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Coping with the Legacies of Subsidized Mortgage Credit in Hungary

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and
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Like many socialist countries in transition, Hungary must find a way to reduce the fiscal burden implicit in the subsidized housing loan portfolio inherited from the pre-1989 regime. The paper discusses different ways of dealing with this portfolio during the transition toward a more efficient and equitable system.
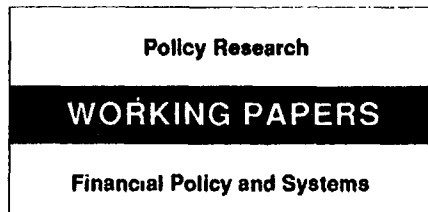
This paper is a product of the Financial Policy and Systems Division, Country Economics Department. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Melakou Guirbo, room J9-235, extension 35015 (26 pages). January 1992.

Sagari and Chiquier examine alternatives for dealing with the initial conditions of housing finance facing countries making the transition to a market economy and moving toward a more efficient and equitable system.

The authors focus on the problem of restructuring the stock of housing loans that exist at the time a new regime is implemented. Almost without exception the stock of housing loans is yielding heavily subsidized rates, ar⁴ its market value is significantly below its book value.

Hungary makes an interesting case study. The mortgage portfolio inherited from past regimes — and the nature of the measures adopted to deal with the fiscal and institutional problems resulting from the old regimes — makes especially clear the perverse implications of housing finance systems based on across-the-board subsidized interest rates.

Sagari and Chiquier propose a general approach to finding options to reduce the fiscal burden implicit in the subsidized housing loan portfolio inherited from the pre-1989 regime. They identify mechanisms to reduce the interest subsidy embodied in that portfolio as well as mechanisms to spread the associated losses among those benefiting from the subsidies as well as among other parties. Clearly any "residual" subsidy must be absorbed by the government and ultimately by the population in the form of increased taxation or decreased availability of public services.

The problem is complex and no obvious, easily implementable solutions emerge. But delaying action could hardly improve the situation.

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Silvia B. Sagari and Loic Chiquier[1]

I. Introduction

One of the current central concerns in financial sector analysis and policy is the widespread insolvency of financial intermediaries. Restructuring of these institutions and their portfolios has now become a priority task in a vast number of countries throughout the world. Housing finance institutions are no exception.

Most of the existing literature in the area of restructuring of housing finance institutions refers to the savings and loans' (S&Ls) case in the United States.[2] Some materials have also been produced in connection with the privatization of housing in England. Work in the case of developing countries has focused mainly on assessing the dimension of the problems[3]; available literature on the analysis of "work-out" strategies, however, is minimal.

On the basis of the Hungarian experience, this paper discusses different approaches for the treatment of initial housing finance conditions in the process of transition toward a more efficient and equitable system. The central issue in the analysis is the restructuring of the stock of housing loans existing at the time of design and implementation of a new regime. Almost without exception, such stock is yielding heavily subsidized interest rates, and its market value is significantly below its book value. In a large number of cases, this is the most important single factor leading to the technical insolvency of the institution holding the portfolio. Further, housing financial systems based on across-the-board subsidized interest rates are bound to be unsustainable from a budget perspective, and regressive from an income distribution viewpoint.[4] In fact, the very poor are generally likely to be renters, and not owners, and consequently poor families will get the smallest share of credit subsidies.

Needless to say, this problem and its macroeconomic implications are not confined to reforming socialist economies. Apart from the notorious S&Ls case in the United States, many other countries have experienced serious problems with their housing financial system; Argentina, Brazil, Chile, Mexico, the Philippines, Jamaica, Turkey are among the most critical examples

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[2] See, for example, Kane (1985), Weicher (1987), Silverberg (1990), and White (1991).

[3] Foxley (1977) and Renaud (1988) discuss some aspects of the Chilean case. Buckley (1988) looks at the case of Argentina.

[4] See Daniel (1985) for an analysis of the redistributive effects of housing state subsidies in Hungary, Renaud (1988) for an analysis of the case of Chile, and Renaud (1989) for an overall discussion of the main issues in housing finance in development.

[Renaud (1988)]. In the last two decades, Chile for example, suffered two crises in its housing financial system; one in 1975/76, the second between 1983 and 1986. In both cases, the government was forced to intervene, purchasing financial assets related to housing and real state financing. However, as shown by the case of Hungary studied here, it is the dimensions of subsidized mortgage credit in socialist economies in transition what makes the issue a focal point in the process of reform.

The Hungarian case also provides a vivid illustration of the potential difficulties encountered in dealing with these problems, difficulties stemming from the economic and social ramifications of housing finance. Facing a legacy of subsidized mortgage credits, the Polish Parliament quickly approved the extreme and drastic solution of re-writing all existing housing loan contracts to eliminate subsidies. But it took nearly three years of analysis and discussions before the Hungarian authorities could design a proposal that would be acceptable to Parliament. Other reforming socialist economies may have to face a similar ordeal. Section II of this paper presents the origins, dimensions and implications of the problem of the subsidized housing loan portfolio in Hungary. Section III analyzes options to deal with this problem. Section IV presents conclusions.[5]

II. Housing Finance in Hungary in the 1980s

A. Overview

As in many other countries, in Hungary the issue of the availability of housing has been a major concern for a long time. In the past, housing in the cities and larger towns was typically produced and managed in the socialist sector by large construction enterprises and local councils; rural housing remained mostly in the private sector. More recently, since 1983, the focus of State support for housing shifted from construction and management of State-owned units to direct financial assistance to families for private construction. For clarity purposes, it is useful to divide the decade ¨ ˙vo periods: before, and after 1989.

The ι re-1989 Housing Financial System The housing financial system established by the Housing Act of 1983 and in place until December 31, 1988 led to the accumulation of a stock of housing loans at increasingly subsidized interest rates. Up to that point, housing loans were financed by captive deposits from the household sector which, as per the system in place, had no alternative financial intermediary to deposit or borrow from. Both lending and borrowing rates were administratively set. Loans were granted with maturities of up to 35 years, and interest rates were fixed for the life of the loan. As of December 31, 1988 such stock amounted to Ft 274 billion (approximately $ 5.3 billion) and was equivalently to approximately 20% of 1988

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[5] The statistical analysis was carried out with figures available as of April 1990, when the first version of this paper was prepared. Data up to December 1989 were provided by the National Planning Office. All other figures, unless otherwise specified, have resulted from the authors' projections, estimations and simulations.

GDP (Ft 1,418 billion).[6,7] The average rate on the portfolio was 3.2%.

Until late 1987, inflation was low, and the difference between interest rates on deposits and interest rates on loans was positive but not significant. The losses resulting from the interest rate differential were absorbed by the budget. In 1987, these losses amounted to Ft 11 billion. In 1988, due to increased inflation, the banking system had to raise interest rates on deposits. Gross interest increased to 14.2%. The interest subsidy accrued during the period was of Ft 31 billion or 2.2% of GDP.[8] These subsidies were granted with little consideration to performance or need. To the tremendous negative impact of the subsidized portfolio on the fiscal accounts, one must then add the negative implications in terms of income redistribution.

Housing Finance Reform[9] As of January 1, 1989, the housing financial system was reformed. Among the most important aspects of the reform was the elimination of interest rate subsidies. The new loan mortgages carry market rates, and the borrower receives a subsidy equal to a predetermined percentage of the monthly payments, directly from the budget. Also, a Housing Fund was created which took over the ownership of the total stock of subsidized loans granted by the National Savings Bank (NSB) and the savings cooperatives, in exchange for long-term bonds. However, the bonds are nothing more than an accounting entry in the books of the participating institutions. The loans continue to be managed by the institutions that originally granted them. The Housing Fund is formally part of the central government, and as such its finances are directly part of the fiscal budget.

The "loans for bonds" swap left untouched the impact on the fiscal accounts of the mismatch between the costs of the sources financing the loan portfolio and the portfolio yields. Moreover, since the bonds for which the loans were swapped yield an interest tied to NSB average cost of funds[10], and indirectly to the deposit rates, the authorities saw the need to put a

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[6] In Chile, as of December 1987, and after the 1983/86 crisis of the housing financial system, the subsidized loan portfolio amounted to approximately the equivalent of US$ 330 million, or 0.2% of the 1987 GDP (Source: Central Bank of Chile). In Argentina, by the second half of the 1980s, financial assistance to the National Mortgage Bank (Banco Hipotecario Nacional) was equivalent to some 20% of the Central Bank's quasi-fiscal deficit [Renaud (1989)].

[7] From the total portfolio of Ft 274 billion, loans granted by the National Savings Bank account for Ft 260 billion. The remaining Ft 14 billion correspond to loans extended by more than 260 savings cooperatives. Overall, some 2.6 million accounts are estimated to be covered by the operation. Of these, some 1.8 million correspond to loans at rates not higher than 4%.

[8] In 1989 in Poland interest rate subsidies on the outstanding housing loan portfolio were estimated to represent 1.5% of the national budget.

[9] We discuss here exclusively the aspects relevant to the stock of loans granted before 1989. For an in-depth discussion of overall housing policy reform in Hungary see Hegedus and Tosics (1990).

[10] The annual yield of NSB housing loans and bonds was agreed to be at least equal to the average cost of funds, calculated as the average cost of the interest bearing liabilities including deposits, borrowing, and bonds issued by the institution, plus a spread of 3%.

ceiling on these rates.[11] For as long as these ceilings lasted, they put serious limitations to the effective integration of the household and enterprise financial systems as well as to the ability of all financial intermediaries to mobilize deposits from the population to finance productive sector growth.[12]   .

Very much aware of the perverse implications of the maintenance of the subsidized portfolio, over the course of 1988, 1989 and 1990 the Hungarian authorities searched for and explored different alternatives to deal with the problem. The implicit financial, social and political difficulties, delayed the adoption of a solution until December 1990.

B. The Subsidized Portfolio: Profile and Dynamics

Figure 1 shows the expected evolution of the portfolio of subsidized loans outstanding as of January 1, 1989, and its average interest rate under the assumption that the original loan contracts remain intact.[13] Estimates of the interest subsidies implicit in the portfolio and their relationship to GDP are presented in Figure 2. The calculations were based on assumptions on the evolution of key macroeconomic indicators and associated projections for the rates applicable to the Housing Fund bonds (Table 1). For 1989, actual interest rate subsidies amounted to approximately Ft 40 billion, equivalent to near 2.5% of GDP.

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[11] As of June 1990, ceilings on interest rates on household deposits were: (i) 22%, before taxes, for deposits for less than 1 year; and (ii) 26% before taxes, for deposits for terms longer than or equal to one year but shorter than 3 years. Deposits for 3 years or more were not subject to ceilings. Rates on these deposits oscillated around 27-28% before taxes. Inflation for the 12 month period ending June 1990 was running at about 27%. Ceilings on interest rates on household deposits of longer than six months' maturity were removed as of January 1, 1991.

[12] The adverse impact that administratively set rates might have had on deposit mobilization is supported by preliminary estimates in Blejer and Sagari (1991), who found that in the last few years financial savings in Hungary have become sensitive to the real level of interest rates.

[13] Information on the subsidized portfolio was limited to maturity structure and interest rates, and was available only for loans granted by NSB. These represent 95% of the total portfolio; data for the total portfolio were thus estimated as directly proportional to those of NSB. Data holders of the subsidized loans (i.e., distribution by level of income, age or geographic area) were not available.

FIGURE 1

Evolution of Outstanding Loans and Average Interest Rate

FIGURE 2

Nominal Subsidies

1989 85 Billions Forints of total Subsidies
40 Billions Forints of differential Subsidies
plus 12 Billions of late 1988-subsidies
and 12.8 Billions of discounts on pre-payments

total nominal subsidies 349 Billion Forints,
in 1989 present-value: 168 Billion Forints

bond rates (%)   subsidies

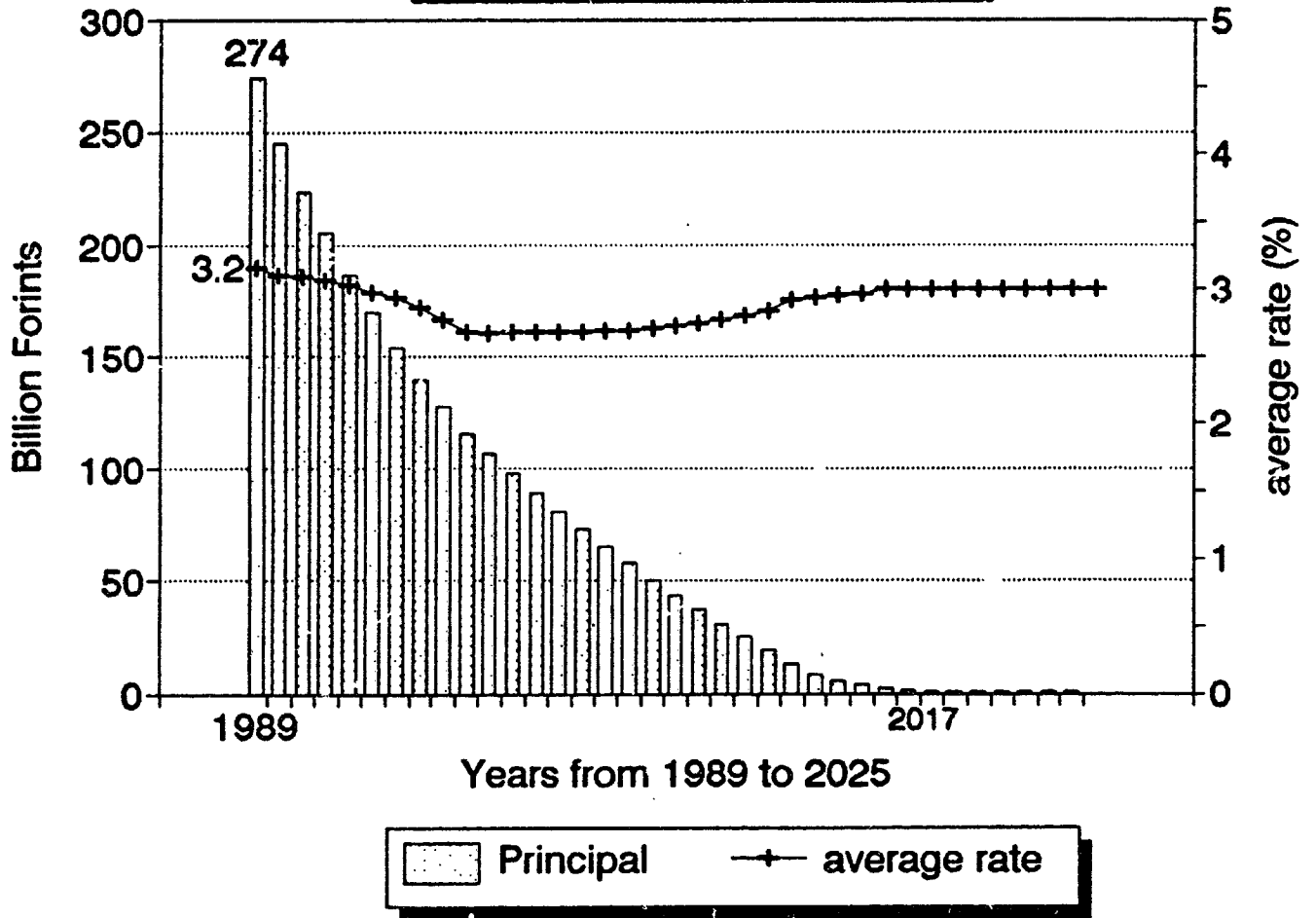**Subsidies in % of GDP**
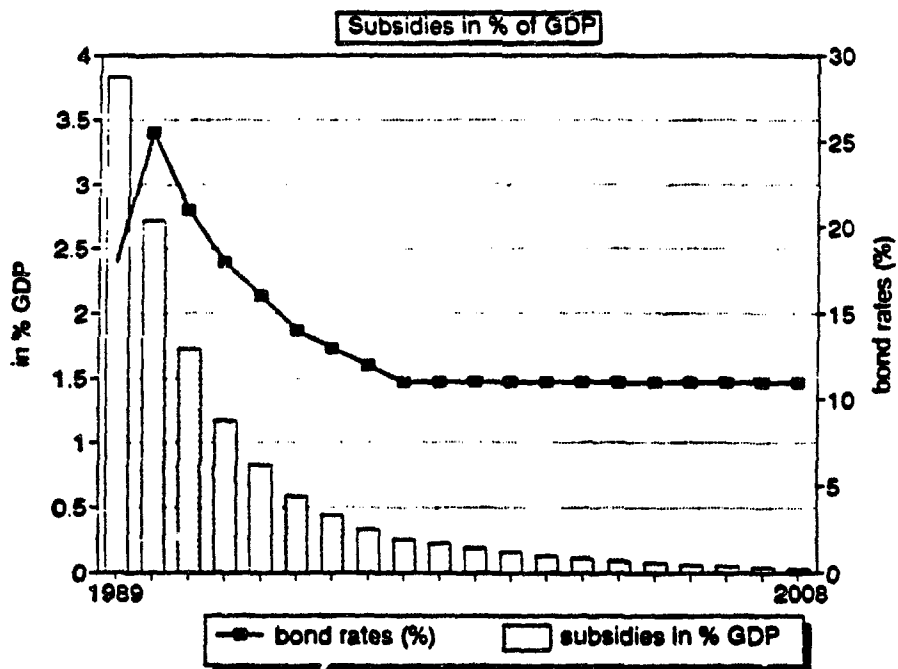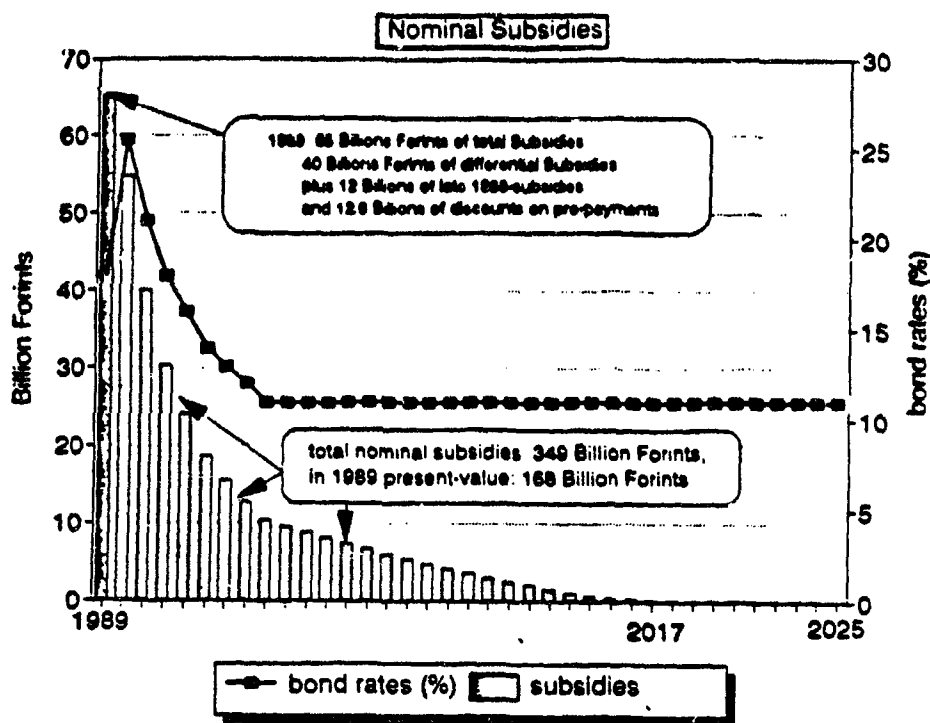
bond rates (%)   subsidies in % GDP

TABLE 1

Assumptions on the Evolution of Key Macroeconomic Indicators
and Housing Fund Bond Rates

Years:	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
CPI (a)	15.7	17	19.5	15	12	10	8	7	6	5	5	5	5	5	5	5	5
CostFunds	(b)	14	21.5	17	14	12	10	9	8	7	7	7	7	7	7	7	7
BondRate	(c)	18	25.5	21	18	16	14	13	12	11	11	11	11	11	11	11	11
GDP (d)	1418	1705	2020	2317	2614	2917	3203	3487	3762	4051	4370	4720	5104	5520	5970	6456	6983
GDP nominal	(e)	20.2	18.5	14.7	12.8	11.6	9.8	8.9	7.9	7.7	7.9	8.0	8.1	8.2	8.2	8.2	8.2
GDP real	(f)	2.77	-0.86	-0.26	0.73	1.45	1.67	1.74	1.78	2.55	2.74	2.87	2.99	3.00	3.00	3.00	3.00

Years:	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CPI (a)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CostFunds	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
BondRate	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
GDP (d)	7552	8167	8833	9553	10031	11173	12084	13069	14134	15286	16531	17879	19336	20912	22646	24459	26453
GDP nominal	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
GDP real	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Year	2022	2023	2024	2025
CPI (a)	5	5	5	5
CostFund	7	7	7	7
BondRate	11	11	11	11
GDP (d)	28608	30940	33462	36189
GDP nominal	8.2	8.2	8.2	8.2
GDP real	3.00	3.00	3.00	3.00

Notes:
(a) Consumer Price Index in %
(b) Authors' estimates, assumed to be equal in change in CPI plus 2% (except for 1989)
(c) Authors' estimates, assumed to be equal to costs of funds plus 4% (3% real yield plus 1% of management fee)
(d) In Billion Forints
(e) GDP growth (in %) in nominal terms
(f) GDP growth (in %) in real terms

During 1989 the authorities also granted a 45% "discount" for prepayment of outstanding balances. The offered discount was less than the discount implicit in the subsidies and consequently, if the option were to be accepted it could have resulted in a net gain for the budget.[14] However, because at the moment of the swap it was agreed that the Housing Fund bonds were to be redeemed pari passu with the collection of the loans for which they were swapped, the prepayment scheme resulted in additional expenditures for the Housing Fund equal to the difference between the collections and the total nominal value of the Housing Fund bonds to be redeemed--i.e., Ft 12 billion. As a consequence, in 1989 interest and discount-related expenditure from the stock of subsidized mortgage credit amounted to Ft 51 billion, equivalent to 3% of GDP.[15]

The high level of the projected interest subsidies (in particular those for the period 1990-1995) raised serious concerns about the possibility for the budget to absorb the corresponding losses. But the problem was potentially worse. First, these figures were based on a somewhat optimistic scenario for the evolution of inflation in Hungary over that period. Further, interest losses from the portfolio are very sensitive to the cost of funds for NSB, which is significantly determined by deposit rates, and ultimately, by the evolution of domestic prices. If inflation were to decrease at a slower pace than projected in Table 1, say for example that it were to decrease by 1% per year until it reached 5%, the burden of the housing pre-1989 loan portfolio would increase substantially (Table 2 and Figure 3). A third estimation pictured in Figure 4 illustrates the case of worsening inflation (Scenario C).

These results appear, in principle, counter-intuitive. With high inflation and fixed rates, the significance of the subsidized portfolio is quickly eroded and should not pose any serious threat to the budget. However, under the system put in place in Hungary at the time of the "loans for bonds" swap the burden for the budget corresponding to the interest accrued on any outstanding housing bonds (or equivalently, any outstanding housing portfolio) increases rather than decreases with inflation.[16]

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[14] The offered discount was in fact lower than the present value of future interest subsidies, even under an optimistic scenario where interest rates decline fairly rapidly in the near future. This was clearly one of the factors explaining the less than enthusiastic response of the population to the "discount" proposal. Response improved when it came to be known that the discount would be reduced to 25% in 1990, and that further measures--such as a tax on loans--might be taken to recoup the fiscal losses implicit in the pre-1989 portfolio--Ft 28 billion were prepaid in November and December 1988.

[15] Because some Ft 12 billion in subsidies were carried over from 1988 to 1989, and total subsidies actually paid out in 1989 reached Ft 63 billion or 3.7% of GDP.

[16] Note the following: (i) If deposit rates do not fully adjust to compensate for inflation, the impact on the budget is relatively smaller. For simplicity purposes, however, in our simulation for 1990 and onwards we assumed full adjustment. (ii) The significance of interest subsidies vis-a-vis GDP depends fur mentally on the evolution of GDP under a high inflation scenario.

Table 2

Alternative Interest Rate Scenarios: Impact on Subsidies

Years:	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Scenario A (a)	25.5	21	18	16	14	13	12	11	11	11	11	11
Scenario B (b)	25.5	24.5	23 5	22.5	21.5	20.5	19.5	18.5	17.5	16.5	15.5	14.5
Subsidies C (c)	54.9	40.0	30.6	24.2	18.7	25.5	12.8	10.4	9.6	8.9	8.:	7.4
Subsidies B (c)	54.9	47.8	41.9	36.4	31.4	27.0	23.2	20.0	:7.1	14.7	12.5	10.5

Years:	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Scenario A	11	11	11	11	11	11	11	11	11	11	11	11
Scenario B	13.5	12.5	11.5	1:	11	11	11	11	11	11	11	11
Subsidies A	6.7	6.1	5.4	4.8	4.2	3.6	3.1	2.6	2.1	1.6	1.1	0.7
Subsidies B	8.7	7.2	5.7	4.8	4.2	3.6	3.1	2.6	2.1	1.6	1.1	0.7

Years	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Scenario A	11	11	11	11	11	11	11	11	11	11	11	11
Scenario B	11	11	11	11	11	11	11	11	11	11	11	11
Subsidies A	0.4	0.3	0.18	0.09	0.05	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Subsidies B	0.4	0.3	0.18	0.09	0.05	0.02	0.01	0.01	0.00	0.00	0.00	0.00

Notes:
(a)   Scenario A: previous optimistic scenario
(b)   Scenario B: inflation declines at a slower pace
(c)   in Billion Forints

FIGURE 3

Evolution of Subsidies Scenario B

Scenario B : slower pace of declining inflation

total subsidies in nominal terms: 449 Billion Forints
total subsidies in real terms : 183 Billion Forints

bond rate (%)   subsidies

Dependence of Subsidies on Bond Rate Scenarios

additional subsidies:
   98 Billion Forints in nominal terms,
   15 Billion Forints in real terms (1/1989)

Scenario A   addit. subs.(Sce.B)

FIGURE 4

Third Scenario of Bond Rates
(pessimistic view of inflation trends)

□ Scenario A ▲ Scenario C

Evolution of Subsidies
according to Alternative Rate Scenarios

if Scenario C occurs, 81 Billion Forints would be required in 1991.

125 additional nominal subsidies are required to compensate for the increasing inflation in Scenario C.
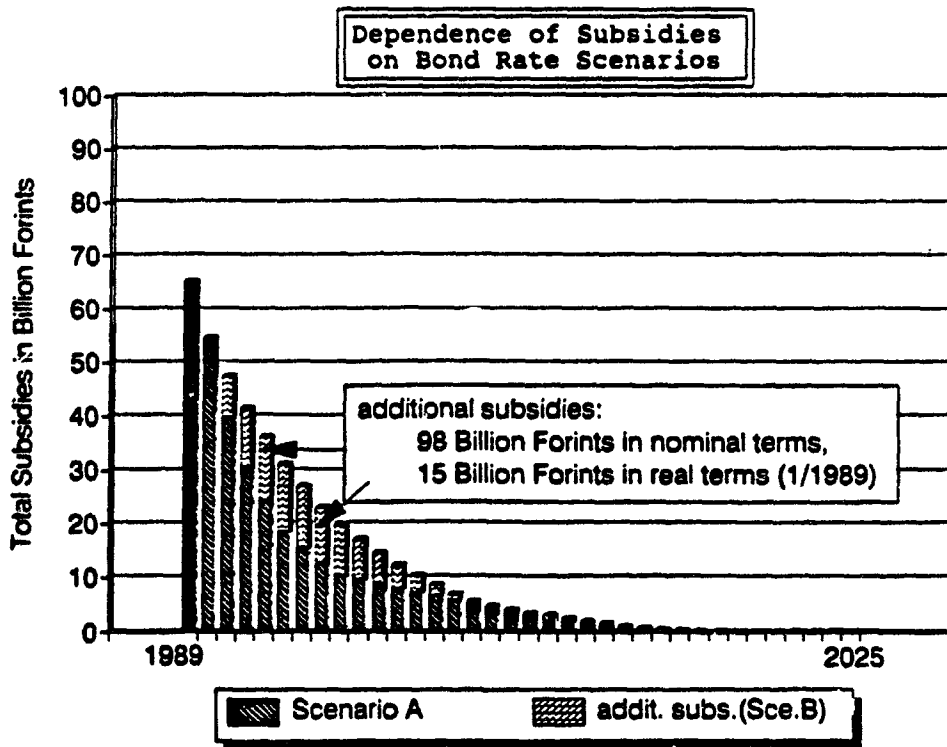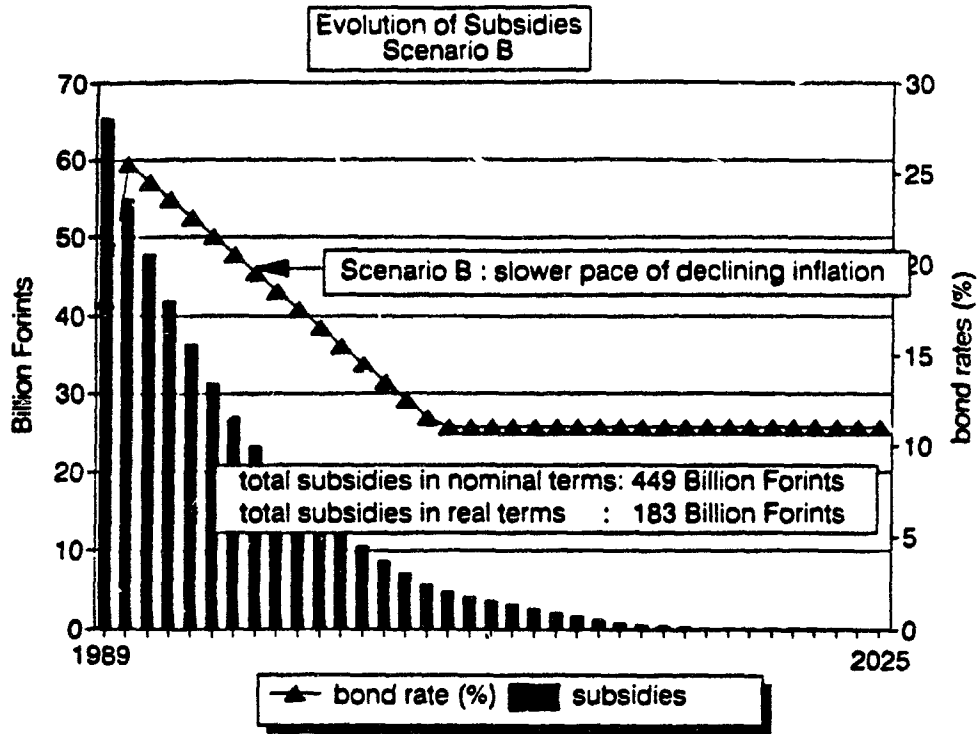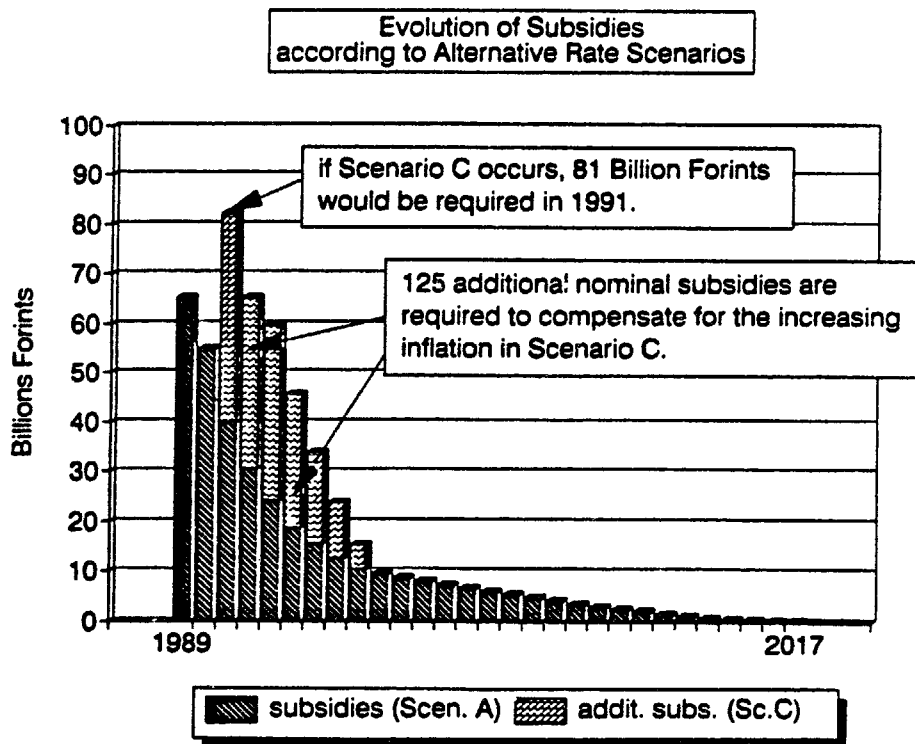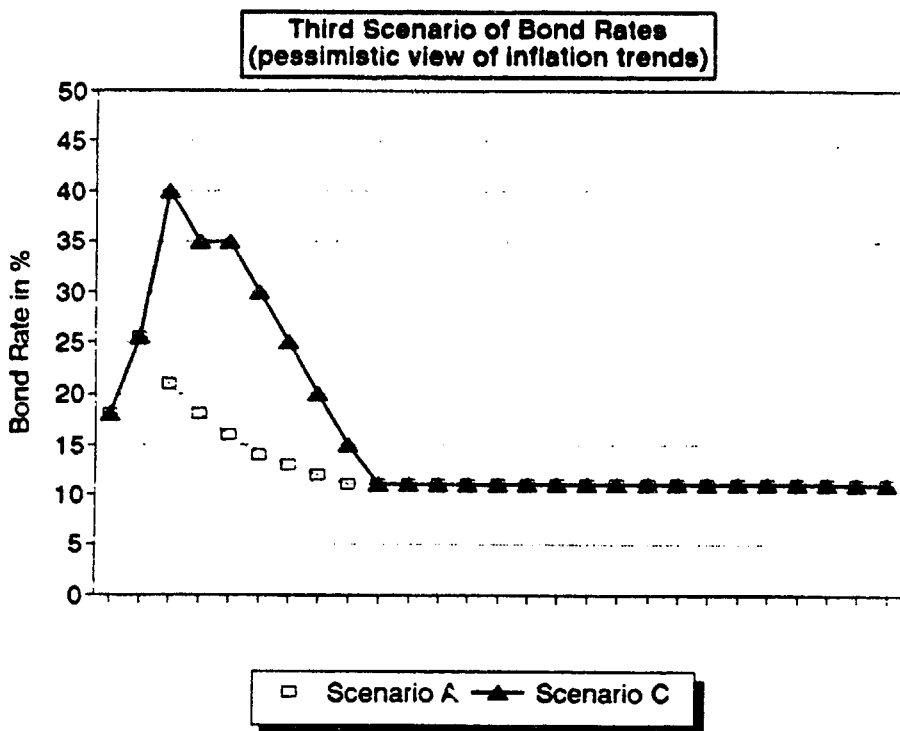
▨ subsidies (Scen. A) ▨ addit. subs. (Sc.C)

C. The Swap between the Housing Fund and the Housing Financial Intermediaries

As of January 1, 1989, the housing financial system was reformed; most importantly, interest rate subsidies were eliminated, and a Housing Fund was created which took over the ownership of the total stock of subsidized loans granted by NSB and approximately 260 savings cooperatives, in exchange for long-term bonds. It was agreed between the government and the swapping institutions that these bonds would be redeemed pari passu with the repayment of principal of the housing loans. This way, the portfolio of bonds would have exactly the same maturity as the housing loan portfolio, and the bond holdings by the participating institutions would evolve in parallel with the stock of housing loans held by the Housing Fund.[17]

This "loan for bonds" swap left untouched the impact of the mismatch between the costs of the sources financing the loan portfolio and its yields both on the fiscal accounts and on the overall process of savings mobilization and allocation. A look at the financial dynamics between the Housing Fund and the swapping financial intermediaries makes explicit the remaining perverse implications of effectively maintaining the subsidized loan portfolio, and the need for further policy action.

Financial Dynamics The dynamics of the finances of the subsidized portfolio can be described in simple terms as follows. At the end of each month, each swapping institution reports to the Housing Fund the cash-flow from repayments of housing loans, broken down into repayment of principal and payment of interests. The principal repayment is automatically applied to the redemption of housing bonds. The Housing fund debits the account corresponding to the loans managed by each of the financial intermediaries and credits the account corresponding to the housing bonds held by each of them.

An analysis of the financial transactions and flows with actual data for 1989 is particularly useful to shed some light on who are ultimately the "winners" and "losers" from the existence of the subsidized portfolio. For 1989, the total amount corresponding to repayment of principal of housing loans granted amounted to Ft 44.6 billion. Interest payments amounted to Ft 8.0 billion. The Ft 44.6 billion were allocated: (i) to redeem bonds (Ft 31 billion), and (ii) to finance Ft 13.6 billion promised to be granted in the conditions of the pre-1989 system.

The interest accrued on the total of outstanding Housing Fund bonds outstanding plus the 1% management fee amounted to Ft 48.1 billion. Additional cash outflows for the Housing Fund resulted from:

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[17] The Fund signed individual contracts with each of the swapping financial institutions. These contracts indicate the amount of the portfolio taken over by the Housing Fund, which gives also the amount of bonds to be issued by the Fund to each institution. As per this contract the financial institution takes the tasks of: providing data to the Housing Fund, following-up the changes in the stock of loans and bonds, and most importantly, collecting these loans and managing the resulting cash-flows.

The Housing Fund has a very simplified accounting system for its operations. Each institution reports to the Housing Fund the cash-flow from repayments of housing loans, broken down into principal and interest. The Fund then does the corresponding bookings. A question emerges, clearly, on the reliability of such an accounting system, where the ultimate holder of a portfolio of financial assets has practically no mechanism to follow-up on the individual components.

(i)   the allowance (discount) offered during 1989 to promote prepayment of the subsidized stock--described before--and which amounted to Ft 12.4 billion; and

(ii)   the interest subsidies deferred from 1988, amounting to Ft 11.9 billion.

The difference between these cash expenditures of Ft 72.4 billion and the interest income of Ft 8 billion, equal to negative Ft 64.4 billion was financed as follows:

(i)   the funds from the 20% withholding tax on household deposit interest--Ft 7.6 billion;

(ii)   new 15-year bond issues--Ft 19.4 billion;

(iii)   direct transfer from the budget--Ft 37.4 billion.

The new 15-year bonds were designated as forced investments for the social security fund (Ft 13.1 billion) and the commercial banks--50% of the before tax risk reserves, or Ft 6.3 billion (June 1989). The bonds have a 5 year grace period for the principal which is then repaid in 10 equal installments. The interest rate has been arbitrarily set to be equal to 80% of the rate on the longest maturity Treasury Bill, i.e., the rate on the Treasury Bill times 1 minus the withholding tax rate on household deposit interest income. In 1989 this computation yielded an interest rate of 15.25% (1.25% negative in real terms). Currently, the rate is 19.2%. The interest on the bonds is accrued and paid once a year. At the end of the calendar year, the interest accrued is computed using the average of the rates for the period.

The above discussion is interesting to underline some political economy issues, i.e., who is actually bearing the burden of the subsidized housing loan portfolio. Clearly, the most important contribution comes from the central budget--both in what has to do with the direct transfer, and the lower yield in the investments of the social security fund--, and implicitly it is shared by all the population.

However, there are two other "groups" that can be identified more specifically. These are: (i) household depositors, who must ultimately take an interest income cut; and (ii) the financial intermediaries, which are forced to invest in instruments yielding a negative real rate (and a rate that is not known until the whole calendar year has ended). As long as the amounts of the forced investments for the commercial banks are not significant the impact on their profitability and operation is minor. Yet, increased pressure on these intermediaries to share the burden of the Housing Fund deficit would introduce new distortions in the financial system.[18]

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[18] In fact, it can be easily proved that generalized use of forced investments at below market rates pushes lending rates up and/or deposit rates down. Alternatively, if these moves are "forbidden", bank profitability is adversely affected. Giving the concerns in Hungary about the condition of the loan portfolio of financial intermediaries accounting for a significant share of the Hungarian financial system, measures that decrease their profitability should be avoided.

III. Analysis of Options

A. General Framework

The approach adopted in the search for a solution to the problems resulting from the pre-1989 subsidized housing loan portfolio focuses on two aspects: (i) identification of mechanisms to reduce the interest subsidy embodied in that portfolio; and (ii) identification of mechanisms to share the associated losses among (ii.1) those benefitting from the subsidies, and (ii.2) other parties. Clearly, any "residual" subsidy is absorbed by the Government and ultimately by the population in the form of increased taxation or decreased availability of public services.

Direct beneficiaries of the interest subsidy are obviously all those with outstanding loans at subsidized rates. Also, because up to 1988 deposit and borrowing rates were similar, the total subsidy implicit in each contract may be reasonably assumed to be an increasing function of the time to maturity of that contract.

The evaluation of each alternative should take into consideration mainly:

- its sustainability in terms of its impact on the Government budget;

- its feasibility, in terms of its impact on the household sector;

- its impact on any other party forced to share in the losses of the subsidized portfolio--for instance, banks or other financial intermediaries; and

- its political viability.

B. Mechanisms to Reduce the Subsidies

Direct elimination of the interest subsidies implicit in the contracts extended under the pre-1989 regime could only be achieved by restructuring such contracts, substituting market interest rates for the currently fixed subsidized rates. Interest subsidies could also be reduced by restructuring the repayment schedule in such a way that the present value of the newly contracted payments is higher than the present value of the original payments.

It is clear, that nobody benefitting from the subsidy would voluntarily resign all or part of it.[19] One could think of designing an incentive program that might prompt rescheduling of existing housing loan contracts. Potential components of such a program could be:

(i)   making access to other financial products or services conditional on prepayment or restructuring of current pre-1989 subsidized mortgage contracts. One type of such

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[19] Note however that the "value" of the subsidy may differ across different parties (across borrowers, or between the Government and the borrower), which gives room to negotiation.

other financial products or services would be new loans for housing which in the context of a new housing financial policy would be mainly addressed to the higher income level group within the population. The new policy, to be designed and implemented in the near future, would allow for a variety of new instruments or financial arrangements potentially more attractive and suitable to different groups within the Hungarian population. The novelty may be in the instrument, in the purpose catered by the loan, or in both. In this sense, other countries have included in similar incentive programs housing loans specifically earmarked for better quality housing.

(ii)   linking the new mortgage contracts to non-financial products or services such as access to some services to be provided by the State (but not considered a primary necessity).[20]

(iii)   offering a significant capital discount. Note however that the discounts already implicit in the very highly subsidized rates of the pre-1989 contracts were so high that it is difficult to think of any solution, along these lines, that would not report, at the same time significant fiscal expenditures--in the form of the allowance to be paid to NSB to maintain the bond and the loan portfolio at the same value.[21] Further, if implemented, the discount should vary across borrowers, taking into account the age of the loans and the interest rate, since both of these aspects determine the remaining benefit to be derived from the loan contract.

In any case, the success of any incentive program of this type may be very hard to predict and the urgency to improve Government finances may call for more immediate and certain results. In the specific case of Hungary which is the focus of this paper, "voluntary" rescheduling of existing contracts in any significant volume appeared, despite its philosophical appeal, quite unlikely. In this case, the only alternative left is to determine by law the revision of all pre-1989 contracts. In the way of example, contracts could be rewritten according to any of the following options:

(i)   maintaining repayments of principal at the same levels of the existing contracts but increasing the interest rate adding 2% annually until the market rate is reached;

(ii)   adopting a dual index mortgage (DIM) model whereby the installments are indexed to the wage income of the borrower (so that the debt-service/income ratio for the borrower remains stable) and the remaining balances are adjusted for inflation.[22]

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[20] Note, for instance, that linking a financial product--bond--to a non-financial service--telephone line--was already done in Hungary by the telephone company to promote placement of its bonds in the market.

[21] See the sections above, for a discussion.

[22] For a technical and detailed presentation on the dynamics of the DIM see Chiquier (1990).
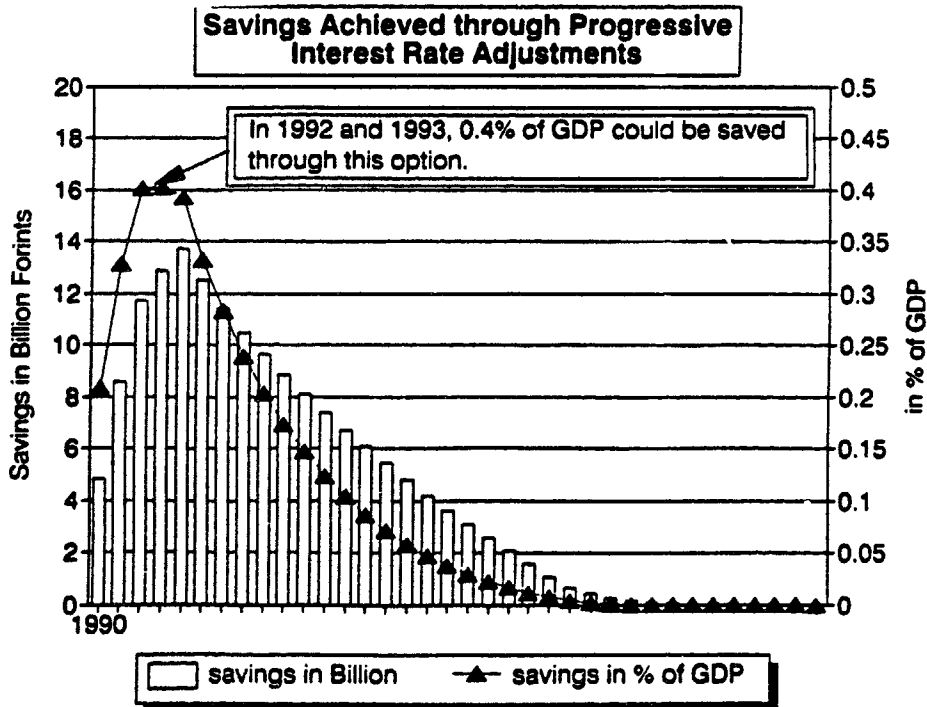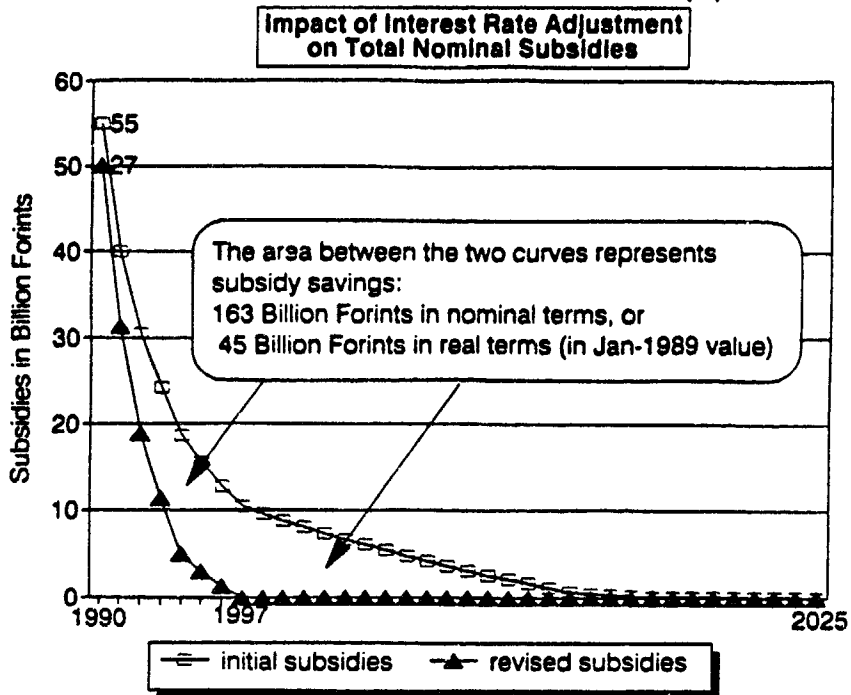
In this case the housing bonds could also be indexed, maintaining the pari passu evolution of outstanding loans and bonds.

In case (i), Table 3 illustrates a possible example of interest rate increases. Resulting new estimates for cash outflows are depicted in Figure 5. The lower half shows the corresponding budgetary savings, both in billions of forints and in % of GDP. In this scenario, in 1992/93 for example, savings in interest subsidies would be equivalent to some 0.4 % of GDP.

<div align="center">

Table 3

Progressive Rates Adjustment Scenario

</div>

Interest Rate of Initial Contract	1990	1991	1992	1993	1994
0	2	4	6	8	11
1	3	5	7	9	11
2	4	6	8	10	11
3	5	7	9	10	11
3.5	5	7	9	10	11
4	5	7	9	10	11
6	7	8	9	10	11
8	9	10	11	11	11
10	10	11	11	11	11
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15

FIGURE 5

Impact of Interest Rate Adjustment on Total Nominal Subsidies

The area between the two curves represents subsidy savings:
163 Billion Forints in nominal terms, or
45 Billion Forints in real terms (in Jan-1989 value)

initial subsidies   revised subsidies

Savings Achieved through Progressive Interest Rate Adjustments

In 1992 and 1993, 0.4% of GDP could be saved through this option.

savings in Billion   savings in % of GDP

In case (ii), Figures 6 and 7 illustrate the evolution of outstanding loans and required subsidies under the assumption that interest rates follow the optimistic sharp decline scenario and that wages follow inflation. The DIM results in an acceleration of installments in nominal terms. Interest subsidies would be required for only three years, and in an amount far smaller than the original figures. Further, the loans' principal--and consequently, the bonds' principal--would be totally reimbursed after 12 years.

In case of a contract revision then, the advantages of adopting the DIM option are both that it saves scarce budgetary resources, and that the problem of the subsidized portfolio disappears in the short-term. From the individual borrowers' viewpoi option (i) is "cheaper" since subsidies remain for a longer time. However, by fixing the repa nest to the wage level the DIM ensures that (in relative terms) no additional burden is placed on tne monthly income.

FIGURE 6

Revised Indexed Repayments on Outstanding Loans

Principal in Billion Forints vs years from 1990; 2002: end of loan repayments

Legend: ■ initial contract   + indexed repayments

FIGURE 7

Impact of Indexed Repayments on Subsidies

Savings Achieved through Indexation of Repayments

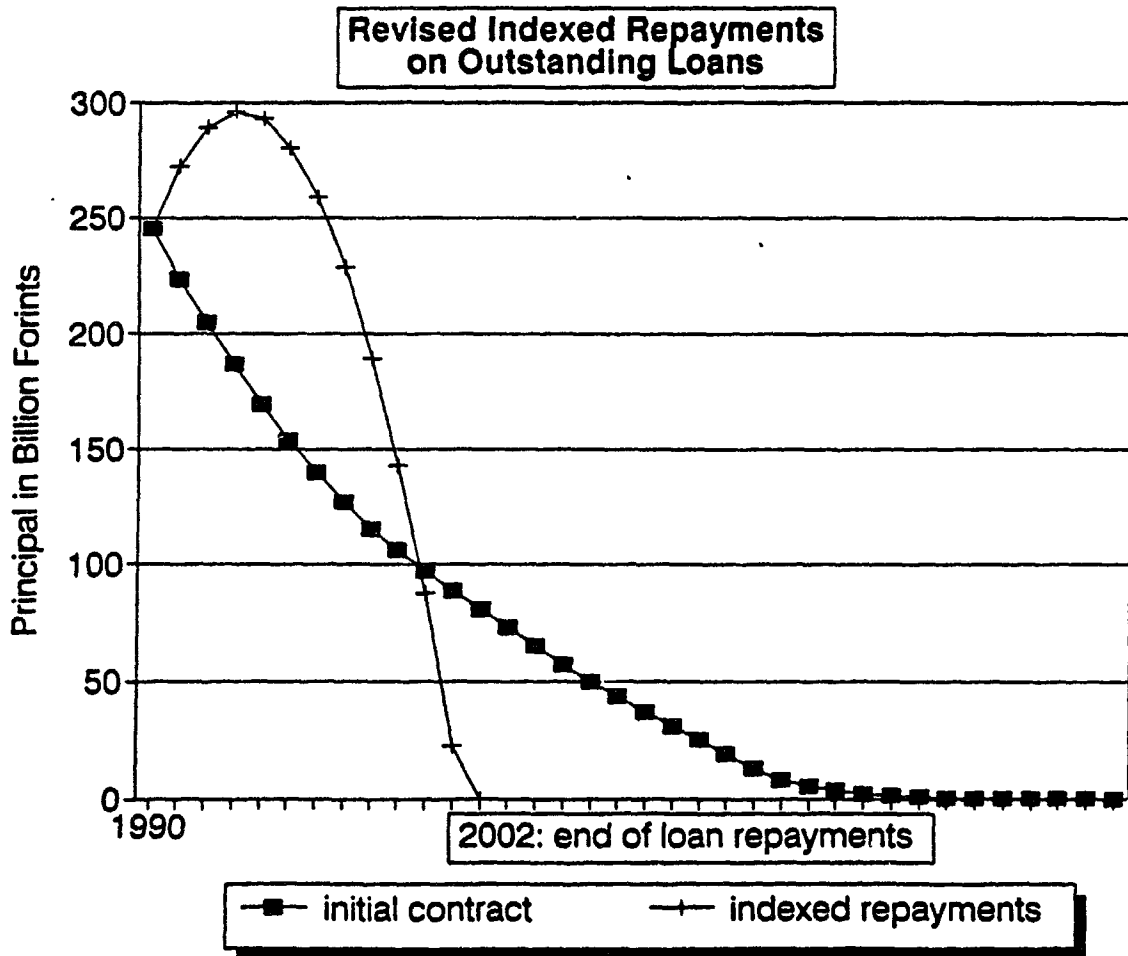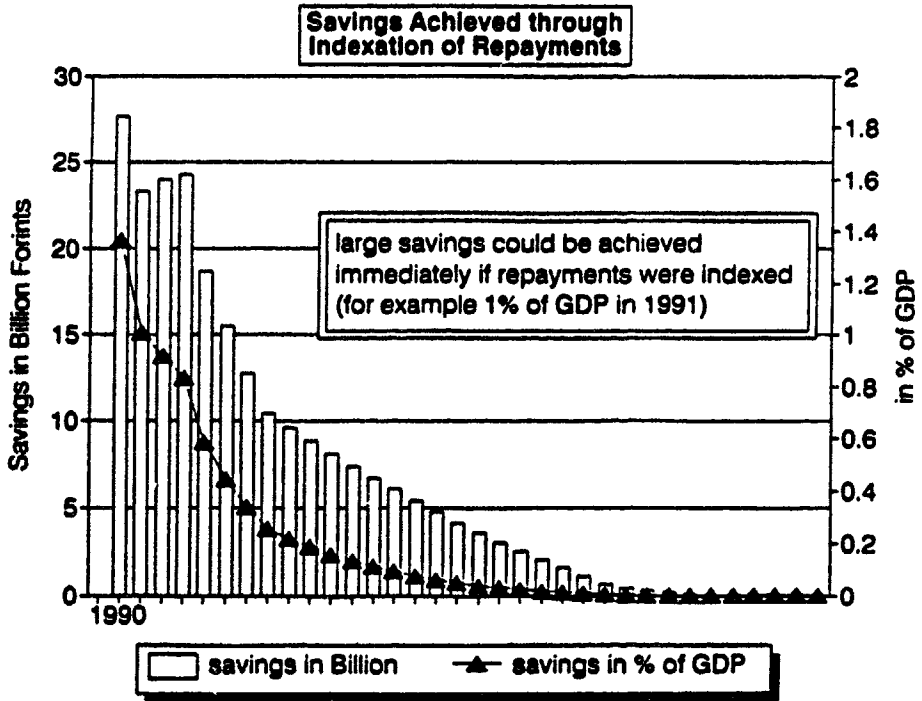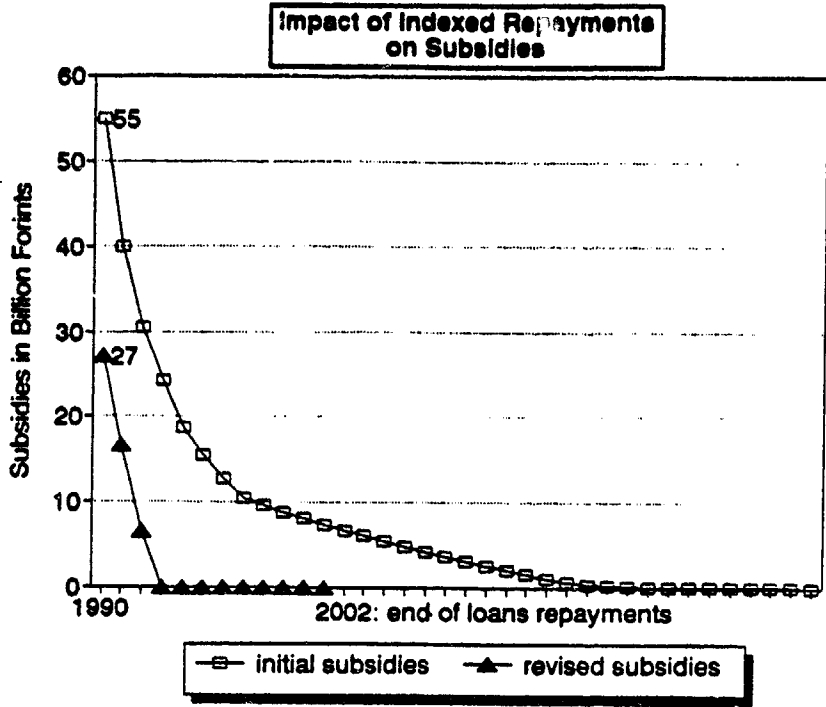## C. Loss-Sharing Mechanisms

Ideally, if contracts are not restructured, a mechanism should be found to have those benefitting from the subsidy absorb the corresponding losses. This was the aim of one of the options explored by the Hungarian authorities in 1989: a loan tax applying across-the-board to all those debtors with housing loans with interest rates of 4% and below. For 1990 the tax would equal Ft 320 per month; from 1991 onward, the tax would vary with the rate of inflation (but would continue to be a flat amount across loan sizes).

This proposal had the strong advantage of being simple to implement and easy to collect. However, it was regressive in nature since it did not distinguish among borrowers by their level of income, and perhaps, the increase in installments was excessively sharp--at least in nominal terms- -to receive any acceptance from the population. The option was presented to Parliament which considered it unconstitutional and rejected it.

Other loss-sharing options considered by Hungarian experts resulted from a combination of factors: (i) a view that the interest rate subsidy embodied in the pre-1989 portfolio was exclusively a housing policy issue (rather than a combination of housing policy, and institutional distress and restructuring issues) and consequently that interest rate subsidies were part of a total budget for housing subsidies;[23] (ii) a policy decision not to have total budget expenditures allocated to housing exceed a predetermined amount; (iii) the assumption that past contracts could not be revised. Within this framework, it appeared that the only alternative available to absorb the interest subsidies in the pre-1989 portfolio was to cut other housing subsidies. Some of the ideas that were considered were the elimination of the child allowance for any child in a family after the second, or of the special subsidies for young families. These alternatives were clearly inadequate and deficient both from a social and an economic viewpoint and were never implemented.[24]

But perhaps the most interesting observation from this approach is the notion that the interest subsidies embodied in the pre-1989 portfolio are part of a total budget for housing subsidies and that the inability to reduce them must inevitably lead to a reduction in other housing subsidies. To the extent that outstanding pre-1989 contracts were seen as final, and not subject to revision under any circumstance, it would be more adequate conceptually to see them as subsidies to the financial sector--i.e., subsidies to support financial intermediaries which have suffered a very significant loss in the market value of their assets.

Borrowers benefitting from interest subsidies could also be brought in to share the associated loss by including in the personal income tax calculations the income gain implicit in

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[23] Note however than to the extent that outstanding pre-1989 contracts are seen as final, and not subject to revision under any circumstance, it may be more adequate conceptually to see them as subsidies to the financial sector--i.e., subsidies to support financial intermediaries which have lost a significant share of their assets, or equivalently, financial intermediaries which have suffered a very significant loss in the market value of their assets.

[24] In particular, the amounts involved in the proposed cut were extremely small as compared to the size of the fiscal losses to be absorbed.

below market interest rates. The "imputable income" would be computed by multiplying the "implicit subsidy rate" times the outstanding debt. The implicit subsidy rate, in turn, could be computed as the difference between the on-going housing lending rate and the rate originally contracted. The advantage of this type of solution is that those borrowers in the lowest levels of income, who in an adequately designed subsidy system would receive financial support, would continue to receive the full subsidy since their income would not reach the minimum taxable amount.

Clearly this solution is not perfect. First, due to deficiencies in income measuring and reporting in Hungary, many taxable beneficiaries of the interest subsidy would not be reached. Second, it is impossible via this system to generate enough resources at the right time to relief the burden on the central budget: modification of personal income tax legislation is a lengthy process, the Treasury might easily have to wait for two years before receiving any of the additional tax revenues from the new system. Despite these shortcomings, and in particular the fact that further complementary measures would need to be implemented, this approach is fairly equitable, technically sound and reasonably easy to implement.

A final alternative to discuss here is the <u>indexation of the Housing Fund bonds</u> which would allow a reduction, though only in the short-term, of the actual fiscal expenditures[25] associated with the pre-1989 portfolio. This alternative has a clear direct advantage in that it reduces fiscal expenditures precisely at the time when budget problems are expected to be the most severe--i.e., the next few years. Additionally, it has an indirect advantage: since a significant share of its assets would be indexed, NSB could immediately start to offer indexed deposits without automatically incurring any significant risky asset mismatch. Further, it is the international experience that, in cases of <u>moderate</u> inflation, indexation strongly contributes to improve the process of deposit mobilization, which would be desirable in the Hungarian context.

Implementation of this solution would require that a new agreement be reached between the central Government and NSB[26] in terms of the cash-flows to be received from the Housing Fund. One possible option along these lines would be as follows:

(i) the Housing Fund bonds would be indexed to the inflation rate, and would yield a real interest rate of, for example, 5%.[27]

(ii) NSB would be guaranteed an amount of bond redemption equal to that in the current system, i.e., equal to the repayment of principal in the stock of pre-1989 loans. This is important because it would allow NSB to gradually free the resources invested in the Housing Fund bond portfolio.

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[25] In terms of cash-flow.

[26] Let us for simplicity ignore here the case of the 260 savings cooperatives.

[27] This value is similar to that of the yield as of the time of this report.

Table 4 and Figure 10 show the results of a simulation on these basis. As indicated before, Housing Furd outflows are considerably reduced in the immediate short-term. Clearly, the overall problem does not disappear but is transferred into the future via the stock of indexed bonds. These represent a big legacy of domestic debt that will have to be repaid. In due time, the authorities should be able to adequately dispose of state-owned assets, and generate funds to reduce bring the debt to reasonable levels. Ultimately, the resources can only come from a growing economy, and a strong budget condition.

D. The Hungarian Solution

After nearly three years of studies, analysis, and discussions, the Hungarian authorities and experts finally found and agreed on a "solution" to deal with the subsidized mortgage portfolio inherited from the pre-1989 housing financial system. By December 1990, with the approval of the Budget Law the Hungarian Parliament also approved a proposal thereby contained by which holders of subsidized housing loans had to choose between:

(i)   accepting an increase to 15% in the interest rate attached to their housing loans for 1991, with future interest rates also administratively set taking into consideration interest rates levels; or

(ii)   being granted an immediate 50% principal write-off and, simultaneously, having the outstanding balances yield market rates.

In both cases, additional payments resulting from the modification in the original contracts were constrained to a maximum of Ft 1500 per month per borrower. Information was not available at the time of this work on the options selected by the Hungarians.
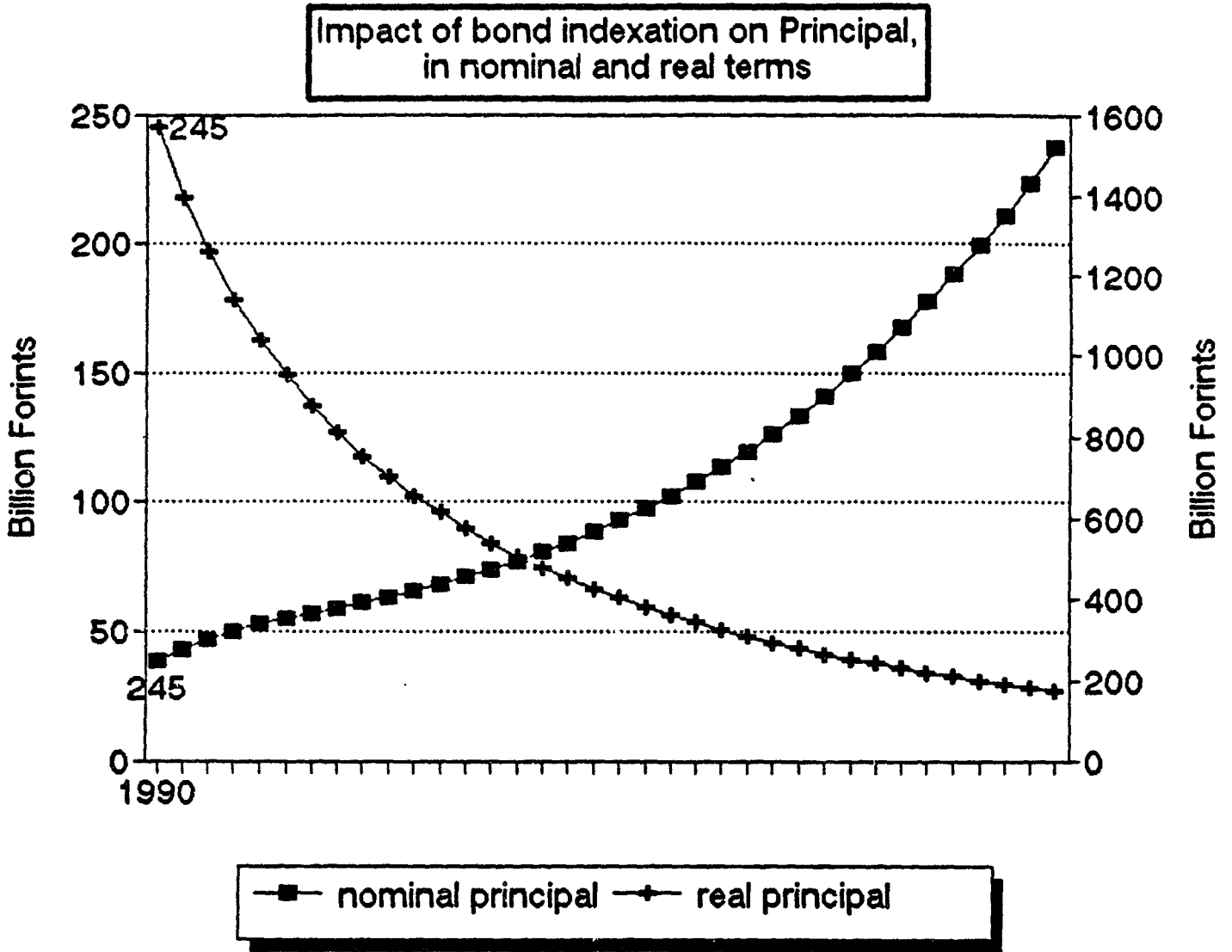
Table 4
Indexation of Bonds Principal

Years (Jan 1st)	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Present System												
Total Portfolio	274.0	245.1	223.2	204.9	186.8	169.6	154.0	139.7	127.0	115.5	106.3	97.4
Installments	37.6	29.5	25.2	24.4	22.9	20.6	18.8	16.7	15.0	12.2	11.8	11.1
-->Interests:	8.7	7.6	6.9	6.3	5.7	5.1	4.5	4.0	3.5	3.1	2.8	2.6
-->Principal	28.9	21.9	18.3	18.1	17.2	15.6	14.3	12.7	11.5	9.2	8.9	8.5
With Indexation,												
Interests Paid	(a) :	12.3	13.7	14.9	16.0	16.9	17.6	18.3	19.0	19.5	20.2	21.0
Outstanding Principal												
in nominal terms	(b) :	245.1	273.1	298.9	319.6	337.6	352.4	366.3	379.2	390.5	404.7	420.1
in real terms	:	245.1	217.9	196.8	178.4	162.4	148.7	136.8	126.4	117.3	109.5	102.4
Subsidies	(c) :	4.6	5.2	5.8	6.3	6.8	7.3	7.8	8.5	9.1	9.4	9.7

Years	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Present System												
Total Portfolio	88.9	80.9	73.0	65.3	57.7	50.3	43.8	37.3	31.2	25.2	19.2	13.4
Installments	10.4	10.1	9.6	9.3	9.0	7.9	7.6	7.1	6.9	6.7	6.4	5.5
-->Interests:	2.4	2.2	2.0	1.8	1.6	1.4	1.2	1.0	0.9	0.7	0.5	0.4
-->Principal:	8.0	7.9	7.7	7.6	7.5	6.5	6.4	6.1	6.0	6.0	5.9	5.2
With Indexation,												
interests :	21.8	22.7	23.7	24.8	25.9	27.0	28.3	29.7	31.2	32.8	34.4	36.2
nominal debt :	436.8	455.0	474.4	495.2	517.3	540.9	566.8	594.4	624.0	655.4	688.7	724.2
real debt :	95.9	90.9	84.6	79.5	74.8	70.5	66.6	62.9	59.5	56.3	53.3	50.5
Subsidies :	10.1	10.5	11.0	11.4	11.9	12.4	12.9	13.4	13.9	14.4	14.9	15.0

Notes:
(a): On the indexed outstanding principal, interest rate: 5%
(b): if P(t) represents this nominal outstanding indexed debt at year t, and I(t) the market interest rates at date t (here the scenario A of bond rates), then:

$$P(t+1) = P(t) * (1 + I[t]) - interests(t) - \text{Repayments of Principal under present System.}$$
$$[\ (a): 5\% * P(t)\ ]$$

(c): Subsidies just compensate the differences of interest rates between the Average Rate of corresponding Portfolio and these 5%: the low initial subsidies result of this indirect recapitalization of interests.

FIGURE 10

Impact of bond indexation on Principal, in nominal and real terms

IV. Conclusions

This paper has looked at different alternatives to deal with initial housing finance conditions in the process o. transition toward a more efficient and equitable system. The central issue in the analysis has been the restructuring of the stock of housing loans existing at the time and implementation of the new regime. Almost without exception, such stock is yielding heavily subsidized rates, and its market value is significantly below its book value.

The case of Hungary is particularly interesting. The significance of the mortgage portfolio inherited from past regimes, as well as the nature of the early measures adopted to deal with the resulting fiscal and institutional problems make especially clear the perverse implications of housing financial systems based on across-the-board subsidized interest rates.

This paper proposes a general approach to the search of options to reduce the burden to the fiscal accounts implicit in the subsidized housing loan portfolio inherited from the pre-1989 system. The approach focuses on two aspects: (i) the identification of mechanisms to reduce the interest subsidy embodied in that portfolio; and (ii) the identification of mechanisms to share the associated losses among those benefitting from the subsidies as well as other parties. Clearly, any "residual" subsidy is to be absorbed by the Government and ultimately by the population in the form of increased taxation or decreased availability of public services.

The problem is very complex and there are no solutions that are obvious and easy to implement. Yet, delaying action could hardly improve the situation. In the case of Hungary, the most appealing alternative would have been to reduce the losses via a voluntary rescheduling of the contracts. This was in fact one of the options given to the population. Alternatively, pre-1989 borrowers would be granted an immediate 50% principal write-off and have an automatic adjustment of rates on their outstanding balances to market levels. Details were not available at the time of this work on the decisions made by the Hungarians; however, preliminary evidence indicates that the vast majority chose the second option. It remains to be analyzed what is the short-term impact on fiscal finances of the significant principal write-off. We leave this analysis to future work in this area.

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