for a *given* level of domestic nominal interest rates. Creating new financial products is costly and requires a learning process. Once this "investment" has taken place, the public will continue to use these new financial instruments even if inflation falls.

A similar explanation has been advanced to explain the secular decline in the demand for currency in the United States. Clearly, once automated teller machines (ATMs) have been put into place on almost every corner, one would hardly expect a fall in the opportunity cost of holding money to a given level to cause currency demand to go back to pre-ATM-levels. Hence, to the extent that the "hysteresis" associated with currency substitution reflects such considerations, there is little that policy-makers can or should do to reduce foreign currency holdings.

Inflationary finance

The popularity of the inflation tax in developing countries is hardly surprising. Unlike conventional taxes, the inflation tax is costless to collect, easy to enforce, and hits low-income groups with no political clout the hardest. The inflation tax thus provides a convenient means of financing public spending in the face of inefficient and costly tax administration systems. Unfortunately for the revenue-hungry politician, the presence of a foreign currency provides an inexpensive and efficient way of evading the tax on domestic money balances. Hence, when the inflation tax becomes the main source of revenue—as best exemplified by the post-World War I European hyperinflations—governments go to extremes to ban the use of foreign currencies in a desperate attempt to salvage the last source of revenue. During the Austrian hyperinflation, for instance, the government established widespread exchange controls aimed at increasing the amount of domestic currency held by the public. The incentives to evade were so enormous, however, that even widespread controls could not prevent flight from the currency.

The possibility of switching from the domestic to the foreign currency implies that the

inflation rate required to finance a given budget deficit is higher. This is because the availability of foreign currency reduces the demand for domestic money for a given level of inflation. Since the stock of domestic money constitutes the tax base for the inflation tax, the same amount of revenues can only be collected with a higher inflation rate. Moreover, the closer foreign currency substitutes for domestic money, the higher the inflation rate, because a given increase in inflation will provoke a larger reduction in domestic money demand. Since both the speed with which the public adjusts its money portfolio and the degree of substitution between the two currencies are likely to increase with a higher inflation rate, currency substitution may well lead to an explosive inflationary path. Currency substitution may also lead to more volatile inflation. Sudden spikes or inflationary explosions are bound to result from any exogenous shift in the demand for real money demand as a result of, say, changes in the availability of foreign currency or in transaction patterns.

In sum

The fact that currency substitution may lead to higher and more volatile inflation for a given budget deficit should not be taken to

mean that currency substitution “causes” inflation. Rather, the implication is that the ready availability of sound currencies makes the use of the inflation tax less attractive than it would be otherwise. Measures designed to prevent the use of foreign currencies enjoy, at most, temporary success, and are often counterproductive. Such measures provide a clear signal to the public that the government has no intention of taking serious fiscal measures, which can only exacerbate the flight from the currency. Hence, the policy prescription in this area is simple (although in practice it might not be easy to implement for political reasons): attack the cause of inflation (the fiscal deficit) rather than the symptoms (currency substitution). Ironically, by making it more costly for a government to monetize its deficit, currency substitution may bring forward the day of reckoning. If that is the case, currency substitution might have played a beneficial role after all.

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