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AN ECONOMIC ANALYSIS OF AID'S HOUSING GUARANTY PROGRAM

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EXECUTIVE SUMMARY

The Housing Guaranty Program was developed as part of the U.S. foreign assistance program in the early 1960s to improve the quantity and quality of housing in developing countries. Under the program, the U.S. government provides a full guaranty against default on loans made by private American investors to host countries for investment in their housing sectors. The program was changed significantly in 1970 by adding a host country guaranty of repayment to the requirements for a loan. The program is designed to support itself from fees charged to the host country as part of the loan terms.

The objective of this paper is to provide an economic analysis of the Housing Guaranty program. This analysis focuses on the program's operation in four different contexts. First, it examines the program from the perspective of U.S. credit markets, and in particular whether it meets the standards set forth in the Office of Management and Budget's Circular A-70 on Federal credit policy. Second, it analyzes the program from the viewpoint of its effects in the borrowing country, focusing on the relationship between program supported activity and the broader economy. Third, the program's function is assessed in light of the urban housing problems in developing countries. Finally, the Housing Guaranty mechanism is studied as a tool of foreign assistance among those available to AID.

Key Program Features

The language of the Foreign Assistance Act of 1961 makes clear that the objectives of the Housing Guaranty Program (HG) are to improve directly the housing situation in the country involved and to support projects having a maximum demonstration impact on local institutions and policy. It sets as the long run goals of the program to "develop domestic construction capabilities and to stimulate local credit institutions to make available domestic capital and other management and technological resources required for effective low-cost shelter programs and policies." By law, the direct beneficiary households of programs undertaken by host governments with HG resources are to be in the lower half of the income distribution.

The central feature of the program is that it provides long-term loans for projects which produce assets having expected economic lives at least as long. This "matching of maturities" forms the basis, in principle, for recovery of the cost of the loans. Up to $150 million in loans can be guarantied under the program each year; in recent years the volume of loans guaranteed has been somewhat less than this maximum. Total loans outstanding currently are about $1.3 billion. The program is by far the largest source of housing assistance to developing countries. On the other hand, in 1984 HG loans constitute about 0.3 percent of outstanding Federally guarantied loans and about 0.1 percent of all Federal direct and assisted loans.

Loans are for 30-year term, and generally have an extensive grace period on the payment of principal. The loans are made in dollars and must be repaid in dollars. The fact that the loan is denominated in

dollars is highly attractive to borrowers because the interest rate on the HG loan is lower than the rates faced by the country on commercial loans. Additionally, some of the dollars borrowed are available for purposes other than housing if the host country so chooses, since typically the majority of housing inputs (materials and labor) are available locally and can be purchased with local currency. Thus, as long as the host country pursues the kinds of long term housing and housing finance projects that AID agrees are likely to produce long term beneficial effects on economic development, the dollars can be used as the borrowing country sees fit.

The practice is for borrowing countries to seek loans, once projects have been authorized, through a competitive process in U.S. capital markets. The process is competitive, with HG rates today for floating rates loans, for example, ranging from 32-45 basis points above Treasury borrowing rates for similar maturities. World Bank loans carry comparable rates.

Each loan carries a double guaranty. The first is a guaranty provided by the U.S. government against default for all reasons except those due to bad faith on the part of the lender. Hence, the loan is essentially riskless to the lender. This insurance is purchased by the host country, the fees being one percent of the loan principal paid at closing and 1/2 percent interest on the outstanding principal balance.

The second guaranty is from the host country to the U.S. government, through AID. The host country guaranty provides the full faith and credit of the borrowing country to indemnify AID in the event of the borrowing agency's default under the loan agreement or any other

time that AID makes payment to the lender on behalf of the borrower pursuant to the contract of guaranty. Additionally, it bears the other principal risk -- that of unfavorable exchange rate fluctuations of its currency relative to the dollar. An implication of the host country guaranty is that the U.S. government's guaranty to the lender is only very marginally against default. More realistically, it is against late payment. The form of the program's risk exposure implies that the size of the program's reserves -- like those of a number of other Federal credit programs, e.g. GNMA and FHLMC -- need to be compared with claims of this sort, i.e., delinquency, rather than the maximum default exposure.

Finally, the fees collected for the guaranty are used for two insurance-related purposes. First, fee income pays for the administrative expenses associated with the operation of the HG program. That is, salaries of government employees, travel, office, and other expenses as well as consultants' costs are paid out of the fees. Second, fee income not used for such expenses goes into a central reserve pool, which is used to pay claims covered by the guaranty. In addition, however, the fee income has also been used to manage the liquidation of the earlier HG program, which did not have the actuarial security of the current program, and to provide related technical assistance. The program began with a $50 million reserve fund; under law, however, it was not permitted to invest those funds until a change in 1982 allowed this. Hence, the reserves have not been managed in a strict sense as an insurance program.

The Price of Financial Services, Federal Credit Policy, and the Housing Guaranty Program

A key question raised about the program by other analysts concerns its financial soundness. Our analysis indicates that the current (post-1970) HG program is clearly actuarially sound, particularly when it is disentangled from its functions as a liquidator of the older loan program, and an implementor of related AID programs. The default experience on the current program is trivial, and there are very strong incentives to borrowers for this to remain the case. Furthermore, even if the expected default costs were to increase sharply, e.g. by a factor of fifty, the program's reserves should be sufficient. The operational costs also seem to be well-within the revenues that can be expected to be generated by the program. In some respects these results are not at all surprising if one looks at the right data. The program charges a higher fee and has considerably lower default and operational costs than other Federally-associated housing programs such as FHA's actuarially-sound 203(b) home mortgage default insurance program.

On the other hand, it is easy not to look at the right data for a number of reasons. First, the program does reduce borrowing costs even if it is difficult to get comparable private loan benchmarks with which to compare it. Thus, it is easy to presume that these costs reductions represent subsidies. We argue and present evidence that they do not. Second, the program in 1984 had to seek appropriations to help cover the timely payment on 37 loans that have a host country guaranty, totalling about $11 million, and 23 loans worth about $20 million of the loans of older programs, that do not have such host country guaranties.

Thus, it might appear that the borrowers have a particularly bad track record. This claim warrants further scrutiny. It appears that HG borrowers have behaved like and are being treated like the other LDC borrowers whose loans have been rescheduled by U.S. commercial lenders. Also, if the post-1970 program had been structured as an insurance reserve, it could have easily made the timely payments on the loans through its reserves accumulated since 1970 had interest been credited to the fund, or used to pay claims on the earlier (pre-1970) program.

Third, the program provides a 100 percent guaranty, but does not make use of the Federal Financing Bank, as the Treasury Department and Circular A-70 suggest it should. This criticism misunderstands the nature of the program. The HG guaranty, like the GNMA mortgage-backed-security guaranty, is unlikely to ever be a guaranty of anything other than timely payment of principal and interest. The provision of this relatively small service, compared to the expected liability on the whole loan, does not require that the entire loan be kept within Federal Financing Bank purview. Furthermore, by relying upon private investment bankers rather than the FFB to structure the transaction in the way that the borrower wants, the current structure truly satisfies the rationale of Circular A-70, i.e., it promotes reliance on the private rather than the public sector.

Finally, and perhaps most importantly, it is all too easy to see a program such as the HG as simply one more form of Federal intrusion in the credit markets that will ultimately bid up the costs of U.S. Treasury borrowing. Once again this perspective is flawed. As we

demonstrate in the paper, even if it is assumed that the implicit cost of capital for the HG program is 15 percent, well above the risk-free Treasury rate, the program is actuarially-sound. The program is self-financing.

This result suggests that the program's chief effect is to make investments in LDC development projects closer substitutes for other investments in the international capital market, primarily by dramatically reducing information costs associated with a lender correctly establishing the extent of risk associated with a non-U.S. government guarantied loan. This is a reduction in the price of funds from increased efficiency. And it is this reduction that accounts for the difference between the interest rate on HG loans and those on non-guarantied loans to the same borrowers. This result combined with the program being self-financing means that the HG program does not involve a subsidy.

The Host Country Perspective

What are the effects in the host country of receiving a loan guarantied by the Housing Guaranty? The most visible effect is the production of housing and its distribution to households in the lower half of the income distribution. The Housing Guaranty has several other important impacts as well. The investment it generates affects the overall economy, including employment, balance of payments and the operation of capital markets. The loan also has direct and indirect impacts on government expenditures in the housing sector. Depending on the design of the project, the HG can increase the involvement of the private sector in housing production and finance, typically at some gain

in efficiency. Finally, every HG has the objective of improving a country's policies in the housing sector.

Annual investment in the housing sector accounts for a significant share -- 2 to 7 percent -- of GDP in developing countries. It accounts for a much larger share of gross domestic investment: on the order of 20 to 30 percent. Accordingly, housing investment accounts for a large share of credit usage as well, especially when both formal and informal sources are considered. In these countries, the informal sector provides over 80 percent of housing credit, but at higher transactions cost than the formal sector. It follows that helping to expand formal credit systems helps to improve the efficiency with which the housing finance sector operates, and has a significant effect on the overall efficiency of a nation's financial markets.

Under these conditions the Housing Guaranty can positively effect the operation of the housing finance sector in several ways. By expanding the basis of contact between low income households and formal financial institutions, the HG-supported mortgage loans can broaden the share of total domestic savings and financial transactions in the formal sector. There are opportunities as well for more far-reaching adjustments that effect the integration of financial markets. The emphasis on cost recovery at market interest rates is clearly a step in this direction. More broadly, intervention in the general policies of government parastatals to align their interest rate policies with the overall market will enhance their ability to raise deposits, force explicit identification of subsidies thereby generating pressure for

their allocation to be rationalized, and permit tapping other parts of the financial market for funds.

There are two balance of payment effects associated with a Housing Guaranty loan. The first is the foreign exchange made available in the HG loan in excess of the needs of the import requirements of the housing actually being developed under the HG project. The "excess" exchange can be used for other purposes ranging from retiring higher cost debt to importing other goods and services. The second effect concerns the amount of this excess. The amount is important because the larger the domestic content of the housing investment the greater will be the multiplier effects on the economy resulting from the investment. The larger the multiplier, the more justifiable it is for the country to invest in housing to achieve employment and income generation objectives. An examination of a large set of studies of the import content of housing investment compared to that of other sectors in developing countries yields the general conclusion that the import content of housing will vary across locations but overall it is probably fairly low.

As to employment and income effects, it is important to recognize the stock and flow aspects of housing investment. The physical creation of the housing stock has a relatively short-term impact on employment and income in the residential construction sector and in housing-related industries. On the other hand, long-term effects such as increased productivity from improved health and income generation from home-based industries (to the extent that they exist) are attributable to the flow of housing services produced by the investment.

Estimates of income multipliers for housing investment made for several countries tend to be around two. In general the multiplier for housing investment appears to be in the upper half of the multipliers of all industrial sectors in the countries where they have been computed.

Housing investment may also improve the productivity of labor through better health. It is this aspect of housing that places it in the category of social overhead capital, along with sectors like health and education. Evidence on the magnitude of such effects is not strong.

Overall, the Housing Guaranty program can affect a host country's economy in a number of ways. The investment effects are quite assured, but the size of the multipliers, the gains in the efficiency of financial markets, and effects on government expenditures are all sensitive to project design and the policy dialogue surrounding each loan.

The Housing Imperative in the Third World

The rapid increase in the degree of urbanization in developing countries over the past two decades is now legend. For example, in those African countries defined by the World Bank as having low per capita incomes, the percentage of the population living in urban areas rose from 5.7 percent in 1950 to 19.2 in 1980 and is projected to jump to 35 percent in the year 2000. Similarly, the degree of urbanization in the middle income countries of Latin America will be 75 percent in 2000, compared with 41 percent in 1950. In every region of the world, the rate of population growth in urban areas will comfortably exceed that in rural areas -- often by a margin of 2-to-1. Not only will there be a general spatial shift in the population, but there will be a

dramatic shift in poor households to urban areas. Indeed, the rural areas in most regions of the world will actually realize absolute decreases in the number of poor, while the figures will climb for urban areas, if current projections are borne out.

Rapid urbanization has generally meant a deterioration of housing conditions. Localities, even with national government assistance, have been unable to provide adequate amounts of infrastructure (serviced lots) because of a combination of misguided policies and shortages of money and managerial skills. Private developers have served the upper end of the market, where contracts are larger and the ability-to-pay of purchasers is more assured. The result has been rising housing deficits, with the poor crowded into highly visible squatter and tenement housing.

It is important to realize that obtaining adequate quality housing is less under the control of poor households than is obtaining other basic needs such as food and clothing. The latter two can be readily purchased in small increments. Housing, by contrast, exhibits considerable lumpiness. Whereas the household can construct an adequate shelter on its own and do so gradually over time, the provision of water, sanitation, and electrical services can essentially only by accomplished on a community basis.

Donor countries and multinational organizations providing assistance for upgrading urban housing in developing countries do so for two motivations: in response to the so-called basic needs argument, which states that all persons should enjoy certain minimal levels of life's necessities, and economic efficiency arguments.

The language of the Foreign Assistance Act of 1961, as amended, makes clear that the Congress had basic needs in mind to justify U.S. assistance to this sector. The economic arguments are of two types. One considers the broad macroeconomic effects of expanding investment in housing, noted above. The second class of economic efficiency arguments rests on improving the efficiency with which cities function as economic entities, thereby permitting greater competitiveness in world markets. Such effects have only been documented to date for a few large-scale projects.

The Housing Guaranty Program in AID Operations

The activities of the Agency for International Development are channeled through three main resources. The Agency provides Functional Development Assistance with Development Assistance Grants and Development Assistance Loans; and, it provides assistance for housing and related infrastructure through the Housing Guaranty Program. Both forms of Functional Development Assistance are funded out of direct appropriations. While activities supported by grants carry no repayment requirements, Development Assistance Loans, although made at highly concessional interest rates (usually of 2 or 3 percent), do require repayment, over 40 years. The Housing Guaranty, in contrast, does not involve the expenditure or lending of appropriated funds and requires repayment at market interest rates. All three programs provide dollar assistance to the host country, not all of which is earmarked for the foreign exchange component of the activity being supported, i.e. the country is able to substitute local currency for some expenditures and use the excess dollars for other foreign exchange operations.

Aside from the designation of the HG program for use in the housing sector, one can ask what other criteria should govern which projects are supported with this type of mechanism. Five criteria are applicable; the mechanism is appropriate when:

- a long-lived asset is produced which is capable of producing a flow of benefits over an extended period of time;
- identification and evaluation of the benefits produced by the asset is possible;
- the benefits accrue predominantly to households or firms that can be readily identified;
- beneficiaries are expected to have a substantial ability-to-pay over the period of repayment;
- the administrative cost of collection, etc. is reasonable in relation to the amount collected.

Housing developed under the HG program conforms to these criteria by creating a highly durable asset whose benefits accrue to its owners (usually the occupants). If reasonable standards are employed in the development of the units, then experience shows that beneficiary households will have the ability to make payments and that they will.

The case for funding other investments with this type of mechanism is stronger the more closely these criteria are satisfied; many kinds of infrastructure investment have the relevant attributes, for example. In contrast, investments in education and training generate a much less certain stream of benefits, some of which accrue to the individual and some of which go to society at large. For other sectoral investments involving long-lived assets, even with proper design standards, households may lack the ability to pay for the services generated; in such cases the concessionary terms of the Development Assistance Loans may be appropriate. Thus, the three forms

of assistance provide an array of tools to be deployed in meeting differing host country and project needs.

Conclusion

Based on the analysis presented in the body of the paper, we reach the following five main conclusions.

1. The Housing Guaranty Program as presently structured is actuarially sound. This fact is more evident when the finances of the post-1970 HG Program are isolated from other related but appropriately separable operations.

2. Compared with other federal programs the HG's finances are solid. These programs include the Federal Housing Administration's Section 203(b) mortgage insurance programs and the Government National Mortgage Association's mortgage-backed securities program. Fees charged by the HG Program are significantly higher than these programs and its default costs sharply lower than those in the FHA program.

3. The Housing Guaranty Program meets the requirements of an efficient federal credit program. The combination of the U.S. and host country guaranties on each loan probably achieve a significant reduction in borrowing costs to developing countries by increasing the efficiency with which financial markets work. This, together with the fact that the Program is self-financing, means that no subsidy is involved. The HG should be thoughy of as a "market perfecting" technology rather than subsidy mechanism.

4. On the basis of cost to the U.S. government, the Housing Guaranty Program will often have enormous advantages over the use of

Development Assistance Loans and Grants. Moreover, the loan maturities nicely match those of properly designed housing projects.

5. Three consequences of termination of the HG program are probable:

(a) That unless foreign assistance to the sector is to be eliminated, more federal expenditures will be required for a given level of assistance. Indeed, to maintain the current level of effort will require large expenditures of appropriated funds. Furthermore such expenditures would encourage dependency on subsidies rather than self-sufficiency as does the current program.

(b) If the HG program is replaced by a similar program under international or other domestic auspices, the demand for U.S. investment banking services will be reduced and diverted to the international banking community. It seems more likely, however, that these services will not be replaced, so that this demand will simply not be accommodated rather than being accommodated elsewhere.

(c) Probably most importantly, fewer housing related development projects will be undertaken by LDC's at precisely the time when such projects, due to urbanization pressures, are likely to be yielding very high economic returns.

Thus, our overall assessment is that on the cost side the Housing Guaranty program is structurally sound and financially-self-sufficient. As presently constituted it meets the requirements of an efficient federal credit program. On the benefit side, it can have large positive effects on the economy of a developing nation -- through multiplier effects of the investment financed, improved efficiency in

its financial markets, and rationalization of its housing assistance policies. Conceptual and empirical problems make exact identification and measurement of such benefits difficult. Nevertheless, the finding that the HG program is self-financing implies that if policies are to be pursued that attempt to provide such benefits to developing countries, the HG program is a very efficient means of doing so.

1. INTRODUCTION AND OVERVIEW OF THE PROGRAM

The Housing Guaranty Program was developed as part of the U.S. foreign assistance program in the early 1960s to improve the quantity and quality of housing in developing countries. Under the program, the U.S. government provides a full guaranty against default on loans made by private American investors to host countries for investment in their housing sectors. The administration of the program was changed significantly in two ways in 1970 to its present form: a separate administrative unit -- the Office of Housing and Urban Programs -- was established within the Agency for International Development (AID); and, a host country guaranty of repayment was added to the requirements for a loan. The program is designed to support itself from fees charged to the host country as part of the loan terms.

The objective of this paper is to provide an economic analysis of the program. This analysis focuses on the program's operation in four very different contexts. First, it examines the program from the perspective of U.S. credit markets, and in particular whether it meets the standards set forth in the Office of Management and Budget's Circular A-70 on Federal credit policy. Second, it analyzes the program from the viewpoint of its effects in the borrowing country, focusing on the relationship between program supported activity and the broader economy. Third, the program's function is assessed in light of the urban housing problems in developing countries. Finally, the Housing Guaranty mechanism is studied as a tool of foreign assistance among those available to AID.

The balance of this section provides greater, although still limited, detail on the program's structure and operations. Subsequent sections provide analyses on the four topics just listed.

Purpose

The objectives of the Housing Guaranty Program (HG) are well-articulated in the language of the Foreign Assistance Act of 1961, the basic legislation governing the program. It makes clear that in addition to directly improving the housing situation in the country involved, the Program should support projects having a maximum demonstration impact on local institutions and policy. It sets as the long run goals of the program to "develop domestic construction capabilities and to stimulate local credit institutions to make available domestic capital and other management and technological resources required for effective low-cost shelter programs and policies."

By law, the direct beneficiary households of programs undertaken by host governments with HG resources are to be in the lower half of the income distribution. Hence, the direct housing quality improvement is concentrated on low-income families. In the past few years, the projects eligible for financing using the HG mechanism have increasingly included urban infrastructure investments as well as strictly shelter activities.

Program Structure

The central feature of the program is that it provides a mechanism to access international capital markets with great efficiency. The potential for efficiency gains forms the basis, in

principle, for the financial self-sufficiency of the program. The efficiency gains appear to be sufficiently large that the borrowing countries can afford to pay what on an actuarial basis are large insurance fees to AID, and still be better off than if left to rely upon strictly private international capital markets. Combined with the fact that the loans are made at market interest rates, the Housing Guaranty Loan should be thought of as a special purpose tool among those with which AID has to work.

Up to $150 million in loans can be guarantied under the program each year; in recent years the volume of loans guaranteed has been somewhat less that this maximum. Total loans outstanding currently are about $1.3 billion. On the other hand, in 1984 HG loans constituted about 0.3 percent of outstanding Federally-guarantied loans and about 0.1 percent of all Federal direct and assisted loans.[1]

Evaluation of the program requires that its structure be clearly defined. The balance of this section describes some of the "nuts and bolts" of the program. After a general overview, particular attention is given to financial arrangements.

The Project Cycle

A typical, somewhat stylized rendition of project development is as follows. Potential HG projects are initiated by a formal or informal expression of interest from the host country to AID. With the

1. Executive Office of the President (1985), Special Analyses, Table F-10, and Office of Housing and Urban Program (1985).

concurrence of the AID Mission, staff from the Office of Housing and Urban Programs -- that administering the HG program -- begin negotiations with the host country. The HG is included in the County Development Strategy Statement prepared by the Mission.

The actual project development process begins with a Shelter Sector Assessment which provides a detailed reconnaissance of the sector; this serves at the initial vehicle for developing a strategy for the country. This is followed by development of a Project Identification Document, which detailing and evaluating the proposed project. Finally, if the Project Identification Document is formally approved by AID and agreed to by the host country, a Project Paper is prepared, which serves in the future as the basic project document. Throughout this process there is necessarily close contact between the host government and AID staff.

Based on the Project Paper an Implementation Agreement is developed which inventories what is to be accomplished by the project and the specific responsibilities of various parties. Among these responsibilities are: the agency executing the project, the agency borrowing the funds, and the agency providing the host country guaranty of full repayment. Following the actual authorization of the project by AID based on the Project Paper, the host country can go to U.S. capital markets to obtain the loan. If the terms and conditions are satisfactory to AID, the U.S. government guaranty is authorized.

Loans are for 30-year term, generally have an extensive grace period on the payment of principal, loans can have fixed or variable interest rates. After the loan closing, funds are disbursed to the host

country. The loans are made in dollars and must be repaid in dollars. The fact that the loan is denominated in dollars is highly attractive to borrowers for two reasons. First, because of the U.S. government guaranty, the interest rate on the HG loan is lower than the rates faced by the country on commercial loans. Therefore, the borrowing country is able to realize savings on its overall interest payments on it foreign debt. The second reason is closely related to the first, in that the dollars borrowed are available for purposes other than housing, since typically the great majority of housing inputs (materials and labor) are available locally and can be purchased with local currency.[1]

Loan Procedure and Conditions

Here four topics which are crucial to structure of the HG loan are discussed seriatim: the borrowing procedure, the guaranties applicable to the loans and the fees charged, the uses of the fees collected, and the treatment of default, delinquency, and rescheduling of loan balances and interest.

The borrowing procedure is quite straightforward. The practice is for loans to be sought by the host country through a competitive process. An announcement outlining the type of loan sought -- as examples, fixed or variable interest rate and/or a 10-year grace period on payments of principal -- and the presence of the U.S. guaranty is prepared and widely circulated in the U.S. financial market. Responses

1. Even in an extreme case such as Barbados where nearly all materials have to be imported, Olson (1984) has calculated that imports account for only about 20-28 percent of total development cost.

This attractiveness may also cause host countries to allocate more funds to the housing sector than is consistent with sectoral rates of return. This is not necessarily the case, as is discussed in Section 3.

are sent to the host country, which evaluates them and selects its lender, subject to AID approval. Typically, six to ten offers are received by the host country.

The process appears to be genuinely competitive, with HG rates today for floating rate loans, for example, ranging from 32-45 basis points above six-month Treasury bills (excluding AID-imposed fees). As we discuss in Section 2, there are no strictly private loans with which to compare the terms on a HG loan, because the uncertainty underlying long-term loans precludes proper underwriting and because of HG's ability to market the value of "good" debt relations with the U.S.

Under the present program structure, each loan carries a double guaranty. The first is a guaranty provided by the U.S. government against default for all reasons except those due to bad faith on the part of the lender. This includes such radical developments as an overthrow of the government by groups hostile to the U.S. as well as less dramatic causes. Hence, the loan is essentially riskless to the lender. This insurance is purchased by the host country, the fees being one percent of the loan principal paid at closing and 1/2 percent interest on the outstanding principal balance.

The second guaranty is from the host country to the U.S. government, through AID.[1] The host country guaranty provides the full

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1. While requirement of a guaranty has been standard since 1970, there are still some exceptional cases in which a guaranty is not obtained. An example would be a loan to an international credit institution, such as the Central American Bank for Economic Integration. In addition, for those loans made prior to 1970, no host country guaranty was required, with the exception of Iran. It is only these early loans that can appear as non recoverable losses in the program's financial statements. Presently about 90 percent of the outstanding value of guarantied loans is covered by a host country guaranty.

faith and credit of the borrowing country to indemnify AID in the event of the borrowing agency's default under the loan agreement or any other time that AID makes payment to the lender on behalf of the borrower pursuant to the contract of guaranty. An example of the latter are payments made when loans are delinquent, even for a short period. Thus, the host country government bears the ultimate risk of default, in all but truely exceptional cases, when a government is willing to sacrifice its goodwill with the U.S. and probably its access to not only international capital markets but U.S. foreign assistance for an extended period. Additionally, it also bears the other principal risk -- that of unfavorable exchange rate fluctuations of its currency relative to the dollar. It is possible for the government to shift this responsibility to the executing agency, but this appears to be seldom done in practice.

Another implication of the host country guaranty is that the U.S. government's guaranty to the lender is only very marginally against default. More realistically, except in the case of loan repudiation, it is against late payment.[1] It is perhaps worth noting that there have only been two instances of loan repudiation in the post World War II period. For a country to repudiate its debt, as did North Korea and Cuba, there must be significant indirect incentives to do so. As discussed later, the very act imposes large "costs" on the country. Consequently, unless there are large offsetting "compensations" of some sort made to induce default by some other country or countries the costs of repudiation have apparently been too large for it to be done. For example, even Iran did not repudiate its debt. Thus, while it is not

1. Treatment of late payments is discussed further below.

strictly accurate to say that expected repudiations are zero, the likelihood of repudiation is affected by: (1) the overall development and efficiency of the international financial system; and (2) the likelihood of some third party undermining the value to a country of participating in the international financial system. To the extent that the system is more efficient and developed, access to it becomes more valuable. Hence repudiation of it is more costly and thus less likely. While such unsystematic uncertainties make it difficult to determine reserve adequacy, ultimately the size of the program's reserves need to be compared with the likelihood that default claims will materialize.[1]

The fees collected for the guaranty by AID are used for two purposes. First, fee income pays not only for the administrative expenses associated with the operation of the HG program. That is, salaries of government employees, travel, office, and other expenses as well as consultants' costs are paid out of the fees. In addition since 1970 roughly one-third of these expenses have been incurred to implement AID's related technical assistance programs. Second, fee income not used for such expenses goes into a central reserve pool, which is used to pay claims covered by the guaranty. In practice, the Office of Housing and Urban Programs sets goals annually on the amount of fee income that should go to augmenting reserves. While the status and use of reserves are discussed more thoroughly in the next section, three points are worth noting here. First, in 1984 the level of funds in the

1. For more on the incentives against default on international debt see Cline (1983).

reserves had fallen to a low enough level that AID thought it prudent to request an appropriation from the Congress to build up their level. Second, until 1982 the funds in the reserve account maintained by the U.S. Treasury earned no interest, thereby significantly reducing the present size of the reserve. Third, the funds used to establish a reserve in 1970 were, in effect, a reserve for the two very different types of loans from the old and new HG programs. As we show below, with the restrictions placed on the use of the initial reserve and on the use of program revenues, the reserve was not sufficient to insure timely payment of principal and interest of both the old and the new HG programs.

The size of the reserve fund required is determined by the volume of claims on the guaranty and by how these claims are treated. Here we briefly discuss the treatment of default, delinquency, and loan rescheduling. There are two guiding principles in the operation of the program in this regard. One is to make payments as quickly as possible to lenders who have not received their payments from the borrowers in a timely manner. The other is to be certain that the host country pays the cost associated with such payments made by AID on their behalf.

Under the present program, defaults do not occur. AID makes timely payments on behalf of delinquent borrowers. Consequently lenders have no reason to initiate claims procedures, even in the event of significant delinquencies or payments delays associated with debt rescheduling.

The general procedure followed by AID is the same regardless of the reason for late payment. It makes the payment to the lender on

behalf of the country and begins the process of collecting the late payment. Note that AID continues to charge interest on the funds not remitted and it can assess penalities as well, if these are specified in the loan agreement documents. On delinquent accounts the interest rate charged is the current market rate plus 50 basis points. In the case of rescheduled loans, AID requires that the interest rate for repayment reflect the cost of funds plus 50 basis points plus a 50 basis point refinancing fee.[1]

The foregoing has profound implications for the size and management of the program's reserves. Reserves need to be adequate to cover risk of actual defaults and of delayed payments. First, because of the host country guaranty, the former risk is very small. The risk of delayed payments, while potentially large in the recent international environment, is only a cash-flow risk, since eventual repayment is virtually assured, including interest and penalties for the period of delay. Every current withdrawal from the reserves carries with it a future repayment: withdrawals represent the transformation of reserves into accounts receivable -- both of which are corporate assets. The absolute size of the reserves depends then on the projected amount of delayed payments.

Second, the interest rate and fees charged on delinquent or rescheduled payments is sufficient, if authorized, to permit the HG program to replenish reserves by borrowing funds in the market. Hence, the size of reserves needed depends on projected payments and the degree

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1. For rescheduling purposes, HG loans are treated as official debt because of the government guaranty. Rescheduling is handled within the Paris Club arrangements.

to which payments on behalf of countries to the lenders should be made from "permanent" reserves or from HG borrowings for this purpose. To date, all payments have been from the permanent reserves. Hence, the sole determinant of desired reserve levels has been the cash-flow risk plus a margin for the "rare event" default.

Changes In Program Focus

The experience of the Housing Guaranty program consists of three general and not mutually exclusive phases. In the 1960s the program concentrated on transferring shelter building technology to less developed countries through private U.S. builder-sponsored projects. In the second phase, which began in the mid-1960s, the program fostered the creation of policies and institutions in host countries to mobilize savings from the private sector for shelter. Drawing upon executives from the U.S. savings and loan industry, the HG program played a major role in the 1960s and 1970s in the initiation of a largely private savings and loan network throughout the Latin American region. Scattered projects in Africa, Asia, and the Middle East were also financed during this period.

The third phase began in 1975 and involved a major shift in program direction, under Congressional direction, to target the program's resources on households in the lower half of the income distribution. To this end the program is now "designed to assist participating institutions of Third World countries to define and clarify national housing policies and to strengthen their capacity to plan, finance, implement and service housing projects for the poor" (Office of Housing and Urban Programs, 1985). In these final years, the

distribution of projects undertaken has been more balanced among the world's regions.[1]

We now turn to the view of the Housing Guaranty from the vantage point of the prices charged for its services and its consistency with Federal credit regulations. After this, the program is explored from other perspectives.

1. Appendix B is a chart showing all Housing Guaranty loans through 1982 by country by year.

2. FEDERAL CREDIT POLICY, THE PRICE OF FINANCIAL SERVICES AND THE AID HOUSING GUARANTY PROGRAM

Trends and Problems in Federal Credit Policy

In recent years Federal credit programs have been growing at very rapid rates, increasing both absolutely and relative to the growth of the economy or the credit markets. For example, between 1970 and 1980 new direct loan obligations of the Federal government grew at a 11 percent inflation-adjusted annual rate. New Federal loan guaranty commitments, after correcting for inflation grew at a 5.5 percent annual rate. Between 1980 and 1984 the respective growth rates for both of these forms of Federal credit increased to over 30 percent per year. Even if we adjust these figures to account for the general growth in economic activity we still find evidence that the Federal presence in economic activity has increased. In the latter period, these forms of Federal credit grew three times faster than did the rest of the economy.

The growth in the various forms of Federal credit and interpretation of the implications of this growth has been a cause for concern of public policy analysts of the Federal budget process for some time. For example, at a 1973 conference on Issues in Federal Debt Management, Bruce MacLaury, who subsequently became President of the Brookings Institution, declared some cynicism about the motivation for the use of many Federal credit programs. He said that Federal credit "permitted Congress and the Administration to claim that wonder of wonders -- something for nothing, or almost nothing." (P. 214) MacLaury identified one of the major concerns about the use of Federal credit -- the subtlety of its effects on those who are not the beneficiaries of the

credit policy. Unlike taxes which in some sense taxpayers can measure against what they think are the services provided by government, the effects of credit intervention on non-recipients are not obvious. How, for example, could someone know that, except for the government guaranties to another borrower, their loan application would have been approved?

But not only are the effects of Federal credit difficult to discern, the different forms that it can take compounds the difficulty of assessing the efficacy and costs of Federal intervention in the credit markets. The Federal government not only makes direct loans, and loan guaranties, it also supports lending by government sponsored enterprises and provides tax exemptions for the interest payments on certain state and local government bonds. A dollar of one form of Federal credit clearly does not have the same effect on economic activity or the budget as does a dollar of another form of credit.

In 1980 these kinds of concerns lead Congress to introduce a Federal credit budget on an experimental basis. However, as a number of analysts have observed, [Rivlin, (1983); Leonard and Rhyne (1981), and Phaup (1980)], the existence of the credit budget alone will not control or allocate credit effectively. In fact, in the first year of its use Federal credit grew by 25 percent. Moreover, the credit budget does not place any direct restriction on the size of the subsidy involved.

The next logical step in attempting to control and effectively allocate the various forms of Federal credit was to convert the different forms of credit into one general common denominator. From such a basis the amount of subsidy associated with a particular program

could be determined and compared with the amount of subsidy implied by a different form of credit policy. This step was taken in 1984 when the Office of Management and Budget reissued what is termed Circular A-70, "Policies and Guidelines for Federal Credit Programs". As the Special Analysis of the FY 86 Budget describes it:

> OMB circulars are directives issued under Presidential authority delegated to the Director of OMB and addressed to the heads of Federal departments and agencies. OMB circulars are binding upon the executive agencies as a matter of Presidential policy and are generally enforceable through administrative procedures. Circular A-70 was approved by the President prior to its release.
>
> The A-70 guidelines apply to proposed and existing Federal direct loan and loan guarantee programs. The guidelines place two sets of requirements on agencies. The first is to provide information on the costs and benefits of Federal credit programs. This includes, for example, estimates of the credit available from relevant private financial institutions, subsidies, and net default costs.
>
> The second is to require agencies to propose new legislation or policies for credit programs that are consistent with sound credit policies. These policy norms include changing interest rates and loan guarantee fees to reflect movements in private market rates; risk-sharing between Federal guarantee programs and private lenders (coinsurance); and avoiding subordination of Federal and federally guaranteed loans to private claims. Should current legislation not permit this, agencies are generally required to prepare proposals to change that legislation so the programs will conform to A-70 guidelines. When an agency believes that full conformity is undesirable, it must provide a justification for retaining the nonconforming legislation. (P F. 6-7 emphasis added)

A reading of the Circular and the Special Analysis of the FY 1986 Budget make clear that intent of the circular is to provide a guide by which agencies can more accurately measure the difference in the cost of private sector loans and Federal credit. From this estimate of the difference in cost of providing such a service, the size of the

subsidy can be inferred. Then, with knowledge of the cost of the program to the Federal government, a better comparison can be made using the benefits conferred by the program as well. A central theme of the circular is that the Federal government should not be providing services that can be provided by the private sector unless there is a clear and obvious rationale for Federal intervention. Thus, Circular A-70 should be seen as a device that helps clarify the morass of data involved in the credit budget so that public policy choices on credit can be better understood.

In principle, the use of the concept will clearly help distill details so that the information needed to make informed choices is more obvious. Furthermore, by placing requirements on agencies that the policies used are consistent with "sound credit policies" the circular has the "teeth" in it to assure that the better comparisons afforded by this kind of calculation will in fact be acted upon.

In the effective implementation of the circular the central issue is accuracy of measurement. In order to compare the implicit subsidy levels the theoretical and practical difficulties of measuring the subsidies must be carefully addressed. The private sector benchmarks which represent the comparable private transactions to be used in comparing the costs of private and Federal credit must truly be comparable. This point is not as gratuitously obvious as it may seem at first glance. Financial contracts often contain a wide range of stipulations, covenants and indentures, and these features can have considerable value [Smith and Warner (1982)]. For example, one could compare the interest rate on a FHA-insured loan that had the same

downpayment and maturity as a conventionally-financed loan, and in so doing derive an estimate of the amount of difference in interest rates. From this calculation one might infer that the difference in interest rates represents a measure of the subsidy involved with the Federal backing for FHA. The problem is that the FHA loan has an assumability feature, and the conventional loan typically does not. This assumability feature has implicit value that is embodied in the overall mortgage rate.[1] In order to compare the conventional loan with the FHA loan in any accurate sense, the value of this feature has to be either added to the conventionally-financed unassumable loan, or subtracted from the FHA rate. Otherwise apples are being compared with oranges and comparability, in the sense to which A-70 aspires, will not be achieved.

Fortunately, the different features of most loans can and have frequently been priced in both the market and in analytical work.[2] Podenza, Smith. This type of perspective can be used so that the "bundle of services" provided by a particular loan can be compared to the same kind of bundle in the private sector, and not to something that appears to be a similar bundle. In the next few sections we decompose the financial transaction underlying the typical HG guaranty so that we can: (1) identify and compare similar "bundles of services" provided by the private sector as those in the HG guaranties; and, (2) show the

1. Pozdena and Iben (1984) show that the difference in price in these kinds of loans can be as much as 4.0 percent.
2. See Podenza and Iben (1984), Hendershott and Villani (1980).

effects of the HG guaranty on the implicit costs of the various components of the transactions undertaken.[1]

Construction of a Stylized Private Sector Benchmark for Analysis of the HG Guaranty: The U.S. Case

In order to determine an accurate benchmark for a HG loan we need to consider the various features of the projects insured. The project financed will affect the type of financing sought in very basic ways. For example, short-term debt is more likely to be sought for a project that has occasional inbalances between the revenues generated and the costs of operations. Equity capital is more likely to be used in projects for which individuals have differing expectations about success or in those projects in which the behavior of the users of the capital can have an appreciable effect on the profitability of the enterprise. Long term debt, as has been traditiqually used in HG projects, is more likely to be used in long-term projects, such as housing and infrastructure.

Because the typical HG project is, as the name implies, for a housing project, it is instructive to begin the construction of a benchmark figure by reference to the mortgage rate.[2] As we will show, because there is no strictly comparable benchmark figure, we need to construct a synthetic or stylized benchmark for comparison. In order to construct such a figure we need to decompose the benchmark into its

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1. The decomposition of the mortgage rate that we undertake is not meant to give a precise pricing of the various terms which will of course depend upon a range of factors that are very specific to a particular time period. It is done to give an order of magnitude estimate of the cost of those factors that the HG program can affect.

2. Expansion of uses to infrastructure does not affect the discussion.

various components so that we can compare the relevant features of the transactions considered. We begin the analysis by using the U.S. mortgage rate which has terms that are generally familiar, and the values of whose major stipulations have already been estimated. We then adjust this rate for the international context.

In general, the U.S. mortgage rate can be decomposed into six basic categories: the real interest rate, interest rate risk, default risk, the costs of denomination intermediation, prepayment risk (including inflation), and the costs of servicing and loan origination.

For January 1985, the long-term conventionally financed fixed-rate mortgage loan was about 12.9 percent.[1] The real cost of money, regardless of how it is used, can be inferred from the nominal Treasury borrowing rate by subtracting out an inflation premium that captures what borrowers and lenders believe will be the inflation rate over the relevant time period. This inflation premium measures the amount by which borrowers and lenders believe the purchasing power of money will erode over time. The interest rate is adjusted so that the interest rate on longer term contracts increases by a sufficient amount to offset the erosion in future purchasing power.[2]

The calculation of a real interest rate can be done in a number of ways. One of the more frequently used methods, that is also one of

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1. Federal Home Loan Mortgage Corp.
2. The short-term Treasury cost of funds is an effective instrument to use to calculate the real estate rate because there is zero default, interest rate or prepayment risk and the securities are traded at very low transactions costs. Thus, of all the components listed in the text as possible sources of cost only real interest rates are left after the nominal interest rate has been adjusted for inflation.

the more understandable approaches, is to rely upon a forecast of expectations of inflation, and then subtract these and then subtract these inflationary expectations from the Treasury cost of borrowing. If we use the assumptions about the economy in the special analysis of the Budget (P.A-2) we find the real rate of interest was equal to about 4.8 percent. If we use estimates constructed by Blanchard and Summers (1984) or Hendershott (1984) we find estimates ranging from 4.6 percent to 5.6 percent for 1984 so our inferred real rate seems within recent estimates. Subtracting this figure from 12.9 percent leaves the amount paid for borrowing costs for mortgage credit, 8.1 percent. The difference between the nominal and real rates represents the costs involved with this particular contract's exposure to risks about inflation and interest rates over the term of the loan. For example, if the loan were a 30 year contract with an interest rate that adjusted immediately to changes in market interest rates, the interest rate risk exposure, and correspondingly the interest rate charged, would be very different than if this were a 30-year loan with a fixed-interest rate.

The implicit "price" of assuming this interest rate risk can be determined by comparing the interest rate on adjustable rate mortgages that can freely and automatically adjust with market conditions, and the rate on fixed-rate loans. At current interest rates, this differential is equal to about 110 basis points.[1] Thus, we now have estimates of two of the component costs of the observed long-term interest rate. The

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1. Federal Home Loan Bank Board. This price is obviously very much affected by the term structure of interest rates. The recent flattening of the yield curve has reduced the spread between fixed and adjustable rate loans.

real rate is about 480 basis points and the interest rate risk premium is about 110 basis points. Subtracting these figures from 12.9 leaves the amount of payments for the four other services, i.e. 12.9-5.9 = 7.0 percent.

The prices of two of the other services are readily available: under current conditions servicing and origination costs average about .8 percent, and by reference to the default insurance premium charged by the actuarilly-sound FHA insurance program, expected default risk is 50 basis points or 1/2 of a percent. We are left with about 5.7 percent or 300 basis points of interest charges to be explained by the last two services, prepayment risk and the costs of denomination intermediation. Before producing estimates of these prices, the concepts themselves, and particularly the concept of denomination intermediation, warrant some discussion.

Denomination intermediation was the fundamental service sought in the establishment of traditional mortgage lenders in the U.S., Canada, and the U.K.[1] It represents the costs involved with the gathering together of the savings of a sufficient number of households and pooling them into a loan of a large enough denomination that would enable a house purchase to be financed. In its early forms this kind of intermediation was so important to households who wanted to become homeowners that it was not unusual for mutual societies or groups to form which would agree to pool their savings together. Every year, often determined by lottery, one family would be entitled to use the collected funds to pay for a house. In the U.K., for instance, it was

1. See Goldsmith (1969) for a discussion of the U.S. experience.

not until 70 years after such societies were formed that these institutions would make loans to non-savers.[1]

This service, then, represented one of the first forms of financial intermediation sought by households beyond the basic security services provided by financial institutions. As these institutions prospered and grew, it became clear that the explicit links between the same household being a saver and borrower was unnecessary. As financial markets deepened, financial intermediaries truly intermediated between households with surplus funds and those with a desire for "deficit" funds. Prior to this deepening the intermediation performed was in effect simply a way to rearrange a given household's savings over their entire life cycle.

As these institutions developed, it also became easier to overcome the "start up" costs associated with providing other kinds of financial services to households, such as consumer loans, check writing privileges, etc. Thus, setting up institutions to address household demands for denomination intermediation meant that the initial transaction costs of other kinds of intermediation were reduced. As a consequence, the demand for these other services could develop more rapidly after the institutions were set up had been established.

While it is easy to discuss the concept of the costs of setting up financial institutions to undertake denomination intermediation, it is obviously very difficult to infer exactly how much of a mortgage rate is attributable to this service. This difficulty is particularly acute in the U.S. context because of the advances in computer technology and

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1. Ghosh (1974), The Economics of Building Societies, Saxon House, Chapter 2.

deregulation that have had significant effects on the costs and forms of this intermediation. We can, however, estimate this figure indirectly for a point in time because we are able to produce fairly accurate measures of all the other components, and we know the overall interest rate.

The last factor is the prepayment risk on mortgages. This factor, the household's right to transfer the mortgage upon sale of the house to another qualified buyer, has become increasingly important in the U.S. As market interest rates outstripped the rates on existing mortgages the older loans became much more valuable, and households did not want to surrender these loans upon sale of a property. Clearly, the same house would be worth more to a buyer if say an 8 percent mortgage went with it, then if the buyer had to use a market rate mortgage at 14 or 15 percent. In fact, the U.S. Supreme Court recently disallowed the rulings of state courts which attempted to prohibit lenders from enforcing clauses that prohibited the transfer of a mortgage upon sale without the lender's consent. Because of the attention created by this legal controversy a good deal of research went into estimating how much the assumability feature is worth. See Cassidy, (1983).

The price of assumability is a function of market conditions and expectations. Hall (1985), for example, found that for the late 1970's and early 1980's this service was on average worth approximately 170 basis points. However, under current financial conditions the value of this option is considerably reduced and can be inferred, as Hall shows, from a comparison of GNMA rates and Treasury borrowing costs which are currently about 100 basis points. We assume this option to be worth 70 basis points at present. The value for the final factor,

denomination intermediation, is derived from subtracting the sum of the first five factors in Table 2.1 from 12.9 percent.

Cumulatively, this leaves us with a cost breakdown as shown in the left-handed column of Table 2.1. Now consider how these factors might be implicitly priced in a less developed country, and how both the LDC government guarantee and the HG guarantee might affect these costs.

Construction of a Stylized Private Sector Benchmark: The Less Developed Country Case

We take each of the terms priced above and conjecture about how these might be priced in a hypothetical less developed economy.

The HG loans, as mentioned earlier, generally are for 30 year terms. Over such a long term it is a reasonable economic assumption that real interest rates across countries are equated after adjusting for differences in transaction costs. Thus, the real interest rate on U.S. loans should also be applicable to loans made in LDCs.

The interest-rate risk premium depends upon the level and volatility of interest rates in the country in question. To discuss such a premium we need to make a number of assumptions. First, we assume that inflation expectations are the same for the hypothetical loan being considered as they are in U.S. This assumption will help us to focus strictly on the transaction cost aspects of intermediation, so that the effects of inflation -- which by itself should have no direct effect on economic activity -- can be ignored.[1] Second, we assume that

1. This assumption also allows to ignore all the difficulties associated with calculating the effects of taxes on interest rates, and making comprisons of inflation-adjusted effects for countries with different rates of inflation. It does not, however, affect the analysis.

TABLE 2.1

The Costs of Various Forms of Intermediation
(percents)

Interest Rate Component	U.S. Case	LDC Case[a]	LDC Goverment Government Guaranty[b]	HG and LDC Government Guaranty[c]
(1) real interest rate	4.8	4.8	4.8	4.8
(2) interest rate risk premium	1.1	2.1-2.6	2.1 - 2.6	2.1 - 2.6
(3) prepayment risk premium	.7	.3	.3	.3
(4) default risk premium	.5	1.0 - 1.5	.5 -.75	.5 - .75
(5) loan origination and servicing	.8	1.2 - 1.6	1.2 - 1.6	1.2 - 1.6
(6) denomination intermediation	5.0	7.5 - 10.0	5.5 - 7.5	5.5 - 7.5
(7) LDC guaranty	--	--	2.0 - 3.0	--
(8) HG guaranty	--	--	---	.75
				15.15 - 18.3%
Total Interest Rate	12.9%	16.9 -20.8% 18.8% mid-point	16.4 - 20.5 18.4% mid-point	16.7% mid-point

a. Local funds used.

b. Non LDC funds used, LDC government provides guaranty and performs intermediation.

c. Non-LDC funds used same as b except HG provides a surety that (5) will be fulfilled.

although the interest rate volatility in this country is the same as in the U.S. the less developed financial system in developing nations causes risks not to be allocated to those with a comparative advantage in risk-bearing. For example, suppose that because of the lack of the development of the capital markets, long-term debt, such as mortgages, can only be financed with short-term debt. Those seeking to invest in long-term debt cannot gain access to the mortgage market. The result is that the institutions that made mortgage loans are subject to more interest rate risk, and hence charge higher interest rates, than the investment preferences dictate.[1] This institutional segmentation causes the risk premium to be 100-150 basis points higher than it is in the U.S.

Prepayment risk is affected by the transactions costs of moving or refinancing. Because the U.S. is one of the world's most mobile societies, and has one of the most efficient financial systems, it seems reasonable to assume that prepayment risks are lower in the U.S. In other words, in our hypothetical LDC either institutional or societical costs prevent households from responding as rapidly to changing economic conditions. Consequently, the prepayment pattern on mortgage loans is more predictable, and hence less risky. If this risk is about half the U.S. risk, then its fee for the hypothetical loan is about 30 basis points.

If we assume that the project has twice as much default risk as the typical U.S. loan, then this fee is equal to 100 basis points. In many less developed countries this assumption may be extremely conservative due to the high legal costs involved with foreclosure.

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1. See Benjamin Friedman (1983) for a fuller discussion of this.

Foreclosure cost may, however, be offset by conservative underwriting standards that reduce the incidence of default but increase the overall cost of borrowing. For example, if a household has $2,000 in savings, but underwriting standards require such small loan to value ratios that $4,000 downpayment is required, this method of avoiding default costs has in effect made the borrowing costs infinite for this household. In India, for example, there has never been a default in the six years of operations and more than 70,000 loans made by the AID-assisted Housing Development Finance Corporation.[1] Such a low default rate implies not that Indians never default, but that other loan terms, such as high downpayment requirements, are set so that default is unthinkable. In other words, the Corporation imputes a high expected cost for this feature. Thus, an assumption of 150 basis points for expected default costs does not appear to be unreasonable.[2]

The final two factors -- loan origination and servicing, and denomination intermediation -- are, as we said earlier, determined by the extensiveness and deepness of the existing financial system.[3] If the system is not very highly developed these costs are likely to be very high. In the U.S. with its highly competitive financial services industry; extensive use of computers to store cheaply relevant information about households, properties and availability of funds, and its history of a relatively large middle-class that has traditionally saved with depository institutions, it still costs 5.8 percent of the loan to

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1. Annual Report for 1983 HDFC India.
2. Strictly speaking this default cost represents a higher cost to the borrower rather than the lender.
3. See MacKinnon (1973).

cover the costs associated with these two services, and 5.0 percent of that is for denomination intermediation.

In contrast, in a country with many households with both very low incomes and low savings rates, a less developed information technology, a history of less reliable land recordation, often times a less stable economy, and frequently primitive formal financial system, these costs are likely to be considerably higher. Not only are more depositors per loan required, but so too is a greater amount of time spent in processing and recording each transaction on both the mortgage and the deposit sides. In addition, if the financial system has been highly regulated, it is often the case that interest rate ceilings on deposits, among other things, make deposits with formal intermediaries a less desirable form of asset holding. In such societies saving with depository institutions or even within the formal financial system is often simply not done. A good deal of effort is required to bring savings into the financial system. In fact, such monetization of savings is one of the primary indirect benefits of developing a formal housing finance system. A conservative estimate is that these costs are 50 to 100 percent more in the typical LDC than they are in the U.S., making them equal to 8.7 to 11.6 percent when summed together.

Summing up the cost components for the loan we find that due to transaction costs alone that the loan charges can be on the order of 400 to almost 800 basis points more than for a U.S. loan, suggesting an interest rate of almost 17 to more than 20 percent. As Table 2.1 shows, this difference consists of interest rate risk inefficiency (+100 to 150 basis points), reduced prepayment risk (-30), increased default risk

underwriting costs (+100 to 150), loan origination and servicing (+50 to 100) and denomination intermediation (+250 to 500). In addition, recent research indicates that for a given inflation rate, higher mortgage payments place cash-flow restraints on households. These constraints are equivalent to another cost that the contracting technology simply is not providing.[1]

It seems clear that if the government of the country were to substitute its borrowing for that of the household that some of these transaction costs could be reduced. The government in a sense is a more cost efficient borrower than is the typical household in a LDC. As we shall show, the HG guaranty provides a contracting technology that permits the LDC government to undertake such borrowing even more efficiently. It serves as an information filter so that U.S. investors do not have to scrutinize the financial and political situation in the borrowing country. To see why this is so it is helpful once again to refer to Table 2.1 and consider first how the national government, and then how the HG guaranty, might affect these costs.

As long as the government's fiscal operations, i.e. its taxing and borrowing authority, cost less than the costs of denomination

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1. Thus, by ignoring this factor our estimates are understated somewhat. We have termed this LDC loan hypothetical not only because we are conjecturing about a less developed economy, but also because when transaction costs are so high most housing purchases are simply not made. Thus, housing construction that would yield a return of up to 17 percent is not undertaken because of the high costs of arranging the financing for it. Alm and Follain's (1982) work suggests that for the U.S., at a 5 percent rate of inflation, these costs may be equal to another 2 percent of the loan amount. Buckley and Madhusudan's (1984) econometric analysis of this issue across a number of countries suggests that similar non-contracting costs are also prevalent outside the U.S. Finally, Buckley and Ermisch (1982) also found evidence of a significant cash-flow contracting effect in the United Kingdom.

intermediation for households, the costs of denomination intermediation can be reduced. Furthermore, if the government is willing to assume the risk that the project will succeed, i.e., self-insure it against default risk, the fee for project default insurance can also be reduced.[1] Together these changes in the form of intermediation could reduce transaction costs by 225 to 325 basis points. This would be the case if, for example, the government can perform denomination intermediation 200-250 basis points more cheaply than the LDC household, and default intermediation by 75-100 basis points less than the rates we assumed characterized the rates needed for LDC institutions to make the loan. The reduction in denomination intermediation costs may seem large (and they are), but even with this kind of reduced cost our assumptions imply that this cost is larger for the LDC government than it is for a U.S. household. These kinds of efficiency gains could lower borrowing costs by 15 to 20 percent if they were the only changes involved in the loan transformation. But, unfortunately they are not the only changes. Even if the LDC government could in principle perform these two intermediary services more cheaply than could a private intermediary, investors -- especially foreign investors -- will want to be assured that the government of the particular LDC in question would indeed carry out its

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1. It may be much cheaper for the government to provide default insurance if either the market is assigning too high a default premium to the project, as is perhaps the case in India, or if it is very expensive for the private capital markets to gather the appropriate information about how likely is default. Expected default costs are still involved in the transaction; they may just be lower for the government than the rate implied by private insurers, particularly when the lack of a domestic capital market often means that these insurers are international corporations with little or no underwriting capabilities in the country.

financial responsibilities. In other words, investors would accept a fee that corresponds to the default risk of the LDC rather than the default risk on the project being financed.

For the types of projects for which HG guaranties are used these underwriting fees could be very high. First, relative to the size of the loan insured, a $25 million maximum, the fixed costs of country risk analysis are likely to be high, particularly when these projects are compared to $100 million to billion dollar industrial projects that are representative alternative investments. Second, all of the debt rescheduling problems recently experienced by many LDC's have made international lending appear to be riskier than it was in the late 1970's, for example. In addition, because of the fundamental liquidity problems that many LDC's will continue to experience for the next 5 to 10 years, the fee for assuming the risk that the guaranty is not only good, but also that payments will be made on a timely basis is likely to be very high. It would not be surprising if these fees more than offset the reduction in transaction costs associated with the government serving as the intermediary in the first place. But once again we can only conjecture about the costs since such loans are not observed. With what we think are relatively conservative conjectures about these costs most of the advantages of government intermediation are eliminated. See the third column of Table 2.1.

The Effect of The HG on These Costs

The HG guaranty affects the evaluation of the LDC guaranty in much the same way that the Government National Mortgage Association's "Ginnie Mae" (or GNMA) guaranties the timely payment of principal and

interest on FHA and VA-insured mortgage loans. Just as the GNMA guaranty is "on top of" another guaranty, so too, at least since 1970, is the HG guaranty on top of the sovereign guaranty of the borrowing country. In fact, the HG guaranty seems considerably less likely to be invoked than is the GNMA guaranty. There have only been two cases of debt repudiation of sovereign guaranties in the post World War II period and neither of these repudiations involved HG.[1]

In addition, just as the GNMA contract provides that there are serious penalties for those loan originators on whose default GNMA has to make good, so too are there similar penalties in the HG guaranty. If a borrowing country agrees to a rescheduling of its loan payments after the HG program has made timely payments on behalf of the borrower, and then does not live up to its rescheduling agreement, that country is no longer eligible for U.S. foreign assistance.[2] Such foreign assistance can often have an expected present value of billions of dollars. For example, if U.S. foreign economic assistance for the following countries remains at last year's (FY1983) level in real terms for the next 10 years and then goes to half that for the following ten years, the expected present value of that aid is as shown in Table 2.2.

Thus, sovereign default on the HG loan means much more than facing reduced and much more expensive access to international capital markets, it also implies a significant reduction in real wealth. For example, the expected per capital wealth reduction for loan repudiation for Kenya would be equal to 11 percent of its per capita income in 1982.

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1. See Cline (1983).
2. See, for example, the language in Section 6208 of the Foreign Assistance Act of 1961 as amended.

As a result of these very high costs of default it would not be surprising to see LDC governments treat these loans in much the same way that mortgage loan originators treat the loans that they place in GNMA securities. Although there is no solid empirical evidence, it has long been suggested that U.S. mortgage loan originators placed loans that they thought more likely to be paid on time in GNMA's securities because of the "costs" of GNMA making payments on their behalf. By analogy one would expect LDC governments to be likely to make repayments on HG loans prior to other guarantied debt that does not carry as heavy an indirect cost as the possible loss of U.S. foreign aid assistance.

Perhaps the best evidence of exactly this kind of behavior is provided by examining the loans the Housing Program has identified as being claims Charged to Operations. Argentina has one such loan, authorized in 1964. This loan does not have a host government guaranty. On the hand, Argentina has four other HG loans that originated in the late 1960's and early 1970's. Each of these loans has a host government guaranty, and each had been paid on a timely fashion

TABLE 2.2

Expected Present Value of Foreign Aid[a]

	Billions of Dollars
Egypt	9.1
Kenya	.750
Peru	.450
India	1.725
Turkey	2.375

a. These values are computed using Economic assistance grants for FY83 as identified in the, U.S. Overseas Loans and Grants, Statistical Annex I to the Annual Development Coordination Committee Report to Congress. Office of AID. A 5 percent real interest rate was used for discounting.

until the recent rescheduling in the 1980's. Similar patterns of payment behavior apply to loans in Costa Rica, The Dominican Republic, Jamaica, Mexico, and Peru. Cumulatively in FY 1982 these countries were paying 34 percent of their annual debt service costs on loans that did not have a host government guaranty and were thought to non-recoverable losses, whereas they were paying almost 60 percent of their annual debt service on loans that had a host country guaranty.

Like the GNMA Mortgage-Backed Securities guarantee the HG guaranty is also for 100 percent of the outstanding balance. But also like GNMA, this 100 percent guaranty corresponds to a trivial portion of the risk involved with the loan. The borrowing country assumes the interest and exchange rate risk on the loan, depending upon its financial arrangements it may assume prepayment risk, and finally, it also explicitly assumes the default risk of the project. On the one hand, it would be easy to say that the HG 100 percent guaranty is for 0 percent of the risk, but this would be a slight overstatement. The present value of the HG reserves could decline if a very serious worldwide depression occurred, just as the GNMA reserves could also be drawn down under a Great Depression-type scenario.

If international financial conditions were so serious that loan repudiation occurred simultaneously in a number of countries, insurance losses would be realized by HG.[1] However, the world economy has just emerged from the worst international debt situation in 50 years without one loan repudiation. Even the events in Iran did not precipitate a repudiation of debt; there the HG program recovered 92 cents on every

1. Maximum loan amount per insured loan provides diversification against this risk.

dollar insured, and 75 percent of the accumulated cost of the late repayment.[1]

The international debt situation of recent years did create a liquidity crisis that required the rescheduling of billions of dollars of debt of a large number of countries eligible for HG loans. Such rescheduling, however, in no way represents a subsidy by the HG program. The basic rationale for the rescheduling arrangements undertaken was, as Cline (1983) has recently discussed, to reduce significantly the likelihood of loan default on outstanding loans. In other words, providing more loans at market rates to cash-flow constrained, but not insolvent, countries increased the longer-term incentives of these countries to pay off existing loans.

HG loans rescheduled are refinanced at rates 50 basis points above the appropriate Treasury borrowing costs. In addition, a 50 basis point rescheduling fee is also paid to HG program. Because market rates plus this markup generally represented a significant increase in costs to the borrower over repayment of the existing loan it is difficult to understand why any borrower would incur such costs without having severe liquidity problems. Thus, rescheduling is something that countries are forced by circumstances to do.

U.S. commercial lenders are engaged in very similar rescheduling arrangements. It is true that their rescheduling agreements generally called for a greater mark-up over the market rate than the HG 50 basis point mark-up.[2] However, such mark-ups are not determined by competitive markets. They are the result of the solution

1. AID staff and material.
2. See Cline's discussion of this.

of a bilateral monopoly relationship between the lender and borrower. As Shibata (1971) has shown, such solutions are determined by the relative strength of the bargaining positions of the parties involved. They do not reveal the same kind of information about resource costs as do prices in a competitive market. As a result, the setting of how much such mark-ups should exceed the market rate, particularly for loans made as part of a foreign assistance program, should be determined as a matter of foreign policy and not by reference to commercial transactions. As long as the discussion is with respect to market rates plus a mark-up, there are no actuarial concerns for the HG program, although there may be programmatic concerns as to how these reschedulings should be financed. This is a topic we discuss in Appendix C.

In summary, like the GNMA program, outside of an extremely rare individual case (or possibly in the unlikely event of catastrophic financial disruption), default in a true analytical sense cannot be expected to occur. It has not occurred in a legal sense in the fifteen years of the program's operation since 1970, and it has occurred in an analytical sense only once. Thus, the program is in some respects more of a market-maker rather than an insurer. Nevertheless, the accumulation of some reserves is required so that its market-making can be done with safety. It is, of course, the compensation for the possibility of risk as well as the administrative costs of the program that determines the cost of borrowing to the borrower on such a loan. As for the return received by the investor, it should be and has been comparable to Treasury borrowing costs.

Finally, it is worth stressing that the HG program serves not only as an instrument of foreign assistance, but also as an international financial intermediary that reduces the transaction costs of transferring funds between LDC borrowers and U.S. investors. The HG guaranty, in effect, substitutes for investors concerns with assessing the risks of various LDC guaranties. If the assumptions we made earlier are at all accurate, LDC borrowers may experience borrowing costs that are 8-13 percent less than they would be without the HG program. The efficiency gains of the HG program are equal to the amount of cost savings achievable through LDC government (rather than household) intermediation less the fees paid to operate the program on a sound basis. Obviously, the estimate of the amount of cost reduction possible is sensitive to the assumptions made. Nevertheless, the finding by the Special Analysis of the Budget, (F-36), that HG rates in loans, exclusive of the HG fees are about 20 percent less costly than "comparable" commercially-available loans suggests our assumptions are reasonable.

If there is any disagreement between the analysis here and that in the Special Analysis, it is not in the estimate of how much the program reduces non-fee related borrowing costs. The disagreement is with the means by which these costs are reduced. We have argued that any cost reduction stems from the program's ability to improve the efficiency of financial intermediation; the Special Analysis refers to the cost reduction as a subsidy. Fortunately, there is a very simple way to test these very different perspectives empirically. The way is to compare the costs and revenues of the program if a private sector firm could supply the services provided by the program. If the costs

exceed the fees charged, the program is a subsidy. If the opposite occurs, the program serves as a financial intermediary. We now turn to these estimates.

Measuring the Costs and Appropriate Market Prices of the HG Program

The revenues produced by the program can be computationally transformed into either a present value lump-sum payment, or into an interest rate differential. A survivorship and decrement table is needed to produce such estimates. In Appendix C we discuss what is involved in the construction of such a table; here we present the estimated revenues in both forms, and make some comparisons to comparable fees for other Federal guaranty programs.

Our calculations show that the present value of the thirty year HG guaranty is equal to 4.1 percent of the loan value in a present value form or about 60 basis points in an interest rate different form. To provide some context, the Table 2.3 presents similar estimates for the FHA 203(b) program, which charges an up front fee, and the GNMA mortgage-backed-security program, and the Federal Savings and Loan Deposit Insurance Corp. (FSLIC) deposit insurance program which both charge an interest rate fee.

The fee for the HG program is almost 10 percent higher than the fees charged for FHA home mortgage insurance. It is also a large multiple of the fees that GNMA and FSLIC charge: ten times larger than the GNMA fee and almost seven times larger than the current FSLIC fee. Furthermore, these estimates for the HG program are conservative, as they based upon using a 15 percent rate of return as the discount rate, whereas the FHA program uses the risk-free borrowing rate of 10 percent

TABLE 2.3

EXPECTED REVENUE FROM SELECTED FEDERAL GUARANTIES

	As a Percent of Loan Present Value	Interest Rate Differential In Basis Points
AID HG	4.1 (5.0)[a]	.60 (.72)[a]
FHA	3.8	.55
GNMA	.4	.06
FSLIC	.6	.08

a. The figures in brackets in Row 1 use a 10 percent discount rate as does the FHA program. The unbracket figures use a 15 percent discount rate.

to make its computations. The figure in brackets in the top row represent strictly comparable figures for the HG program if the 10 percent discount rate were used. Using these figures the HG fees are 30 percent higher than the FHA fees.

The contrast in fee sizes is somewhat surprising because operationally the HG program is structured more like the GNMA program than the FHA program in terms of the size of the staff needed to determine the riskiness of the activity insured. Because the FHA program is insuring individual mortgage loans, the underwriting staff needs are much larger than those of the GNMA or HG programs which, in a sense, insure the assurances given by someone else. This operational difference is manifested most clearly in the size of the staffs needed to operate the program. FHA has two thousand employees, GNMA 50, and HG about 50-60.

Given this discrepancy in the relationship between operational structures and fees between the HG and other credit programs, the widely different pricing structure only makes sense if the HG program has considerably higher expected default costs, or its small program staff incurs relatively large operational expenses.

We now consider the cost side of the equation. Table 2.4 presents the HG program's operational expenses yearly from 1970 to 1983. Three adjustments should be made to these figures to make them useful for present purposes. First, during this period, according to HG program staff, approximately one-third of staff time and resources were expended upon implementation of AID related subsidy programs which received appropriations from Congress. The revenues for salaries and expenses

TABLE 4

HOUSING GUARANTY PROGRAM
SELECTED FINANCIAL HIGHLIGHTS
FISCAL YEARS 1970* THRU 1983
(Amounts in thousands of dollars.)

	1983	1982	1981	1980	1979	1978	1977
Operational Expenses							
Administrative Expenses During F.Y.	4,626	3,765	3,528	2,803	2,395	2,136	1,900
Cumulative Administrative Expenses	26,957	22,331	18,566	15,038	12,235	9,840	7,704
Contractual Services During F.Y.	1,762	2,003	1,501	1,765	2,469	2,234	1,861
Cumulative Contractual Services	24,762	23,000	20,997	19,496	17,731	15,262	12,928
Total Operational Expenses During F.Y.	6,388	5,768	5,029	4,568	4,863	4,469	3,760
Cumulative Total Operational Expenses	51,818	45,430	39,662	34,632	30,064	25,201	20,732

	1976	1975	1974	1973	1972	1971	1970
Operational Expenses							
Administrative Expenses During F.Y.	1,483	1,171	929	737	703	418	363
Cumulative Administrative Expenses	5,804	4,321	3,150	2,221	1,484	781	363
Contractual Services During F.Y.	1,674	1,805	1,834	1,749	1,365	1,519	1,121
Cumulative Contractual Services	11,067	9,393	7,588	5,754	4,005	2,640	1,121
Total Operational Expenses During F.Y.	3,158	2,976	2,763	2,586	2,068	1,937	1,484
Cumulative Total Operational Expenses	16,971	13,814	10,838	8,074	5,488	3,420	1,484

for these functions derived from the program revenues and not from appropriations. Thus, one-third of program expenses should be deducted from expenses because they are not directly program related.

Second, the HG program is, in effect, two programs. As described in Section 1, in 1970 the program structure was changed dramatically. The analysis here is of the current program i.e., the post-1970 program, and not of the earlier one. The program change was similar to the reorganization of FNMA and GNMA in 1968. In that partitioning GNMA was, through its non mortgage-backed security programs, to channel whatever subsidies were thought appropriate, whereas FNMA was to serve as a profit-making intermediary. The old program HG accounts for 38 percent of the loans on which the program has had to make timely payments to investors. Thus, it would be a conservative estimate to say that 10 percent of total expenses went to the liquidation of the existing less efficiently-structured loan program.

Finally, as a government program, rather than as a financial institution, a central objective of the program has been to encourage LDC governments to pursue policies that will be more likely to lead to long-term growth and economic stability. If, for example, the guaranty helps accelerate the development of a formal financial sector and/or the pursuit of better balanced macroeconomic policies, the costs of interest-rate volatility may be reduced considerably. The guaranty by the host country provides incentives for the government to engage in policies that do not bankrupt or unnecessarily burden the institutions created, i.e., inflationary finance, deposit rate ceilings. These

incentives are created because better overall policies will reduce the likelihood of project failure, which the government has underwritten.

If over the long run such institutional or policy change takes place, the efficiency gains of the program are even greater than those estimated in the previous subsection. However, any such gains would be appropriated by the LDC, not by the financial intermediary. It follows that since there is no expected payoff to the intermediary, strictly private financial intermediaries would not undertake the technical studies that the HG program does. If we subtract, somewhat arbitrarily but nevertheless conservatively, 30 percent of the expenditures on technical studies as expenditures made to promote the achievement of institutional development and long-term growth, then we are left with a set of estimates of the costs a private sector firm would have confronted to run the post-1970 program. Cumulatively, these factors reduce total costs by 58 percent. As a result, instead of having a program that had run up cumulative costs of $51.8 million by 1983, we have a program that has had costs of about $22 million.[1]

The final cost to consider is the implicit cost of capital associated with maintaining capital reserve requirements. The reserves must be of sufficient size so that the debt holders who have HG guaranties would in fact have sufficient equity to draw down upon in the even of default on the LDC sovereign guaranties. The most direct means of measuring this cost would be through the premiums that private insurers would require to re-insure the LDC government guaranties to

1. In Appendix C we show the sensitivity of the program's acturial soundness to a relaxation of these adjustments.

HG. However, the fee for a HG type guaranty is not observable in existing capital markets. As discussed earlier, one of the most important factors that affects the risk of an LDC government guaranty to HG is available only through AID; i.e., access or the lack thereof to U.S. foreign aid.

To see exactly how important this factor is in the default decision of an LDC government it is helpful to consider when it would be optimal for an LDC government to default on a loan agreement. The options pricing model developed by Black and Scholes (1972) permits just such an analysis.

Basically, this perspective suggests that a borrower's decision to default is very much like the decisions made in financial options markets. A default insurance contract is exactly like giving the borrower a "put" that gives the right to sell or put the asset to the insurer should the value of the asset, PA, fall below the value of the outstanding liability PL, i.e. default if PA < PL. In a world without transactions costs this right is exercised as soon as and if asset values fall below liability value, i.e., loan values. However, the world is not so simple, and transaction costs are important.

Jackson and Kaserman (1980) show that one of the more important factors that constrain home mortgage defaults is the value households place on being about to borrow again. If a household defaults, it is effectively prohibited from borrowing again; or if it can borrow, it can do so only at much higher interest rates. They suggest that the implicit value that a household places on accessibility to the capital markets, call it variable C, affects the default decision in the

following way: Default only if PA + C < PL. In other words, default is a better financial strategy if the value of the house is less than the mortgage by an amount that is greater than the increased future borrowing costs that result from defaulting.

Foster and Van Order (1985) explain that the value of C that can be inferred from the default decisions made on FHA mortgages is often very large. Many households who had PL > PA by 40 to 50 percent did not default, suggesting that for them the value of access to the capital markets at "normal" risk related interest rates was very high. One would suspect that most LDC governments that need capital to stimulate economic growth would also place a high value on future access to the capital markets, and our earlier discussions of the relationship between timely payments and the existence of a host country guaranty supports this notion somewhat.

The HG program adds one more factor to the optimal default decision. Besides affecting the cost and availability of all future borrowing by the country, a default on a HG loan, unlike a default on any other loan, eliminates access to U.S. foreign aid. Hence, the probability of default on the HG loan is considerably smaller than is the probability of default to any other insurer. Accordingly, private sector reinsurance contracts that do not embody this aspect of the HG contract are not at all comparable to HG loans. One cannot infer the price for the HG risk by examining the prices of such contracts.

Because there are no comparable private contracts available the implicit cost of capital can only be determined by structuring capital reserve requirements thought to be adequate for safety and paying this

accumulated capital the market rate of return. For example, one could use the FSLIC or FDIC reserve requirements which call for the insurance funds to be equal to about one percent of insured deposits. These reserves exceed those of similar European systems by factors of four or five [(McCarthy (1980)) and a number of recent studies Cassidy (1979) GAO (1983), Carron (1984) p. 26] suggest they are sufficient to maintain the integrity of the funds.[1] In fact as recently as 1980, FSLIC had to pay dividends to savings and loans if its reserves exceeded 1.25 percent of insured deposits.

On the other hand, the reserve requirements of the depository institutions seem excessive relative to HG's risks. Savings and loan associations in particular are subject to interest rate risk and the HG guaranties are not. In addition, more than 1000 of these institutions have failed or been merged by FSLIC in the past few years and bank failures are at record rates. On the other hand, only one post-1970 HG loan could in an analytical (rather than legal) sense be construed as a default. Nevertheless, even if we used the FSLIC capital requirements, the HG up-front fee satisfies this kind of requirement so that no initial investment is required.

Before an LDC government is guarantied, it pays a fee the size of the needed reserves. As we show in Appendix C, with a 15 percent discount rate the 50 basis point fee charged over during the loan's life can be expected to yield another 3.1 percent in present value. These

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1. Recent reform initiatives focus on the perverse incentives given to take on more risk rather than the integrity of the funds, although there is obviously some concern about the adequancy of the reserves.

earnings can be used to cover the administrative costs of the program. The present value of administrative costs range from 2.25 percent, if one accepts the three reductions discussed earlier, to as much as 3.4 percent if 50 percent of reductions are not accepted as appropriate. Because the expected value of default costs is, given the program's history, extremely unlikely to reach even 0.5 percent, the program would appear to be actuarilly sound, as well as yield a high return to equity. In fact, if the past is any prologue, the present value of expected default costs are very unlikely to ever reach 0.25 of one percent.

In summary, the AID HG program is clearly actuarilly sound, particularly when it is disentangled from its functions as a liquidator of an older loan program, and an implementator of related AID programs. The default experience on the current program is trivial; and there are strong incentives for this to remain the case. The operational costs also seem to be well-within the revenues that can be expected to be generated by the program. In some respects these results are not at all surprising if one looks at the right data. The program charges a much higher fee and has considerably lower default and operation costs than do programs such as FHA's actuarily-sound 203(b) home mortgage default insurance program.

On the other hand, it is easy not to look at the right data for a number of reasons. First, the program almost certainly does reduce borrowing costs as OMB says, even if it is difficult to get comparable benchmarks with which to compare it. Thus, it is easy to presume that

these cost reductions represent subsidies. We have argued and presented evidence that they do not.

Second, the program has had to seek appropriations to cover the timely payment on 37 loans that have a host country guaranty, totalling about $11 million, and 23 loans worth about $20 million that do not have such host country guaranties. Thus, it might appear that the borrowers have a particularly bad track record. This claim may warrant further scruntiny. However, it appears first, that HG borrowers have behaved like and are being treated like the other LDC loans that have been rescheduled by U.S. commercial lenders; and second, as is discussed briefly in Appendix C, that if the post 1970 program had been structured as an insurance reserve, that it could have easily made the timely payments on the loans through its accumulated reserves.

Third, the program provides a 100 percent guarantee, but does not make use of the Federal Financing Bank, as the OMB circular A-70 and the Treasury Department both suggest it should. This criticism misunderstands the nature of the program. The HG guaranty, like the GNMA mortgage backed security guaranty, is unlikely to ever be a guaranty of anything other than timely payment of principal and interest. The provision of this relatively small service does not require that the whole loan be kept within Federal Financing Bank purview. Furthermore, by relying upon private investment bankers rather than the FFB to structure the transaction in the way that the borrower wants, the current structure truly satisfies the rationale of Circular A-70, i.e., it promotes reliance on the private rather than the public sector.

Finally, and perhaps most importantly, it is all too easy to see a program such as the HG as simply one more form of Federal intrusion in the credit markets that will ultimately bid up the costs of U.S. Treasury borrowing. Once again this perspective is flawed. As we showed, even if it is assumed that the implicit cost of capital for the HG program is 15 percent, well above the risk-free Treasury rate, the program is actuarily-sound. This result suggests that the program's chief effect is to make investments in LDC development projects closer substitutes for other investments in the international capital markets. Such an effect does not shift the demand curve for this form of credit out, with a corresponding reduction in the demand for other credit, such as Treasury securities. It makes the supply curve for this type of credit flatter and more elastic in the sense discussed by Penner and Silber (1973).

Programs that make financial services more elastic are not the kind which people with different value systems disagree about. A more elastic or responsive financial system is one that allows for a less expensive fulfillment of the changing demands of the economy and the international system, whatever those demands might be. A more responsive financial system is a more valuable one. One that is correspondingly more costly to repudiate.

3. THE HOUSING GUARANTY IN FOREIGN NATIONAL TERMS

What are the effects in the host country of receiving a loan guarantied by the Housing Guaranty? The most visible effect is the production of housing and its distribution to households in the lower half of the income distribution. How much housing is produced -- both the number of households assisted and the quality of housing obtained by each -- depends on the building standards employed, the type of project (sites and services, slum upgrading, full units), the terms of the mortgage loans involved, the ability-to-pay of the beneficiaries, and the size of the HG loan.

The Housing Guaranty has several other important impacts, which are the subject of this section. The investment it generates effects the overall economy, including employment, balance of payments and the operation of capital markets. The loan also has direct and indirect impacts on government expenditures in the housing sector. Depending on the design of the project, the HG can increase the involvement of the private sector in housing production and finance, typically at some gain in efficiency. Finally, every HG has the objective of improving a country's policies in the housing sector. In this section we briefly review these effects of the Housing Guaranty; a persistent theme is that a HG loan can be structured to have direct policy impacts as well as the indirect effects on all of the economic areas just listed.

Macroeconomic Effects

The Housing Guaranty has three distinct macroeconomic effects which are worth discussing. The HG can effect the financial markets and the extent of savings mobilization. As noted in the opening section of

this paper, it has definite balance of payment consequences, and the investment of HG funds has both immediate and longer term effects on employment and household incomes.

Financial Market Efficiency and Savings Mobilization

Annual investment in the housing sector accounts for a significant share -- 2 to 7 percent -- of GDP in developing countries (Burns and Grebler, 1977, Chp. 2). It accounts for a much larger share of gross domestic investment: on the order of 20 to 30 percent.[1] Accordingly, housing investment accounts for a large share of credit usage as well, especially when both formal and informal sources are considered. In these countries, the informal sector provides over 80 percent of housing credit, at considerably higher transactions cost than the formal sector. It follows that helping to expand formal credit systems helps to improve the efficiency with which the housing finance sector operates, and has a significant effect on the overall efficiency of a nation's financial markets.

The informal sector tends to be inefficient because its coverage is spotty, with ability to borrow often depending on how well one knows the money lender; the actual borrowing terms are unfavorable (high interest rates and short maturities) which reflect more about the supply of funds than the credit worthiness of the borrowers; and there is a great deal of uncertainty about obtaining loans and about rolling loans over if that should be needed. These attributes make the full cost of borrowing in the informal market quite high and imposes an

1. Based on applying the figures in Burns and Grebler (1977) to the gross domestic savings figures in the World Development Report 1984, Statistical Annex, Table 5.

inefficiency cost on the low income borrowers.[1] At the same time, lower income households are not typically well-served by formal financial institutions. Savings in cash form is low because: (a) incomes are very irregular, (b) there is strong preference for direct interhousehold transfers and the proportion of dissavers is higher than savers, and (c) the cost of relying on formal financial institutions can be high because available methods of savings collection and loan origination are not adapted to the special needs of this group (Renaud, 1984, p. 47).

In addition to this type of inefficiency, housing finance in developing countries -- especially where public institutions are involved -- often is characterized by a confusion of the goals of mobilizing long-term resources for mortgage lending and making housing affordable to lower income households. The effects of such confusion are interest rates on both deposits and mortgage loans that are considerably below market levels. This both discourages savings in these institutions generally (and by lower income households in particular) and provides a subsidy to all those obtaining a mortgage loan, regardless of specific need for it. A major implication of the below market interest rates is that the housing finance sector is isolated from the balance of the financial sector, and that the efficiency of the overall system is reduced by the inability of funds to shift to where the return is highest.[2]

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1. For more on the operation of the informal sector see Hamman (1984).

2. For an analysis of the poor allocation of mortgage funds caused by poor mortgage interest rate policy, see the description of Korea in Struyk and Turner (1985).

Under these conditions the Housing Guaranty can positively affect the operation of the housing finance sector in several ways. By expanding the basis of contact between low income households and formal financial institutions, the HG-supported mortgage loans can broaden the share of savings and financial transactions in the formal sector and reduce the cost of inefficient transactions. Perhaps the best example of this has been the establishment of the savings and loan system in a number of Latin American countries. But it is also true on a smaller scale where both financial institutions and households gradually learn to deal with each other through the lender-borrower relationship. Experience by lenders (along with pressure from government agencies) may result in formal institutions reducing unrealistically stringent loan underwriting standards to expand further the basis for contact.

There are opportunities as well for more far-reaching adjustments that effect the integration of financial markets. The emphasis on cost recovery at market interest rates is clearly a step in this direction. More broadly, intervention in the general policies of government parastatals to align their interest rate policies with the overall market will enhance their ability to raise deposits, force explicit identification of subsidies and cause their allocation to be rationalized, and permit tapping other parts of the financial market for funds. The same steps could apply as well to private institutions, as they have in India where the Housing Development Finance Corporation has been able to generate substantial funds from corporate sources and through formal public borrowings by pursuing a market interest rate policy; even so, it has been able to reach households in the lower half

of the income distribution with its HG-provided resources. Such actions are clearly consonant with broader macroeconomic policies being urged on host countries by the AID missions, as well as the International Monetary Fund and the World Bank.[1]

Balance of Payments Effects

There are both first and second order effects of this type associated with a Housing Guaranty loan. The first order effect, discussed in Section 1, is the foreign exchange made available in the HG loan in excess of the needs of the import requirements of the housing actually being developed under the HG project. The "excess" exchange can be used for other purposes ranging from retiring higher cost debt to importing other goods and services.

The second order effect concerns the amount of this excess. The amount is important because the larger the domestic content of the housing investment the greater will be the multiplier effects on the economy resulting from the investment. The larger the multiplier, the more justifiable it is for the country to invest in housing to achieve employment and income generation objectives.

In considering the import content of housing a couple of preliminaries are in order.[2] First, in addition to items imported in their final form to be used in housing, one should as well take imports

1. As part of this work we have not been able to systematically review the effects of HG-supported projects on the operation of financial markets; hence we make no general judgement on this point. Rather the emphasis here is on the clear possibilities for such positive effects, and the illustration of the realization of them for a couple of cases with which we are familiar.

2. The balance of this section draws heavily on Katsura (1984), Chp. 4.

of intermediate goods into account. Second, in cases in which there is some domestic capacity to produce an item and imports make up any supply shortfalls, increased imports caused by the diversion of local production to the housing sector and importation of the product by other sectors should also be included in the housing sector's import bill.

Third, the import content of housing will typically vary sharply within a country depending on the luxuriousness of the units being constructed. Generally, the more basic the unit the lower the share of imported materials. (This means that the minimal housing built for lower income households under HG loans should have relatively low import content.) Fourth, it is possible for a sustained expansion in housing investment actually to lower import content by permitting the development of increased local capacity for producing some formerly imported materials, cement being a good example.

An examination of a large set of studies of the import content of housing investment compared to that of other sectors in developing countries yields the general conclusion that the import content of housing will vary across locations, perhaps dramatically, depending on the resource endowment, technological capabilities, legal environment (with respect to building codes), and tastes of countries. The idea that housing has a relatively low import content is supported to considerable extent by the empirical evidence, but a minimal balance of payments effect cannot be taken for granted.

Employment and Income Effects

At the outset it is important to recognize the stock and flow aspects of housing investment. The physical creation of the housing

stock has a relatively short-term impact on employment and income in the residential construction sector and in housing-related industries. On the other hand, long-term effects such as increased productivity from improved health and income generation from home-based industries (to the extent that they exist) are attributable to the flow of housing services produced by the investment.[1]

Housing construction creates jobs directly through on-site employment and indirectly through backward linkages with industries that produce building materials and related products. Additionally, employment is indirectly generated by housing-related spending on consumer goods such as furnishings. Compared to other industries, housing construction is believed to generate a relatively high amount of employment for a given investment.

Estimates of income multipliers for housing investment made for Colombia, Korea, Pakistan, India, and Mexico tend to be around two. Thus, in these countries, a given expenditure for new housing will generate a total output roughly double the initial outlay. In general the multiplier for housing investment appears to be in the upper half of the multipliers of all industrial sectors in the countries where they have been computed.[2]

Housing investment may also improve the productivity of labor through better health. It is this aspect of housing that places it in the category of social overhead capital, along with sectors like health

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1. This section also relies heavily on Katsura (1984).
2. The multipliers will be larger for lower quality (non-luxury) housing both because the import content of such construction is lower but also because a higher proportion of the labor will be low skill which will have a lower opportunity cost than more skilled labor.

and education. Social overhead capital is distinguished from production capital by its relatively high proportion of externalities. Because the returns from investments in such capital are not entirely realized by the investor, the private rate-of-return understates the benefits accruing to society as a whole. By reducing the incidence of illness and accidents (thereby reducing worker absenteeism) and improving the motivation of workers, improved housing is expected to increase productivity.

A number of studies have found a correlation between poor housing and poor health, but they have failed to establish a causal relationship between these factors. It has been documented that greatest housing-related health benefits are associated with improved water -- both quality and quantity. Except for accidents, the largest reduction in health problems has been in the categories of diarrheal, respiratory, and other infectious diseases.[1]

Even if the causal relationship (not just the association) between improved housing and health were more firmly established, one must still make the link between improved health and improved productivity. This is exceptionally difficult in labor surplus countries, because one must argue in effect that providing more man-days of labor will raise output. In fact, the real argument is that there is sufficient skill or experience content to the jobs involved that substitution of replacement workers is rather inefficient, so that productivity actually is reduced. The point is certainly arguable. But

1. For more on this point see Katsura (1984), pp. 25-29; Office of Housing and Urban Programs (1981); and Merrick (1983).

it is extremely difficult to design and execute before-and-after type studies to document these effects. To date the few large-scale studies undertaken have yielded moderate support of the presence of these effects.[1]

Budget Consequences

Housing Guaranty loans can reduce the per unit cost to government of assistance primarily through emphasizing project designs which are aligned with beneficiaries' ability to pay and pressing for pricing policies that make projects self-financing. Hence, the per unit subsidy cost is reduced compared to other programs with less cost recovery. Similarly, if the targeting of mortgage loan interest subsidies made by parastatals is improved, the volume of subsidies to higher income households will fall; whether total subsidies fall depends on whether these funds are redeployed to lower income households.

At the same time, the Housing Guaranty may be associated with higher or lower overall national effort in the housing sector. Aggregate expenditures depend not only on the efficiency of individual programs and the number of households the government determines to assist annually, it also can depend on the extent of the matching requirements negotiated in the loan agreement. In this regard, the Housing Guaranty is extremely flexible, so that no general statement is possible. This does mean, however, that the HG can be used so that the number of households being assisted annually is unchanged (i.e. a net

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1. Improved school attendance is another potential effect of improved health resulting from better housing that may be worth mentioning. So far as we know, this type of effect has not been documented.

substitution of HG-resources for domestic government resources); but in such cases the structure of the government's housing program would be reformed as the quid pro quo for receiving the loan.

Strengthening the Private Sector

A clear policy objective of the Housing Guaranty program is to increase the involvement of private institutions in the housing sector. Such institutions include both developers and financial institutions. The argument on behalf of this policy is a broad one of improved efficiency. The available evidence does suggest that even highly efficient government parastatal developers, such as the Korea National Housing Corporation, are not as efficient as their private counterparts (Hannah, 1982). In other countries the differences between the cost of public and private development are presumably much greater. In the financial sector, the primary gains appear to come from the greater integration of housing with the balance of the financial markets, with the attendant benefit of better allocation of loanable funds to sectors with the highest rates of return. (These may be offset, however, by government's more efficient intermediation, as discussed in Section 2.)

The use of private developers in HG-supported projects is a persistent objective. In a 1982 project in Honduras, for example, it took the form of government contracting with private developers on a "turn key" basis. In the financial sector, a typical approach is to involve private institutions at least in originating and servicing the HG-supported mortgage loans (even if the government is the ultimate investor) in order to acquaint these institutions with real estate activity in the lower income part of the market and to establish a link

between individual mortgagors and the institutions for future banking needs.[1] In other cases, as noted earlier, the emphasis is on reforming the interest rate structures of government parastatals who are the only or dominant source of mortgage loans in a country.

Policy Reform in the Housing Sector

At frequent points in the earlier parts of this section we have given examples of policy interventions that can be associated with a Housing Guaranty loan. This section provides a short summary of these points. Conceptually, the policy changes can be divided between those which effect housing in the financial markets and those which operate at the project level. Policy reforms in the housing finance sector can take the following forms: an interest rate structure consistent with the balance of the financial sector for both deposits and loans; expansion of the formal sector to reduce transactions cost; improved integration of housing and other financial sectors; and, promotion of the role of private institutions as mortgage loan or originators and servicers as well as investors.

In the design and development of housing projects, policy objectives include: use of realistic building standards, which are both affordable and realize the essential standards for improved health conditions; focusing of government activity on lower income households with subsidies (if any) concentrated on the very poor; charging prices which recover the cost of the resources used in developing the housing; and, use of private developers to the maximum degree possible. It is

1. Note that in this case the efficiency of government undertaking the intermediation function is realized.

worth emphasizing the consistency of these policy objectives with those actively pursued by AID missions, the World Bank, and the International Monetary Fund.

4. THE SHELTER AND INFRASTRUCTURE IMPERATIVE

After reviewing the economics of the Housing Guaranty mechanism and the impacts of HG loans in borrowing countries, it seems fair to ask how substantial is the problem being addressed by these loans. How severe are the problems of housing and related infrastructure in developing countries, particularly in their urban areas? This section addresses this question and examines the justification for outside intervention in the housing sector; the next section asks whether the HG mechanism is the appropriate tool to employ in providing assistance.

Urbanization and Housing Needs

The rapid increase in the degree of urbanization in developing countries over the past two decades is now legend. The figures in Table 4.1 show the broad pattern for the 1950-1980 and the 1980-2000 periods. In those African countries defined by the World Bank as having low per capita incomes the percentage of the population living in urban areas rose from 5.7 percent in 1950 to 19.2 in 1980 and is projected to jump to 35 percent in the year 2000. Similarly, the degree of urbanization in the middle income countries of Latin America will be 75 percent in 2000, compared with 41 percent in 1950. In every region of the world, the rate of population growth in urban areas will comfortably exceed that in rural areas -- often by a margin of 2-to-1.

Not only will there be a general spatial shift in the population, but there will be a dramatic shift in the poor households to urban areas. Indeed, the rural areas in most regions of the world will

TABLE 4.1
RURAL AND URBAN POPULATION GROWTH, 1950-2000

Country group	Percentage urban population			Average annual percentage growth			
				1950-80		1980-2000	
	1950	1980	2000	Urban	Rural	Urban	Rural
All developing countries	18.9	28.7	..	3.4	1.7	..	..
Excluding China	22.2	35.4	43.3	3.8	1.7	3.5	1.1
Low-income							
Asia	10.7	19.5	31.3	4.4	2.0	4.2	0.9
China	11.2	13.2[a]	..	2.5	1.8	..	..
India	16.8	23.3	35.5	3.2	1.8	4.2	1.1
Africa	5.7	19.2	34.9	7.0	2.5	5.8	1.5
Middle-income							
East Asia and Pacific	19.6	31.9	41.9	4.1	1.8	3.1	0.9
Middle East and North Africa	27.7	46.8	59.9	4.4	1.6	4.3	1.6
Sub-Saharan Africa	33.7	49.4	55.2	3.1	1.0	2.9	1.7
Latin America and Caribbean	41.4	65.3	75.4	4.1	0.8	2.9	0.4
Southern Europe	24.7	47.1	62.3	3.8	0.5	2.9	-0.2
Industrial countries[b]	61.3	77.0	83.7	1.8	-0.7	1.0	-1.1

.. Not available.
a. Government estimate for 1979.
b. Excludes East European nonmarket economies.

Source: World Development Report 1984, Table 4.3.

actually realize absolute decreases in the number of poor, while the figures will climb for urban areas, if current projections are borne out (see Table 4.2).

Generally, rapid urbanization has meant a deterioration of housing conditions. Localities, even with national government assistance, have been unable to provide adequate amounts of infrastructure (serviced lots) because of a combination of misguided policies and shortages of money and managerial skills. Private developers have served the upper end of the market, where contracts are larger and the ability-to-pay of purchasers is more assured. The result has been rising housing deficits, with the poor crowded into highly visible squatter and tenement housing.[1] In Tanzania, Mghweno (1984) reports that in 1975 some 60 percent of households in thirteen major towns lived in such housing; Tokman (1984) reports 51 percent for Ankara as of 1977.

It is important to realize that obtaining adequate quality housing is less under the control of poor households than is obtaining other basic needs such as food and clothing. The latter two can be readily purchased in small increments. Housing, by contrast, exhibits considerable lumpiness. Whereas the household can construct an adequate shelter on its own and do so gradually over time, the provision of water, sanitation, and electrical services can essentially only

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1. This point can be illustrated further as follows. If one assumes unitary population and income elasticities of demand for housing, and taking typical population and household income growth rates of 5-7 and 3-5 percent annually, respectively, then, in the absence of increasing prices, the demand for housing services will rise between 8 and 12 percent per year. This is the increment by which housing investment should be expanding annually, assuming constant returns to scale.

TABLE 4.2

PROJECTED GROWTH OF THE NUMBER OF HOUSEHOLDS IN POVERTY BY URBAN AND RURAL LOCATIONS: 1980-2000
(Millions of Households)

	Urban			Rural		
	1980	2000	Change	1980	2000	Change
East Africa	1.4	4.7	+ 3.3	6.5	8.6	+ 2.1
West Africa	1.4	3.2	+ 1.8	2.9	2.2	- 0.7
East Asia and the Pacific	4.2	5.7	+ 1.5	12.6	9.9	- 2.7
South Asia	14.0	32.6	+18.6	48.8	32.7	-16.1
Europe, Middle East, and North Africa	6.2	8.7	+ 2.5	3.8	1.4	- 2.4
Latin America and the Caribbean	14.0	19.3	+ 5.3	4.9	1.6	- 3.3
Total	41.2	74.3	+33.1	79.4	56.4	-23.0

Source: Churchill with Lycette (1980), Table 1.

be accomplished on a community basis, especially in light of the high densities of many slum settlements. Such information as is available shows that households improve their dwelling quality at much faster rates than they are able to upgrade infrastructure services, either by self-provision, moving or organizing their own communities (Struyk-Wessel, 1984).

To add some specificity to the discussion of current conditions, we draw on a set of recently completed housing needs assessments. These assessments all follow the same methodology and have been completed within the last year.[1] The six countries used in this discussion were selected (out of the ten for which similar data are available) to cover the range of country income levels. In particular, the countries organized by income level are:[2]

lower income -- Sri Lanka, Kenya

lower middle income -- Equador, Zimbabwe

upper middle income -- Barbados, Panama.

The figures in Table 4.3 summarize the housing needs in the urban areas of the six sample countries. In looking at these figures it is important to keep in mind the diversity in their degree of urbanization. Another differentiating factor is the quality distribution of the housing stock in the base year. The rating of dwellings includes infrastructure services provided as well as the structure itself; because of data availability and other factors, somewhat different

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1. For a description of this computer-assisted methodology see Robert R. Nathan Assoc. and the Urban Institute (1984).

2. More information on income ranges of groups of countries and of income levels in these six countries is given in Appendix A. Note that these countries should not be considered in any way to be representative in the statistical sense of the countries in each income group.

TABLE 4.3
HOUSING QUALITY AND HOUSING NEEDS IN URBAN AREAS OF SELECTED COUNTRIES

	Lower Income		Lower Middle Income		Upper Middle Income	
	Sri Lanka	Kenya	Equador	Zimbabwe	Panama	Barbados
Base year for analysis	1983	1983	1984	1984	1982	1980
Percentage of households in urban areas	20	19	65	31	56	73
Percentage distribution of base year housing stock by quality						
acceptable	41	70	77	95[d]	74	37
upgradable	50	20	18	5	5	61
unsalvagable	9	10	5	0	21	2
Overcrowded units as percent of base year housing stock	14	13	3	39	15	4
Total backlog of units (thousands)[a]	392	253	284	176	86	33
Units required annually for new households in next 5 years (thousands)	13	39	39	40	8	0.6
Ratio backlog to annual units for new households	30.1	6.5	7.3	4.4	10.8	55.0
Total new and upgraded units required to meet long-term improvement plan (thousands)[b]	37	59	69	60	15	2.4
Percent of GDP required per year in first 5 years to meet need at current standards[c]	1.2	5.5	5.8	6.6	3.9	3.0
Characterization of "current standards"	realistic minimum	high	high	high	high	high

a. This is the count of units in the base year classified as upgradable or unsalvagable plus overcrowded units.
b. Plan to erase backlog over 20 years and house newly forming households in "acceptable" units; in thousands.
c. Building standards are those used in the base case of each analysis, a "high" standard implies for a new unit, for example, a finished unit (not just a shell unit) with individual unit water and sanitary services hook-up and comparable levels of other amenities.
d. Detailed data on housing quality is especially lacking; distribution is a rough approximation.
Sources: Sri Lanka-Manson and Struyk (1984); Kenya-Roscoe and Burk (1984); Equador-Blankfeld and Vergara (1984); Zimbabwe-Katsura and Manson (1985); Panama-Robert Nathan Assoc. and Urban Institute (1985); and Barbados-Dubinsky and Struyk (1984).

criteria were used from country to country in classifying units. So the ratings are not strictly comparable. Sri Lanka and Barbados are rated as having low shares of the urban housing stock currently in the "acceptable" category, while in the others over two-thirds of the units are in this category.

A convenient measure of the size of the task facing these countries is the ratio of the backlog of (a) the number of deficient (classified upgradable or unsalvagable in the table) and crowded units present in the base year to (b) the number of households expected to form each year in the years immediately ahead. The ratio ranges from a minimum of 4.4 years (for Zimbabwe) to over 50 (Barbados). This figure can be interpreted as the number of years of annual production equivalent needed to erase the backlog. However, since these countries have been unable to produce adequate housing in a sufficient volume for even new households in the past, these figures indicate that much higher levels of production will be needed in the years ahead.[1]

A final summary measure is the percentage of GDP that would be required in the early years for a country to execute a 20-year plan for erasing its base-year backlog and providing acceptable housing to all newly forming households in urban areas. Obviously, the percentage of GDP required will depend on the degree of urbanization, the size of the backlog, the rate of growth of cities, and the standard chosen by government as the minimum acceptable. The percentages of GDP shown in the table range from 1.2 percent for Sri Lanka -- with its low degree of

1. Production explicitly includes upgrading existing units, as through slum upgrading projects.

urbanization, low household formation rate, and realistically low physical standards -- to over 5 percent for Kenya, Zimbabwe and Equador which have higher urban growth and have in the past, at least, employed quite high standards for determining the acceptability of housing.[1] For all of the countries except Sri Lanka, following such a plan may well require a greater share of GDP than the country can realistically afford to devote to the housing sector, implying that either the housing solutions chosen will have to be more modest (and therefore cheaper) or that the deficits will continue to grow.

All of this suggests that many of these countries could use assistance if they are to meet the challenge posed by their urban housing problems. Not only are more resources needed for the sector, but in various cases basic housing policies should be reformulated, the capacity of government agencies upgraded and the formal housing finance systems expanded.

Justifying Outside Assistance

Two types of argument can be mustered on behalf of donor countries or multinational organizations providing assistance for upgrading urban housing in developing countries: the so-called basic needs argument, which states that all persons should enjoy certain

1. The classification of standards employed in each country is based on the solutions in effect at the time the needs assessment was done. Some of these countries appear to be the process of revising their standards downward.

minimal levels of life's necessities, and economic efficiency arguments.[1]

The language of the Foreign Assistance Act of 1961, as amended, makes clear that the Congress had basic needs in mind to justify U.S. assistance to this sector:

> The Congress recognizes that shelter requirements are among the most fundamental of human needs... While recognizing that most financing for such housing must come from domestic resources, the Congress finds that carefully designed programs involving United States capital and expertise can increase the availability of domestic financing for improved housing and related services for low-income people... (Section 221)

Over the years Congress has reaffirmed its view that such intervention -- primarily on a demonstration or catalytic basis -- is justified by consistently providing AID with the authority to operate the Housing Guaranty program.

The economic arguments are of two types. One considers the broad macroeconomic effects of expanding investment in housing. These were reviewed earlier in Section 3. These arguments are spatially-neutral, in that the positive effects do not depend on where the expanded investment occurs. The second class of economic efficiency

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1. Churchill with Lycette (1980, p. 1) provide a quite complete statement of the basic needs argument. Essentially, the justification for basic needs rests primarily on value judgments of the desirability of consuming a certain bundle of goods and services described as basic. That the concept is relative or arbitrary does not invalidate the approach -- although it does suggest caution in applying it. Moreover, it is evident that the definition of "basic" will vary across circumstances and probably cannot be defined in absolute terms.

arguments rests on the urban dimension of the investment. In short, increased investment in the housing sector can increase the efficiency with which cities function, which in turn allows an expansion of output and greater competitiveness for domestic and foreign markets.

Cities are widely recognized as centers of economic activity because physical proximity permits the efficient exchange of information and the movement of intermediate goods among producers, and larger levels of economic activity will support a greater degree of specialization in labor services, production, and marketing.[1] Many cities in developing countries do not function nearly as well as they could due to a combination of insufficient infrastructure investment, improper pricing and mismanagement of public services, and inappropriate policies governing the use of scarce resources (such as water or roadway capacity).

Expanded investment in housing, including related infrastructure and city-planning aspects, can improve the overall functioning of the city in several ways. The most obvious is that planned residential areas can be sited near major work zones, thus reducing the strains on the transport system and saving workers' time.[2] Installing stand-pipes or individual water connections, compared to purchasing water from vendors, will lower the price per unit of water sharply and save households significant queuing time (Linn, 1983, pp. 147-48).

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1. For more on this see Bendick and Egan (1984).
2. In some cases, of course, where residential areas occupy prize commercial or residential land, government policy should be to intervene to relocate these households with full compensation (that can be generated through the land sales) thereby promoting efficiency gains in these other sectors which will result from greater spatial concentration.

Improvements in the quality and quantity of water consumed have positive effects on labor supply, as noted earlier. As another example, good street layouts will make collection of solid waste dramatically less costly. Cumulatively, these seemingly small changes should result in lower cost of services to citizens, better utilization of capital, and more time being available for (formal and informal) work activities rather than lost in commuting, queuing and the like.

Documentation of city-level of efficiency gains is extremely sparse. Obviously, for such gains to be evident they must involve substantial changes in policies sustained over time and/or interventions in the housing sector at a level which effects a significant (20-30 percent) of the housing stock. Few cases of such completed projects, with attendant analyses of impacts, exist. As far as we know, only Cohen (1983, pp. 43-5) has indicated the presence of such impacts for a few large-scale World Bank projects.[1]

1. Many analysts assert that housing sector investment will produce these general types of effects. Lubell (1984, p. 8), for example, makes a strong argument for investment in the sector on similar grounds but does not document the benefits from such investment.

5. THE HOUSING GUARANTY PROGRAM AND AID OPERATIONS

The activities of the Agency for International Development are part of the larger economic assistance program conducted by the United States. Major non-AID elements of this program include: U.S. contributions to multilateral development banks; the Economic Support Fund, which provides general budget and balance of payments assistance to selected countries in support of U.S. efforts to promote stability and U.S. interest in strategic regions of the world; and, the PL-480 Program, under which direct food distribution and concessional loans for food imports to the needy are made.[1]

AID's own activities are channelled through three major programs, which we argue later are conceptually highly complementary forms of assistance.[2] The Agency provides Functional Development Assistance with Development Assistance Grants and Development Assistance Loans; and, it provides assistance for housing and related infrastructure through the Housing Guaranty Program. Both forms of Functional Development Assistance are funded out of direct appropriations. While activities supported by grants carry no repayment requirements, Development Assistance Loans, although made at highly concessional interest rates (usually of 2 or 3 percent), do require repayment, over 40 years.[3] The Housing Guaranty, in contrast, does not involve the expenditure or lending of appropriated funds and requires

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1. Other programs include the Peace Corps, Refugee Assistance, and funding for International Organizations.
2. A fourth activity -- the Private Sector Revolving Fund -- was established by the Congress in 1983.
3. Repayments go directly to the Treasury, not to a revolving fund.

repayment at market interest rates.[1] All three programs provide dollar assistance to the host country, not all of which is earmarked for the foreign exchange component of the activity being supported, i.e. the country is able to substitute local currency for some expenditures and use the excess dollars for other foreign exchange operations.

A further word about the Development Assistance Loan and HG programs may be helpful. Even though the Development Assistance Loans must be repaid, the appropriations process is such that every dollar lent is shown in the budget documents as an outlay. In fact, the actual cost of the program to the U.S. Government is the difference between the market rate of interest and the concessional rate. If the Treasury borrowing rate is 10 percent and funds are lent at 3 percent, the discounted present value of the subsidy at the time the loan is made is over half of the value of the loan.[2] The Housing Guaranty program requires an appropriation of guaranty authority, but normally no appropriation of funds; and repayments are sufficient to cover the cost of funds at market interest rates.[3]

An idea of the level of activity under each of the three components is available from the budget outlays, loans obligated and

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1. The Housing Guaranty Program does require formal appropriations action by the Congress, in which the amount of the guaranty authority available to the program is appropriated. As noted earlier, however, the program has been essentially self-financing and therefore does not require appropriations for on-going expenditures.

2. Calculation assumes a 12 percent discount rate.

3. As discussed earlier, the 1985 Congress did appropriate $40 million to increase the HG program's reserves. This has been the only appropriation for the program. The program does generate outlays (financed by fees) in its administrative expenditures; it also generates direct loans when it makes payments on behalf of borrowers to U.S. institutions.

loan guaranties authorized for fiscal year 1984 (in millions of dollars).[1]

development assistance grants	$ 749
development assistance loans (obligated)	455
housing guaranty (guaranties authorized)	133

These figures indicate that the HG constitutes about 10 percent of total Agency activity, and that the lion's share of assistance is provided on a grant basis.

Aside from the designation of the HG program for use in the housing sector, one can ask what other criteria should govern which projects are supported with this type of mechanism. Five criteria are applicable; the mechanism is appropriate when:

- a long-lived asset is produced which is capable of producing a flow of benefits over an extended period of time;
- identification and evaluation of the benefits produced by the asset is possible;
- the benefits accrue predominantly to households or firms that can be readily identified;
- beneficiaries are expected to have a substantial ability-to-pay over the period of repayment;
- the administrative cost of collection, etc. is reasonable in relation to the amount collected.

Housing developed under the HG program conforms to these criteria by creating a highly durable asset whose benefits accrue to its owners

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1. Sources: direct assistance loans, Executive Office of the President (1985), p. 5-24; direct assistance grants, computed as the difference between total outlays for the Functional Development Assistance Program (as shown in Executive Office of the President (1985), p. 8-26) and direct assistance loans; housing guaranty authority is from Office of Housing and Urban Programs (1985). Note that AID administers funds appropriated under other programs as well, such as the Sahel Development Program.

(usually the occupants). If reasonable standards are employed in the development of the unit, then experience shows that beneficiary households will have the ability to make payments and that they will.[1]

The case for funding other investments with this type of mechanism is stronger the more closely these criteria are satisfied; many kinds of infrastructure investment have the relevant attributes, for example. In contrast, investments in education and training generate a much less certain stream of benefits, some of which accrue to the individual and some of which go to society at large. For other sectoral investments involving long-lived assets, even with proper design standards, households may lack the ability to pay for the services generated; in such cases the concessionary terms of the Development Assistance Loans may be appropriate. Thus, the three forms of assistance provide an array of tools to be deployed in meeting differing host country and project needs.

As suggested earlier, use of the Housing Guaranty mechanism can generate positive effects beyond properly matching funding tools with program requirements. In terms of project design, its use increases the pressure on host governments to employ program designs and pricing schemes which make projects closer to being self-financing than they might be under alternative funding arrangements.

In addition to the direct project benefits, the Housing Guaranty arguably generates other benefits by giving AID a greater leadership role in the sector. The size of the projects (and the

1. Linn (1983, table 5.17) shows that many of the World Bank financed housing projects for low income households have been self-financing, exclusive of exchange rate risk.

overall program) financed by AID under the HG are presumably larger than they would be otherwise. It seems reasonable that these larger interventions give AID greater leverage in discussions on individual projects and on sector-wide policy. Moreover, as the Agency's overall presence in a host country increases, its general position in the policy dialogue should be strengthened as well.

The substantial aggregate Housing Guaranty Program also makes the Agency a major player among the international organizations working in the sector. Indeed, HG activity levels have substantially exceeded those of the World Bank, the only other source of sectoral activity approaching AID's.[1] Thus, AID's view on sectoral policy development should have a persuasive influence on sectoral assistance generally.

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1. Cohen (1983, table 1) indicates that World Bank lending for shelter averaged about $191 million per year over the 1972 through 1981 period.

6. CONCLUSIONS

Based on the foregoing analysis we have researched the following six basic conclusions about the Housing Guaranty Program. Each responds to a question that has been legitimately raised about it.

Are the economics of the HG program basically sound?

Yes. The current HG program is clearly actuarially sound, particularly when it is disentangled from its functions as a liquidator of the older loan program, and an implementor of ancillary AID funded subsidy programs. The default experience on the current program is trivial, and there are very strong incentives to borrowers for this to remain the case. Furthermore, even if the expected default costs were to increase sharply, e.g. by a factor of fifty, the program's reserves should be sufficient. The operational costs also seem to be well within the revenues that can be expected to be generated by the program. In fact, the program has been used as a complementary financing vehicle on projects such as the HDFC in India.

How do of the risks and returns of the HG programs compare with other federal credit programs?

As noted in Section 2, the fees for the HG program are higher than those in other federal credit programs as the following table shows:

Expected Revenue From Selected Federal Guarantees

	Present Value As Percent of Loan	Interest Rate Differential (Basis Points)
AID HG	4.1 (5.0)	.60 (.72)
FHA	3.8	.55
GNMA	.4	.06
FSLIC	.6	.08

The fee for the HG program is almost 10 percent higher than the fees charged for FHA home mortgage insurance. It is also a large multiple of the fees that GNMA and FSLIC charge. The fee is ten times larger than the GNMA fee and almost seven times larger than the current FSLIC fee. Furthermore, these estimates for the HG program are conservative, as they are based upon using a 15 percent rate of return as the discount rate, whereas the FHA program uses the risk-free borrowing rate of 10 percent to make the computations. The figure in brackets in the top row represent strictly comparable figures for the HG program if the 10 percent discount rate were used. Using these figures the HG fees are 30 percent higher than the FHA fees.

The FHA contrast is particularly relevant because the expected costs of default losses on FHA insured loans is, according to FHA's chief actuary, 1.14 percent. This figure is approximately equal to the discounted value of the cumulative probability of default, which for FHA's 203(b) program is 8 percent, multiplied by the expected loss per loan, which for FHA is about 40 cents on the dollar. The respective figures for the HG program, as discussed in Appendix C, are 1 percent probability of default and 25 percent loss per loan insured. Inasmuch as the fees are higher and the default costs are lower than those on a

program that has long been viewed as actuarially sound, so too must the HG program be so defined.

Is the HG instrument superior as a policy instrument for supporting housing assistance than the direct loan program?

Our overall assessment is that from a cost perspective the Housing Guaranty program often has enormous advantages relative to direct assistance. It is dramatically less costly to the U.S. Treasury. Also, as presently constituted HG meets the requirements of an efficient federal credit program. Moreover, the loan maturities and implied emphasis nicely match those of properly designed housing projects. On the benefit side, it can have large positive effects on the economy by a developing nation -- through multiplier effects of the investment financed, improved efficiency in its financial markets, and rationalization of its housing assistance policies. Conceptual and empirical problems make exact identification of such benefits difficult to measure. Nevertheless, the finding that the HG program is self-financing implies that if policies are to be pursued that attempt to provide such benefits to developing countries, the HG program is a very efficient means of doing so.

How close is the program to the economic purposes of the IMF and the World Bank?

We treat this question from three perspectives: size, function, and method. The program is on the order of the amount of funds lent by the World Bank for shelter projects.[1] However, unlike most other international programs, the HG program is designed to be

1. See Cohen (1983), Table 1, p. 11.

self-financing rather than a mechanism to transfer resources to poorer countries. Clearly financial self-sufficiency is not always a prime concern for development assistance, but in a period of budget austerity it is equally clear that there is a the need for LDC assistance instruments which have minimal demands on donors. The HG program scores highly on this basis.

The function provided by the program in addition to its direct project assistance is to help promote and mobilize capital markets in developing countries. These are prime functions of both the World Bank and the IMF. However, the IMF's role is much more general. Its basic function is to facilitate international financial transactions generally rather than just a particular type of financial transaction as does the HG loan. Nevertheless, to the extent that the program gives incentives to host governments to pursue policies that reduce the project risks that has the program is consistent with the functions they themselves have also insured, of both of these international organizations. Whether the program and related AID assistance are of sufficient size to indeed induce better growth strategies by the LDC governments is an empirical question that we have not addressed. In principle the HG program can provide such incentives.

Finally, with respect to method, the program is conceptually very similar to the equity finance approach taken by the IFC. Rather than make an equity investment in a project that needs long term funds, as does the IFC, the HG program does this by helping borrowers to tap the credit markets. Thus, the program represents an alternative financing vehicle to that provided by IFC.

What are the likely consequences of program cessation?

1. That unless foreign assistance to the sector is to be eliminated, more federal expenditures will be required for a given level of assistance. Indeed, to maintain the current level of effort will require appropriations equivalent to the reduction in HG loan guaranties.

2. A significant actor, on the size of the World Bank's shelter activities, in the international capital markets will cease to function. This will increase the costs of international financial transactions by eliminating the efficiency gains that this financial intermediary produces.

3. If the HG program is replaced by a similar program under international or other domestic auspices, the demand for U.S. investment banking services will be reduced and diverted to the international banking community. It seems more likely, however, that these services will not be replaced, so that this demand is simply not accommodated rather than accommodated elsewhere.

4. Probably most importantly, fewer housing related development projects will be undertaken by LDC's at precisely the time when such projects, due to urbanization pressures, are likely to be yielding very high economic returns.

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APPENDIX A

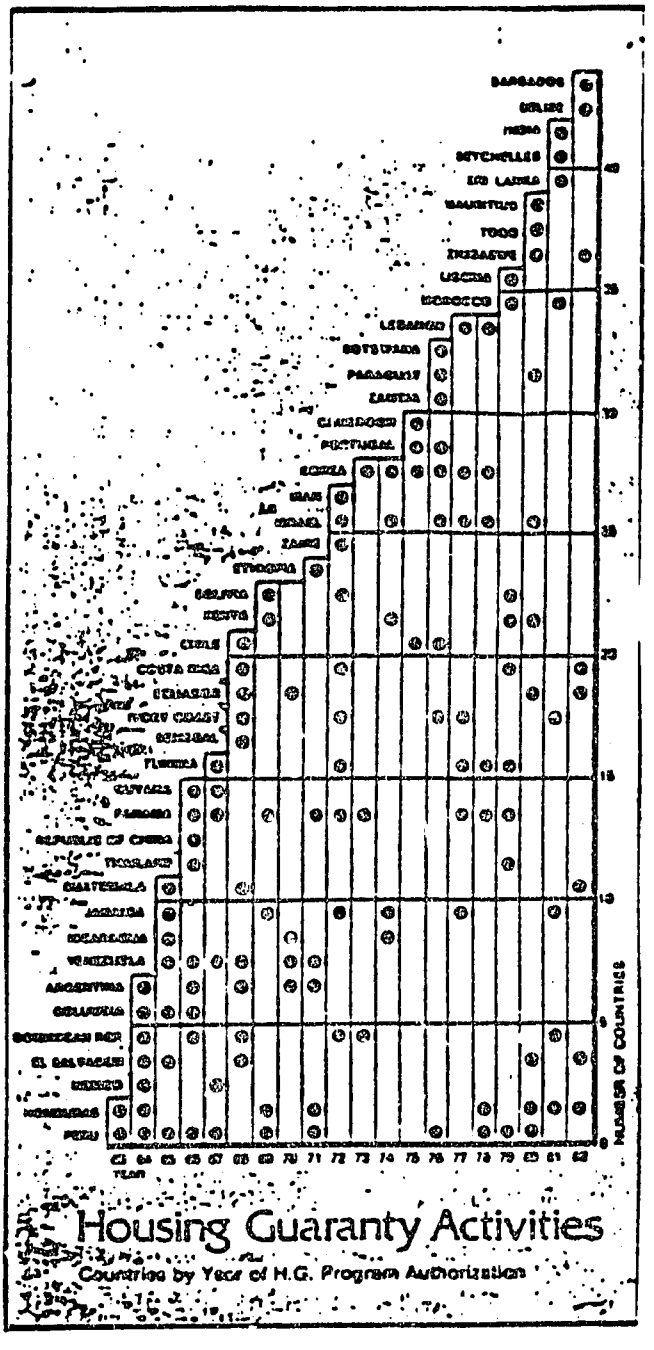
1982 PER CAPITA INCOME CRITERIA FOR WORLD BANK COUNTRY CLASSIFICATION AND INCOMES OF SAMPLE COUNTRIES

Country Type	Per Capita Income Range	Sample Country Name	Sample Country Per Capita Income
Lower income	$ 80-350	Sri Lanka	$ 320
		Kenya	390
Lower middle income	440-1,610	Equador	1,350
		Zimbabwe	850
Upper middle income	1,680-6,840	Barbados	1,720
		Panama	2,120

Source: World Development Report 1984 and authors' calculations.

APPENDIX B

LOANS UNDER THE HOUSING GUARANTY PROGRAM BY COUNTRY AND YEAR



Source: Office of Housing and Urban Programs (1985), P.T.

APPENDIX C

COMPUTING THE PRESENT VALUE OF THE GUARANTY FEES AND THE COST OF OPERATION

In order to compute the present value of HG guaranty fees the revenue stream must be partitioned into the three components that make up these fees and the present value of the separate parts summed together. In other words, the fee is equal to the sum of the present value of: (1) the up-front one percent fee; (2) the present value of an annuity of 50 basis points for 10 years, which corresponds to the initial 10 year period during which the loan is not amortized; and (3) the present value of a 50 basis point fee times the outstanding loan balance during the period during which the loan amortizes.

There are a number of complications in computing the survivorship and decrement rates for the host country guaranty program -- what we term the post 1970 program -- because it is only 15 years old and there are only 87 observations. The small sample requires that a number of assumptions be made.

First, the interest rate on some higher interest rate loans is not fixed; therefore, the outstanding balance amortizes at the assumed rate only if rates do not change. We address this by deleting variable interest rate loans and compute a simple average interest rate of 9.00 for the post-1970 portfolio.[1] We also assume tht the rate on loans made is equal to this rate. This amounts to assuming that the future will be

1. The simple average interest rate is a simplification that reduces the present value of the fee income, as does the assumption of annual payments rather than quarterly and sometimes monthly payments. We did not include variable rate loans because their rates are not listed in the AID program material. Because these loans were made at higher interest rate than the fixed rate loans their exclusion also causes our interest rate estimate to be slightly understated.

like the past. Because rates are currently much higher than past rates, this assumption is conservative.

Second, loans may be prepaid if the borrower and lender agree. For example, FHA-insured 30 year loans generally have been prepaid in about 12 years. In addition, in the FHA computations of the present value of fee income, a probability is assigned to the likelihood that a payment is made in each of the loan's 30 years. This complication is resolved, to some extent, because the costs of prepayment under the HG program are generally very high; approximately double the costs of prepayment in the U.S. It is, therefore, not surprising that only 1 of the loans with host country guarantees had been prepaid by 1984. Because we do not have a sample of sufficient size to determine a prepayment rate, we assume that expected life of the loans is 15 years beyond the grace period and that no loan balance is outstanding after this time.

Third, there has only been one default in an analytical sense, i.e., Iran, on the 87 loans that have a country guaranty, for a default rate of .011 percent. This claim occurred eight years after loan origination. However, it was precipitated by a random event. There is no logical way to predict when a default on a sovereign guaranty is likely to occur. Consequently, we need an assumption about the timing of default to compute the present value of the costs of default. We somewhat arbitrarily assume that default occurs at least three years after loan origination. We make this assumption because such an action by a host country requires a very sharp change in the government's position from that of guarantor to repudiator of a contract. It would

seem unlikely, or at least bad policy, to make guaranties to countries that seem liable to renege on a contract in the immediate future. Hence, we assume that the default occurs at the earliest possible time thereafter so that the expected cost is as high as possible. Initially we also assume that no other defaults occur. However, to check the sensitivity of the adequacy of reserves to higher levels and/or costs of default we also assume expected default costs much higher than past history.

Fourth, we need to select an interest rate to discount both fee income and losses. We assume that the return to equity should be 15 percent, to approximate the return to private investors. Because of the timing of fees, this assumption will reduce the value of the program's income stream relative to valuations made using a 10 percent risk free government borrowing rate, which is used by FHA. However, since part of the exercise is to determine what the private sector would charge, this private sector return to equity assumption seemed reasonable.

Fifth, on the cost side, we need to adjust the administrative cost figures to account for the higher initial costs involved with loan preparation, development of technical staff in the 36 countries served by the program, and the switch to the more powerful contract that required less monitoring after 1970. For example, between 1970 and 1983 the inflation-adjusted value of outstanding guaranties grew 3.5 percent more rapidly than did the inflation-adjusted costs of program operation. We assume that the adjusted cost ratio of four-tenths of one percent of portfolio size that was the case in 1970, declines by 3 percent per year

for the first 15 years of loan life, and then remains constant for the remaining ten years of the loan.[1]

Sixth, we use the Iranian experience to determine the expected loss per loan on default of 25 percent. Later, as noted above, we modify this assumption to test the adequacy of reserves to unanticipated and unpredictable financial disruptions.

Seven, we assume that the FSLIC capital reserve requirements of one percent of the guaranties provided is an adequate reserve for the program. This assumption allows the program to be started with essentially no capital since the borrower pays a one-percent fee, which satisfies the reserve requirement at loan origination. In this respect, the program is like the GNMA mortgage-backed-security program which used Treasury borrowing authority as its initial reserves.

We are left with the following ledger of revenues and costs:

1. The "adjusted" figures referred to are those discussed in Chapter 2 on pp. 27-28. Essentially these adjustments involve conservative estimates of how much of program expenses were incurred for non-program activity.

Revenues

Fee Income		the present value of a 10 year annuity of a half percent discounted at 15 percent		The present value of a 0.5 percent payment times the outstanding loan balance over years 11 through 25, discounted at 15 percent		Present value o. program revenue.
1.00%	+	2.50%	+	.6%	=	4.1%

Costs

Administrative Costs:

The present value of a 10-year annuity of 42 basis points discounted at 18 percent.[1]		The present value of the cost term times the outstanding loan balance discounted at 18% during years 11-15		The present value of the cost term times the outstanding loan balance during years 16-25 discounted at 15 percent		
1.88%	+	.24%	+	.12%	=	2.24

Default Costs:

Probability of loss per loan		Expected cost per loss		Expected loss per loan		Discounted at 15 percent			Present value of expected program costs
.011%	X	.25%	=	.00275	=	.0018	=	+.01	2.25

Residual earnings	1.85
Residual earnings if default costs increase by 500 times the historical experience[2]	.95
Residual earnings if default costs are 100 times the historical experience and 50 percent of what has been termed non-program expenditures are included in program costs.[3]	.60

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1. The 42 basis points is the adjusted ratio of program expenses to portfolio size in 1970. An 18% discount rate is used because of the assumption that administrative costs per dollar of loan decline by 3% per year. The 3% is added to the 15% discount rate.

2. This is computed by multiplying the historical figure .0018 by 500 = .9.

3. This figure is computed by multiplying the present value of program administrative costs 2.24 by 1.5, to about 3.3 and increasing the historical default costs a hundred-fold, i.e., to .2.

A number of aspects of the computations warrant discussion. The foremost being a reconciliation of a reserve fund's seemingly imperviousness to increases in default costs and the recent need to seek appropriations for the fund. We treat this in two parts: (1) the seeming inability of increases in default costs to affect the acturial soundness of the program; and (2) we produce some estimates of the size of the reserves that would have been necessary to make timely payment of principal and debt service on post-1970 loans.

Default Sensitivity

The program's history indicates that defaults pose very little if any expected real costs on the reserves. This result is consistent with analyses of the GNMA mortgage-backed-security program and the Federal Home Loan Mortgage Corp.'s participation certificate program.[1] The reason that the results are similar is the basic conceptual similarities of what each of these programs do. The program's are not really insurance programs, but rather surety programs. They insure others' guaranties.

It is perhaps also worth noting that the kinds of increases in default costs mentioned are conceivable, if very unlikely. But, they would only occur if the state of international financial relations were very different than they have been in the post World War II era. For sovereign loan repudiations to occur there must be very severe disruptions of financial relations and conditions.

1. Discussions with the Executive Vice Presidents of both agencies.

Rescheduling Costs

The post-1970 program has an approximate size of $1 billion. With the 1 percent up-front fee this generates $10 million. Very conservative estimates are that these fees could have yielded another $4 million in revenues if a large portion had been invested in risk-free Treasury securities as they were collected. The 50 basis point fee could have been used to pay off program expenses as they were incurred. In fact, it appears that program expenses would have ranged from 42 basis points in a loan's first year to 28 basis points in its 14th year. (See the footnote in the above table, and assumption 5 above.) As a result, average revenues per loan would have exceeded average administrative costs by another 15 basis points per year. With interest earnings these savings could have contributed another $10 million to reserves. (These estimates are approximate.) Inasmuch as loans with host country guaranties have required $11 million in timely payments, the "true" reserves that the program could have generated, well over $20 million, would have been able to accommodate the payments made on behalf of borrowers.