

# Working Paper

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**Government Expenditure Arrears: Securitization and Other Solutions**

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**Abstract**

On occasions, by running arrears, governments have unilaterally borrowed from domestic agents. These agents ended up with implicit claims on the government for which they had no title and that would be honored, at best, on an unspecified future date and for an uncertain value. Having untitled assets limits creditors' financial management capacity, because they cannot trade or enforce these claims. This paper presents several options for addressing the arrears problem. It recommends that the government recognize its implicit financial liabilities, set a timetable for their clearance, and issue market-negotiable titles (securitize). Several country experiences with securitization operations are documented.

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	Page
<b>Contents</b>	
<b>Summary</b>	
I. Introduction .....	<u>4</u>
II. Government Arrears .....	<u>6</u>
The problem .....	<u>6</u>
Options for addressing the arrears problems .....	<u>6</u>
III. Relative Merits of the Different Options .....	<u>8</u>
Impact on macro variables .....	<u>8</u>
Income distribution effects .....	<u>12</u>
Impact on government credibility .....	<u>14</u>
Impact on status of other government debt and government incentives to adjust .....	<u>14</u>
IV. Securitization of Arrears—Issues to be Taken into Account in Designing a Workable Solution .....	<u>15</u>
Securities design .....	<u>15</u>
Implementation strategy .....	<u>17</u>
V. Country Experiences—Successes, Failures, Lessons to be Learned .....	<u>17</u>
Argentina 1991 .....	<u>17</u>
Russia 1997/98 .....	<u>19</u>
Moldova 1996/97 .....	<u>19</u>
Cameroon 1995/96 .....	<u>20</u>
Venezuela 1997 .....	<u>21</u>
VI. Conclusions .....	<u>21</u>
<b>Text Tables</b>	
1. Consolidated General Government’s Stock of Arrears .....	<u>4</u>
2. 1996 General Government’s Arrears by Category .....	<u>5</u>
<b>Figures</b>	
1. Liquidity Constrained Agents .....	<u>25</u>
2. Lenders .....	<u>26</u>
3. Increase in Perceived Wealth in Period Two .....	<u>28</u>
References .....	<u>29</u>

## SUMMARY

On occasions, governments, using their discretionary power, have unilaterally borrowed from pensioners, wage earners, energy companies, and contractors, among others, by running arrears. These agents ended up with implicit claims on the government (such as their past due pensions) for which they had no title and that would be honored, at best, at some unspecified future and for an uncertain value. Having no title on these assets can seriously limit creditors' financial management capacity, because they cannot trade or enforce these claims. This paper lays out several options for addressing the arrears problem and evaluates the relative merits of each alternative.

When immediate clearance of the historical stock of arrears is not feasible, it is recommended that the *government recognize the existence of its implicit financial liabilities, set a timetable for their clearance, and issue market-negotiable titles (securitize)* . Furthermore, this paper elaborates on the merits of a securitization operation in an environment of weak government credibility and substantial inequalities in the treatment of different classes of government debt holders. Abstracting from political economy considerations on who should bear the burden of fiscal adjustment, it shows that securitization can improve welfare and reduce distortions associated with the intertemporal allocation of consumption and savings. Finally, this paper documents several country experiences with securitization operations.

## I. INTRODUCTION

Governments emerging from a period of economic upheaval—such as the hyperinflation of the late 1980s in Argentina, or the collapse of the centralized economies of the Baltics, Russia, and other former Soviet Union countries (BRO)—have often faced difficulties in making payments on a timely basis and had to deal with the buildup of government expenditure arrears. These arrears have implied government delays on payments for services rendered, goods supplied, and legally mandated unilateral transfers, such as pensions and allowances.

More recently, in many countries undergoing the transition from command to market economies, binding resource constraints, which were made even more stringent by the reduction of output and income, have on many occasions led to the emergence of expenditure arrears. Payment arrears have grown considerably in many BRO countries, reaching in some cases staggering proportions (Table 1). Although country experiences tend to be very heterogeneous, in such countries as Moldova, Ukraine, Russia, and Tajikistan, the problem has assumed such magnitude that it is eroding trust in public institutions, unraveling the social fabric, and undermining the economic stability gains achieved so far.

**Table 1: Consolidated General Government's Stock of Arrears**

(in percent of GDP)	1995	1996
Moldova	7.8	11.0
Tajikistan	10.3	5.0
Kazakstan	n.a.	5.4
Ukraine	1.2	4.6
Uzbekistan	0.8	3.6
Russia	n.a.	3.0
Kyrgyz Republic	1.9	0.9
Georgia	0.4	0.6
Belarus	2.1	n.a.
Armenia	0.9	...
Azerbaijan *	2.6	0.5
Turkmenistan	0.0	0.6
Latvia	0.0	0.0

\*Includes only arrears of the Social Protection Fund. Government arrears to suppliers are unavailable but are expected to be substantial.

Source: Fund staff estimates.

A breakdown of the arrears (Table 2) reveals that, in Moldova and Ukraine, a substan-

tial part of the arrears has fallen on pensioners (for pensions, allowances, and other entitlements) and wage earners. Government suppliers comprise the major category of claimants on the government in Russia, Moldova, and Kazakstan.

**Table 2: 1996 General Government's Arrears by Category**

(in percent of GDP)	Wages	Social Sector	Suppliers	Total
Russia	0.5	0.5	2.0	<b>3.0</b>
Kazakstan	0.7	1.8	2.9	<b>5.4</b>
Moldova *	1.3	4.6	5.1	<b>11.0</b>
Ukraine	1.5	2.2	0.9	<b>4.6</b>

\* Arrears to energy sector companies account for the vast majority of supplier arrears.

Source: Fund staff estimates.

In the context of Fund-sponsored programs, performance criteria and indicative targets on the phased reduction of the stock of both central and local government arrears have been established for countries with substantial arrears (Moldova, Ukraine, and Kazakstan) accommodated by enlarged cash budget deficit ceilings. In the first half of 1997, these targets have generally led to a reduction of arrears and were even overachieved in the case of Moldova. On many occasions, internal social pressures to borrow and pay arrears have been very strong, leading to overruns of the cash budget deficit targets envisaged under current programs. In countries where the problem of budget expenditure arrears is not so acute, the Fund has instead pressed for quick payment—especially of pension and wage arrears—through reprioritization and retrenchment of lower priority expenditure and measures to address the poor budgeting that generates the arrears.

This paper will lay out and evaluate several options for addressing the problem of government arrears. In particular, it will analyze in detail the merits of a securitization operation of government implicit claims (arrears) through market negotiable instruments and will suggest some approaches for its design and implementation. It is beyond the scope of this paper to address questions related to public policy choice. For instance, we will not contend that pensioners or other public creditors should not share the burden of fiscal adjustment or even that their claims should benefit from seniority. Our aim is just to suggest measures that would allow the retirement of historic arrears while improving economic efficiency. The paper is organized as follows. Section 2 defines the problem and advances several options for addressing it. In Section 3, we evaluate each possible solution. Section 4 elaborates on the merits of a securitization operation of arrears and draws attention to issues related to its design and implementation. Section 5 documents several country experiences with securitization operations. Section 6 concludes. In the Appendix, we use a stylized version of a minimalist two-period representative agent model to provide support for the claim that the securitization operation would be welfare-improving and would reduce distortions associated with the intertemporal allocation of savings.

## II. GOVERNMENT ARREARS

### The problem

The build up of arrears resulted from governments having effectively defaulted when failing to pay their obligations on the due date. This was tantamount to, the government, using its discretionary power, unilaterally borrowing from pensioners, wage earners, energy companies, contractors, etc., without their consent. Due to the absence of a contractual covenant governing the financial dealings between the government and the owners of these claims, many agents ended up with *implicit claims on the government (e.g. their past due pensions) for which they have no title, and which will be honored, at best, on an unspecified future date and for an uncertain value.* Having no title on these assets can seriously limit creditors' financial management capacity since they cannot trade, pledge as collateral, or enforce these claims.

### Options for addressing the arrears problem

One alternative would be for the government to be passive, perpetuate the *status quo*, and do nothing in terms of the fiscal consolidation necessary to contain the buildup of arrears. On many occasions, when faced with lower-than-forecast revenues, all levels of government ended up maintaining consumption by forced borrowing from domestic agents. The current stock of arrears is bound to increase even further if the imbalance in fiscal finances at the flow level—where current revenues fall short of current expenditure commitments—is not addressed. Hereafter we will assume that the fiscal flow imbalance is solved or contained and that the government will now strive to find the most efficient and less distortionary way to reduce the historic stock of arrears. Possible alternatives are:

#### *Repudiate current arrears*

Once the arrears problem is stabilized at the flow level, the government could elect to repudiate the current stock of arrears by announcing that these liabilities will not be honored now or in the future. This would be tantamount to enacting an individual-specific lump-sum tax to be paid by those from whom the government initially borrowed. This is obviously a political economy decision on which, from a positive economics point of view, this paper is silent, but which, from a normative point of view, should be discouraged. Consequently, we will focus our attention on alternative ways of clearing the existing stock of arrears.

*Pay arrears in-kind or through other limited choice mechanisms*

Old arrears can be settled in-kind (see the case of Moldova in Section 5) or offset against tax arrears to the budget. In many countries—especially Moldova, Russia, and Ukraine—input suppliers also have substantial tax arrears to the budget. In this case, the government might embark on a netting operation to offset both tax and expenditure arrears. Nevertheless, not only do many government claimants not have any tax arrears to be offset, but avoiding payment in *specie*—by utilizing commodities or bundling the problems of tax and expenditure arrears—should also be seen as a second best solution to the more direct and transparent ways of dealing with the stock of arrears to be considered in the next subsections.

*Issue financing instruments (domestic or foreign borrowing) to pay off arrears*

The existing stock of arrears can be immediately paid off by borrowing in the domestic market (securing central bank credit or issuing Treasury bills) or by tapping the international capital markets. The proceeds of the borrowing operations would be earmarked for the reduction of the current stock of arrears. This would increase the stock of explicit government debt, but would not decrease government net worth, as the government liability occurred *de facto* when the government defaulted on its obligation to pay. Thus, the government is merely recognizing *de jure* (making explicit) a *de facto* (implicit) claim on its own, even though the growth of the new explicit debt (capitalized interest) might be faster than the growth of the implicit liability. If the necessary fiscal consolidation is not taken *ex-ante* to provide room for the extra payments, this measure will amount to allowing a bigger current cash deficit, financed by extra borrowing, to pay the previously unhonored obligations.

*Announce a schedule for repayment of arrears (phased payment)*

The first best solution is, obviously, to pay old arrears as soon as possible. Nevertheless, the government might be shackled by political and economic constraints that prevent it from borrowing to immediately clear the old stock of arrears and opt instead for announcing a timetable for their future clearance. Phasing-in the liability payment might be more viable than the solution presented above if the current stock of arrears is of such magnitude that current market conditions are not ripe for the placement of sizeable amounts of new debt, or if doing so would imperil other government short-term macro objectives (see Section 4 on the Argentine experience in the early 1990s and the recent proposals being floated for Venezuela).



### *Securitization*

In addition to announcing a schedule for arrears repayment, the government might go even further and securitize the current stock of arrears. In this case, *the government recognizes the existence of its implicit financial liabilities, sets a timetable for their clearance, and issues to its claimants market-negotiable titles with a set maturity (securitize)*. Furthermore, contrary to the previous alternative of merely setting a timetable for arrears clearance with no title to back it, a secondary market could emerge where these titles would be traded promoting an equitable, transparent, and efficient intertemporal allocation of resources, as will be shown in Section 4 and in the Appendix.

## III. RELATIVE MERITS OF THE DIFFERENT OPTIONS

### **Impact on macro variables**

#### *Budget Deficits and Government Net Worth*

When cash budget deficit targets have been met by sequestration of cash expenditure and running arrears the commitments (accrual) deficit, which incorporates unrealized cash expenditure on government obligations, exceeded the cash deficit and was financed not only by explicit domestic and foreign borrowing (that matched the cash deficit) but also by implicit borrowing (the arrears). Barring repudiation of the implicit debt component, there is a one-to-one mapping of both the commitments deficit to changes in total government indebtedness and net worth and of the cash budget deficit to changes in the stock of explicit government debt. Therefore, all the above-mentioned alternatives to run down the stock of arrears are *per se* neutral in terms of the impact on budget deficits when measured on a commitments basis, since current and future obligations are not altered by the method of payment.

Retirement of arrears through in-kind payment or borrowing will increase the cash deficit when the payments are enacted leaving the commitments deficit unaltered. Likewise, the securitization—a simple transformation of implicit debt into explicit debt—will raise the cash budget deficit. This process can be separated in two steps. In the first, the government borrows domestically or abroad to redeem the stock of arrears, thus increasing the cash budget deficit and the stock of explicit debt. In the second, the government borrows back the amount paid from the same agents in exchange for the securities, using the proceeds to retire the debt contracted in the first step. When the securitization takes place the government is technically no longer in arrears because it has formalized (restructured) the borrowing from these agents. Thus, the end result will be an increase

in the cash budget deficit at the time of the securitization, matched by an increase in the stock of explicit public debt, offset by a one-to-one reduction in the stock of implicit debt. Hence, there will be no impact on the deficit on a commitment basis or on government net worth, since securitization is merely a swap of implicit for explicit debt. When the newly created explicit debt matures, it will not affect cash budget deficits, since the operation will be registered below the line as amortization of internal debt. Only the interest component, as in the case of borrowing-to-pay, will influence future cash budget deficits. It is important to realize that the higher cash budget deficit "artificially" created at the time of the securitization operation is financed in an almost noninflationary way: The operation resembles a type-of-debt swap or a debt rescheduling as no money actually changes hand.

Making implicit claims explicit, through immediate payment or securitization, can affect the fiscal stance only to the extent that the new forms of government debt will accrue interest, which was not the case with the no-interest implicit debt. Future service of the now interest-yielding debt is unlikely to worsen the sustainability of total government debt (implicit and explicit). The previous situation of continuous default on expenditure commitments was much more unsustainable both economically and socially, as the chain of arrears starts permeating all economic sectors leading to large-scale barter trade and economic paralysis.

In addition, from a cash and public debt management point of view, securitizing can dominate immediate payment. The government will be able to select the debt maturity structure and repayment profile that best match its financing needs and observed seasonal pattern of revenues and expenditures, thereby smoothing Public Sector's Borrowing Requirements over time.

### *Aggregate Demand*

Without any loss of generality, we will assume that before the actual clearance of arrears, agents expected some non-zero payment of their implicit claims and had formed expectations about the level of government expenditure in the current and future period,  $G_1$ , and  $G_2$  respectively, and of the level of taxation (net of transfers, including the payment of arrears which represent past government consumption),  $T_1$  and  $T_2$ . That is, agents formed expectations about future income and government's indebtedness, based on subjective evaluations of the likelihood of payment. Barring perfect foresight, these expectations will be revised as the terms of clearance are revealed. Based on heuristic evidence for these economies and on empirical studies, in our analysis we will assume that (1) many of the agents to be paid are liquidity constrained (see Runkle (1988), and Hayashi (1982)), and that (2) due to the measures taken to control the flow of arrears problem, the payment to be made is above the *ex-ante* expected payment (anticipated component), leading to a

government deficit higher than agents had anticipated. Nevertheless, we will also assume that part of the higher-than-expected payment will be at least partially serviced out of expenditure cuts in period two,  $G_2$ , and not fully through additional current and future taxation—making all agents, whether liquidity constrained or not, wealthier in present value terms (positive wealth effect).<sup>1</sup> Any one of these two conditions is *per se* sufficient to invalidate the traditional Ricardian Equivalence and the “superneutrality of money proposition”—as elaborated, tested, and discussed in Ricardo (1957), Buchanan (1958), Barro (1989), O’Driscoll (1977), and Sargent and Wallace (1981)—where agents would simply internalize the higher level of government indebtedness through the saving of the windfall higher-than-expected payment.

Maintenance of the current situation is prone to *moral hazard* problems, since governments have an incentive to perpetuate the *status quo* and avoid facing the drawbacks associated with prompt corrective action—the necessary cuts and rationalization of public expenditure—to contain the flow and reduce the existing stock of arrears. Therefore, the do-nothing approach signals lack of political will to tackle the arrears problem (i.e. agents will expect public expenditure to remain high and possibly out of control), which might lead to a downward revision of both present and perceived future income, in turn generating downward pressure on private aggregate demand. Repudiation of the old stock of arrears leads claimants to revise, in a Bayesian way, their subjective probability regarding the amount and amortization date of the implicit liabilities. Uncertainty is resolved: The government is not going to pay and will probably use these resources to increase government consumption ( $G_1$  or  $G_2$ ). Barring the case of a prior of a zero-expected probability of payment, private aggregate demand should decrease, when compared to the do-nothing benchmark, as agents recompute their permanent income, and choose a lower optimal level of present and future consumption to match the downward revision of their wealth (wealth effect).

In-kind payments will have a positive effect on private aggregate demand (which can be broken down into a substitution and an income effect), since resources initially allocated to the purchase of the goods being handed out will now be diverted to other goods, thus increasing their demand (substitution effect). This is equivalent to issuing a special kind of money valid only for the purchase of specific goods. Since these commodities are subtracted from the economy’s aggregate supply and matched with the artificially created demand, economic agents will have the same prior resources but will be chasing a smaller portion of the aggregate supply. Furthermore, assuming that the value of the in-kind payment received is above the *ex-ante* expectation, both income and substitution effects will push in the direction of higher aggregate demand.

In a perfect world—one with no liquidity constrained agents and where the Ricardian equivalence holds—payment in cash or in bonds of the same present value would have

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<sup>1</sup>That is, there will be some fiscal consolidation in period two to provide some room for the payment of the newly assumed obligations.

no impact on aggregate demand and interest rates. Nevertheless, since we assume the presence of liquidity constrained agents and that the present value of government consumption is going to be smaller than expected (due to the reduction of expenditure in the second period) in order to create some room for the higher-than-expected payments, aggregate demand and real interest rates should increase. Agents will be richer than expected in the second period and would therefore like to save less, but in aggregate, this is not possible, leading to an increase in interest rates in order to re-establish equilibrium. Further, payment in securities or in cash will relax the liquidity constraints, leading to an extra expansion of aggregate demand.

Payment of arrears by borrowing will have somewhat different effects on aggregate demand depending on whether this is done by borrowing from the central bank, borrowing abroad, or issuing Treasury bills. If the government monetizes the clearance of arrears, according to the permanent income theory, forward-looking agents would increase current consumption by a fraction of the amount received and save the remaining. Hence, we will observe a positive impact on aggregate demand in current and future periods, as some of the payment received filters back into savings instruments. The same will occur if the government borrows abroad. If the government floats Treasury bills that are mainly placed in a banking system with a comfortable liquidity position, then crowding-out effects should be smaller and aggregate demand should expand. On the other hand, if banks are faced with tight liquidity positions, placement of additional Treasury bills might trigger a bank response that will dampen the expansionary effect of the payment.

In a securitization operation, if the recipients simply hold the securities until maturity and don't change their previous savings decision, there will be no immediate or short-term monetary impact, apart from that associated with interest payments on servicing the debt obligation, if that is the case. Equally, selling the securities in the secondary market at fair-market prices and using the proceeds to buy other assets (deposit accounts, Treasury bills, etc.) will merely constitute a transfer of savings from one agent to another with no impact on macro aggregates: a zero-sum game, an exchange of assets with no monetary impact. Nevertheless, due to the above-mentioned probable wealth effect and the existence of liquidity constraints, a portion of this windfall might be used to raise repressed consumption levels to the desired target. If so, demand-pull inflation pressures might be observed if the productive sector is unresponsive. It is conceivable that some of these distressed economies have fallen prey to an insufficient demand trap, due to very low observed levels of capacity utilization, and would thus benefit from some demand dynamism. Contrary to immediate borrowing to clear arrears, securitizing allows governments to mitigate and phase in the impact on aggregate demand and immediately supplies potential savers with a saving instrument.

### *Interest Rates*

If the government retires the old stock of arrears by printing money or by borrowing abroad, short-term interest rates might decrease slightly, but long-term interest rates will rise due to expectations of higher future inflation. Hence, we would expect a steeper yield curve. However, if Treasury bills are used as the financing instrument, both short- and long-term interest rates are expected to increase in order to induce investors to change previous portfolio decisions and assume the extra amount of government debt. The precise impact on different maturities will, of course, depend on the particular maturities issued. Nevertheless, it is expected that the entire yield curve would shift up.

In the case of a securitization operation, only those who desire to increase present consumption immediately will be willing to dispose of these saving instruments, leading to an increase in domestic interest rates. This increase will function as an automatic stabilizer, inducing the appropriate monetary tightening necessary to counterbalance the expansionary effect created by those who cashed their claims in the secondary market. In an open economy with a flexible exchange rate regime, the impact on domestic interest rates will be eased and the adjustment will be felt more through the external sector variables.

### *External Sector*

The retirement of the stock of arrears will also impact on the external sector of the economy through the balance of payments, foreign exchange reserves, and the exchange rate. In an economy with no barriers to international capital mobility and a fixed exchange rate regime, the flow of debt payments (financed through money creation or Treasury bill issue) will lead to a loss of foreign exchange reserves, unless offset by an increase in money demand. With imperfect capital mobility, one could observe a decrease of foreign exchange reserves and an increase in aggregate demand. Under a flexible exchange rate regime, the impact will be felt more through a deterioration of the current account of the balance of payments and depreciation pressures on the exchange rate.

### **Income distribution effects**

In many countries, a substantial part of arrears has fallen on the most vulnerable groups in society—in particular pensioners and wage earners. The degree of protection awarded to these particular groups is a political economy decision this paper will not address. Immediate payment will naturally benefit the most vulnerable, who in some cases belong to older age groups that discount the future very heavily. These groups have been paying

the ultimate tax—100 percent of their entitlements at the time of government default. They have the most to gain from a securitization operation since, unlike other government debt instruments, these securities can be specifically designed to protect the poor and the less financially sophisticated segments of society.

The securitization operation is essentially meant to provide more value protection and guarantees than just paying in-kind or announcing a timetable for arrears clearance. When compared with a simple announcement of a timetable for arrears clearance, securitization enhances agents' choice set by granting them a title. This is a scheme to increase public and market pressure on governments to honor their debts, not a scheme to exonerate the government and legitimize a continuation of over-spending. In almost all countries with substantial amounts of arrears, there is no record of government default on Treasury bill holders. Their interest and principal payments were always timely honored. This hardly comes as a surprise, since it is much easier and less visible to default on small and disorganized agents. In many transition economies, incipient capital markets are cloaked by a *veil of illusion* that, inexplicably, associates defaulting on Treasury bills holders as a much more serious breach of public trust and as significantly more damaging for the governments' credibility than defaulting, for instance, on pensions. In fact, due to the past government record, Treasury bill holders and the market perceive these claims to have implicit seniority over other claimants on the government. Thus, securitization leads to increased accountability to and protection of vulnerable groups from government discretion.

Once these securities are issued, trading (formal or informal) would start at once, creating an active secondary market, as in the case of many other markets for government securities such as Treasury bills, Brady bonds, etc. Furthermore, explicit recognition and titling of these claims should produce substantial efficiency gains vis-à-vis the intertemporal allocation of resources. In the trade-off between present and future consumption, agents for whom money immediately has a high marginal value—those for whom present consumption has high priority—will be able to get cash immediately by selling their claims in the secondary market, but at a discount. In practice, this would be equivalent to selecting to pay first those who in reality need and value money the most: the poor. This scheme allows the most needy (the liquidity constrained) to self-select—through a transparent and efficient market mechanism—by going to the secondary market and discounting their securities for cash. Even if the government were to pay up-front the exact fraction of the total liability discounted in the initial period, it would have been impossible to identify (separate) those agents who would most value money immediately, and to whom payment priority should be granted. Those not in such dire straits or who give a higher weight to future consumption will be willing to wait until maturity to cash their principal. In this case, the government is providing savers with an alternative financial instrument into which savings can be channeled. By securitizing, the government can benefit from zero cash expenditure on arrears clearance in the current period without hindering the possibility of agents' immediate access to cash by discounting these

securities.

## **Impact on government credibility**

Doing nothing, repudiation of old arrears, and, to a lesser extent, in-kind payments can be damaging for a governments' credibility. Pre-announcement of payment is a step in the right direction—towards explicit recognition of liabilities—but does not necessarily entail concrete action to address the underlying imbalances. Since such announcements are not binding, there is no immediate punishment mechanism for deviations from or delays in the announced payments schedule. By issuing securities, credibility will be fostered, since there is a title and a pledge, and renegeing can be counterproductive. A government lacking credibility will not convince markets and economic agents merely by announcing the intent to pay—markets will demand more guarantees. Securitizing—which ties a government's hands and raises the stakes and the cost of default—will make fiscal consolidation not an option, but a must, thus enhancing credibility. Governments will be able to reduce uncertainty, buy credibility and political capital, and bolster public trust simply by adhering to a publicly known, preset timetable for arrears clearance. Also, by readily and transparently assuming its obligations, the government imposes self pressure and signals strong commitment to tackle its budgetary problems and revamp public finances. Voluntary exposure to market scrutiny and penalization for deviations from original pledges should be interpreted as an unmistakable signal of government seriousness, not as an easy way out or a blank check for continuation of over-spending.

## **Impact on status of other government debt and government incentives to adjust**

The impact on other forms of government debt is only relevant in the securitization of arrears scenario when a new form of government debt is traded in the market. For the securitization operation to be credible, it is required that the flow problem is under control and that the government is now actively trying to extinguish the old stock of arrears. Without this pure regime shift, there is the risk that the new debt will be perceived as *junk debt*; increasing the discount on the secondary market.

Will there be a risk that governments will then default when these new securities mature? Not much. If there is an issue of government securities bearing the national seal and with the government publicly committing to honor these claims on a specific date, default will be as damaging to internal and external credibility as defaulting on any other claim. Market mechanisms have imbedded the appropriate checks and balances and punishment mechanisms to avoid the risk of *time-inconsistency*—the condition that

arises in future periods when governments have an incentive to go back on their word and not honor earlier pledges. Since governments need permanent access to financial markets and have other forms of floating-interest debt in the market, they cannot escape punishment if they default. The market will penalize defaulting governments by limiting future access to both domestic and foreign financial markets and by increasing the risk- and country-premiums on government securities, reflecting lower creditworthiness. Governments wishing to be seen as law abiding entities for whom credibility in financial markets is valuable and worthy of protection have major incentives to increase transparency in their financial dealings.

Markets seldom take into account implicit debt in their analysis of country risk and creditworthiness—and if they do, only imperfectly. The enhanced transparency brought about by securitization leads to an increase in the measured (visible) stock of debt, and will worsen debt stocks and debt service indicators. Nevertheless, the enhanced credibility gains may outweigh any perceived creditworthiness downgrade.

#### IV. SECURITIZATION OF ARREARS—ISSUES TO BE TAKEN INTO ACCOUNT IN DESIGNING A WORKABLE SOLUTION.

It is sometimes asserted that allowing the government to securitize will increase uncertainty. However, uncertainty about government behavior permeated the economy before the securitization operation, as debt holders with no title knew neither when they were going to be paid nor in what terms. Once the government securitizes, uncertainty or doubts about the intention to pay might remain, but since there is a public commitment to pay there is something critical at stake—the government’s reputation, and political capital. A government intending to defraud debt owners is not expected to announce a date and conditions of payment, as this might later be used against it. In this sense, uncertainty will be reduced and not magnified. Furthermore, once securities are issued, the government has nothing to gain by creating spurious uncertainty to drive secondary market prices down. It will only become more onerous for the government to issue other debt instruments in the future. The obligation is still to redeem, at maturity, the securities for full value, independently of the amount the current holder paid for them in the secondary market. If a government doesn’t expect to pay, it won’t issue titles that reveal its liability.

#### **Securities design**

The securitization operation can be designed to be as flexible as needed, since there are many options from which to select the appropriate characteristics of the securities, such as: face value, interest rate, option clauses, and maturity date. For instance, the



securities can command a market interest rate (or a fixed real rate insulating bond holders from inflation), pay a below-market interest rate but with a time premium to be paid at maturity (see the Argentine case in Section 5), or even pay no interest at all. Long and short maturities are also possibilities. Even further, hybrid instruments with redemption option clauses can be incorporated. For instance, a 10-year security could be redeemed after five years at the option of the holder (government) with a 5 percent penalty (bonus) on principal.

The securities to be issued are analogous to Treasury bills, but they have the advantage of being more flexible since they can be designed for a specific customer base (see Section 5 on the Argentine experience) and consider the current state of public finances. For instance, to compensate for past inflation's debasement of nominal claims, a scheme can be devised in which the government offers pensioners a premium—say, 100 to 200 basis points over the corresponding Treasury bill rate—and allows redemption of these securities at any time. The premium will make these bills very liquid and it is plausible that some agents will anticipate redemption on only part of the payment, and some others will not redeem them at all, since these securities are an excellent instrument in which to place savings when compared to Treasury bill holdings or even bank savings accounts.

Issuing market-interest paying securities is recommendable since the government will internalize the true cost of funds, leading to a rationalization in the use of scarce funds and the elimination of distortions in the economy's credit allocation between the public and the private sector. Nevertheless, the optimal design hinges critically on such relevant political economy and public policy decisions as the degree of protection to award specific classes of claimants and the allocation of costs among different societal classes. A decision to impose some costs on these agents can easily be incorporated into security design.

It is important to recognize possible risks of governments trading in the secondary market, as this might lead to perverse incentives and potential *moral hazard* problems. By acting in a way that creates uncertainty in the decision to pay off the securities, governments will drive prices down in the secondary market, creating the environment for the retirement of own debt at low prices—in reality swindling debt holders. In this case, there is a risk that government debt will be perceived and associated with *junk-debt*, since the government has a perverse incentive to remain steadfast and not shift to a new regime where it would act within legal bounds. However, in most cases allowing the government to participate in the market will push prices up and give the market added liquidity, benefiting potential participants in this market. Given sufficient secondary market depth, government participation will not be counterproductive, but in thin markets the possibility of government manipulation of prices cannot be disregarded. Hence, a hybrid solution might be to allow limited government participation in the secondary market. Participation of foreigners should not be restricted, due to the absence of *moral hazard* behavior and the potential increase in market liquidity.

It is also important to shed some light on a common misperception. Issuance of securities, even if subsequently they are traded at a discount, no matter how high, is not a scheme to defraud or tax the poor. Without securitization, agents would continue to be at the mercy of conditions imposed by the government. Prices in the secondary market should reflect all the information available, including the probability of default. Even if the discount price is steep, this is not evidence that, for instance, pensioners who discount their claims are being exploited. Since the discount should reflect time to maturity, the current interest rate, and the probability of default, a steep discount is an indication of great uncertainty and high probability of default. In this case, even the small amount that sellers in the secondary market received could *ex post* be infinitely higher than the amount the holder at maturity gets if the government defaults.

### **Implementation strategy**

A successful implementation strategy would necessarily have to confront the questions of appropriate face value (denomination size), and administrative costs of mounting the operation. Since we would not be dealing with big institutional investors but with an atomistic market with many small, unsophisticated, and geographically dispersed agents, securities should be issued in small denominations (in contrast to issues of Treasury bills). This would allow the holder to redeem some in advance and hold/deposit the remaining. In order to reduce the administrative costs of implementation, one could utilize the extensive branch network of the Postal Service or the local Savings Bank to open accounts<sup>2</sup> with an accounting (not actual) balance that would carry an interest rate and whose balance will only become available at a future given date<sup>3</sup>. Nevertheless, the account balance could be immediately pledged as collateral and could potentially be transferable/tradable between accounts. This de-materialization strategy (electronic bits instead of paper bonds) could substantially reduce the administrative costs of the operation while simultaneously contributing to the deepening of financial intermediation.

## **V. COUNTRY EXPERIENCES—SUCCESSSES, FAILURES, LESSONS TO BE LEARNED**

### **Argentina 1991**

During the late 1980s, the Argentine government, and Social Security System especially, experienced difficulties in meeting current obligations, in an environment of very high

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<sup>2</sup>I thank Paul Mathieu for suggesting this point to me.

<sup>3</sup>When the government enacts the necessary transfer of funds to the bank.

inflation. Consequently, the government accumulated considerable arrears to suppliers and, in particular, did not recognize the legal right of pensioners to indexation of their payments to inflation. In 1991, a series of lawsuits against the Argentine government for its failure to index pensions to inflation were successfully concluded. These binding legal decisions left the Argentine Social Security System alone with a liability of around 5 percent of GDP and no current resources to comply with them. At the time, it would have been impossible to settle all these claims in cash concurrently, while repudiation was not an option due to the court rulings. Faced with stringent budget constraints, the government decided to settle a very small amount in cash and to issue bearer Consolidation Bonds—*BOCONs*—with a maturity of 10 years to pensioners and 16 years to suppliers. The bonds yielded a below-market interest rate, but promised to pay a 10 percent premium over principal at maturity. The *BOCONs* had a six-year grace period for both interest and amortization payments, since the stated objective was to postpone debt service payments until the stabilization program constraints on the budget would not be so rigid and when the economy would be growing again, thus reducing the burden of servicing the debt<sup>4</sup>. These negotiable bonds could be pledged as collateral, used in the privatization program, or used against tax liabilities. As a result, an active secondary market for these securities immediately flourished, albeit at a steep discount from face value. Those agents who did not need the money immediately could take advantage of the new savings instruments and wait until maturity. Those whose intertemporal preferences privileged current consumption, such as old pensioners, cashed the bonds at authorized financial institutions and even in informal secondary markets. The securitization operation proved to be successful by smoothly phasing in the payments of the unfunded pension liability. The Argentine government was allowed to buy (retire) its own debt in the secondary market, therefore giving it additional liquidity and pushing prices up (smaller discount from face value). A question that arose at the time was whether the effects of these operations on wealth and aggregate demand occurred when arrears accrued or when they were cleared. Since this is an empirical question that has yet to be settled, the Central Bank raised the reserve requirement on banks as a precautionary measure in the event of expansionary demand effects at the time of arrears clearance.

The success of the operation is particularly noticeable when compared to the alternative—no payment at all or payment through monetization and return to hyperinflation. The government was able to spread the payments over time and creditors were able to obtain cash or negotiable assets. The decision to impose some costs on creditors by paying below-market interest rates tilted the balance towards the issue of these securities and not floating Treasury bills, since the latter would require the payment of market interest rates and would have not allowed capitalized interest in the first five years.

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<sup>4</sup>Some of the *BOCONs* were later redeemed at a discount with the proceeds from the privatization of the state petroleum company, YPF.

## Russia 1997/98

Russia has a stock of around \$26 billion of defaulted loans inherited from the former Soviet Union. The debt in arrears, mostly lent to Soviet enterprises and other state concerns before 1991, is held by more than 3,000 western creditors. Since immediate payment of such an amount of external arrears is out of the question, Russia is completing an operation to securitize the overdue loans through issuance of notes that pay a fixed rate of interest and extend the maturity by up to 20 years.<sup>5</sup> Investors will be paid a premium for holding these notes, which will make them some of the most liquid debt instruments of the international market. Investors are already aware of the approximate value of the new paper since they have been trading the loan claims on Russia in informal markets. The holders of the so-called "When and If" claims bought from the original Russian claimants are already betting that the operation will proceed and that the debt will be honored in the future, which has made the face value of these "When and If" titles increase sharply over the summer of 1997. Overall, Russia will be able to spread the liability payment over time and, according to some international press, is already benefiting from a strong boost to its international credibility.

## Moldova 1996/1997

In the former Soviet Republic of Moldova, pension and allowances arrears alone amounted to a staggering 4.6 percent of GDP (six months' worth of pensions on average), at the end of 1996. Overall government arrears stood at 11 percent of GDP, with no visible tendency to decrease in the first quarter of 1997. In early 1997, the Ministry of Labor and Social Protection undertook an in-kind operation to liquidate old debts to pensioners by setting up a network of shops operated by the Ministry. Every pensioner received a so-called *talon* from the local post office or savings bank branch, specifying the amount of cumulative debt owed to him at the end of 1996. The *talon* enabled pensioners to buy goods in local shops and pay for services and taxes (energy bills, telephone bills, communal services, land taxes, pharmacy bills, etc.). Every shop had a list of pensioners eligible for goods procurement against the pension-debt *talon*. The goods and services pensioners could purchase with *talons* differed from place to place and pensioners often complained about the paltry selection of goods available and the above-market prices charged. There is little doubt that pensioners would have preferred to be paid in cash rather than in paper certificates allowing them only specific commodities not necessarily wanted and overpriced. Since their choice was limited to either expensive and potentially unwanted goods or nothing, pensioners ended up accepting a bad deal.

Even under the shortcomings of this scheme, three slight modifications could substan-

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<sup>5</sup>"Russia Close to Sealing \$26bn Debt Agreement;" Financial Times, October 1, 1997.

tially increase efficiency and enhance the protection of these most vulnerable members of society. First, the certificates should be bearer certificates, that is, pensioners should be allowed to donate, sell, and/or pledge them as collateral to a third party. Second, in order to insulate the real value of the principal, certificates should accrue market interest. Third, the certificates could explicitly state when they would be redeemed for cash by the Ministry, giving the bearer the option to either exchange them for goods and services or just hold them until the specified maturity.

## **Cameroon 1995/1996**

Cameroon's domestic payment arrears amounted to more than 12 percent of GDP at end-January 1995, causing serious problems in the form of non-performing assets in the financial system and liquidity and solvency problems for domestic and public suppliers. To tackle the problem, the government decided to embark on an action plan for the retirement of arrears to be implemented in stages, with the aim of restoring the financial credibility of the state at a cost compatible with projected budget receipts in the future. The strategy was described as "transparent, irreversible, and involving an equitable treatment of each class of creditors." In 1995 the authorities engineered a consolidation operation of the arrears to public enterprises and the Social Security Fund through bilateral arrangements. Concurrently, arrears to suppliers (around 7 percent of GDP) were securitized with zero-coupon Treasury bonds yielding a below-market interest rate and maturing in 3 to 12 years. On social and equity grounds, the smaller debts to individuals—salary arrears to civil servants, as well as compensation for expropriation of property under the power of eminent domain—were given more favorable terms than other creditors, through a combination of immediate cash payments and zero-coupon bonds with shorter maturities.

This strategy, coupled with the government's commitment under a Fund-sponsored adjustment program not to accumulate new arrears would minimize the risk that the securities will not be honored. As a safeguard against future default, the government requested the Central Bank to open an escrow account to be used to make interest and principal payments and to be credited out of tax revenues. It also envisaged the establishment of trust fund out of which the end-of-maturity lump-sum payment will be made. The choice of a securitization strategy to deal with arrears reflected Cameroon's limited access to domestic and foreign debt markets and also a politically and socially acceptable way of differentiating between classes of claimants and partially defaulting on some of them (e.g. debt to suppliers) by paying below-market interest rates.

## Venezuela 1997

In Venezuela, the law requires employers to constitute funds for severance payments with enough reserves to keep their potential (normal) liability covered at all times. The normal severance liability payable to a worker, upon justified termination of employment, is the product of the number of years the worker had been with his current employer and his monthly salary at the date of termination. Therefore, the accumulated balances accrued in previous years would have to increase at the rate of growth of the worker's salary. In the case of the public sector, even though some enterprises have established trust funds, accounts of most public sector employees were unfunded.

This system, which was a combination of unemployment protection and retirement savings, has since been reformed, and unpaid rights accrued under the old system through June 1997 will be paid (amortized) over a period of five years. Naturally, this is a problem only for those employers who have not properly funded their employees' severance accounts—a group which includes most of the public sector. As of June 1997, the labor liability of the general government was estimated at around 10 percent of GDP. If these large payments are made in cash, they can jeopardize announced macroeconomic goals by generating a consumption boom (for instance, workers can borrow from these funds to buy a house) and inflationary and current account pressures. The consumption boom could arise because workers would receive in a liquid form an asset that up to now was less liquid. It is important to realize that the problem at hand is the transformation of a medium to long-term contingent liability into a short-run one. The current medium-to long-run liability is contingent on termination of employment, and as such is not in the decision set of the employee. In order to face this large liability, the government is considering a securitization operation, since it is not in a position to make such large contributions in the short-run. This operation seems to be preferable than simply borrowing to meet this liability. It is widely recognized that the financial engineering operation to be adopted does not represent the assumption of new debt, but would simply make explicit an implicit claim. Since these severance pay funds have to be recapitalized in the short-run, but the cash will be only demanded in the future, it makes sense to recapitalize partly with cash and partly in long-term bonds accruing market interest rates. Thus, the government recognizes the implicit claim and spreads the liability over time.

## VI. CONCLUSION

A common denominator of the country experiences presented above is that securitization is the alternative of choice to clear arrears when governments face constraints on domestic and/or foreign borrowing and when the clearance is seen as a one-off operation to clear old debts. Securitization is also chosen when governments desire to default on part of the implicit debt but cannot do so due to political or legal restrictions or when, for

equity reasons, a differentiated treatment of claimants is called for (e.g. Argentina, Cameroon). Furthermore, securitizing can provide governments with temporary relief from debt service obligations, which would probably not be available by floating market debt instruments.

In this paper, we have proposed a few alternatives to clear the stock of government arrears and have analyzed each scheme's impact on several dimensions in an environment of weak government credibility and substantial inequalities in the treatment of different classes of government debt holders. Where the first-best solution of immediate payment of these implicit claims is not feasible, abstracting from political economy considerations on who should bear the burden of fiscal adjustment, it is shown that securitizing these claims can be welfare-improving and reduce distortions associated with the intertemporal allocation of consumption and savings. Even if it is decided that claimants should bear some losses, doing so through an appropriately designed securitization operation can substantially reduce the utility loss of these agents. Some countries, such as Argentina in the early 1990s, have successfully securitized government arrears, and their experiences are regarded as effective in consolidating public finances and reducing the stock of government arrears.

## A Who gains? Borrowers or Lenders?

To examine the welfare loss and distortions associated with government arrears, we will use a simple two-period endowment economy. This economy is populated by utility-maximizing agents that make a simple decision between consumption today,  $C_1$ , versus consumption tomorrow,  $C_2$ . Agents are endowed with financial resources worth  $\bar{Y}_1$  in the current period and  $\bar{Y}_2$  in the future period and have to pay taxes  $T_1$  and  $T_2$ . Given a well functioning capital market, agents can anticipate or postpone consumption by borrowing or lending in capital markets at the market interest rate of  $1 + r$ .

The representative agent maximizes utility over consumption in both periods:

$$\underset{C_1, C_2}{Max} \quad U(C_1) + \beta U(C_2) \quad (1)$$

subject to:

$$\begin{aligned} C_1 &\leq \bar{Y}_1 - T_1 + B \\ C_2 &\leq \bar{Y}_2 - T_2 - (1 + r)B \end{aligned}$$

where  $\beta < 1$  is the intertemporal discount factor and  $B$  is the amount of borrowing done in period one (lending if  $B < 0$ ). Combining the two constraints, we have that agents maximize (A.1) subject to the intertemporal budget constraint:

$$C_1 + \frac{C_2}{1 + r} \leq \bar{Y}_1 - T_1 + \frac{\bar{Y}_2 - T_2}{1 + r} \quad (2)$$

Similarly, the government is subject to an intertemporal budget constraint of the form:

$$G_1 + \frac{G_2}{1 + r} \leq T_1 + \frac{T_2}{1 + r} \quad (3)$$



where  $G$  is the level of government expenditure. The time path of both  $G$  and  $T$  is assumed to be fixed and known in advance.

Combining equations (2) and (3) gives rise to the traditional intertemporal aggregate budget (resource) constraint for the whole economy:

$$C_1 + G_1 + \frac{C_2 + G_2}{1+r} \leq \bar{Y}_1 + \frac{\bar{Y}_2}{1+r}$$

For the sake of simplicity,  $Y_1 = \bar{Y}_1 - T_1$  and  $Y_2 = \bar{Y}_2 - T_2$  are defined as net income, i.e., the endowment net of taxes. With well functioning capital markets<sup>6</sup> we are in the realm of the Fisher separation theorem where an agent's choice set is any consumption point along the capital market line (or intertemporal budget constraint), not necessarily the net endowment point given by the pair  $(Y_1, Y_2)$  (see Figure 3.1). In the absence of a capital market, agents are limited to consume their net endowments in every period, since there is no vehicle to transfer consumption (borrow or lend) intertemporally.

Taking the first order necessary and sufficient conditions for this simple consumer problem, we have that the intertemporal optimal condition is given by:

$$U'(C_1) = \beta(1+r)U'(C_2)$$

where  $U'(\cdot)$  is the first derivative of the utility function. The optimal consumption allocation is given by the tangency point of an indifference curve with the capital market line. Assuming a log utility function and an intertemporal discount factor equal to the market interest rate, we have that the optimal quantities are given by:

$$C_1^* = C_2^*$$

where star designates optimal quantities. Notice that the optimal intertemporal consumption allocation is independent of the endowment, but the level of consumption is obviously not<sup>7</sup>.

In every economy there are two types of agents. Borrowers, for whom  $C_1^* > Y_1$  (and  $C_2^* < Y_2$  since the intertemporal budget constraint (2) must be satisfied), and lenders, whose current consumption is smaller than net income, or  $C_1^* < Y_1$ .

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<sup>6</sup>For simplicity I will assume that the borrowing and lending interest rates are identical.

<sup>7</sup>In our example, the optimal quantities are given by:  $C_1^* = C_2^* = \frac{1+r}{2+r} \left( Y_1 + \frac{Y_2}{1+r} \right)$ .

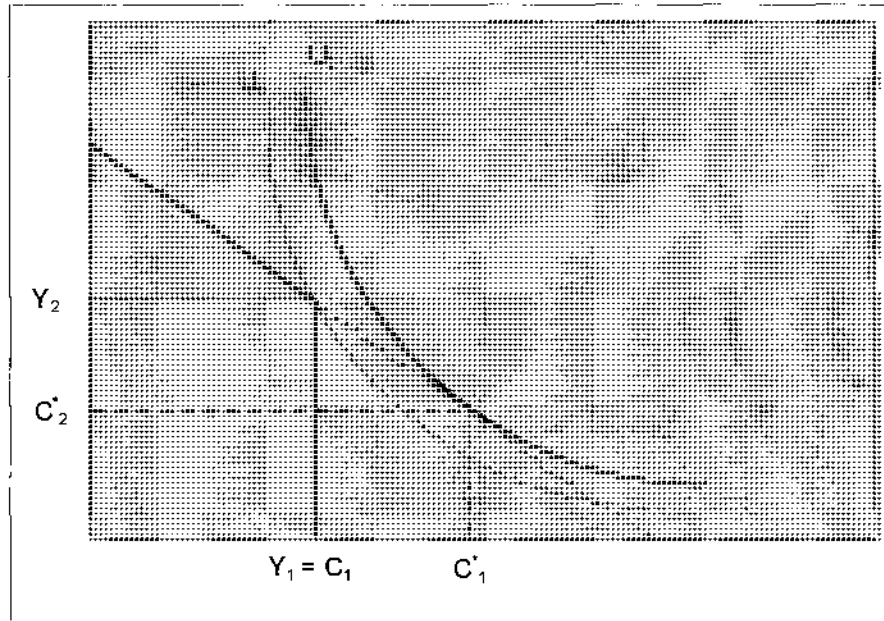


Figure 1: Case I: Liquidity constrained agents.

At this stage it is useful to analyze two different cases concerning agents' perception of government behavior and the securitization operation.

### Case I

Let's assume that agents whose payments are in arrears fully anticipate that they will be paid in the future<sup>8</sup>. Hence,  $Y_2$  includes income to be received from the payment of arrears. Since they have no title representing that claim to future income they cannot borrow against it to finance present consumption. They are constrained by the iron corset of having to consume today out of their current income, which for a pensioner with no other source of income might well be zero:  $Y_1 = 0$ . These agents are liquidity constrained, since financial markets will not allow them to anticipate consumption against their future income because they have no title corroborating the claim to future income. They would like to borrow, but they can't. Once they receive securities representing the arrears owed to them, they can discount them (sell) in the market and finance present consumption above current income  $C_1 > Y_1$ . For these agents, the securitization operation represents

<sup>8</sup>They know with certainty the amount to be paid, whether it is total amount owed corrected for back inflation, or only partial payment.

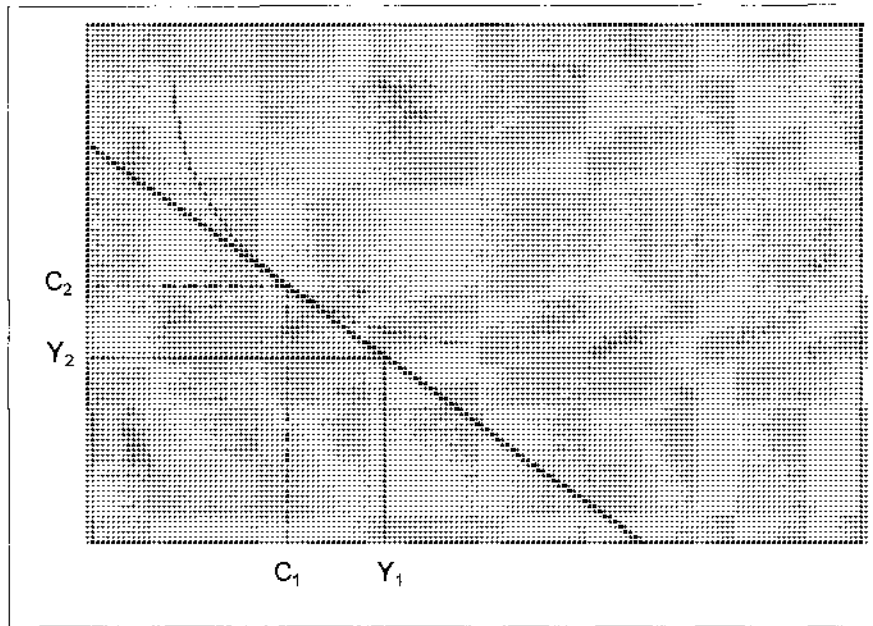


Figure 2: Case I: Lenders

a clear increase in utility<sup>9</sup> as is shown in Figure 3.1.

In the absence of the securitization operation, their consumption locus will be given by the pair  $(C_1^* = Y_1, C_2^* = Y_2)$ , and their utility level would be given by the indifference curve labelled  $U_1$ . With the securitization operation, they can now borrow against their future income (by selling their securities in market), consume  $(C_1^*, C_2^*)$ , and attain a higher level of utility;  $U_2 > U_1$ . Notice that the securitization operation enabled the liquidity constrained agents, or those with very low levels of current resources, to finance current consumption otherwise unattainable.

If the agent receiving the securities is a lender in the market, receiving the title representing the claim to future income produces no increase in utility since current income is high relative to the desired consumption level. However, they will never be worse off (see Figure 3.2), as inability to borrow against future income is not binding since they are savers. Their optimal consumption point will not change with the securitization operation  $(C_1^* = C_1, C_2^* = C_2)$ .

One might argue that in developed financial markets, if the market is certain that these agents will receive their pensions in the future, financial institutions would be willing

<sup>9</sup>The same result would be observed in an overlapping generations model with perfect capital markets, where there are no liquidity constrained agents, but where the old generation would sell the securities to the young generation.

to lend to them today and be repaid tomorrow. That argument would not hold in many of these economies for several reasons. First, many of the agents lack the financial sophistication to apply for a loan, as it is much easier to discount a pension security at the local post office or Savings Bank branch. Second, banks would be very reluctant to lend to pensioners. They represent bad risks, not only because of their age, but also because the individual amounts involved would not be significant to cover overhead costs and other expenses associated with acquiring private information about the potential borrower. Third, without any title to prove it, the authenticity of the claim that a given individual is owed 3 or 5 months of pensions by the state would be extremely time consuming to verify. Untitled claims do not constitute sound collateral. For all these reasons, many of these agents are in fact liquidity constrained. They cannot consume beyond their current income, even though they know that they are going to be paid in the future. Hence, in this scenario, securitization of arrears would definitely be utility improving, especially for the most desperate cases where current income is below the subsistence level. Notice that in efficient financial markets, the discount on these securities would equal the face value divided by the relevant interest rate for the period:  $1 + r$ . In conclusion, the securitization operation would definitely be utility increasing for those agents that are liquidity constrained. It is fair to assume that in the BRO countries, the majority of the agents to whom the state is in arrears are liquidity constrained.

## Case II

In Case II, the agents from whom the state “borrowed” when it failed to pay its obligations were expecting real losses, i.e. to be paid only partially, or not at all. In this case, a securitization operation will raise their future income perception to  $Y_2^* > Y_2$  if the unanticipated payment is not fully offset by higher taxes, but is at least partially financed out of lower  $G_2$ . Therefore, under this scenario, the securitization operation brings some real gains with it (unanticipated payment). Borrowers and lenders alike will, undoubtedly, benefit from such a scheme (see Figure 3.3).

The mere fact that the government recognized implicit claims and committed to repay them in the future and preserve the real value of the claim (for instance, by paying market-indexed interest rates), represents an increase in perceived future income that will benefit both borrowers and lenders. This is graphically shown by an outward expansion of the capital market line, that will permit both borrowers (whether actual borrowers or potential borrowers due to liquidity constraints) and lenders to finance higher levels of current and future consumption and therefore attain a higher level of utility ( $U_2 > U_1$ ). For liquidity constrained agents, like poor pensioners, the increase in utility would be even higher because their original level of utility would be smaller than  $U_1$ ; it would be given by an indifference curve tangent to the point  $(Y_1, Y_2)$ .

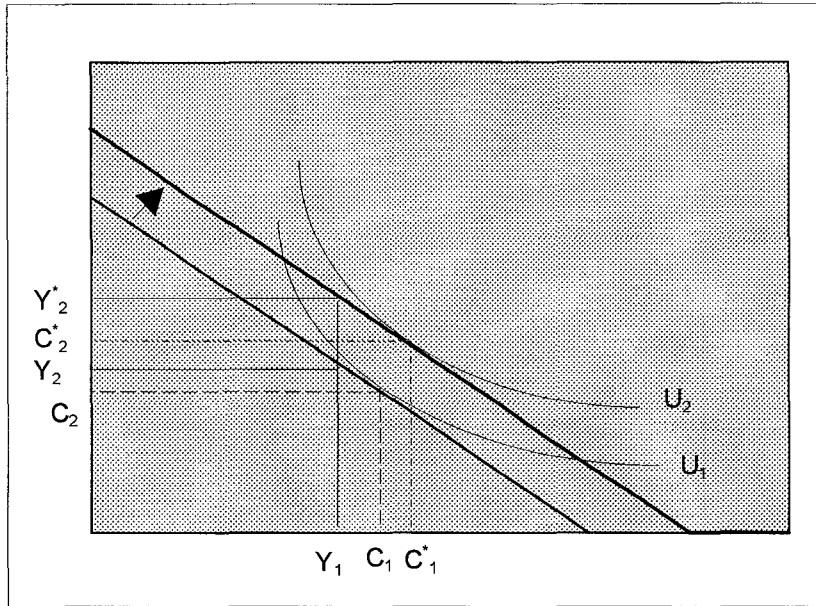


Figure 3: Case II: Increase in perceived wealth in period two

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