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Sovereign debt in the Americas: New data and stylized facts

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Sovereign Debt in the Americas: New Data and Stylized Facts

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Abstract[*]

The paper presents a new database on sovereign debt in the Americas, describing the sources used and briefly discussing several methodological issues. The paper also highlights major trends in level and composition of public debt in the Americas, discussing debt dollarization in detail.

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Some means should be resorted to for liquidating the public debt, and in this he agreed. . . . that a great sacrifice should be made. . . . The sacrifice would be a temporary one, and with that view he would be willing to give up as large a share of his property as any other individual. By such means ought the evil of national debt be met. It was an evil which almost any sacrifice would not be too great to get rid of. It destroyed the equilibrium of prices, occasioned many persons to emigrate to other countries, in order to avoid the burthen of taxation which it entailed, and hung like a mill-stone round the exertion and industry of the country.

David Ricardo, parliamentary speech, 1819.

1. Introduction

The effects of issuing public debt, both domestic and external, have been the subject of substantial scrutiny and analysis. While Ricardian Equivalence indicates that the level of public debt should be a priori irrelevant for economic outcomes as consumers anticipate its effect on future taxes and adjust consumption accordingly (Barro, 1974), there are several arguments rooted in both the neoclassical and the Keynesian traditions that suggest that the level of public debt does matter.[1] In those cases, debt issuance would involve intertemporal transfers that may have sizable implications for aggregate demand and economic activity. A normative implication of this view is that debt should increase during recessions and shrink during expansions.

After the debt crisis of the 1980s, economists also started focusing on the implications of external debt. Accessing international financial markets has been considered at times both a blessing—as it makes capital resources available to capital-scarce countries—and a curse—to the extent that it exposes the borrowing country to an unstable financing environment (in particular, roll-over risk).[2] More recently, economists have additionally begun to focus on the currency composition of debt stocks. There is a growing consensus that the presence of a currency mismatch exposes the country to balance sheet effects in the event of real exchange rate adjustment. In addition, the anticipation of these effects may by itself trigger self-fulfilling currency or liquidity runs. This view has found empirical support in many studies that highlight

[1] One possible reason is the presence of distortionary taxes, other reasons are due to the fact that agents may not fully anticipate the effects of future taxes or may use a higher rate to discount the future welfare of their offsprings. For a survey of possible exceptions to Ricardian Equivalence see Mankiw (2000).

[2] Volatility of capital flows is not sufficient to argue that international capital market access is harmful, but combined with moral hazard issues, self-fulfilling crises or asymmetric information it is possible to argue that integration into capital markets may reduce welfare.

the role played by currency mismatches in the run-up to financial crises.[3] More recently a second composition dimension, namely, the place of issuance, has started to gain importance in the policy discussion, particularly in light of the high correlation between currency and jurisdiction: unlike external debt, domestic debt is often denominated in the local currency, and increasingly so, which points at market imperfections as potential drivers of the high dollarization ratios exhibited by external debt.[4] Place of issuance has also been found to be of relevance regarding the fate of public debt in recent debt restructurings.[5]

Although economists have made important advances in developing theoretical models aimed at evaluating the impact of debt in both normal and crisis times, and in developing sophisticated techniques aimed at measuring debt sustainability, empirical work has been hindered by the lack of a rich and comparable cross-country dataset on the level and composition of public debt. The most widely used sources of cross-country data on public debt are the International Financial Statistics (IFS) published by the International Monetary Fund and the World Development Indicators (WDI) and Global Development Finance (GDF) published by the World Bank. Data on smaller set of countries are also available from the UN Economic Commission for Latin America (ECLAC) and from the Organization for Economic Cooperation and Development (OECD). All of these sources, however, present several important drawbacks.

First, most of them have incomplete coverage for developing countries and even for some large industrial economies.[6] In addition, the available data presents a serious comparability problem. In most cases official sources differ in how they report debt figures (which are then compiled in the larger datasets without the needed homogenization). Second, the items reported tend to differ across countries: sometimes, good coverage of external debt contrasts with little or no information on domestic debt; sometimes, only information on long-term debt is available;

[3] The implications of currency mismatches have been flagged by Krugman (1999), Aghion, Bachetta and Banerjee (2000), Caballero and Krishnamurthy (2002), and Céspedes, Chang and Velasco (2004), among many others. Supporting empirical evidence is provided by Eichengreen et al. (2003), Berganza and García Herrero (2003), Goldstein and Turner (2004), Calvo et al. (2002), and Levy Yeyati (2006).

[4] The argument that some degree of home bias combined with differential currency preferences between residents and non-residents may render the currency of denomination of debt "habitat-dependent" (more specifically, determined by the residence of the lender) is developed in Levy Yeyati (2004). This domestic-external market distinction is in line with the evidence that past debt de-dollarization experiences have been driven by a deepening of the domestic markets (Bordo et al., 2002), and that the dollarization ratio of government bonds is negatively correlated with the size of domestic financial markets (Claessens et al., 2003).

[5] The role of jurisdiction in sovereign debt litigation is reviewed in Sturzenegger and Zettelmeyer (2005a, 2006).

some countries differ in whether they refer to general government or central government debt, gross or net figures, whether or not they include the liabilities of the central bank and state-owned enterprises, etc. Third, the country's liabilities may be significantly different according to whether they have successfully privatized their social securities, reducing an important source of non-documented, implicit debt. Finally, standard datasets provide little if not any information on the characteristics of the debt issued. Hence, there is scarce information on the currency of denomination or indexation mechanisms; whether the debt is external or domestic; if it is bonded, bank or official debt; and what share of the debt is short term.

At any rate, the importance of counting with accurate measures of the level and composition of public debt cannot be overemphasized. The objective of this paper is twofold. On the one hand, to fulfill this information gap, we introduce the first comprehensive database on sovereign debt (henceforth, CLYPS), systematically compiled to ensure comparability, comprising all countries in the Americas.[7] On the other hand, we discuss the main stylized facts regarding sovereign debt for Latin America in the last two decades or so in light of this new information set. To the best of our knowledge the only other paper that provides information on the composition of public debt in a sample of emerging market countries is Jeanne and Guscina (2006). In particular, they focus on 19 emerging economies, of which five (Argentina, Chile, Colombia, Mexico and Venezuela) are in Latin America and hence are also included in our dataset. Jeanne and Guscina (2006) also cover seven Asian countries and six countries located in Eastern Europe and the Middle East.

The paper is structured as follows. Section 2 describes the sources used to compile the data and briefly discusses some methodological issues. Section 3 highlights major trends in level and composition of public debt in the Americas. In Section 4, the paper discusses the issue of debt dollarization in detail. Finally, Section 5 concludes.

2. Methodological Issues and Sources

A number of methodological choices were made in the construction of our database. The first one pertains to the levels of government to be considered. Specifically, whether subnational

[6] In a recent effort, Jaimovich and Panizza (2006) partially address this problem by reporting total sovereign debt figures for a large sample of countries and years, albeit based on heterogenous sources and definitions. No disaggregation is provided.

[7] Three non-American economies are also included for comparison: New Zealand, Pakistan and South Africa.

entities will be included in a consolidated total, whether and how central bank assets and liabilities should be handled, and whether the liabilities of State-Owned Enterprises (SOE) should be included in the computation.

Regarding the first aspect, we prefer to assume, conservatively, that subnational debt is not implicitly guaranteed by the sovereign, thus should be excluded from the computation. It has to be noted, however, that in many instances (including recent episodes en the region) the central government assumed part or all of the subnational debt. Furthermore, several small countries in our sample do not have subnational entities and, as a result, their reported debt is comparable to that of the consolidated public sector in the standard case of a partially decentralized government. It follows, that comparing the federal government debt of a country without subnational levels of government with one with subnational governments may underestimate the debt burden of the latter relative to the former. In order to address this concern, data on subnational debt are also reported in the database.

By contrast, we add central bank non-monetary liabilities to the final debt figure, particularly since a significant fraction of multilateral and external lending to the central government in developing economies is typically assumed directly by the Central Bank despite representing an outstanding obligation of the national authorities. Perhaps more controversially, we exclude—as virtually all countries do in their official debt statistics—short-term central bank obligations issued for the purpose of monetary regulation (although the line between financing and financing instruments is not always clear). Since for most practical purposes monetary liabilities are unlikely to be redeemed, we exclude them from the computation of public debt.

Finally, we exclude from the analysis the liabilities of SOEs (including public banks). We do this partly because SOE debt is not always guaranteed by the government, and partly because these liabilities are used (most of the time) to finance real assets of the SOE that can be seized by creditors in the event of default. Counting the liabilities without an equivalent assessment of the asset base (or, more generally, the net worth of the companies) would overstate the contingent liabilities of the public sector.

The next important decision relates to whether gross or net debt stocks are the relevant debt measure. A key factor hampering cross–country comparability is the fact that some countries only report net debt that is, in addition, obtained following different netting strategies. To address this issue in a consistent way, we start with our definition of gross debt comprising

the consolidated debt of the government (including the Central Bank, as noted) and proceed to compute two alternative definitions of net debt (which we describe in detail in Section 4).

The final methodological decision relates to the definition of external and domestic debt. External debt is often identified as foreign-currency debt, whereas domestic debt is considered to be that issued in the local currency. In fact, some countries still report external and domestic debt according to this criterion. While the currency of denomination is a crucial aspect to be traced when assessing the debt burden and the credit risk of a country, currency denomination is an inaccurate indicator of external debt as countries have issued a considerable amount of foreign currency denominated debt in domestic markets and, more recently, domestic currency denominated debt in international markets. An alternative approach sometimes used in the literature defines external debt as those liabilities held by nonresidents.[8] The resident-nonresident distinction in some sense captures the underlying nature of the definition of external and domestic debt in that it allows to better understand the income effects of changes in the debt stock, to assess the degree of international risk sharing and to measure the net foreign assets position of the country. However, it has at least two important drawbacks. The first is conceptual: it ignores the legal aspects that separate both types of debt, to the extent that international courts enhance creditors' rights relative to domestic markets in developing economies. The second one is practical: the distinction between debt held by residents and non-residents is in practice virtually impossible to make. More precisely, while the data provide a clear measure of the investor base of bank loans, the holder composition is by definition impossible to track for bonded debt that is continuously traded in anonymous secondary markets. For these reasons, the distinction by holder, while theoretically relevant, is practically feasible only for countries where the stock of marketable debt is negligible. For these reasons, in this paper we classify debt according to the legal jurisdiction where debt has been issued. Accordingly, we define external liabilities as obligations issued under international (as opposed to domestic) law. Therefore, for the purposes of this dataset, external debt comprises all liabilities issued in foreign jurisdictions, while domestic debt denotes debt under the rule of domestic courts. Thus, debt issued under New York Law would be domestic if the issuer is a

[8] This is also the definition used in the *External Debt Statistics: Guide for Compilers and Users* jointly published by the BIS, Eurostat, IMF, OECD, Paris Club, UNCTAD, and World Bank. In fact, on page 7, the guide states "Gross external debt, at any given time, is the outstanding amount of those actual current, and not contingent, liabilities that

U.S. resident and external otherwise, irrespective of the currency or the nationality of the holder. As noted, this distinction acknowledges the fact that different jurisdiction may be assigned different institutional quality, and thus differential credit risk for a given issuer.[9]

Based on these choices, we classify debt using the template shown in Table 1. This template distinguishes between external and domestic debt and classifies both instruments mainly into (non-marketable) bank loans and marketable instruments. In some cases, other specific items, such as suppliers' credit, may show up depending on the peculiarities of each country. We classify these occasional items as "other debt." Note that loans refer to debt issued as a loan by a financial institution, as opposed to marketable public debt held by financial institutions, which are included as part of the stock of market instrument debt. The distinction reflects the difference in liquidity between these two debt instruments. Sometimes, however, this distinction is less than clear. In Argentina, for example, the November 2001 Phase 1 debt exchange transformed marketable debt into customized instruments called *préstamos garantizados* (guaranteed loans), which were technically loans (so that banks were able to book them at nominal value instead of marking them to market) but, as a new incarnation of bonded debt, were designed to be traded over-the-counter—which they did to a considerable degree. For this reason, we report them under marketable debt.

Once the value for each debt type are computed, we look into its currency composition. In general, we classify debt into domestic and foreign currency-denominated (we consider local currency debt indexed to the exchange rate as equivalent to the latter), although in some cases we report the share of CPI-indexed debt. We additionally classify debt according to its remaining maturity, where long-term denotes obligations with at least one year to maturity.

Finally, we report data on interest rates, whenever a meaningful measure can be constructed. Interest rates are available for official lending, but rarely for other debt instruments. Average spreads on external dollar-denominated debt as computed in the Emerging Market Bond Index (EMBI) are available only for the few countries that have issued marketable debt with sufficient liquidity, which comprises a limited number of country and years. We complete this information and compute a typical interest profile for marketable debt by choosing a

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require payment(s) of principal and/or interest by the debtor at some point(s) in the future and that are owed to nonresidents by residents of an economy."

representative instrument, typically the one with the largest trading volume in each year (according to data sourced from Bloomberg). All this implies that the interest rate series reported here have to be taken with caution. First, while the rate for official debt is an *average* rate (the implicit rate that the government is effectively paying), the interest rate on marketable debt represents an estimate of the *marginal* rate in the debt market. Furthermore, these rates correspond to debt stocks (or instruments) with duration that changes over time—a caveat that also affects the standard EMBI index. To highlight these considerations, we report not only the interest rate (both in domestic and foreign currency) but also the corresponding duration in each case.

In building the data, we follow a systematic pecking order to select from the several sources at hand. We started with the information provided by the government, either in response to a survey specifically designed for this project, or in the form of statistical bulletins prepared by the finance ministry or central bank. As a secondary source, as well as for the main consistency check regarding official lending, we resorted to data from multilateral organizations (World Bank, IMF and BIS). In addition, a number of publications by international investment banks, specialized newspapers, and online information systems were tapped to fill in the gaps. Whenever different sources give conflicting numbers, we used local official sources as our preferred option, and total debt levels as the main variable to test overall consistency. Specifically, we looked at local official sources for (total) external and domestic debt stocks, and worked down from there to obtain the building blocks that add up to the aggregate stocks. As information on official debt only very rarely presented discrepancies, the greatest difficulty remaining was to obtain reliable data on marketable debt and bank loans. Here, we reconciled data from different sources and, when needed, the values were derived as residuals between two available lines.

It is easy to illustrate the relevance of these many methodological choices in the final numbers. Consider Figure 1, which plots different measures of the debt-to-GDP ratio for Mexico. There are at least three sources (IFS, ECLAC, and the Mexican government's "traditional" definition of debt) that provide a number for the debt ratio in 2004 of roughly 25 percent. By contrast, our data indicates a debt-to-GDP ratio of around 40 percent, and the Mexican

[9] Since the recent Argentina restructuring the same bonds were issued with both New York and Buenos Aires legislation, with the New York bonds trading at tighter spreads. See Sturzenegger and Zettelmeyer (2005b) for a comprehensive review of the differences in treatment for domestic and external debt in recent debt restructurings.

"augmented" definition indicates a debt ratio of approximately 47 percent—the difference between these last two numbers is due to the fact that we do not include as sovereign obligations the debt issued by Mexican development banks and PIDIRIEGAS (infrastructure projects with deferred expense booking). In turn, the large differences with the IFS, ECLAC and "traditional" measure arise mostly from the way in which one treats the debt issued in 1995 to rescue the banking system after the 1994 crisis (note that all definitions are gross and thus do not differ in the netting procedure).

Table 2 presents a brief comparison of country and year coverage in our dataset and that of the ECLAC, the main alternative source for the region, covering 15 countries, including all the large economies in the region.[10] By comparison, CLYPS covers 25 countries in both Latin America and the Caribbean (plus Canada and the United States, for a total of 27 countries) going back to the early 1990s in most cases (and the early 1980s for external debt), longer than ECLAC for all but four countries (Brazil, Colombia, Ecuador, and Panama), with only one country (Haiti) represented in ECLAC and not in CLYPS.

Concerning the already noted scarcity of information on debt composition, CLYPS improves upon existing publicly available datasets by including the composition of public debt by currency, term, and type of lender. As indicated in column 3, there are 16 Latin American and Caribbean countries for which the database reports information on currency composition (these are the countries for which currency composition is available for both domestic and external debt; there are another seven countries for which the data on currency composition is limited to external debt) and nine countries for which it reports data on the term structure. In addition, the data disaggregates total public debt into (bilateral or multilateral) official debt, bank debt, and market instrument debt.[11]

3. Debt Level and Composition: Major Trends

This section describes the evolution of the level and composition of debt in the Americas since the early 1990s.

[10] IFS covers only nine countries in the LAC region and does not report data for several large countries (Argentina, Brazil, Colombia, Peru, Ecuador).

[11] For all these categories, there are finer subdivisions. For instance, official debt is divided into bilateral and multilateral debt, and multilateral debt is divided into debt with the IMF, the World Bank and the IDB, and debt with other multilateral institutions. On the other hand, domestic bank and bonded debt can be separated from international bank and bonded debt.

Figure 2 shows the evolution of the debt to GDP ratio in 22 Latin American and Caribbean (henceforth LAC) countries for which we have data over a long sample period (the figure does not include data for the Dominican Republic, which begin in 2002). If we look at simple averages (the dark bars), we find that debt ratios decreased rapidly in the early 1990s, bottomed out in 1997 and 1998, and started growing again to peak in 2003, at which point a new downward trend begins. However, if we instead focus on median values (the narrow light bars), the dramatic ups and downs mostly disappear, reflecting the fact that the decline of the early 1990s and the rise in the late 1990s was largely driven by events in a few highly indebted countries. This picture is confirmed by the weighted average debt ratio which shows a milder reduction in debt levels in the early 1990s than the simple average (reflecting the fact that that the largest reductions were concentrated in a few small countries) and a substantial increase in the second half of the 1990s, reflecting the incidence of a few large and highly indebted countries.[12]

It is interesting to compare the evolution of public debt in Latin America with that of the two industrial countries in the Western Hemisphere: Canada and the United States. **Figure 3** shows that by 1994/95 Latin American debt (as measured by the weighted average debt ratio) was below that of Canada and the United States. However, Canadian and U.S. debt decreased substantially during the second half of the 1990s (US debt started increasing again in 2000) at a time when LAC debt increased. As a consequence, by 2004 average LAC debt was almost identical to that of the US and 4 percentage points above that of Canada.

The 22-country sample used to compute the averages reported in Figure 2 can be naturally divided into two groups of countries with distinct debt characteristics: (i) emerging economies with access to international capital markets and a larger share of private (and, recently, bonded) debt; and (ii) countries with limited or no access to international markets that depend mostly on official lending and, to a lesser extent, on captive domestic demand. With this in mind, we leave out the Bahamas (a high-income offshore center), and classify as emerging

[12] The weighted average corresponds to the ratio of aggregate debt over the aggregate. Note also that these numbers are somewhat influenced by the explosive debt ratios in Argentina after the 2002 devaluation: as can be seen in the figure, the weighted average ratio for a sample excluding Argentina (the black line) shows no visible differential behavior up until 2001, but diverges over the 2001-2004 period, remaining rerlatively stable since 1999.

markets the 11 LAC countries included in J.P. Morgan's Emerging Market Bond Index (EMBI) portfolio, and as non-emerging markets the remaining nine countries.[13]

Emerging Market Countries

Emerging market countries are the largest in the region, so it is not surprising that the behavior of the weighted average of debt ratios for this subgroup of countries (both including and excluding Argentina) is basically identical to the weighted average of the whole sample of countries (as can be seen from a comparison of Figures 2 and 4). By contrast, the simple average of debt over GDP and its median value are lower than those of the whole sample. Again, however, we find a U-shaped evolution of the average debt ratio, which bottoms out in 1997 and grows steadily thereafter until 2004.

To better understand what is driving the debt to GDP ratios, Figure 5 splits the percentage changes in the debt to GDP ratio into percentage changes in real GDP, the real exchange rate and the dollar value of debt. In the early 1990s real growth and appreciating currencies helped bring debt to GDP ratios down in the EM subgroup. This lasted up to the time of the Asian crisis, after which growth slowed and currencies depreciated throughout the subgroup. Indeed, it is only in 2004 that (once again) real growth and appreciations contribute to bringing down the debt to GDP ratio once again. Changes in the amount of debt, in turn, explain all of the increase in debt ratios between 1995 and 1998 (largely due to rising stocks of debt in Mexico and Brazil). After 2000 the debt over GDP is strongly influenced by events in Argentina (falling output and a large depreciation of the currency).

A cursory look at Table 3 and Figure 6 shows that the subgroup averages discussed above conceal wide differences across countries in both the level and evolution of debt. For a start, not all countries have U-shaped debt paths. Debt over GDP in Chile and Panama falls systematically during the period considered, while debt ratios in Ecuador and Mexico were heavily impacted by episodes of financial crises. Debt levels also differ considerably across countries in this subgroup. As of 2004, debt over GDP ranged from over 100 percent of GDP in Argentina and Uruguay, to below 40 percent of GDP in Venezuela and Mexico.

[13] IMF (2003) uses a classification similar to ours but includes Costa Rica in the sample of emerging market countries.

Figure 7 describes the composition of total debt in EM countries according to the source of financing. It shows that the official and private external debt ratios remained stable at roughly 10 percent and 15 percent of GDP, respectively. As a result, external debt exhibits no discernible trend (besides a slight U shape). On the other hand, the increasing trend in debt documented in Figure 4 was almost entirely due to the growth of domestic debt ratios, which more than doubled from 16 percent in 1994 to 37 percent in 2004.

Figure 8 places the focus on external debt (for which the data go back to 1983). On average, lending by the IMF and the other multilaterals has hovered at slightly over 5 percent of GDP (or 20 percent of external debt, reaching 7.5 percent in 1987 and 8.2 percent in 2003), while bilateral lending steadily reduced its share from a peak of 6 percent of GDP in 1987 to the current level of about 2 percent of GDP. By contrast, debt ratios with private lenders reveals two clear patterns—not present in the previous figures due to their shorter time coverage. First, a dramatic shift in composition from bank to bonded debt in the aftermath of the debt crises of the 1980s, when international banks loans (which represented more than 90 percent of external debt at the time) were swapped into global bonds under the Brady plan. Second, a visible downward trend in external debt ratios, that halved the average figure from a peak of 30 percent in 1987 to 16 percent of GDP in 2004 (bottoming out at about 12 percent in 1997), again explained to a large extent by the debt reduction associated with the Brady plan.

As a result of a stable official external debt ratio and a declining private external debt ratio, total external debt ratios in the 1990s were on average below those in the 1980s and exhibited a larger official component, which contrast with the conventional view that international financial institutions have been increasingly dwarfed by growing cross-border capital flows to emerging economies—a proposition that may be qualified when we add FDI and private borrowing, but not when we look at sovereign finance. Indeed, even when we include the growing domestic debt stocks we still find that the official lending share have been stable at about 14 percent of the total stock of total public debt since the late 1990s, with multilateral lending representing close to 12 percent of total debt by end-2004. These shares are even larger in non-emerging economies, to which we turn next.

Countries with Limited or No Market Access

Overall, debt ratios for non-emerging market countries with limited or no access to the international capital markets have been remarkably stable at 60-70 percent. In contrast with emerging markets, the group appears to exhibit a declining trend in debt ratios (driven by official and, to a lesser extent private lending) that went from 80 percent at the beginning of the 1990s to 60 percent in 1995 and remained stable thereafter (Figure 9 and Table 3). Note that this trend is significantly deeper for the simple average debt ratio due to one small country (highly indebted Nicaragua, which benefited from a large reduction in official debt in the context of the HIPC initiative), as reflected in the difference between the simple average (represented by the dark bars) and the median and the weighted average ratios (the dark area and the light bars, respectively) in the early period.

Very much like the EM group, declining debt over GDP in the first half of the 1990swas mostly due to real growth and appreciating currencies. Unlike the EM group, however, in this subgroup this trend continued through to 2004, with the sole exception of 1999 (Figure 10)

Once again, averages hide important differences across countries in the subgroup. Despite the overall downward trend, debt over GDP has gone up (and substantially so!) in Barbados, Belize, Jamaica and Paraguay. As of 2004 public debt remained high in three countries of this subgroup (Belize, Jamaica and Nicaragua).

Figure 11 describes the evolution of external debt in the subgroup in more detail. In particular, it shows that the big decline in the early 90s was associated with a sharp reduction in bilateral debt stocks, which went from 39 percent of total debt in 1990 to a mere 7 percent in 2004. On the other hand, external debt due to private creditors hovered at around 8 percent of GDP, and multilateral debt ranged between 16 and 20 percent. As noted, for this group the participation of multilateral lending in sovereign finance has been historically larger than for emerging economies, accounting for close to one third of the total since the early 1990s.

Currency Composition

Figure 12 shows the composition of debt by currency for the emerging countries for which we have complete data for the last ten years. Although the (weighted average) of foreign currency debt increased from 24 percent of GDP in 1996 to 29 percent in 2004, its share in total debt dropped from 52 to 44 percent due to the growing share of domestic debt, typically denominated in the local currency. Interestingly, whereas foreign currency debt represents close to 100 percent

of external obligations for the group, it is marginal in most domestic markets (the average peaked at only 9 percent in 2001). This provides a stark illustration of the link between location (in turn, related with the residence of the lender) and currency denomination that has been highlighted in the literature (see footnote 4). In this particular case, this was reflected, primarily, in a decline in the dollar share of total debt that was the result of lower external dollar debt ratios that were more than compensated by an increase in local currency denominated domestic debt, both indexed to the local CPI (which more than doubled over the 1996-2004 period to reach 6 percent of GDP) and nominal (which went from 20 percent of GDP in 1996 to 30 percent of GDP in 2004). In addition, recent years witnessed some international issues in domestic currency which, at less than 1 percent of GDP, suggest that the lack of local currency external debt, rather than inability to borrow, reflected unwillingness to pay a higher currency premium than in domestic markets.

Note, however, that *onshoring* of public debt is not in all cases a panacea for reducing overall dollarization, as domestic dollarization of public debt remains significant in Argentina and Uruguay, and to a lesser extent in Peru and Colombia (Table 4).

Another aspect of financial vulnerability that has received considerable attention in the literature is the maturity of debt, particularly in relation with local currency debt subject to nominal risk. We report data on the maturity of domestic debt in the last column of Table 4. The conventional view is that de-dollarization in the region may have come at the expense of increased reliance on short-term debt, as dollarization and short-termism are both ways of coping with aggregate price risk (De La Torre and Schmuckler, 2005). To explore this view, Figure 13 combines the share of short term debt and foreign currency domestic debt, and plots the path of this overall "risk exposure" over time for the small sample of countries in which both variables are available. Interestingly, with the exception of Brazil, the conventional wisdom is not validated in the data.

In sum, debt composition displays two important trends that have only deepened in recent years: on the one hand, debt *onshoring* (that is, the gradual substitution of domestic for external debt) and *dedollarization* (possibly as the results of the general preference for the home currency exhibited by financial markets).

4. Netting

Countries with similar debt ratios but different stocks of liquid public assets are not strictly comparable from the perspective of debt sustainability. The distinction pertains not only to the holdings of international reserves, but also to the treatment of cross-holdings of public paper by separate public entities, and between national and sub-national governments. Hence, the relevance of a clear definition of net debt for cross-country comparisons.

There are at least three important items that could be netted out of the gross debt stocks reported above, which in turn correspond to public entities that may or may not be consolidated within the public sector for the purposes of public debt accounting.

The first one is the group of SOEs, which includes state-owned banks as a particular case. As noted, we chose to exclude SOEs as a second best course of action in the absence of a good valuation of SOEs' non-financial assets.[14] Notice that this may not entail a problem for the case of a public bank, where non-financial items represent a minor part of the balance sheet. However, rather than netting out public bank holdings of government debt, consolidating the financial public sector would imply—much in the same way as we do with the central bank—adding the net liability position of public banks vis-à-vis the private sector. While we believe this goes beyond the traditional concept of sovereign debt, the exercises can be readily done based on the (often publicly available) balance sheet data of public banks.

The second big item concerning net debt is the cross-holding of government debt by the central bank, is somewhat less controversial. A first correction is readily motivated by the inclusion of long-run central bank obligations within the public debt figure: central bank holdings of government paper should be netted out of the total. Central Bank holdings of government debt can, in principle, be broken down into "marketable" debt —government paper held permanently or transitorily by the Central Bank— and "non-marketable debt" —instruments in the domestic credit account issued by the government as the counterpart of the monetary base. In consolidating the central bank with the non-financial public sector, it seems appropriate only to net the marketable debt excluding both domestic credit instruments and the monetary liabilities of the Central Bank, as they are unlikely to be redeemed. As noted earlier, we also leave out short-term central bank obligations issued for the purpose of monetary regulation. We keep track of this revised debt variable denoting it as *net debt 1*. In addition, we net out

[14] In line with this, our gross debt figures included debt issued by the Central Bank but not debt issued by state-owned banks.

international reserves (again, in line with most official statistics) to obtain our preferred definition of net debt (*net debt 2*).[15]

The following simplified central bank balance sheet illustrates in a simple way these two definitions:

Assets	**Liabilities**
(1) Domestic Credit (2) International Reserves (3) Marketable Domestic Debt	(4) Monetary Base Debt Issued by Central Bank (5) Regular Bonds & int. borrowing (6) Bonds issued for monetary regulation
NET DEBT 1 = Gross debt – (3)	
NET DEBT 2 = Gross debt – (2) – (3)	

The third and most controversial item relates to social security reform, and recognizes the fact that the transition from a public pay-as-you-go pension (PYG) system to a private fully funded private capitalization (FFP) system had an important effect on both the level of public debt and the amount of future liabilities facing the government. Because the reduction in implicit liabilities goes hand-in-hand with the issuing of new debt instruments to finance the transition phase of the reform, focusing on only one aspect provides a distorted view of the debt burden across countries.[16] On the other hand, the actual value of implicit liabilities is virtually impossible to assess because, since the government reserves the right to alter them by introducing legal changes (such as reducing benefits or tighter eligibility conditions or bailing out certain groups, increasing their benefits). Bearing this caveat in mind, the fact that countries that privatized their social security saw their debt ratios increase as a result cannot be ignored, particularly in Latin America, where the pension reform trend of the 1990s was most prominent.

[15] Note that an increase in money demand that leads to reserve accumulation shows up as a reduction in *net debt 2*. This is correct to the extent that the demand shock is persistent and monetization leads to an increase in the net asset position of the government.

[16] More precisely, as the largest part of social security contributions were lost to pension funds, the government financed the resulting financing gap through the placement of government debt (in no small amount with the very pension funds that collected the contributions).

An example helps illustrate the point. When Chile privatized its social security system it gave workers the option to remain in the old PYG system, or move to the new system. Those moving were granted so-called "Bonos de Reconocimiento" to document their past contributions to the old system. For this group of workers the reform should be neutral for the level of public debt: the "Bonos de Reconocimiento" are simply making an implicit liability explicit. However, gross debt measures show a sizable increase, due to the issuance of the "Bonos de Reconocimiento" at the time of the reform. It follows that subtracting these bonds is a sensible way to correct for what would otherwise be an overstatement of the debt position of the government.

Unfortunately, in most cases the reduction in the flow costs of the pay-as-you-go system brought about by privatization (alternatively, the annual growth in implicit social security obligations under the old system) is far more difficult to evaluate. One crude way to tackle this problem is to assume that the stock accumulated in pension funds equals the reduction in implicit social security liabilities due to the reform. We follow this approach for our third definition of net debt, *net debt 3 = net debt 2* – Pension Fund assets. This, in essence, extends the Chilean example to the more complex cases where the correspondence between pension fund savings and reduced government obligations is not so clear. Thus, if the government financed the revenue shortfall during the transition to the new pension system by placing new debt with pension funds, the reform would not be reflected in net debt figures. Alternatively, if the shortfall were financed via a higher fiscal effort (e.g., a tax hike), there would be a decline in net debt, as the government pre-pays a fraction of its future liabilities. This said, the solution proposed here is based on very strong assumptions. First, this method is implicitly assuming that private contribution rates were set in such a way that replacement rates in the FFP are the same as in the old PYG system. In addition, this assumption implies that if return on pension funds exceeds projected returns then this procedure would overstate the reduction in liabilities (and hence understate net debt). Second, as noted, implicit pension obligations are easier to dilute and less exposed to currency risk (as they are implicitly indexed to real wages).[17]

[17] On the other hand, casual evidence indicates that local pension fund managers typically display longer investment horizons, and a preference for local currency assets as they represent a natural hedge for their future beneficiaries (Levy Yeyati, 2004), which implies that debt with pension funds may benefit from lower roll-over and currency risks.

Table 5 and Figure 14 report debt over GDP for 2004 according to the three different net debt definitions discussed above. The first thing to note is that cross-holdings of debt between the central bank and the central government are rare in Latin America and the Caribbean, meaning that Gross Debt and *net debt 1* are in most cases identical. Chile and Argentina are exceptions, the first with significant cross-holdings originating in the bank bailout of the early 1980s, the latter from cross-obligations between government jurisdictions arising from the 2001 crisis. Reserves, on the other hand, are sizeable throughout the region (11 percent for the weighted average, 13 percent for the simple average) so that there is a significant difference between gross debt and *net debt 2*. Indeed, as Figure 15 shows, this difference has increased over time from about 7 percentage points in the early 1990s.

The divergence between gross debt and *net debt 3* is even more dramatic, reflecting the evolution of pension reform in many LAC countries. While in the early 1990s pension funds assets were negligible, by 2004 they amounted to 7 percent of the region's GDP, widening the gap between gross debt and *net debt 3* to almost 20 percentage points by 2004. Cross-country variations in the size of pension fund assets in 2004 largely reflect the timing of reforms. In Chile, the earliest reformer, pension fund assets are above 65 percent of GDP in 2004. Later reformers have stocks of accumulated assets that vary between 18 percent (Bolivia) and 6 percent (Mexico). As can be seen, there are two countries for which this measure of net debt actually takes a negative value: Trinidad and Tobago, which is characterized by low debt and large international reserves, and Chile, with low debt and large pension fund savings. More generally, the difference between gross and net debt is important in most countries in the sample.

5. Dollarization of Public Debt in the Americas

As discussed in the introduction, currency mismatches have drawn increasing attention in recent years, particularly after the financial crises in Mexico in 1995, Asia in 1997 and Argentina in 2001. Despite substantial theoretical work on this issue—and abundant evidence on dollarization in the private sector—the level and determinants of dollarization in the public sector has remained relatively unexplored due to lack of data. Furthermore, as the last column of Table 4 shows, overall vulnerability of public debt to real exchange rate shocks (as measured by total foreign currency public debt over GDP) remains high in several countries in the region, especially Argentina, Nicaragua and Uruguay. With this vulnerability in mind, this section

reports a series of stylized facts that shed light on the determinants of public debt dollarization in the Americas.

There is a strong link between location and currency. Whereas by end-2004 virtually all external debt was foreign currency-denominated, a vast majority of domestic debt is issued in the local currency, of which the largest part is in nominal pesos. Note that this applies to all countries irrespective of their levels of development (including developed Canada and, to the extent that all sovereign debt is domestically denominated, also to the U.S.). Hence a first dimension to consider is the domestic and external shares of debt (Figure 16). In seven countries domestic debt accounts for more than half of total gross debt, with the highest domestic share corresponding to Chile (close to 80 percent). At the other end of the distribution, less than 20 percent of total debt is domestic in Belize, Paraguay and Honduras.

Note that this difference is not driven by differential access to international markets (which the latter countries do not have), but rather by the degree of development of domestic ones. Indeed, all US public debt is domestically issued, and the domestic share of Canada is comparable with that of Chile, and clearly above the region's average.

Figures 17 and 18 look deeper into this crucial aspect, plotting the share of domestic debt in total public debt in 2004 against overall economic development (as measured by per capita GDP at PPP) and the size of the economy (as measured by GDP in nominal dollars). In both cases the figures show conditional correlations, that is, the impact of each variable on the share of domestic debt after controlling for the other variable. The OLS regressions behind Figures 14 and 15 are shown in Table 6. As the table shows, these results are also robust to restricting our sample to Latin American and Caribbean countries.

There is a positive and significant association between overall development and domestic to total debt ratios. A likely explanation is that per capita GDP is correlated with rule of law and institutional development, limiting the advantage of issuing offshore where debt falls under foreign jurisdiction. The size of the domestic financial market—also positively correlated with per capita GDP—represents another possible explanation for this finding. Governments find it easier to finance their deficit domestically if there are well-developed markets for debt and large banking sectors.

Interestingly, there is also a positive association between the overall size of the economy and the share of domestic public debt (Figure 18), indicating both the incidence of fixed costs in

the functioning of financial markets and the relevance of liquidity—which requires both a large investor base and a large stock of instruments. Pension reforms entail a move in that direction. In addition to pushing up the stock of public debt during the transition phase, they create a "captive market" for public debt. In most cases, offshore investment by pension funds is severely restricted, while domestic investment is usually limited to a set of low-risk assets. With this in mind, the last column of Table 6 includes the share of pension fund assets over GDP as an additional determinant of the domestic share of public debt. As shown in the table—and despite our small sample size—we find a significant positive effect of pension assets on the share of domestic public debt.

The second key dimension for overall dollarization is the share of domestic debt in foreign currency. As reported above, despite the fact that domestic debt is always less dollarized than foreign debt, there are countries in the region where dollarization of domestic debt is significant. There is a sizeable recent literature that has explored the determinants of dollarization in the domestic banking system.[18] Broadly speaking, this literature argues that a substantial share of dollarization can be seen as a privately rational response of borrowers and depositors to the relative risks of local currency and dollar denominated debt contracts. In those countries in which local currency debt is risky (because of expectations of high and volatile inflation), agents prefer dollar denominated alternatives.

A simple way of seeing whether these mechanisms carry through to public debt is to compare bank dollarization with the degree of dollarization in domestic public debt in 2001. As Figure 19 shows, the correlation is indeed high. Indeed, a simple OLS regression of the dollarization of public debt on bank dollarization for 2001 gives an R2 of 0.5 and a coefficient of 0.65 (significant at 1 percent). Moreover, R2 rises to 0.6 when Brazil and Colombia, countries which severely restrict banking dollarization, are excluded. One possible interpretation of these results is that the same macroeconomic factors driving dollarization of private contracts are also driving dollarization of public debt in the region. It remains to be seen, therefore, if the forced de-dollarization that has taken place in Argentina after default (and that has pushed the share of domestic dollar debt down from close to 80 percent in 2001 to the current levels) is sustainable over time.

[18] See Levy Yeyati (2006) for a recent survey.

6. Conclusions

The main findings revealed by the new debt dataset introduced in this paper can be summarized as follows:

- Debt ratios in developing countries in the Americas are comparable with ratios in developed countries and remained at the same 60 percent levels that they had at the beginning of the 1990s. Moreover, they have remained remarkably stable since 1999.
- These regional averages hide large cross-country differences in both the level and trend of public debt. On the one extreme, countries such as Chile, Panama and Nicaragua have seen their debt decline steadily in the period covered by the database. At the other extreme, countries like Belize, Colombia and Jamaica have seen their public debt rise throughout most of the period.
- Where debt ratios have fallen, this has largely been the result of positive growth and appreciating currencies, rather than a reduction of the stock of outstanding debt. This was particularly true in the early 1990s.
- Macroeconomic crises have played an important role in the evolution of the ratio of public to GDP in the Americas, either through changes in the dollar value of the debt (as in the debt haircuts of Argentina and Ecuador or the fiscal costs of the bank bailout in Mexico in 1995) or through the valuation effects of large depreciations.
- In contrast to the stable average stocks of debt, the composition of these debt stocks (by lender, currency and location) have changed visibly over the last 15 years.
- By lender: private lending shifted from bank- to bond-based (private lending), while official lending moved from bilateral to multilateral. On the other hand, in contrast with the conventional view that booming international markets have dwarfed the economic importance of multilateral financial institutions, the latter continue to be an economically important source of finance across the region.

- By place of issuance: the incidence of domestically issued debt has increased remarkably over the last decade, accounting for most of the growth in debt ratios.
- By currency: the region has exhibited a strong de-dollarization trend in recent years, largely as a result of the growing reliance on domestic markets. Indeed, the evidence presented here also confirms the link between currency and location previously highlighted in the literature: domestically issued debt has been primarily (and increasingly) denominated in the local currency, while external debt has been almost entirely issued in a foreign currency.
- A common concern has been that dedollarization in the region has come at the expense of a higher share of short term debt. Although data on maturity is relatively limited, this paper shows that this concern is generally not valid; de-dollarization has often not come at the expense of lower maturities.
- Regarding cross-country differences in *onshoring*, we find that: (i) the share of public debt issued domestically is positively related to per-capita-income (a broad measure of economic and institutional development), to the economic size of the country (associated economies of scale and, specifically, market liquidity), and to the presence of institutional investors (proxied by the stock of private pension funds assets).
- Finally, we find a high correlation between the dollarization of deposits (and loans) in the banking system and the dollarization of public debt, which suggests that the same factors explaining banking dollarization—mainly a lack of trust in the stability of the purchasing power of the local currency—are also driving debt dollarization.

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Table 1. Debt Database, Categories

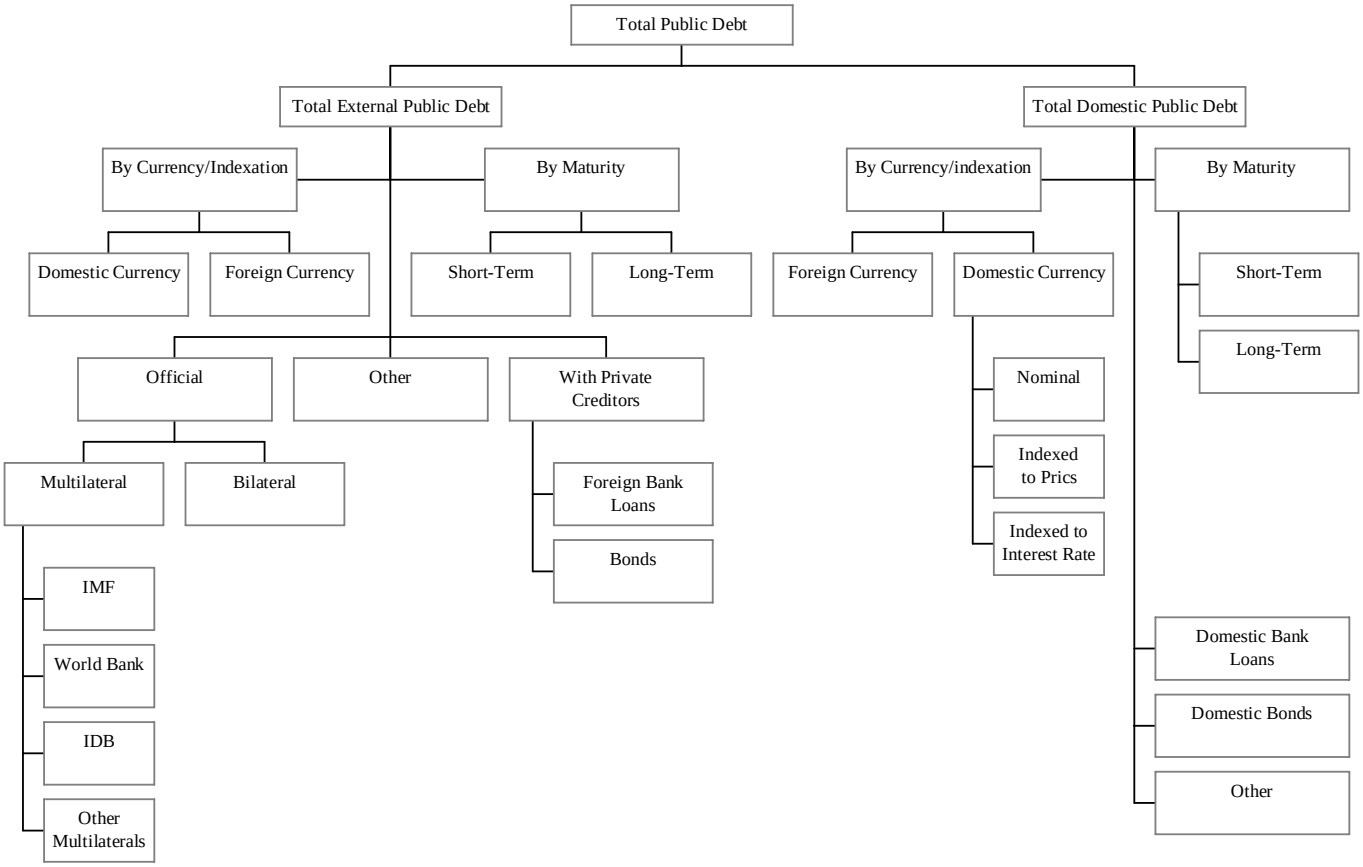


Table 2: CLYPS *versus* ECLAC Coverage

Country	Total Debt from ECLAC	Total Debt CLYPS			External Debt CLYPS			Domestic Debt CLYPS		
		Totals	Currency Composition	Maturity Composition	Totals	Currency Composition	Maturity Composition	Totals	Currency Composition	Maturity Composition
Argentina	1994 - 2004	1990 - 2004	1994 - 2004	1997 - 2004	1980 - 2004	1994 - 2004	-	1990 - 2004	1994 - 2004	-
Bahamas	-	1990 - 2004	1997 - 2004	-	1990 - 2004	1990 - 2004	-	1990 - 2004	1997 - 2004	-
Barbados	-	1980 - 2004	1980 - 2004	-	1980 - 2004	1980 - 2004	-	1980 - 2004	1980 - 2004	1980 - 2004
Belize	-	1990 - 2004	-	-	1980 - 2004	1980 - 2004	-	1990 - 2004	-	-
Bolivia	1993 - 2004	1991 - 2004	1991 - 2004	-	1980 - 2004	1980 - 2004	-	1991 - 2004	1988 - 2004	-
Brazil	1991 - 2004	1991 - 2004	1994 - 2004	2001 - 2004	1980 - 2004	1980 - 2004	1997 - 2004	1991 - 2004	1994 - 2004	2001 - 2004
Canada	-	1994 - 2004	-	-	1994 - 2004	-	-	1994 - 2004	-	-
Chile	1990 - 2004	1989 - 2004	1989 - 2004	-	1980 - 2004	1980 - 2004	1980 - 2004	1989 - 2004	1989 - 2004	-
Colombia	1990 - 2004	1990 - 2004	1995 - 2004	1995 - 2004	1980 - 2004	1980 - 2004	1995 - 2004	1990 - 2004	1995 - 2004	1995 - 2004
Costa Rica	1991 - 2004	1984 - 2004	1991 - 2004	1999 - 2004	1980 - 2004	1980 - 2004	-	1984 - 2004	1991 - 2004	-
Dom. Rep.	-	2002 - 2004	-	-	1980 - 2004	1980 - 2004	-	2002 - 2004	-	-
Ecuador	1990 - 2004	1990 - 2004	-	-	1980 - 2004	-	-	1990 - 2004	-	-
El Salvador	1993 - 2004	1990 - 2004	-	2001 - 2004	1980 - 2004	1980 - 2004	-	1990 - 2004	-	2001 - 2004
Guatemala	1990 - 2004	1980 - 2004	-	-	1980 - 2004	-	-	1980 - 2004	-	-
Guyan	-	-	-	-	-	-	-	-	-	-
Haiti	1996 - 2004	-	-	-	-	-	-	-	-	-
Honduras	2000 - 2004	1980 - 2004	1980 - 2004	-	1980 - 2004	1980 - 2004	-	1980 - 2004	1980 - 2004	-
Jamaica	-	1980 - 2004	1996 - 2004	-	1980 - 2004	1980 - 2004	-	1980 - 2004	1996 - 2004	-
Mexico	1990 - 2004	1982 - 2004	1989 - 2004	1990 - 2004	1982 - 2004	1982 - 2004	1982 - 2004	1982 - 2004	1989 - 2004	1990 - 2004
Nicaragua	1994 - 2004	1980 - 2004	1990 - 2004	1994 - 2004	1980 - 2004	1980 - 2004	1994 - 2004	1980 - 2004	1990 - 2004	1990 - 2004
Panama	1990 - 2004	1990 - 2004	1990 - 2004	-	1990 - 2004	1990 - 2004	-	1980 - 2004	1990 - 2004	-
Paraguay	1995 - 2004	1990 - 2004	-	-	1980 - 2004	1980 - 2004	-	1990 - 2004	-	-
Peru	1998 - 2004	1991 - 2004	1992 - 2004	1992 - 2004	1980 - 2004	1980 - 2004	1998 - 2004	1991 - 2004	1992 - 2004	1998 - 2004
Trin. & Tob.	-	1980 - 2004	-	-	1980 - 2004	1980 - 2004	-	1980 - 2004	-	-
United States	-	1980 - 2004	-	-	1980 - 2004	-	-	1980 - 2004	1980 - 2004	-
Uruguay	-	1980 - 2004	1996 - 2004	1999 - 2004	1980 - 2004	1980 - 2004	1999 - 2004	1980 - 2004	1996 - 2004	1999 - 2004
Venezuela	-	1980 - 2004	1996 - 2004	-	1980 - 2004	1980 - 2004	1997 - 2004	1980 - 2004	1996 - 2004	-

Table 3: Summary Debt Statistics
Evolution of Total Public Debt (% of GDP) 1990-2004

Country	Mean	Max	Min	Min Year	2004	1991	2004/ min	
	Emerging Market Economies							
Argentina	0.60	1.43	0.29	1994	1.30	0.46	4.48	
Brazil	0.66	0.89	0.37	1995	0.81	0.66	2.19	
Colombia	0.41	0.66	0.26	1994	0.63	0.33	2.42	
El Salvador	0.48	0.60	0.34	1999	0.45	0.59	1.32	U Shape
Peru	0.54	0.78	0.39	1997	0.46	0.76	1.18	
Uruguay	0.59	1.24	0.36	1996	1.19	0.44	3.31	
Venezuela	0.45	0.64	0.27	2000	0.39	0.62	1.44	
Chile	0.70	1.07	0.48	2004	0.48	0.99	1.00	Falling
Panama	0.84	1.27	0.65	1998	0.72	1.18	1.11	
Ecuador	0.79	1.18	0.49	2004	0.49	1.09	1.00	Crisis
Mexico	0.43	0.57	0.31	1994	0.38	0.44	1.23	
	Nom Emerging Market Economies							
Costa Rica	0.59	0.83	0.54	1993	0.58	0.69	1.07	
Guatemala	0.23	0.42	0.17	1998	0.21	0.33	1.24	
Honduras	1.00	1.29	0.79	2001	0.85	1.14	1.08	Falling
Nicaragua	3.38	6.85	1.76	2004	1.76	5.98	1.00	
Trinidad & Tobago	0.48	0.67	0.25	2004	0.25	0.60	1.00	
Barbados (1)	0.66	0.78	0.55	1991	0.77	0.58		
Belize	0.58	0.94	0.44	1994	0.94	0.46	2.14	Rising
Jamaica	1.05	1.52	0.72	1994	1.42	0.90	1.97	
Paraguay	0.32	0.52	0.20	1997	0.42	0.29	2.10	
Bolivia	0.72	0.80	0.64	1997	0.74	0.80	1.16	U Shape

(1) 2004

Table 4: Currency and Maturity Composition of Debt 2004

Country	Share of Foreign Currency Debt: Total	External	Domestic	Foreign Currency Debt (% GDP)	Share of Short Term Debt
Argentina	0.76	1.00	0.39	0.99	.
Bahamas	0.14	1.00	0.00	0.05	.
Barbados	0.32	1.00	0.00	0.23	0.26
Bolivia	0.91	1.00	0.70	0.68	.
Brazil	0.35	1.00	0.05	0.28	0.47
Chile	0.24	1.00	0.14	0.11	.
Colombia	0.58	1.00	0.26	0.36	0.01
Costa Rica	0.53	1.00	0.27	0.31	.
Honduras	0.82	1.00	0.06	0.69	.
Jamaica	0.51	1.00	0.17	0.73	.
Mexico	0.31	1.00	0.01	0.12	0.23
Nicaragua	0.68	0.99	0.00	1.20	0.00
Peru	0.85	1.00	0.26	0.39	0.10
Uruguay	0.90	0.96	0.74	1.07	0.12
Venezuela	0.66	1.00	0.04	0.26	.
Average Sample (weighted)	**0.46**	**1.00**	**0.13**	**0.29**	**0.34**
Average	**0.56**	**1.00**	**0.22**	**0.52**	**0.17**

Table 5: Gross and Net Debt 2004

Country	Debt as a share of GDP			
	Gross	Net of Cross Holdings	Net of Cross Holdings and Reserves	Net of Cross Hds., Reserves and Pension Assets
	(a)	(b)	(c)	(d)
Argentina	1.31	1.23	1.11	0.99
Bahamas	0.37			
Barbados	0.73			
Belize	0.94	0.93	0.89	0.89
Bolivia	0.74	0.74	0.65	0.46
Brazil	0.81	0.80	0.72	0.72
Chile	0.48	0.43	0.26	-0.39
Colombia	0.63	0.63	0.49	0.38
Costa Rica	0.58	0.58	0.48	0.48
Dominican Republic	0.52	0.52	0.48	0.47
Ecuador	0.49	0.49	0.45	0.45
El Salvador	0.46	0.46	0.34	0.20
Guatemala	0.21	0.21	0.07	0.07
Honduras	0.85	0.85	0.59	0.59
Jamaica	1.42	1.26	1.06	1.06
Mexico	0.38	0.38	0.29	0.23
Nicaragua	1.76	1.76	1.61	1.61
Panama	0.72	0.68	0.63	0.63
Paraguay	0.42	0.42	0.26	0.26
Peru	0.46	0.46	0.28	0.18
Trinidad & Tobago	0.25	0.25	-0.02	-0.02
Uruguay	1.19	1.08	0.88	0.74
Venezuela	0.39	0.39	0.22	0.22
Average Sample	**0.70**	**0.69**	**0.56**	**0.49**
Average Sample (weight	**0.62**	**0.61**	**0.50**	**0.43**
Canada	0.59	0.59	0.55	0.55
United States	0.63	0.37	0.36	0.36

Table 6: Determinants of Domestic Debt

	Dependent Variable: Domestic Public Debt / Total Public Debt 2004				
	Full Sample	Full Sample	Full Sample	LAC	Full Sample
Intercept	-0.377 **	-1.93 ***	-1.454 ***	-1.432 **	-1.406 ***
	(0.17)	(0.32)	(0.36)	(0.68)	(0.37)
log(GDP)	0.081 ***		0.057 ***	0.058 ***	0.061 ***
	(0.01)		(0.02)	(0.02)	(0.02)
log(per capita GDP)		0.271 ***	0.148 ***	0.144 *	0.134 **
		(0.04)	(0.05)	(0.08)	(0.05)
Pension fund assets / GDP					0.369 *
					(0.20)
N	27	25	25	21	24
R-sq	0.41	0.53	0.63	0.45	0.69

*, **, *** denote significance at 10, 5 and 1% respectively. Robust standard errors in parenthesis.

This table reports a OLS regresion of the share of domestic issued debt in total public debt in 2004. GDP is nominal GDP in US dollars in 2004, per capita GDP is valued at 2004 PPP. Pension fund assets are the total stock of assets administered by pension funds over nominal GDP. All regressions (except column 4) include the full CLYPS sample of countries, and therefore incorporate Canada, US, New Zeland, South Africa and Pakistan. Details on the definition and construction of the domestic and total debt variables are provided in the text.

Figure 1: Different Definitions of Public Debt in Mexico

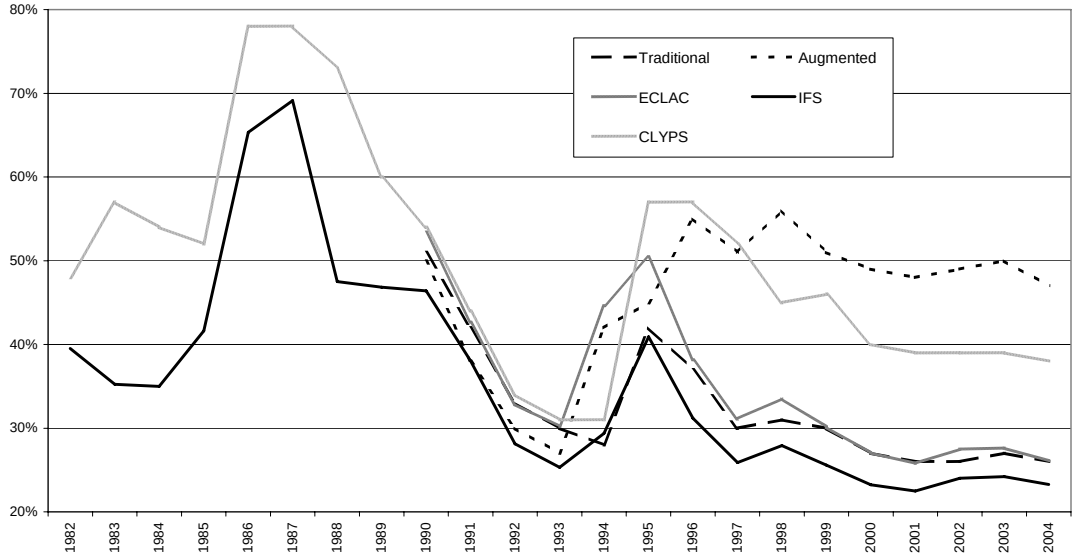
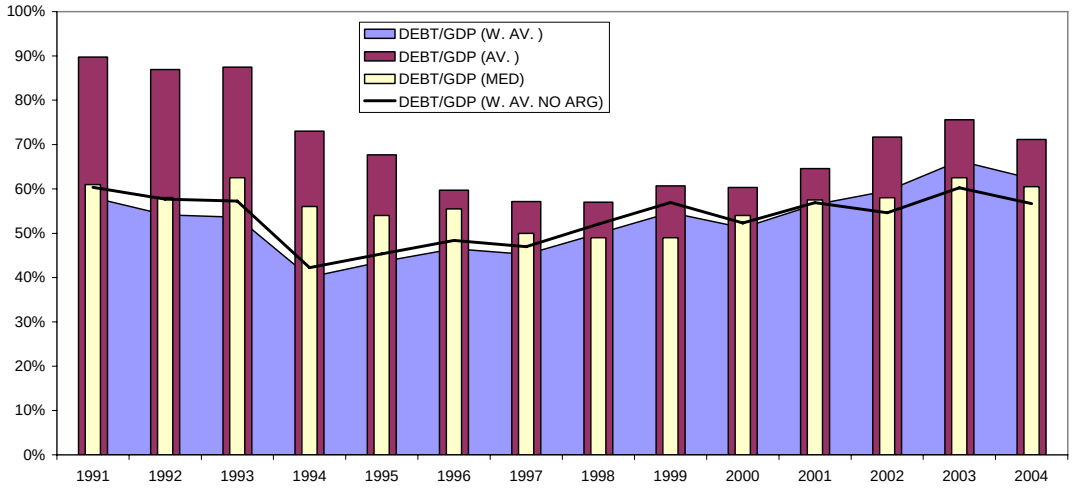
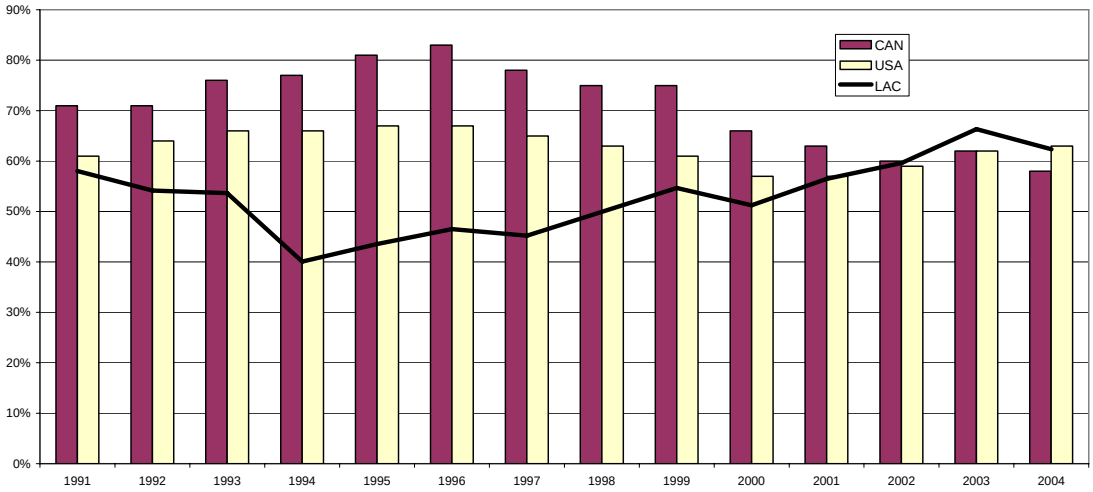


Figure 2: The Evolution of Public Debt in Latin America and the Caribbean



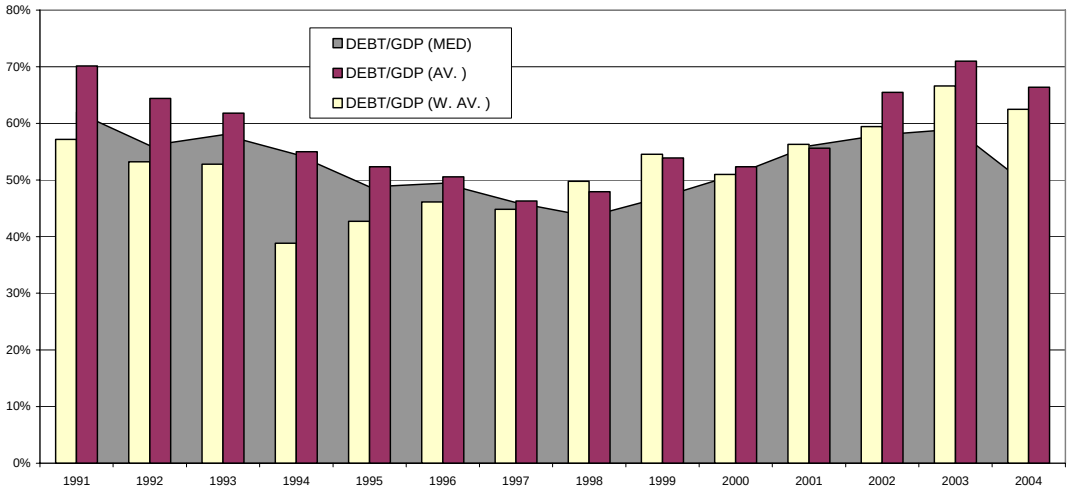
Countries Included: Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, and Venezuela.

Figure 3: Public Debt in the Western Emisphere



LAC is the weighted average of: Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, and Venezuela.

Figure 4: Public Debt in Emerging LAC Countries



Countries Included: Argentina, Brazil, Chile, Colombia, Ecuador, El Salvador, Mexico, Panama, Peru, Uruguay, and Venezuela.

Figure 5: Decomposition of Percentage Changes in Debt Ratio 1991-2004

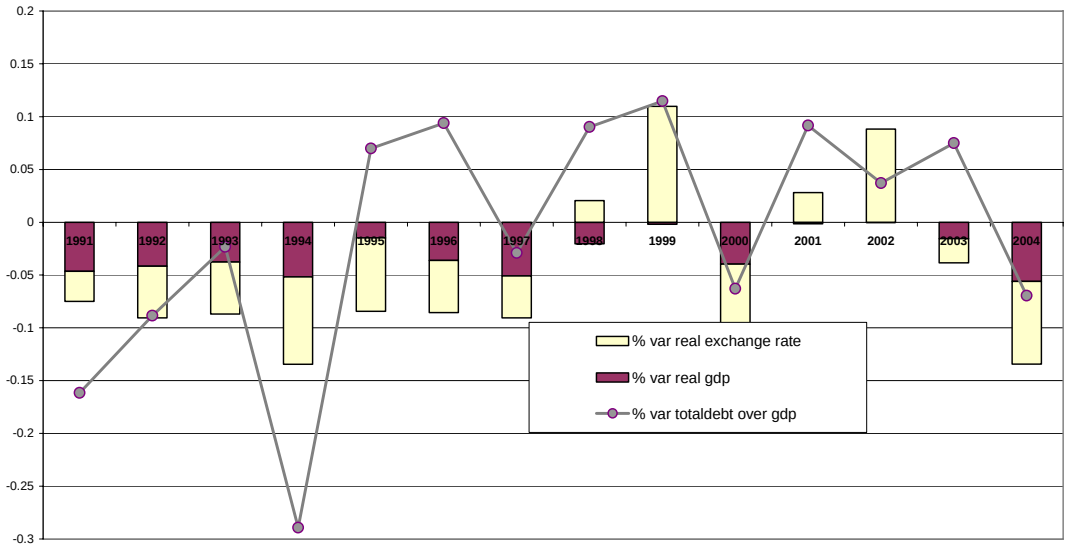
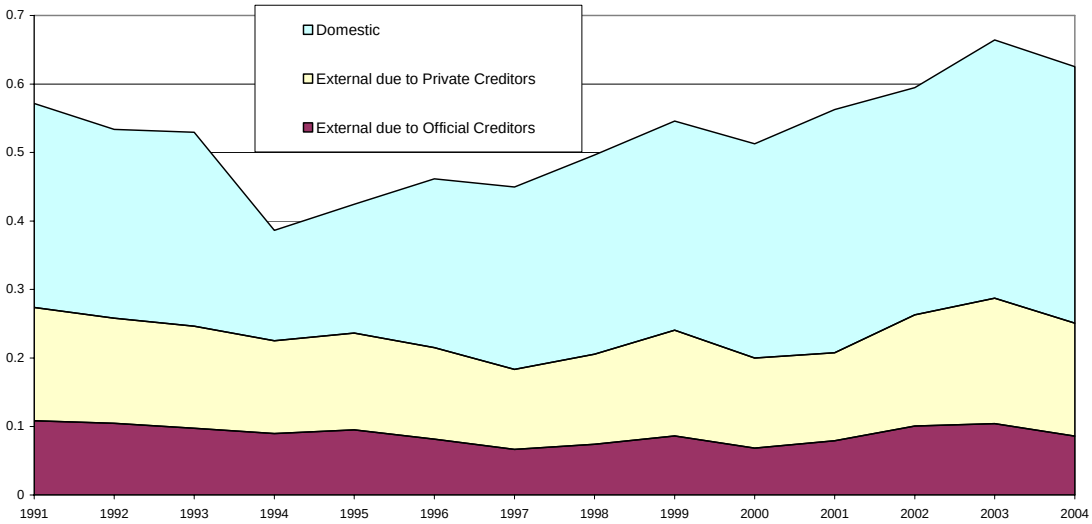


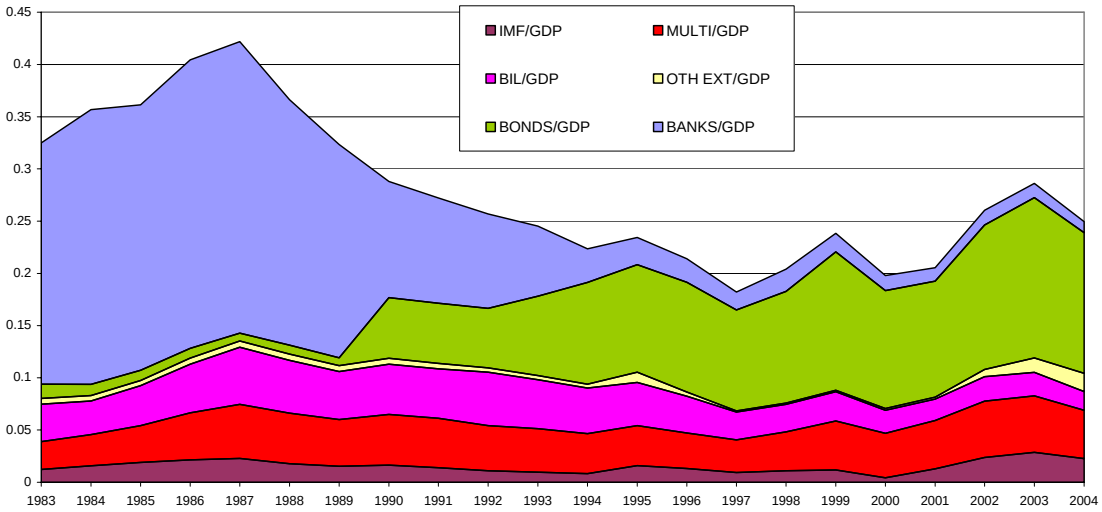
Figure 6.

Figure 7: Composition fo Public Debt in Emerging LAC



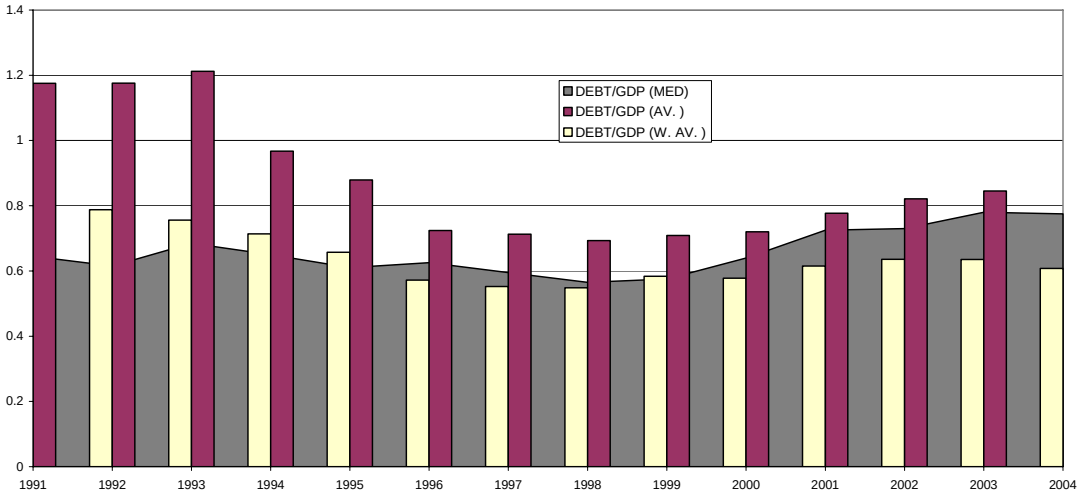
Countries Included: Argentina, Brazil, Chile, Colombia, Ecuador, El Salvador, Mexico, Panama, Peru, Uruguay, and Venezuela.

Figure 8: Composition of External Debt in Emerging LAC



Countries Included: Argentina, Brazil, Chile, Colombia, Ecuador, El Salvador, Mexico, Peru, Uruguay, and Venezuela.

Figure 9: Public DEBT in LAC Countries with Limited Market Access



Countries Included: Barbados, Belize, Bolivia, Costa Rica, Guatemala, Honduras, Jamaica, Nicaragua, Paraguay.

Figure 10: Decomposition of Percentage Changes in Debt Ratio in Countries with Limited Marke Access (1991-2004)

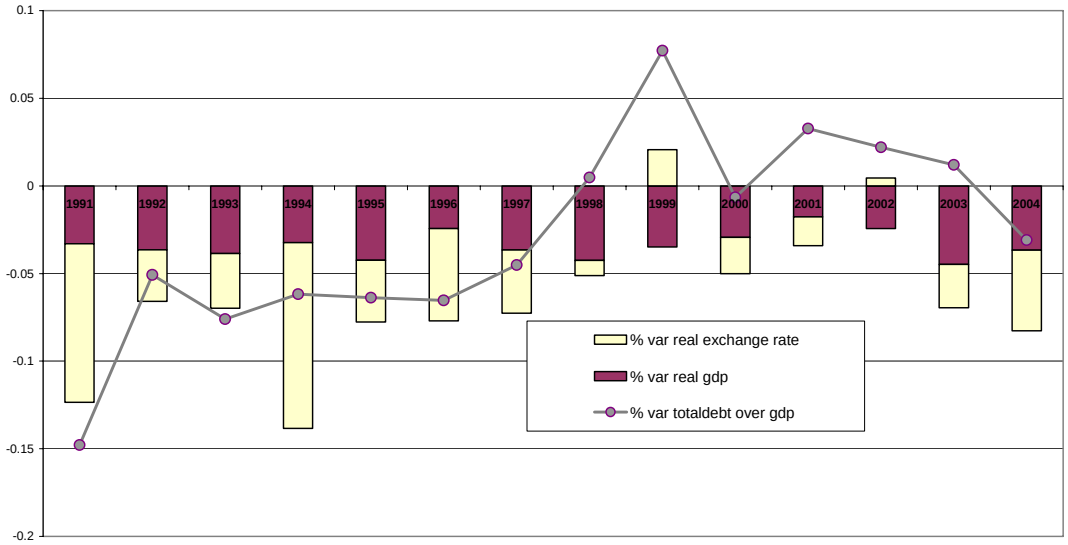
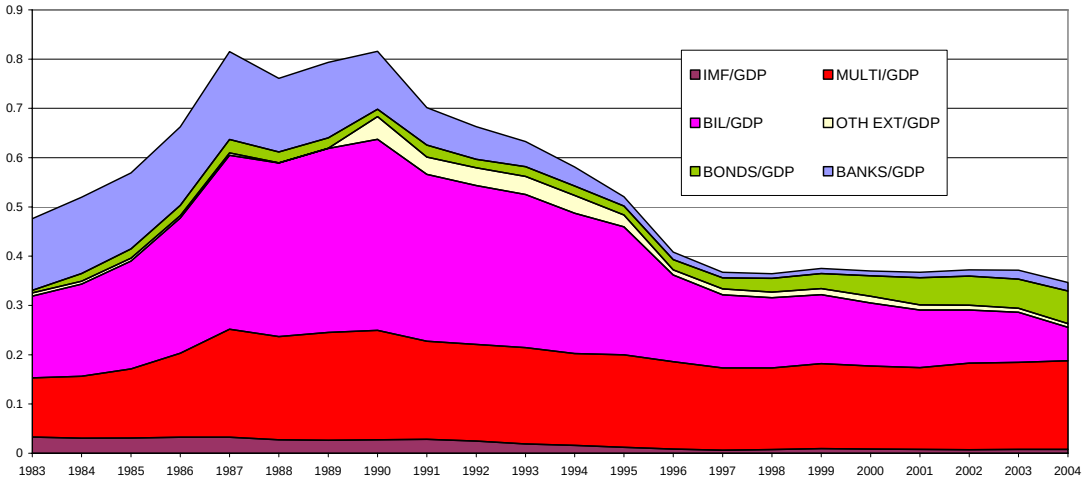
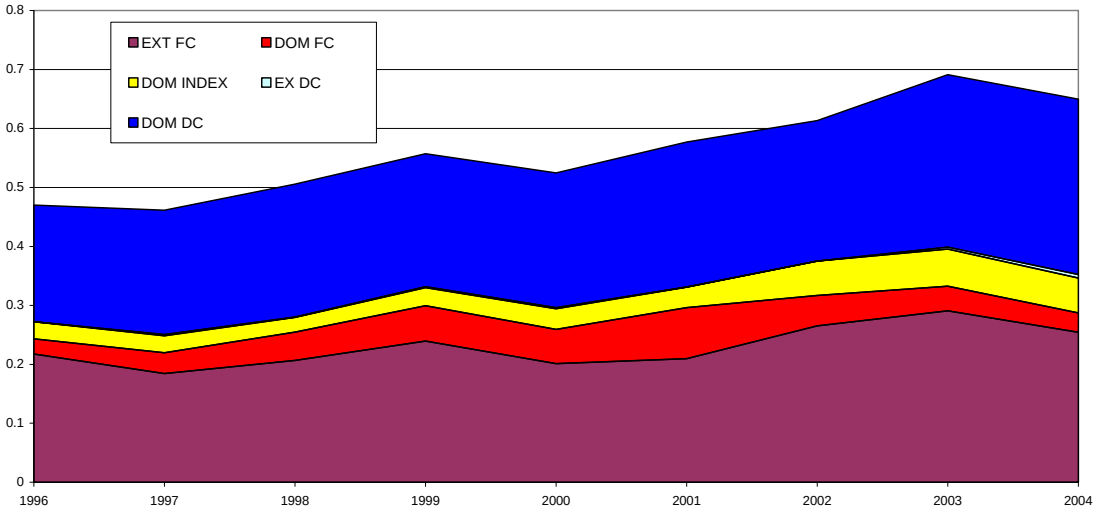


Figure 11: Composition of External Debt in Countries with Limited Market Access



Countries Included: Belize, Bolivia, Costa Rica, Guatemala, Honduras, Jamaica, Nicaragua, Paraguay.

Figure 12: Currency Composition of Public Debt



Countries included: Argentina, Brazil, Chile, Colombia, Mexico, Panama, Uruguay and Venezuela

Figure 13.

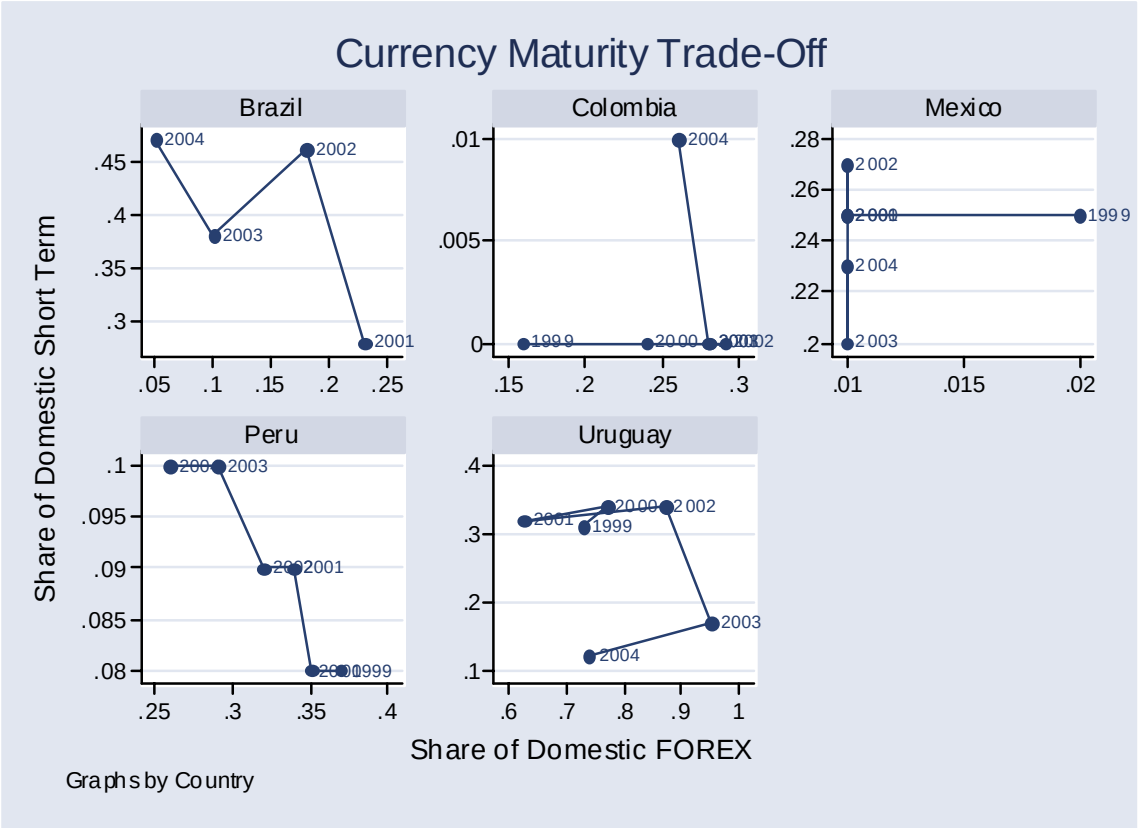

Currency Maturity Trade-Off
Brazil
Colombia
Mexico
Peru
Uruguay
Share of Domestic Short Term
Share of Domestic FOREX
Graphs by Country

Figure 14: Gross and Net Debt Over GDP 2004

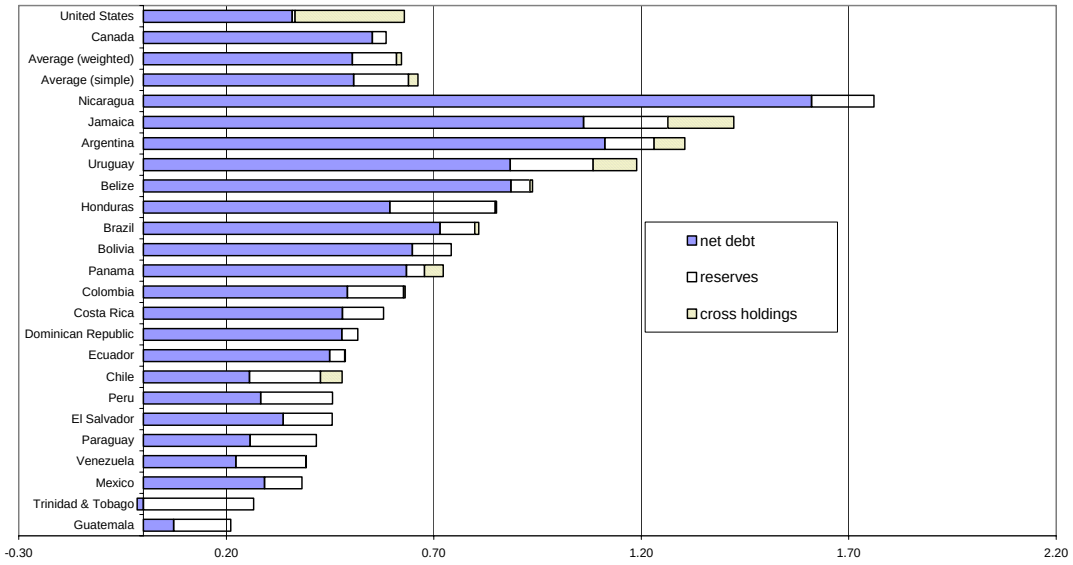


Figure 15: Evolution of Gross and Net Debt (Weighted Average)

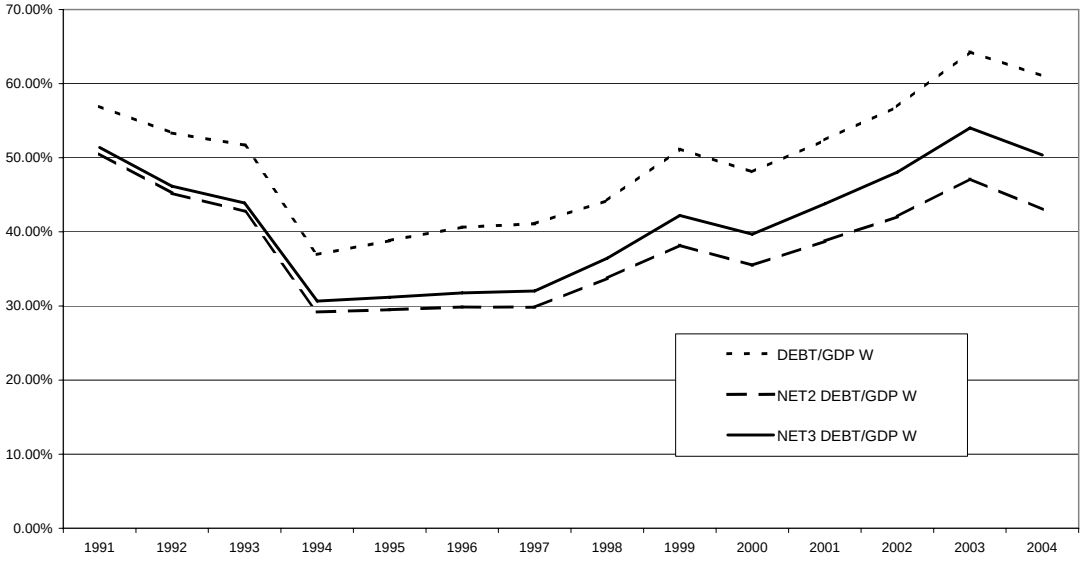


Figure 16: Ratio of Domestic to Total Debt 2004

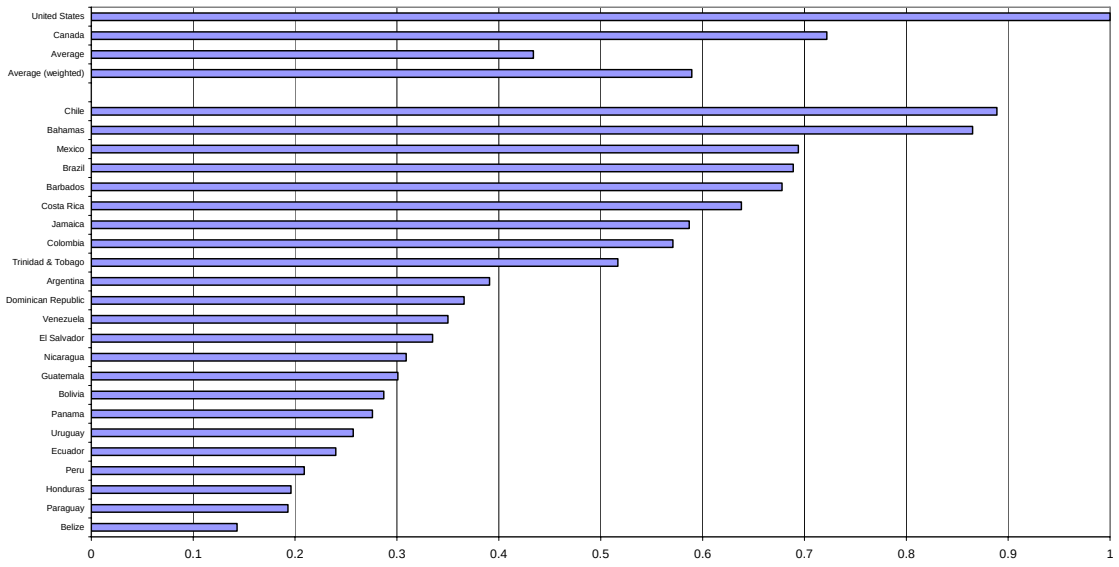


Figure 17.

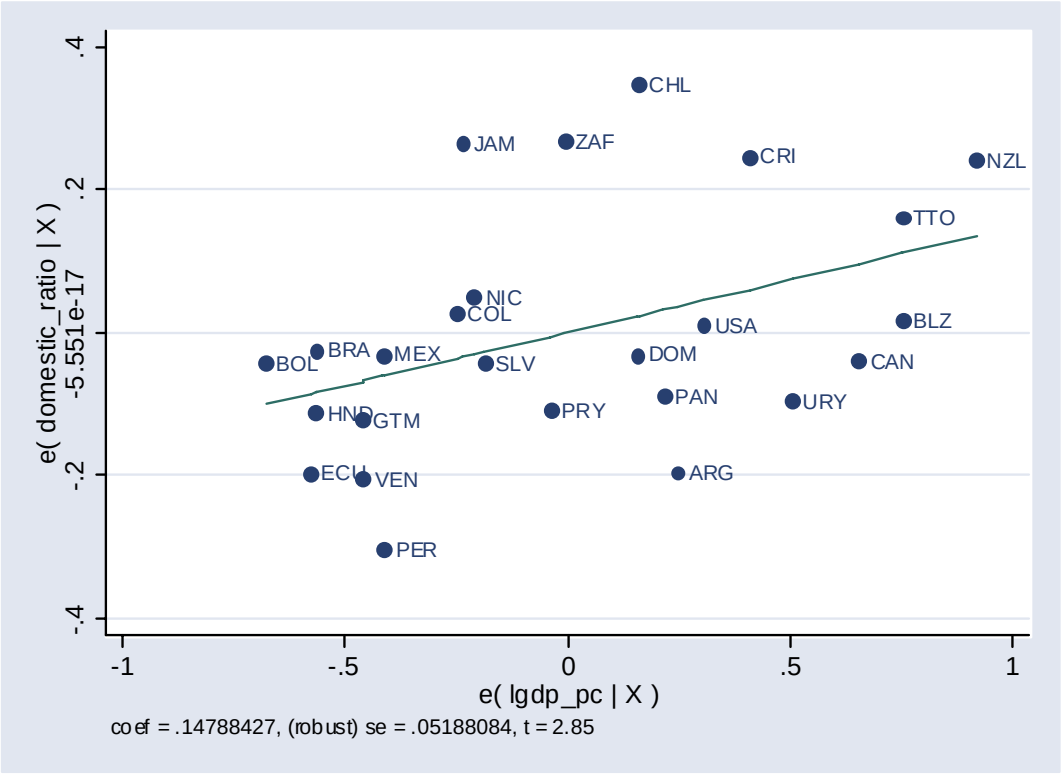


Figure 18.

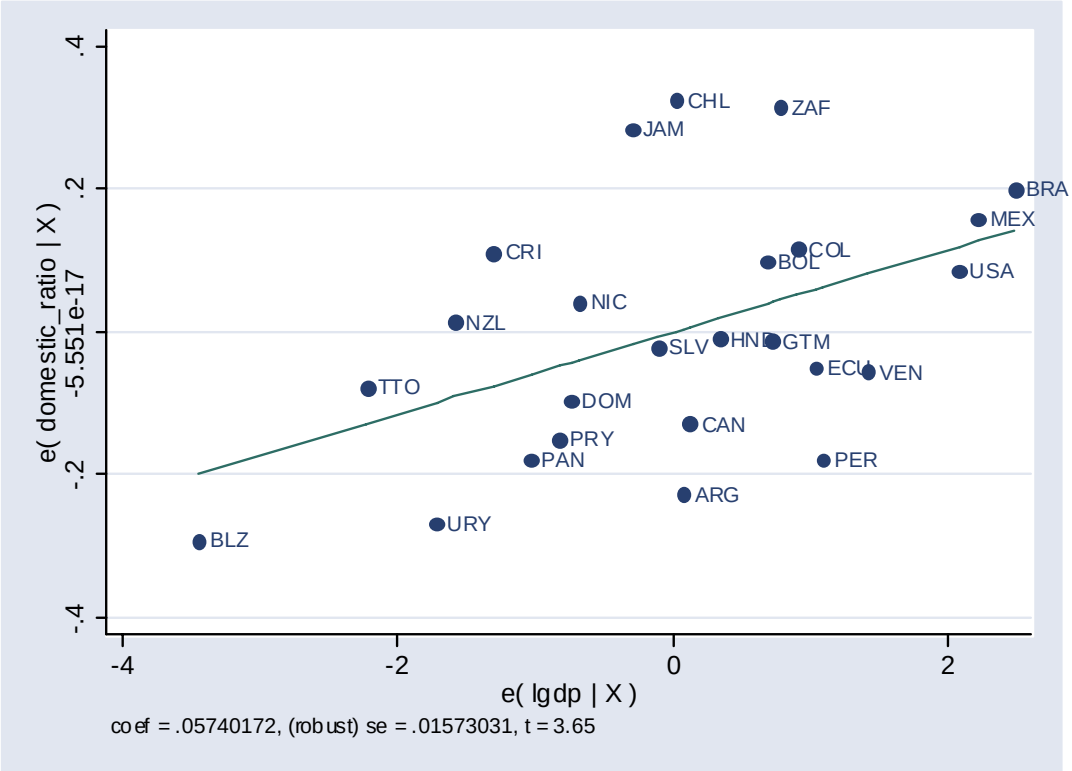
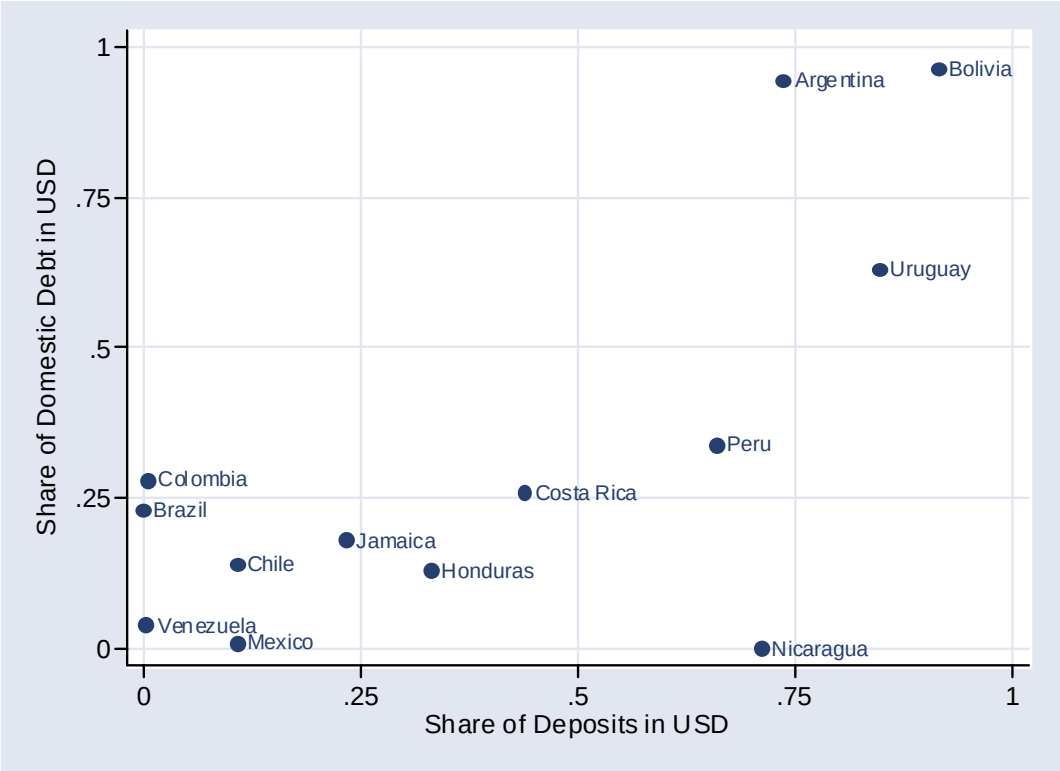



Figure 19: