

Seigniorage Sharing Under Dollarisation

by

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Dollarisation is becoming a viable option for a number of countries, but the potential loss of seigniorage is a major obstacle. Zeljko Bogetic of the IMF looks at the major sharing arrangements available.

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Background

Official dollarization is in fashion. During the 1990s, official dollarization went from an obscure theoretical topic to a policy issue that attracts headlines of world's leading business journals. Official or full dollarization is a complete monetary union with a foreign country from which a country "imports" a currency, by making the foreign currency full legal tender and reducing its own currency, if any, to a subsidiary role. In officially dollarized countries, there is no domestic currency, no currency risk and, therefore, no risk of currency crises. As a result, domestic interest rate structure and inflation rate tend to be similar to the ones prevailing in the wider monetary area.

These and other concomitant benefits (i.e., the lower cost of borrowing for the government and the private sector, higher growth and investment) may be significant, especially in the long run. In the short run, however, the main quantifiable cost is the loss of seigniorage revenues from printing domestic currency. However, as indicated elsewhere (e.g., Bogetić 2000a, 2000b), these costs are not prohibitive (often ranging from a few tens of 1 percent of GDP—as in Argentina—to 2-3 percent of GDP), especially in low-inflation countries; and these costs have declined over the past few decades due to a secular decline in inflation and interest rates and the share of currency in GDP in the majority of developing countries. Hence the *economic* calculus of official dollarization seem to be gradually tilting in favor of official dollarization at least in some small countries that have much to benefit from financial integration into wider monetary areas.

A key question in a country's decision whether or not to dollarize is, therefore, likely to revolve around the issue of whether a country is willing to trade off a short-term seigniorage loss (and perhaps some other losses, such as the loss of the central bank as a lender of last resort) for a long-term gain in low inflation, interest rates, and greater financial integration into the wider monetary area, hopefully leading to higher long-term growth. The answer depends much on one

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factor: whether or not an officially dollarizing country may recoup all or part of seigniorage revenues lost from sacrificing domestic currency, an issue that we take up in this paper.

In most officially dollarized countries, there is a single foreign currency used, or there is one dominant legal tender, such as the U.S. dollar in Panama and Marshall Islands, for example. But in some countries--perhaps better called bimonetary systems--a foreign currency is used widely in the role of legal tender but it has subsidiary role to the domestic currency. As of early 2000, there are 28 small, officially dollarized economies --the largest and most well-known being Panama--and another 16 bimonetary systems (Tables 1-2; see Bogetić 2000a, 2000b, 2000c; and Schuler 2000).

Many factors have created this surge of interest in official dollarization. In Europe, fundamental changes in the currency landscape have spurred new research on the advent of the euro and the interest of Eastern European countries in monetary union with Western Europe, whether by joining the European Central Bank, by unilaterally “dollarizing” its economy via the introduction of the German mark/euro as legal tender (e.g., Montenegro) or by establishing currency boards (e.g., Estonia, Lithuania, Bulgaria, Bosnia and Herzegovina)¹. In Latin America, the experience of Argentina’s currency board-like system since 1991 and Panama’s history of official dollarization since 1904 have stirred debate, especially in Argentina, El Salvador, and Mexico.

Most recently, Ecuador’s on-going dollarization project that began on January 9, 2000 intensified academic and policy debates and moved the discussion closer towards practical policy issues that arise in the course of implementing official dollarization (See Cordeiro 1999). And the worldwide effects of financial crises in Mexico and Argentina (1994-5), East Asia (1997-8), Russia (1998), and Brazil (1998-9) have motivated reexamination of the characteristics of stable exchange rate regimes. Amidst these dollarization debates, one issue always takes center-stage: seigniorage revenues and the prospects of minimizing its loss via revenue sharing with the anchor country.

This is hardly surprising: seigniorage is the most visible and quantifiable cost of official or ‘full’ dollarization (Fischer 1982). When a country officially adopts a foreign country’s currency as its sole or predominant legal tender, it loses revenues from printing its own currency, revenues that represent the difference between the face value of the currency and the cost of minting and printing it. Upon official dollarization, a country effectively turns over those revenues to the foreign country from which it “imports” the currency. This loss in revenues from printing domestic currency, therefore, represents an important variable in the calculus of countries considering official dollarization. In fact, the issues of the size of seigniorage lost and the possible seigniorage sharing are figuring prominently in the on-going discussions of

¹ Begg (1997), Dornbusch (1997), Hanke (1999).

prospective full dollarization projects, as has already been the case with Argentina and, most recently, Ecuador.

[TABLES 1 – 2 ABOUT HERE]

In this note, we, therefore, try to shed some light on the existing seigniorage sharing arrangements with the current proposals for Argentina and the United States. And we discuss the potentially far-reaching implications of the International Monetary Stability Act (the Senate bill S.1879 subsequently revised as a new bill S. 2101; the House or Representatives bill H.R. 3493; also see Schuler and Stein (2000) for a discussion of the S. 1879 version of the bill and Stein (2000) for the latest version S. 2101), a bill on seigniorage sharing introduced in November 1999 to the U.S. Senate and the House of Representatives by Senator Connie Mack, Chairman of the Joint Economic Committee. It is hoped that this review would prove useful to practical policy discussions in countries and territories in the middle of official dollarization projects (e.g., Ecuador, Montenegro, East Timor) and those that are considering official dollarization in the near future.

Brief history

Seigniorage sharing used to be common among British colonies operating multi-colonial currency boards. All multicolonial currency boards (as in West Africa, East Africa, the Caribbean, and Malaya) had seigniorage sharing arrangements. Other colonies had individual currency boards that did not share seigniorage with anybody, including the British government (Schuler 1992). However, with the majority of former British colonies gaining independence and the replacement of most currency boards² with central banks in the 1950-1960s, seigniorage sharing has largely disappeared.

Today, among fully dollarized and bimonetary systems, only one seigniorage sharing arrangement survives, that between Lesotho, Namibia and South Africa within their Common Monetary Area (CMA) agreement.³

² There is rich literature on currency boards, which is currently undergoing revival with the advent of 5 new currency boards during the 1990s (Argentina, Bulgaria, Bosnia and Herzegovina, Estonia, Lithuania). See, for example, Hanke (1999), Williamson (1994), Schwartz (1993), Baliño and others (1997), and references maintained at the Website of Kurt Schuler at <http://users.erols.com/kurrency/>.

³ The seigniorage sharing among European Union countries that we nevertheless mention here (as, for example, is the case with the Eastern Caribbean Central Bank countries that share the common currency – Eastern Caribbean dollar) is different insofar as the member countries are not ‘officially dollarized’ since they did not adopt *a foreign country’s currency* as domestic legal tender.

Existing arrangements

Seigniorage sharing in the Common Monetary Area (South Africa, Lesotho, Namibia)

In the Common Monetary Area (CMA) the seigniorage sharing arrangement is determined in Article 6 of the 1974 Multilateral Monetary Agreement (Collings 1983) originally encompassing South Africa, Lesotho, Namibia, and Swaziland. Subsequently, Swaziland, while remaining a member of CMA (with no exchange controls with other countries) removed the legal tender status of the South African rand on its territory and in doing so removed itself from the seigniorage sharing arrangement. Namibia, upon becoming independent in 1990, became CMA independent member state with its share of seigniorage as determined in the aforementioned Article 6. In addition, in 1993, South Africa and Namibia concluded a separate Bilateral Monetary Agreement, consistent with the Multilateral Monetary Agreement, and allowing Namibia to issue its own Namibia dollar in note and coin form.

The Multilateral Agreement that remains the legal and institutional basis for CMA provides Lesotho and Namibia a share of seigniorage determined as $\frac{2}{3}$ of the return on the estimated rand circulation in their territories that these countries would have earned had these funds been invested in South African government securities. The proportion of two thirds was agreed as a compromise to take account of the differences between short-term and long-term returns on securities. The rand currency in circulation—the basis for the calculation of the two countries' shares of seigniorage—is estimated using amounts of rand currency at a base date (December 31, 1973 for original members; December 31, 1990 for Namibia), subsequently adjusted to reflect changes in the amount in total rand currency in circulation outside banks in the entire monetary area. The adjustment factors are set as 6:5 for an increase and 4:5 for a decrease, reflecting an assumption of a more rapid monetization in the less developed countries in the monetary union: Lesotho and Namibia. What this means is that for each additional rand in circulation issued in the common rand currency area, the initial level of seigniorage in Lesotho and Namibia is increased by more than one rand, that is: $\frac{6}{5}=1.2$ rands. Conversely, for each rand withdrawn from circulation, the initial level of seigniorage is reduced by less than one rand: $\frac{4}{5}=0.8$ rands. While this arrangement remains the basis for seigniorage sharing today, as indicated above, since Namibia introduced Namibian dollar, it has also progressively reduced the amount of rand in circulation.

Seigniorage sharing in the European Union

While the members of the European Union do not qualify as 'dollarized' in the strict sense of the word, given the scarcity of the institution of seigniorage sharing, the EU arrangement appears important to review to appreciate the range of possibilities.

The EU sharing formula is simple: monetary income of the national central banks and net profits of the European Central Bank (ECB) are distributed according to national central banks' share of the paid-up capital of the ECB, which are determined as an equal-weighted function of population and GDP. Specifically, in the Article 29 of the Statute of the European System of Central Banks (ESCB) and of the European Central Bank (Protocol No.18), the key for the subscription of member's paid capital is as follows.

- 50 percent of the share of its respective members state in the population of the Community in the penultimate year preceding the establishment of the ESCB; and
- 50 percent of the share of its respective member state in the GDP of the Community, as recorded in the last five years preceding the penultimate year before the establishment of ESCB.

The weighting with each member country's share of capital will be adjust every five years and will take effect on January 1 of the following year.

At the same, time, no revenue sharing formula exists nor an explicit proposal for countries that are currently *outside* EU but decided to introduce euro as legal tender in their territories.

Current proposals

Three proposals have recently attracted academic and policy attention as possible future seigniorage sharing arrangements for countries that wish to dollarize: (1) the proposal on sharing seigniorage between Argentina and the U.S. (see BCRA 1999, Schuler 1999, and Castro 1999), (2) the Barro proposal (1999), and perhaps most importantly, (3) the proposal in the International Monetary Stability Act (1999) currently under consideration in the U.S. Congress. All assumed that the dollarizing country would adopt the U.S. dollar as its domestic legal tender. But the discussion should also be relevant for countries on the fringes of the European Union wishing to 'euroize' or countries in Asia considering dollarizing by adopting the Japanese yen.

At the outset, it should be clear that the main benefit for the dollarizing country of seigniorage sharing is its ability to regain some or all revenues lost from eliminating its national currency. And the multiple long-term benefits from eliminating transaction costs with the anchor country and the associated elimination of the currency risk (and with it, the risk of debilitating currency crises) and financial integration could be far more significant. But even from the point of view of the anchor country, sharing seigniorage is potentially beneficial: to the extent that by eliminating transaction costs and currency risk dollarization leads in the long run to higher incomes, trade and financial integration in the entire common currency area, the anchor country, especially its businesses, financial institutions, and tourists would also benefit.

Possible seigniorage sharing arrangements between the United States and Argentina

While the Convertibility Plan of 1991 established a currency board-like system, Argentina was heavily dollarized unofficially when the plan went into operation: U.S. dollar notes were estimated to exceed domestic-currency notes and bank deposits combined. Under the currency board-like system, unofficial dollarization, as measured by the share of foreign-currency deposits to the broad money supply, has been high--44 percent in 1995 (Baliño and others 1999: 2, Table 1). Also, the share of foreign-currency deposits has increased since the Convertibility Plan began, suggesting that the process may be irreversible. Far from hindering use of the dollar, Argentina has encouraged it by giving the dollar practically (though not officially) legal tender status in large classes of transactions. The dollar is widely used as a unit of account and means of payment in private financial transactions, although the government uses the peso as its sole unit of account.

In January 1999, President Carlos Menem announced that the government was studying the possibility of full official dollarization. He was prompted to do so by lingering doubts about the credibility of the currency board-like system. Despite the system's good performance, Argentina has experienced interest-rate spikes in 1992, during Mexico's currency crisis in 1994-5, and during the Asian and Brazil currency crises since 1997. And when the Mexican crisis spilled over and created speculative pressure against the Argentine peso in 1995, the Argentine government threatened to officially dollarize, which helped reduce the pressure. Given that the Argentine peso is worth one dollar, moving from the present currency board-like system to official dollarization would not be technically difficult (Hanke and Schuler 1999) but it entails considerations such as seigniorage sharing that may require prolonged bilateral negotiations and treaties.

To address this issue, the Government of Argentina (BCRA 1999; also see Schuler 1999, Castro 1999) proposed a simple arrangement for sharing seigniorage revenues between Argentina and the U.S. in proportion 75:25. It also estimated that the cost to Argentina of losing seigniorage would be comparatively small, only 0.2 percent of GDP. In Schuler's paper, it is assumed that the United States would give dollarizing countries all the net seigniorage from *increases* in the dollar monetary base attributable to their becoming dollarized. The United States would retain all the seigniorage it collects from the approximately \$540 billion of the dollar monetary base *already* in circulation, except for a small amount to assist the already dollarized economies. However, with the departure of Mr. Menem from office, the dollarization project, including concrete discussions of a viable seigniorage sharing scheme between the two countries lost momentum, though it did not disappear from policy and academic debates.

The Barro proposal

Barro (Barro 1999) proposed a radical simplification in the seigniorage sharing debate by advocating that the United States simply transfers to Argentina the U.S. dollar equivalent of its peso currency in circulation, estimated at about U.S.\$16 billion. Instead of receiving annual

transfers based on a more complex formula, such as the one proposed by the Joint Economic Committee, Argentina would receive this transfer directly and only once. Notwithstanding the simplicity of the proposal, concern were raised (Schuler 1999) that such transfers could be subject to a principal-agent problem where the agent (i.e., the dollarized country) may not use entirely (or at all) the transfer for the specified purpose. While this might not be a problem in the case of Argentina (inter alia, due to the fact the Argentina seems likely to dollarize not unilaterally, but rather via an internationally binding, bilateral agreement featuring, at the minimum, a mutually agreeable sharing scheme) the problem would presumably be larger if many countries were to fully dollarize under this scheme, due to greater monitoring costs. At a more practical level, the proposal, while administratively simplest, also most costly to the U.S. in the first year. This makes it politically difficult to implement it, though it may turn out to be beneficial to the U.S. on a net basis in the long run.

The International Monetary Stability Act (IMSA)

Despite the scarcity of seigniorage sharing arrangements in the world today, the country of the reserve currency could, in principle, return to a dollarizing country much of its lost seigniorage revenues, thereby reducing significantly the most visible, upfront cost and tilting the dollarizing country's cost-benefit calculus in favor of dollarization. The International Monetary Stability Act, a comprehensive bill introduced in November 1999 by the U.S. Senator Connie Mack and U.S. Representative Paul Ryan provides precisely that option (U.S. Senate bill S. 2101, and the U.S. Congress bill S.3493; also see Stein 2000).⁴

⁴ Before IMSA was formulated, the economic staff of the United States Joint Economic Committee (Schuler, 1999) proposed an earlier, simple formula for sharing revenues from seigniorage as follows.

Dollarized country's share of net seigniorage =

$$\begin{aligned} & \{ [\text{total average dollar monetary base over the period} \times \text{average interest rate on 90-day} \\ & \text{Treasury bills during the period}] \\ & - \text{net costs of operating the Federal Reserve} \} \\ & \times \text{dollarized country's share of total dollar monetary base} \\ & \times \text{proportion of seigniorage revenue that the United States pays} \end{aligned}$$

where net seigniorage is simply the difference between the revenue from issuing currency (gross seigniorage) and the costs of printing notes and minting coins and the costs of the staff of the Federal Reserve System. But this proposal was subsequently abandoned because of considerations of budgetary accounting.

IMSA gives discretionary power to the Secretary of the Treasury to certify *new officially dollarized countries* (after the bill was introduced in November 1999) as eligible to recoup 85 of the seigniorage from the United States, as calculated by the formula provided in the Act. The remaining 15 percent would be used to finance seigniorage rebates to countries that are already dollarized (e.g., Panama), help pay the cost of operating the Federal Reserve, and still leave a net revenue to the United States. The formula for calculating the seigniorage provides for more seigniorage rebate to a dollarizing country if the U.S. interest rates and the dollar coins and banknotes in worldwide circulation increase. There is also a separate formula for calculating seigniorage sharing scheme for *countries that are already officially dollarized* (using the U.S. dollar) that would apply to Panama, the Marshall Islands, Palau, Turks and Caicos Islands, and the British Virgin Islands.

In a nutshell, by explicitly guaranteeing the certified dollarized country (and previously dollarized countries) its specified revenue share, the Act goes a long way towards making official dollarization ex ante less costly to a country considering it. Moreover, it also allows for the presently dollarized countries, such as Panama, over time, to participate in the seigniorage sharing scheme. However, as in the recent testimony of the Chairman Greenspan (U.S. Congress 1999), the Act recognizes that a dollarized country is not a member state of the U.S.: it explicitly rules out the possibility that the U.S. provide lender of last resort or supervision services to the country that decides to officially dollarize.

Conclusion

Notwithstanding the paucity of seigniorage sharing in the contemporary world, the South African Common Monetary Area and the European Union provide some guide about the possible design of future sharing arrangements in newly dollarizing countries. Indeed, the three proposals reviewed, despite some differences in the calculation of the share of revenues returned to the dollarizing country, all incorporate significant benefits to the dollarizing country in terms of seigniorage revenues returned from the anchor country. Such proposals, therefore, minimize the traditional revenue argument for issuing national currency, and may provide added incentives to small countries wishing to quickly integrate themselves into the wider monetary and financial areas of the world's major currencies.

Finally, on a more practical note, what can an officially dollarizing country realistically expect in terms of sharing seigniorage revenues? For countries considering adopting the U.S. dollar, the passage of the International Monetary Stability Act into law would allow them to recoup a significant portion of their seigniorage revenues. Those countries would, therefore, be well advised to follow closely this bill and be fully apprised of its international implications, should it be passed into law. For countries aspiring towards eventual membership in the European Union, the situation is less clear: there appears to exist no explicit policy in the EU regarding seigniorage sharing with non-members who decide to 'euroize' *unilaterally* as, for example, Montenegro did in November 1999 when it introduced the German mark as domestic

legal tender with the prospective introduction of the euro. The EU could dispel this uncertainty by making its policy explicit either via a law similar to the IMSA or public guidelines making it clear to the prospective ‘euroising’ countries what to expect.

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Table 1: Fully dollarized Economies in early 2000

Country	Pop.	Political status	Currency used	Since
Andorra	73,000	Independent	French franc/euro, Spanish peseta/euro 2/	1278
Cook Islands	18,500	New Zealand self-governing territory	New Zealand dollar	1995
Cyprus, Northern	180,000	de facto independent	Turkish lira	1974
Ecuador 1/ 3/	12.6 mn	Independent	U.S. dollar	2000
Greenland	56,000	Danish self-governing region	Danish krone	Before 1800
Guam	160,000	U.S. territory	U.S. dollar	1898
Kiribati 1/	82,000	Independent	Australian dollar, own coins	1943
Liechtenstein	31,000	Independent	Swiss franc	1921
Marshall Islands 1/	61,000	Independent	U.S. dollar	1944
Micronesia 1/	130,000	Independent	U.S. dollar	1944
Monaco	32,000	Independent	French franc/euro	1865
Nauru	10,000	Independent	Australian dollar	1914
Northern Mariana Islands	48,000	U.S. commonwealth	U.S. dollar	1944
Palau 1/	17,000	Independent	U.S. dollar	1944
Panama 1/	2.7 mn	independent	U.S. dollar notes and coins, Panamanian balboa coins	1904
Puerto Rico	3.8 mn	U.S. commonwealth	U.S. dollar	1899
Saint Helena	5,600	British colony	pound sterling	1834
Samoa, American	60,000	U.S. territory	U.S. dollar	1899
San Marino 1/	26,000	independent	Italian lira/euro, own coins	1897
Tuvalu	11,000	independent	Australian dollar, own coins	1892
Vatican City	1,000	independent	Italian lira/euro, own coins	1929
Virgin Islands, U.K.	18,000	British dependency	U.S. dollar	1973
Virgin Islands, U.S.	97,000	U.S. territory	U.S. dollar	1934

Sources: *The Statesman's Year-Book*, various issues; IMF 1998b; IMF Web site (for information on member countries); and IMF *World Economic Outlook* data. In addition, a few other, very small territories use foreign currencies, such as Niue (New Zealand dollar), Norfolk Island, Cocos (Keeling) Islands (Australian dollar), Pitcairn Island (New Zealand dollar and U.S. dollar), Tokelau (New Zealand dollar), and Turks and Caicos Island (U.S. dollar).

Notes: 1/ IMF member country.

2/ Issues Andorran diner coins for collectors.

3/ Ecuador's dollarization project was announced by President Mahuad on January 9, 2000 and is currently under implementation.

Table 2: Bimonetary Systems in early 2000

Country	Pop.	Political status	Currency used	Since
Bahamas 1/	290,000	Independent	Bahamian dollar, U.S. dollar	1966
Bhutan 1/	1.9 mn	Independent	Bhutan ngultrum, Indian rupee	1974
Bosnia and Herzegovina 1/ 3/	4.1 mn	Independent	Bosnian convertible marka, German mark, Croatian kuna, Yugoslav dinar	1998
Brunei Darussalam 1/ 3/	300,000	Independent	Brunei dollar, Singapore dollar	1967
Cambodia 1/	10.6 mn	Independent	Cambodian riel, U.S. dollar	1980
East Timor	800,000	Under the U.N. administration	U.S. dollar, Indonesian rupee	2000
Haiti 1/	8 mn	Independent	Haitian gourde, U.S. dollar	n.a.
Isle of Man	72,000	British dependency	pound sterling, local pound	1800s
Kosovo	1.8 mn	Under the U.N. administration	German mark, Yugoslav dinar	1999
Lao PDR 1/	4.7 mn	Independent	Lao kip, Thai baht, U.S. dollar	n.a.
Lesotho /1 2/	2.1 mn	Independent	Lesotho loti, South African rand	1974
Liberia 1/	2.9 mn	Independent	U.S. and Liberian dollars	1944
Luxembourg 1/	420,000	Independent	Luxembourg franc/euro, Belgian franc/euro	1945
Montenegro	650,000	Republic in FR Yugoslavia	German mark, Yugoslav dinar	1999
Namibia 1/ 2/	1.6 mn	Independent	Namibian dollar, South African rand	1993
Tajikistan 1/	5.8 mn	Independent	Tajik ruble, use of other currencies permitted	1994

Sources: IMF Exchange Arrangements and Exchange Restrictions 1998b; IMF Web site (for information on member countries); *The Statesman's Year-Book*, various issues; and IMF *World Economic Outlook* data. Also, Channel Islands uses British pound and local pound concurrently.

Notes: The identification of bimonetary systems relies on the classification of currency regimes in the *Exchange Arrangements and Exchange Restrictions* Annual Report 1998, International Monetary Fund. We included in the list of bimonetary systems those countries that are using, according to this report, foreign currency as "other legal tender," which means that the foreign currency, while circulating widely, plays a subsidiary role to the domestic currency.

1/ IMF member country.

2/ Uniquely among fully dollarized and bimonetary systems, Lesotho and Namibia have a seigniorage sharing agreement with South Africa, the other member of the Common Monetary Area.

3/ Brunei Darussalam operates a currency board. Brunei dollar is tied to the Singapore dollar at the rate 1 Brunei dollar = 1 Singapore dollar. Similarly, Bosnia and Herzegovina operates a currency board with its currency, Konvertibilna marka tied to the German mark at par.

