State-Owned Development Finance Institutions (SDFI): Background, Political Economy and Performance Assessment

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Acronyms

CPI	Consumer Price Index
DFI	Development Finance Institution
ERR	Economic Rate of Return
FI	Financial Institutions
FRR	Financial Rate of Return
GOI	Government of Indonesia
HIID	Harvard Institution of International Development
IADB	Inter-American Development Bank
IPTW	"Incentive to Pay on Time"
OI	Output Index
OLP	Outstanding Loan Portfolio
ROA	Return on Assets
ROE	Return on Equity
SDFI	State-Owned Development Finance Institution
SDI	Subsidy Dependence Index
SMEs	Small and Medium Sized Enterprises
WDR	World Development Report

Abstract: The paper reviews the reasons for establishing state-owned development finance institutions (SDFIs), it evaluates their performance compared to original expectations and highlights the lack of consensus regarding meaningful assessment criteria used in evaluation of their performance. The paper further suggests, in the absence of a full cost-benefit analysis that is only rarely carried out, to rely on an evaluation methodology that is based on two primary assessment criteria: the outreach to a well defined target clientele and the subsidy dependence of the SDFI concerned. It further recommends that the debate on whether SDFIs still have any development finance role to play should be shifted somewhat to focus instead on using this assessment framework that calls for estimating the cost, subsidies, and defining and evaluating the "products" that are delivered by SDFIs.

The paper further describes the drastic transformation of a previously loss-making, poor performing profit center in an SDFI in Indonesia about twenty years ago to a very successful one that provides financial services to the low-income rural population. This profit center succeeded in achieving subsidy independence, substantial outreach and high profitability as a result of implementing the best practices in rural financial intermediation

There are many lessons to be learned from the experience gained in transforming a poor performing, loss-making SDFI into the world flagship of the rural micro-finance industry. This unprecedented success is better appreciated considering that it is very costly to serve low income and poor rural clients. The provision of low value loans and savings accounts with frequent installments for loan repayments and saving withdrawals entails relatively high administrative costs per $ outstanding loan portfolio (OLP). The lack of traditional collateral and reliable accounting data, as well as questionable creditworthiness and debt servicing capacity of these clients further adds to the financial risk involved. Many of the modes of operations that explain this successful performance can be applied in servicing other target clientele such as small and medium sized enterprises (SMEs) and urban poor, provided that necessary adjustments to the different socio-economic and cultural values of these clients are appropriately made.

Executive Summary

The reliance on SDFIs to ensure that priority sectors and underprivileged clientele were provided with financial services, particularly credit, was the dominant practice in the development finance paradigm until the start of nineties. SDFIs were considered imperative to finance economically warranted operations that were not financially attractive to private, for-profit, financial institutions (FIs), because of their actual or perceived poor financial profitability and high-risk operations.

A SDFI is defined as a financial intermediary that aims to improve social welfare, by lending to priority sectors or target clientele while benefiting from some level of concessionary resources received from the state and/or donors. The public funds entrusted to the SDFI are, by definition subsidized, because the unfettered market would have charged higher rates for these resources[1]. Often, the SDFIs face high correlated risks (e.g. small-scale farmers faced with very limited crop choices that are subject to both yield and price risks), asymmetric information problems aggravated by a client's lack of financial statements, and political interventions in credit allocation which hamper sound loan recovery. Deficient economic, sectorial policies and institutional arrangements related to property ownership and creditors' rights, unsound limitations regarding use of collateral and weak enforcement systems contribute to the poor plight of many SDFIs in developing countries. Many states prefer to concentrate on enhancing operations of SDFIs rather than creating an enabling environment that could have paved the way to efficient financial intermediation by private agents.

SDFIs, to a large extent, were established in almost all countries with the intellectual blessing and the financial support of international and regional donors up until the end of the 1980s. In many developing countries such SDFIs had specific sectoral assignments, such as agricultural, industrial or housing development, thereby further compounding the lending risks that resulted from loans concentrated in a single sector and running counter to prudent for-profit lending that pools and manages credit risks.

The political economy in which SDFIs were operating influenced their credit allocation, financial performance, access to concessionary funds and also their efficiency levels. In general, the overall economic conditions and in particular the degree of development of the financial sector, has changed substantially since the heyday of the SDFIs several decades ago, when there was limited competition from other FIs capable of serving part of the "priority" and the underserved sectors. The liberalization of financial markets that took place in many developing countries and the emergence of NGOs and other formal and semi-formal FIs are increasingly begging the question regarding the need to update the role, scope and assessment of the performance of SDFIs.

The renewed interest in the role and destiny of SDFIs is stemmed from a) the overall intent to reduce the role of SDFIs in the banking industry in pursuit of improved financial sector's performance; b) sober evaluations indicating that SDFIs' performance fell, by and large,

[1] Schreiner, M and Yaron, J. 2001. *Development Finance Institutions: Measuring their subsidy.* Directions in Development Series. Washington, DC: The World Bank.

below original expectations with respect to the two primary assessment criteria: outreach to target clientele and subsidy dependence of the SDFIs concerned; c) acknowledgement that the over reliance of SDFIs' performance on traditional financial ratios without unearthing their degree of subsidy dependence provides only a partial and often meaningless or misleading picture of the social cost of maintaining the SDFI d) the findings of some rigorous econometric studies that indicate that in a few cases, the social gain of the well performing SDFI's exceeded the cost of subsidies the SDFI benefited from; and e) the frequent disappointment from the naïve, prior expectations that by drastically reducing the volume of SDFI operations, for-profit FIs would instantly emerge to service the target, priority sectors.

Recently developing countries have increasingly recognized the importance of a well performing financial sector. Important changes in the global financial system and sweeping or gradual reforms that took place in such systems in many developing countries call for redefining the role and the scope of SDFI operations. This is not a trivial but rather a challenging task since such redefinition would necessarily be influenced by the long-lasting debate and lack of consensus regarding the role of the state in ensuring a well-functioning financial sector. This challenge was underscored a few years ago by the President of the Inter-American Development Bank (IADB), Mr. E. Iglesias who voiced the dilemma faced by policymakers in most developing countries, by asking "And what will take the place of the national development banks, although inefficient and sinkholes for subsidies, were often the only means of channeling finance to certain parts of the economy?[2]"

States and donors could contribute substantially to improving the cost-effectiveness of SDFIs and to enlighten the public debate about their social desirability by forcing the SDFIs to produce meaningful reports on the costs, subsidies and the "products" provided to their target clientele. This approach, however, would require an end to the over-reliance on traditional financial ratios in evaluating SDFIs' performance and would pave the way to the introduction of a performance evaluation framework that uses two primary assessment criteria a) the outreach to target clientele and b) the self–sustainability of the SDFIs concerned. The paper proposes two meaningful indices, the output index (OI) and the subsidy independence index (SDI) for evaluating and measuring the SDFI performance. The traits and benefits of the proposed SDFI assessment framework and the derived indices are elaborated on in pages 21-25.

Enhancing SDFI efficiency can be achieved also by confining their operations to second tier activities only (i.e. limiting SDFI lending to for-profit FIs only and avoiding direct SDFI lending to ultimate, retail level, target borrowers). This approach assigns to the second tier SDFIs the responsibility for ensuring a more sound use of scarce public funds in supporting the target clientele, in pursuit of increase in outreach to target clientele and subsidy independence. Ensuring transparency related to the costs, subsidies, well defined "products" and target clientele of the SDFIs is often essential to achieving improved performance of the SDFIs.

[2] Iglesias, Enrique V. 1997. In the preface to "Safe And Sound Financial Systems—What Works For Latin America." Edited by Liliana Rojas-Suarez.

The paper further sheds light on the reasons and modes of operations that facilitated the unprecedented successful performance of a rural microfinance profit center in a state-owned bank in Indonesia. This profit center—BUD—has likely emerged as the world's most successful rural microfinance institution serving millions of low income clients on both sides of the balance sheet, saving and credit, and generating very high return on assets while maintaining subsidy independence.

Instrumental improvements in the SDFIs' performance can be introduced by implementing best practices in SDFI operations, such as by providing autonomy to their managements in determining the pricing of the products rendered to its clientele (credit, savings and insurance) in pursuit of subsidy independence, introducing individual performance-based bonuses to staff and clients, and systematically plan, monitor and make transparent the actual costs and "warranted" subsidies per "product" provided. Salient donors can and should play an important role in encouraging and catalyzing these desired changes. However, it is essential that the modes of operations that are considered best practices be adapted to the specific, socio-economic conditions and cultural values of the society concerned.

The Reasons and Guided Principles Behind the Establishment of SDFIs

The emergence of SDFIs was a response to the widely spread perception that the private financial entities were inherently uninterested in servicing the target clientele. These public or quasi-public FIs obtained much of their funding from their related governments or from foreign assistance. They were initially planned to provide SMEs with the long-term financing that the commercial banking sector would not supply. During the 1970s, that mandate was expanded to provide credit to priority sectors[3] and later in the last decade, with the underscoring of poverty reduction as a primary objective of salient donors, some SDFIs in developing countries have also substantially increased their microfinance operations.

The Use of the Arguments of Market Failure and Poverty Reduction to Support SDFI Operations

SDFI operations were often considered a sound solution or the only option to provide formal financial services to priority sectors and underserved segments of the population. In principle, in pursuit of economic growth, a market failure is required for public SDFI to improve social welfare. The latter exists when competition fails to lead to a socially efficient outcome. This would happen when a movement from the status quo improves social welfare, but no private entity can capture enough of the gains to recover the costs. The market consequently fails because the best private choice is not also the best social choice.

In practice, market failures plague financial markets[4]. But market failure, though necessary to justify public intervention in pursuit of growth, is not sufficient to justify such intervention. Supporting SDFIs can be justified only if they mitigate a market failure to a degree that the benefits due to the intervention exceed the cost of intervention. That requirement creates daunting measurement problems. Moreover, many salient donors and states have shifted the focus from growth to poverty reduction. When poverty reduction becomes a major priority, supporting SDFIs can be well justified, when it is found to be the most cost-effective tool in fighting poverty, even when no market failure exists[5]. Yet again, measurement issues often make this requirement very difficult to comply with.

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[3] World Bank. 1998. *1998 World Development Report* (WDR). page. 106. World Bank: Washington, D.C.

[4] Stiglitz, J. 1993. "The Role Of The State In Financial Markets" in proceeding of the World Bank Annual Conference On Development Economics.

[5] Yaron, J., Macdonald, B. and Piprek, G. 1997. "Rural Finance: Issues, Design and Best Practices" *World Bank ESSD Monograph* # 14.

Box 1: Two Perspectives on Market Failure, and the Argument for Intervention

Stiglitz (1993): "There *is* a role for the state in financial markets; it is a role motivated by pervasive market failures. In developing countries, market failures are almost undoubtedly greater than in the more developed countries....While limitations on markets are greater in less developed countries than in developed countries, so too, many would argue, are limitations on government. We have argued that government policies can be designed which are attentive to those limitations....What is clear is that a simple ideological commitment to financial market liberalization cannot be derived either from economic theory or be justified by an examination of a broad base of experience...."

Besley (1994): "In summary, there may be good arguments for intervention, and some may be based on market failure. But as one unpacks each argument, the realization grows that, given the current status of empirical evidence on many relevant questions, it is impossible to be categorical that an intervention in the credit markets is justified. Empirical work that can speak to these issues is the next challenge if the theoretical progress on the operation of rural credit markets is to be matched by progress in the policy sphere."

Sources: Stiglitz, J. 1993. "The Role Of The State In Financial Markets." Proceeding of World Bank Annual Conference On Economic Development.Besley, T.1994. "How Do Market Failures Justify Interventions In Rural Credit Markets" The World Bank Research Observer 9:27-48.

The desire to compensate priority sectors for distorted policies (e.g. providing concessionary agricultural credit as a compensatory device to maintain control over agricultural prices to please urban consumers) was also often voiced particularly in the pre-liberalization period. This argument, however, is not convincing even in supporting a second best policy, because the overall sector concerned is adversely affected by the distorted policy, while usually only a small segment of the sector benefits from access to (wasteful) concessionary, financial resources. Hence, the removal of the distortions is actually the preferred policy.

Many states used the argument of market failure to substantiate continued support to SDFIs, yet ignored the numerous cases of government failures that stood in the way of ensuring a well performing financial sector. Hence, the evaluation and measurements of the efficiency of such interventions are essential to enlighten decisions regarding the optimal allocation of scarce public funds, as well as to provide incentives for improved performance to the SDFIs. This is an important role for states and donors that so far has achieved only too modest results in evaluating SDFI performance and in providing borrowing states and SDFI managements with meaningful performance assessment framework and monitoring tools.

Whereas much can be done to create a favorable environment for enhancing the provision financial services to priority sectors and underserved clientele, there may be cases that call for direct interventions on the grounds of identified market failures, or in the event that markets are considered relatively efficient but unable to redress income imbalances, to directly reduce poverty. In the latter case, when poverty reduction is the objective, a decision to intervene should begin with a poverty assessment to characterize the poor and their binding constraints, and continue with consideration whether market-based solutions can effectively redress the poverty concerns. Direct interventions in financial markets need to be weighed against alternative interventions such as social insurance, employment generation, targeted food

support (e.g. food for participation in public work) and investments in infrastructure or human development.

Where direct interventions in financial markets, justified on the grounds of poverty reduction, are undertaken (whether through public institutions or support to private intermediaries that participate in implementing public funded programs), they should still involve market-based interest rates to be paid by ultimate clients.

Box 2: Two Good Reasons for Market Interest Rates: Equity and Efficiency

Equity: Directed credit programs invariably face a dilemma of whether,, subject to budget constraints, to lend to more clients with no subsidy or minimal subsidy per $ lent, or to favor lending to fewer people with a high subsidy per $ lent. If the issue is perceived as resolving the inadequate *access* to formal credit of the rural masses, then (on equity grounds) the policy should pursue *increased outreach*—a choice that requires eliminating or minimizing the subsidy per $ lent.

Efficiency: Several studies show that liberalized financial markets generate a more efficient allocation of resources and higher rates of economic growth[a]. Other studies point to a positive relationship between savings and real interest rates in developing countries[b]. The importance of FIs in offering and charging positive real interest rates is clearly in King and Levine 1993 which finds that real GDP growth from 1974-89 for a sample of 76 countries was more than 2 percent higher for those offering the highest deposit interest rates than for those offering the lowest deposit rates. Indeed, growth was negative for the latter group of countries.

Notes:
a) King and Levine 1993, "Finance and Growth:Schumpeter Might Be Right" Quarterly Journal of Economics108:713-37 Jaramillo, Schiantarelli and Weiss 1994, "The Effect of Financial Liberalization on the Alloction of Credit:panel Data Evidence for Ecuador" Policy Research Working Paper 1092, World Bank. McKinnon and Shaw, 1976, " Money and Finance in Economic Growthand Development" Essay in Honor of Edward Show: Proceeding held at Stanford University New York; M. Dekker.
b) Fry M.1988 "Money Interest and Banking in Economic Development" Johns Hopkins University Press.

Source: J. Yaron, M. Benjamin and G. Piprek. 1997. "Rural Finance: Issues, Design and Best Practices" World Bank, ESSD Monograph No. 14. World Bank Group: Washington, D.C.

The arguments supporting directed concessionary credit to assist the priority sectors were more strongly voiced before the numerous findings regarding the dismal outcome of many SDFIs in developing countries became available. These findings led to a more sobering view regarding the role of the state, highlighting instead the important "indirect" role, namely the creation of an enabling environment for financial intermediation, by ensuring sound macroeconomic and monetary policies and provision of well-functioning regulatory, supervisory, judicial and enforcement systems and institutional arrangements that would encourage for-profit private agents to efficiently introduce and augment their lending to the underserved and priority sectors.

However, the counter argument that is frequently voiced is that while the mere role of the state in creating an enabling environment is not debatable at all, in many instances the underserved would be omitted, left with no access to formal financial services in the foreseeable future, unless state or donor subsidies are earmarked to directly ensure their servicing.

The general disappointment from the performance of the SDFIs gave rise to questions that are presently surrounding the debate regarding the social desirability of these institutions. These issues are: What is the role of the state with respect to promotion of well functioning financial sector? Should such role go beyond creating an enabling environment to promote efficient financial markets? How much financial support, if any, should be given to a SFDI? Can financial support directed to a specific sector or target clientele be extended while relying on competition between SDFIs and other FIs to improve the cost-effectiveness of the intervention namely, the benefit per unit of subsidy? How should the SDFIs' performance be assessed? Can target clientele be more cost-effectively served through non-financial intermediation instruments? And should SDFIs be confined to second-tier operations only without lending directly to ultimate target clientele?

The Performance of the SDFIs: Were the Pertaining Expectations Met?

Since the end of the eighties, concerns have been increasingly voiced regarding the poor performance of the SDFIs as manifested by their mounting loan losses, poor loan recovery, and continued dependence on substantial subsidies that often increased fiscal deficits and frequently required sizable bail-outs. In countries where inflation was not kept in check and SDFI lending rates were not indexed to the consumer price index (CPI) or to a strong currency, determining the ex-ante nominal lending rates in SDFI operations was often influenced by formal, rosy and unrealistic inflation projections that eventually resulted in real negative, inflation adjusted, lending rates, that increased the cost of maintaining the SDFIs.

Effects of State Ownership in the Financial Sector

The share of the assets of the top-10 banks owned or controlled by their respective governments in developing countries decreased from about 60 percent in 1970 to approximately 40 percent in 1995. Although this indicates a substantial decline in state ownership, it also recognizes that state-owned banks still maintain a substantial share of assets of the banking industry[6]. This data refers to the total assets of state-owned banks irrespective of whether they are engaged in "regular" commercial operations or in directed, "developmental" concessionary lending (i.e. SDFIs).

The share of state-owned banks in the financial sector has been highly correlated with lower economic growth and other low performing salient, financial and economic indicators as highlighted in a recent study[7]. This study established that (a) the governments' ownership of banks is large and pervasive around the world; (b) such ownership is particularly significant in countries with low levels of per capita income, poor development of financial sector, interventionist and inefficient governments and poor protection of property rights; (c)

[6] Caprio, G. 2000. "Government Failure In Finance" Presented in World Bank Conference on Transforming Public Sector Banks.

[7] La Porta, R. et al. 2000. "Government ownership *of Banks."* National Bureau of Economic Research (NBER), Working Paper 7620.

government ownership of banks is associated with subsequently slower financial development and with lower growth of per capita income, in particular with lower growth of productivity rather than slower factor accumulation.

Although no separate data is available for the share of SDFIs of the total state-owned banking assets or total banking industry assets, it is plausible, to assume, however, that the financial performance of the sub-set of SDFI has been worse compared to state-owned commercial banks that have no "development" mission.

Box 3: State Participation in Bank Ownership

The past performance of greater participation of the State in bank ownership leads to:

- Less financial sector development, less growth, and lower productivity
- Greater financial intermediation spreads
- Less credit to the private sector
- Greater concentration of credit
- Some propensity to crises (weaker monitoring)
- Recurrent fiscal drains

Source: Adapted from presentation of G. Caprio, World Bank 2000.

The Adverse Impact of Concessionary Credit and the Difficulties Associated with Making it Transparent

When the SDFI terms of lending to their target clientele were below market clearing rates, it created an artificial hyper-demand, increased reliance on subsidized financial resources and the inevitable rationed credit. In most instances, the real value of the financial support granted to the SDFIs (and the benefits that accrued to the ultimate clients from access to such credit) were not transparent, thereby inhibiting public debate on the desirability of continued financial support to the SDFIs, as well as on the merits of limiting the role of the state to exclusively "indirect" role of creating an enabling environment to promotion of financial markets.

Frequent bailouts further complicated and obscured the picture of the value of the annual subsidy received by SDFIs. Moreover, information on the subsidy per "product" (e.g. the annual subsidy per average annual $ of OLP) is almost nowhere to be found. The high costs and the distortions created by SDFI is also often highlighted but seldom quantified.

Concessionary Credit Mistargeting and the Impact on Income Distribution

Efficient targeting of the priority clients was also missed in many instances and the grant element embedded in subsidized loans was often grabbed by the relatively well-to-do and influential clients instead of the intended targeted ones. Moreover, the larger the subsidy element involved, the higher the desire and ability of the relatively well-to-do beneficiaries to increase their share in the subsidized loans.

The latter argument voices support for increasing SDFIs' lending interest rates to more closely match the market lending rates (risk and administrative cost adjusted), in efforts to discourage many of the well-to-do from pocketing the difference between the concessionary lending and market lending interest rates. This approach is compatible with the perception that SDFIs can, at best, mitigate the issue of lack of access to credit for priority sectors, but can't effectively "improve" the profitability of the priority sectors through the application of lower lending rates because this measure promotes wastefulness by attracting the well-to-do, who thus crowd out the intended small-scale clients. In recent years, this perception has also led salient donors to abandon the practice of supporting artificially lower lending rates for poorer clientele in pursuit of applying market related lending rates.

Box 4: The Potential Impact of Interest Rates Subsidies

The practice of subsidized lending interest rates to target priority sectors was widely spread in SDFI lending until about 1990. This policy often resulted in:

- Lack of financial discipline as loans were perceived tantamount to grants by the borrowers;
- Discouraging savings mobilization due to access to cheap resources by the SDFI and its clients;
- Subject to budget constraints, fewer clients benefited from access to credit compared to applying higher lending rates;
- Attracting rent seekers through rationing that typically favors the wealthy and the politically connected;
- Encouraging institutional corruption and fraud with SDFI staff often capturing part of the grant element embedded in the concessionary lending; and
- Discouraging SDFIs from pursuing self-sustainability through improved performance.

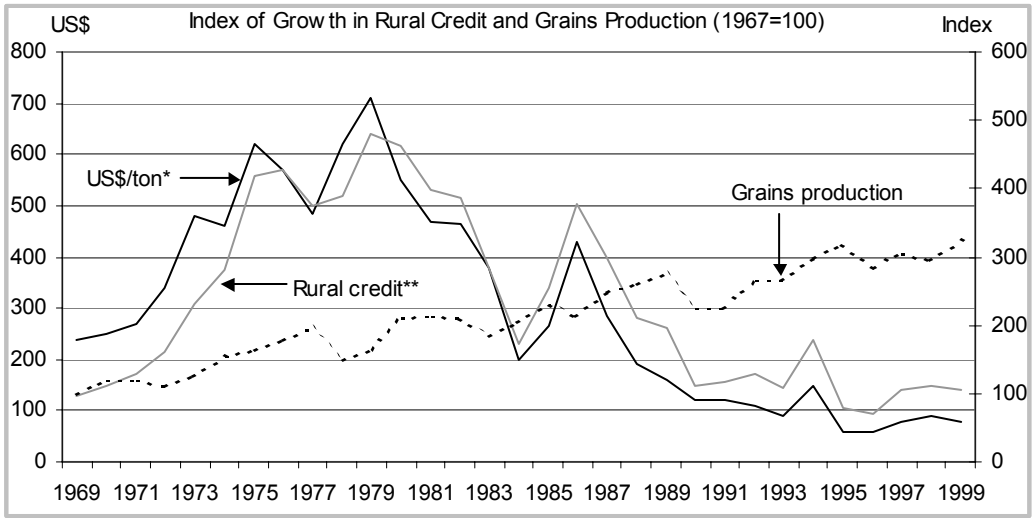
Source: The author

The impact of concessionary agricultural credit in Brazil. An illustration of the phenomenon of an elite grabbing most of the substantial grant element in concessionary directed loans can be found in the case of Brazil. During a period of hyperinflation, a waiver of two months of indexation of the agricultural loans to the CPI drastically reduced the real value of the country's agricultural outstanding loan portfolio (OLP) by one third. The amount of credit extended and the subsidy involved were highly correlated to the size of land ownership. Thus in Brazil, where one percent of the farming households own about one half of the arable land, the main beneficiaries of this unprecedented measure of regressive income distribution were obviously the large scale farmers, including the "urban cowboys."

The Diagram below provides an extreme example of how attempts to increase agriculture production in Brazil disproportionably extended directed and heavily subsidized credit. The data indicates that the production was increased consistently long after the directed credit was substantially decreased. The data also suggests that much of the credit that was poured on "agricultural producers" was eventually diverted to other uses and substituted for what otherwise could have been financed from investors' own equity. Even as credit per hectare declined from R$390,000 to R$90,000 during 1979-99 and credit per ton of produced grain

fell even more steeply from R$350,000 to R$40,000, productivity of grains soared from 1,500 to almost 2,500kg/ha[8].

Figure 1: Agricultural Production Soars Even as Formal Agricultural Credit Declines



Note: * Nominal credit values were adjusted by the general price index for domestically available goods, then converted by the avg. 1999 exchange rate of R$1.8428/US$1; ** Units of credit (US$) per ton of grains produced
Source: Central Bank of Brazil, as reproduced in Moysés Kessel: "O Crédito Rural no Brasil", Nota Técnica, BCB-DEPEC. 2001

Eliminating and Reducing the Scope of Operations of SDFIs

A few countries took measures to eliminate their SDFIs all together (e.g. the agricultural banks of Peru and Bolivia and the development bank in Nicaragua). Such actions were usually initiated only under severe macroeconomic crisis and/or when it became increasingly clear that the performance of the SDFI was exceptionally poor and beyond recovery. In many other instances, the solution to poor SDFI performance and the need to adopt austerity measures was to drastically reduce the financial resources that were made available to SDFIs, thereby initiating substantial cost savings without totally eliminating the SDFI.

Elimination of a SDFI was frequently considered politically more difficult and often required specific legislation—a cumbersome and very demanding political process. However, substantially reducing the concessionary resources that benefited the SDFI often resulted in a mission drift that adversely impacted on the servicing of the target clientele. (e.g. Ban Rural in Mexico, Caja Agraria in Colombia and BAAC in Thailand). The remaining, but drastically reduced financial services, became usually increasingly biased towards servicing the relatively well-to-do clients because the SDFIs were forced to cut services to its poorer clients in pursuit of reducing cost per $ OLP, despite the fact that this poorer clientele often constituted the original justification for establishing and subsidizing the SDFI.

[8] Moysés Kessel: 2001."*O Crédito Rural no Brasil.*" Nota Técnica.

The Importance of Providing Access to Credit to the Target Clientele

In contrast, in recent years a few impact studies using rigorous econometric measurements found that access to financial services by the poor generated substantial welfare gains. One of these studies attributed a sizable share of the lifetime wealth accumulation by farming households in Thailand to their access to formal credit compared to a control group that lacked such access[9]. Through contingent loan contracts, consumption smoothing over periods of high-income fluctuations was possible and farmers' production patterns could be shifted from low risk-low return to high risk-high return, which a prerequisite to income growth and overcoming the farmers' risk aversion in the long run.

The recent emergence of a few well-performing SDFIs and the findings that the social gain attributed to efficient access to financial services far exceeded the value of the subsidies received by the SDFI concerned generated increased interest in the need for comprehensive evaluation of the SDFIs performance[10]. This supports the need for additional measurements that go beyond the use of traditional accounting and financial ratios to evaluate the performance of the SDFIs.

Overall Evaluation of SDFI Performance

In sum, despite several exceptions, most of SDFIs performance fell short of initial expectations. Huge losses, large voluntary and involuntary arrears and non-performing loans, frequent bail-outs accompanied by sloppy, non-professional management frequently became subject to political interventions regarding credit allocation and loan recovery. Inadequate loan pricing, credit risk evaluations, debt forgiveness and lax financial discipline have reflected more the rule rather than the exception. Targeting was also often ill-practiced and consequently led to regressive income distribution

Against this background there is a clear need for: a) additional econometric studies that would shed light on the costs, subsidies and benefits of SDFI operations; and b) increasing the use of the framework of primary assessment criteria of outreach and subsidy independence in evaluating the performance of the vast majority of SDFIs that cannot afford the high costs related to econometric measurements.

[9] Kenichi, U. and Townsend, R. 2001. "Transitional growth with increasing inequality and financial deepening." International Monetary Fund Manuscript. Washington, DC: IMF.

[10] Townsend, R. and Yaron, J. 2001. "The Credit-Risk-Contingency System of an Asian Development Bank." Federal Reserve Bank of Chicago.

The Political Economy Surrounding the SDFIs and its Impact on Performance

SDFIs were established, supported and frequently bailed-out at an enormous cost to states and donors, based on the premise that their operations were essential and generated social gain for society by supporting "priority" sectors or underserved clientele that for profit FIs refused to serve. These SDFI were operating, by and large, in an environment of political economy that often viewed permissively the incompliance of these SDFIs with commercial imperatives such as achieving an adequate return on assets, sound loan recovery and the like and therefore impacted substantially on the performance of most SDFIs.

Credit rationing was considered the reason for intervention creating and supporting SDFIs operations. Despite many studies that have addressed that subject, the jury is still out regarding the importance, scope and impact of credit rationing on welfare and income growth of priority sectors and the underserved clientele, (e.g. Microfinance, SMEs and housing borrowers and the like). In particular, it is unclear whether, and under what circumstances, the intervention in a form of supporting SDFIs is the most cost-effective instrument in mitigating such rationing and facilitating enhanced income growth of the target clientele.

Box 5: Credit Rationing

C*redit rationing* occurs when interest rates do not adjust fully to equalize the demand and supply of loanable funds. In other words, rationing exists when some borrowers cannot borrow as much as they want at the going rate, or when the borrower is a firm, the marginal product of capital in the firm is larger than the market interest rate. Borrowers who are denied credit (either fully or partially) are referred to as *credit constrained*. Credit rationing arises as a response to asymmetric information problems that characterize credit contracts. On the one side, the willingness of the borrower to accept higher interest rate signals their higher risk (and therefore higher probability of default) which leads to lender's unwillingness to lend to this customers (the adverse selection effect). On the other side, obtaining a higher interest loan may decrease repayment incentives of the borrower and may induce them to take up riskier projects (the moral hazard effect). To solve the asymmetric information problem, lenders resort to different mechanisms, such as a reduction of the credit amount (credit rationing), collateral requirements (for signaling and monitoring purposes), information requirements (for risk assessment), etc. Less developed countries that present a poor financial sector infrastructure (e.g., poor credit information registries, poor collateral laws, etc.) may suffer from a stronger incidence of credit rationing because some of the tools that lenders use to overcome informational asymmetries are not developed.

Source: Gine, X. 2003. Financial Intermediation Lending: Literature Review, World Bank: Washington, D.C.

Transparency. SDFIs were often established and used to achieve political objectives (e.g. food security by lending to farmers, enhanced industrialization by supplementing high tariffs on imported industrial products with concessionary loans to industrial enterprises) that promoted and tolerated obscurity instead of transparency related to the costs, subsidies and benefits related to the SDFIs' performance. Vested interests have often had keen interest in

maintaining a blurry picture rather than ensuring the provision of essential data needed to evaluate the social desirability of using scarce public resources to support the SDFIs concerned. Data related to the performance of the SDFI were only seldom adequate to shed light on the cost-effectiveness of its operations.

Target clientele were assumed unserved by for-profit lenders. To reach these clients, SDFIs employed instruments and loan prices that were not designed to achieve full cost recovery. Since "development" was often evaluated based on the number and value of loans granted to this vaguely defined target clientele, there was usually nothing alarming about SDFI generating consistent losses or meager profitability margins, thereby contributing to the lax approach regarding SDFI performance evaluation.

The unresolved, inevitable tension between the "development" mission and the aspiration to achieve adequate financial outcomes was embedded in the nature and stated objectives of the SDFIs. Only on rare occasions did those that were custodian of public funds or independent researchers succeed in unearthing the full economic costs and benefits related to the SDFI operations.

Moreover, by underscoring the vaguely defined outcome of "development," SDFI performance was accepted conceptually by many as a full or partial justification for an SDFI to continue making financial losses and remain subsidy dependent. Thus, many SDFIs, their managements, related ministries, and salient donors continued to foot the bill, covering these losses as an inevitable requirement for "development."

Stakeholders often had no interest in unearthing the true, overarching SDFI performance picture, as they were the beneficiaries of this built-in obscurity. These stakeholders were politicians, target group clients, lobbyists, those that benefited from the concessionary lending terms even when they may not have belonged to the formal target clientele (e.g. large scale farmers that benefited from concessionary credit targeted originally to assist "needy" low-income farmers)

Vested interests such as agricultural and industrial entrepreneurs, exporters, housing borrowers and other typical clients of directed concessionary credit programs have maintained interest in continued SDFI operations and in compounding the grant element embedded in the related concessionary lending. As the real costs of financing such programs, either from budget resources or from taxing the rest of the financial service users were often obscured and the support for the continued concessionary lending strong; well organized, politically enlighten, public sector decision makers had difficulties to cease or reduce such lending. Especially when the political support rested in the hands of the interest groups that directly benefited from the concessionary credit, such programs grossly outlived their useful life despite the clear verdict of resource misallocation, regressive income distribution and inadequate targeting of clientele.

A study finds that state-owned banks were grossly subject to intervention and increased their lending, arrears and restructured loans during election years in emerging countries[11]. The author argues that politicians find state-owned banks and their operations a promising outlet to further achieve their political goals. He notes that there are salient reasons that encourage political intervention through state-owned banks. First, it is the capacity to conveniently disguise the political motivation behind the granted loan and second is that banks, in contrast to enterprises, operate in a country-wide manner and therefore allow intervention on a substantial larger scale compared with a narrower scale of a specific enterprise.

First- and Second-Tier SDFIs

Substantial improvements can be achieved if first-tier-retail lending operations of SDFIs are eliminated or substantially reduced, thereby confining SDFIs to second- tier operations only (lending to FIs that implement concessionary directed credit along predetermined conditioned to target clientele) [12]. This, in turn, would facilitate enhanced lending and financial intermediation operations by for-profit FIs and would ensure that the SDFIs are concentrating on evaluating and controlling associated risks taken in by private agents, thereby resulting in making the cost of the subsidies transparent, economically justifiable and cost-effectively applied.

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SDFIs operating at the second tier can foster private FIs to gradually become less dependent on access to concessionary resources in servicing the target clientele. This approach assumes that the void created by eliminating the SDFIs can't be spontaneously filled by for-profit intermediaries. Therefore, total elimination of all SDFI operations is not feasible in most cases, in light of political economy considerations and sometimes not justified on pure economic grounds. If SDFIs would concentrate only on second-tier operations, a sound compromise could be achieved, whereby deserving target clientele would benefit from access to credit that is delivered more effectively by the private sector.

Moreover, concentrating on second-tier operations, could shift the SDFIs responsibility to ensure transparency pertaining to costs, benefits and efficiency of the subsidies used in delivery of the financial products, thereby assigning the SDFI the role usually played by the Treasury in justifying and allocating the subsidies along economic criteria and for efficient use by first-tier private agents.

This suggestion however, is also rooted in the perception that exclusive emphasis of the role of the state in creating an enabling environment appears often insufficient for public policy. While it is increasingly agreed that creating an enabling environment is the main task of the state and that it usually yields high economic rewards, there are potentially constructive

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[11] Serdar, Dinc I. 2002. "Politicians and Banks: Political Influence on Government Owned Banks in Emerging Countries." Presented at University of Wisconsin at Madison Workshop on Finance, Investment, and Banking, on December 5, 2003.

[12] A. De la Torre,-Senior financial advisor, the World Bank,.2003. Presentation in Argentina, November,

functions for some development agencies, in particular when SDFIs concentrate on second-tier operations,

The conventional view of institutional change is that it is motivated by either the interest of economic efficiency or income redistribution[13]. Historically, the salient international and regional donors played a major role in catalyzing and advocating the creation of the SDFIs to promote social gains and economic efficiency. Overtime, as the poor financial performance of many of the SDFIs became undeniable, the salient donors grew, though belatedly, less enthusiastic in regards to their support of these institutions. However, resistance to the closure or reduction in SDFI operations increased from the vested interests that benefited directly from the concessionary credit terms. In many instances, the reality of institutional change doesn't reflect the wishful thinking that rational response would follow on the heels of the information that triggers the change. Moreover, it often takes longer to demonstrate an unambiguous positive change due to a reform and those who suffer from the reduction could, in light of their political power, slow down or scuttle these warranted changes in SDFI operations.

Large value loans to SDFIs from salient international and regional donors also served often as a convenient "plug number" to smoothing the annual lending programs by providing balance of payment support to borrowing countries through monies classified as a loans to SDFIs, but actually partially substituting for domestic resources that would have been lent to the same ultimate domestic clients otherwise.

J. Morduch claims that subsidies or donor funds were originally perceived as temporary aids to help programs overcome start-up costs to service low-income clientele. For some institutions, however, subsidies are an ongoing reality and ironically, the availability of these donor funds has in some cases acted as a disincentive way to increase the scale of operations and foster innovative[14]. In many instances though, the easy access to donor funds for these programs hampers the promotion of savings facilities and deprives many of low-income clients from having access to well-priced savings facilities that often are more important to the poor than access to credit.

The profound interest of managers and project officers of both salient donors and related SDFIs to "meet" lending targets, and often the desire of state authorities to borrow from respectable donors in foreign exchange resulted in enhancing SDFI operations. Such "institutional" preferences that were not rooted in pure economic considerations of income growth or poverty reduction, have also contributed to poor SDFI performance. Shedding light on poor SDFI performance could have reduced lending and introduced hurdles in reaching lending targets and therefore hurting the careers of the project officers and managers in donor institutions and SDFIs alike.

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[13] Bromley, D. 1989. "Institutional Change and Economic Efficiency." Journal of Economic Issues 23 (3) 735-59.

[14] Morduch, J. 1999. "The Microfinance Promise." *Journal of Economic Literature,* Vol. XXXVII, pp. 1569-1614.

Public sector employees charged with implementing the reforms tend to be politically powerful and highly organized and often had a strong interest in preserving the status quo[15]. Institutions may become self-perpetuating when bureaucrats try to avoid job loss. Although these SDFIs were established originally by political motivation to achieve well-defined goals, they often take on a life of their own as a result of the vested interest of their management and staff to prevent changes in scope, scale and importance of such SDFIs.

The relevance of the political economy to the performance of a SDFI is often demonstrated best by observing the deterioration in their performance around elections. Populist politicians often pursue voter support at the expense of fiscal resources by promising allowances and discounts related to loan repayments, interest payments and unjustified indemnity payments made to ultimate borrowers or insured clients by state-owned credit guarantees or crop insurance schemes.

In the absence of adequate assessment criteria, poorly applied performance indicators were relied on to justify continuing and augmenting SDFIs operations. Indicators such as number of people financed and amount lent were applied , thereby counter-weigh the increase in information on losses, enormous arrears, and political interventions in resource allocation, dependence on subsidies and ill targeting.

The characteristics of the political economy that influence SDFI performance are described below:

1) A profound belief of policy makers that direct state delivery of financial services can effectively resolve crucial issues such as food security or lack of long term credit.
2) Lack of understanding by states of the importance of creating an enabling environment to efficient financial intermediation (e.g. regulation, legal, judicial, and enforcement systems and institutional arrangements) and concentrating instead on direct SDFI concessionary credit delivery.
3) Inadequate policies that adversely affect the capacity of market forces to resolving what was considered as credit "needs," namely macroeconomic, industrial, financial, agricultural and rural development policies, hampered effective financial intermediation by for-profit agents.
4) Insistance by states to own and operate first-tier, retail lending SDFIs and ignore the potential of private agents to more efficiently deliver concessionary financial services to ultimate "priority" clients. Auctioning of such subsidies granted to SDFIs and related to well defined "products" delivered to target clientele could further reduce the subsidy dependence of these "products", however, this approach was only seldom applied.
5) Frequent inability of policy makers to distinguish between root causes and symptoms of "shortage" of credit to target clientele led to ill-designed prescriptions with respect to resolving or mitigating such credit "shortage.".
6) Lax financial discipline and frequent bailouts that breed expectations for "more of the same" further discourage loan repayments. Because the frequent bailouts didn't occur

[15] Geddes, B.1995. " The Politics of Economic Liberalization." Lain American Research Review, 30 (2) PP.195.

routinely every year, the average annual costs of maintaining the SDFIs remains mostly unknown and have not facilitated a public debate on the social desirability of supporting the SDFIs.

7) Pressure of the well-to-do clients to maintain, expand and enhance the concessionary lending terms for the benefit of the relatively poor that operate in the same sector (e.g. agriculture), while eventually ensuring that they benefit from the lion's share of the grant element embedded in the subsidized loans, thereby compounding problems of poverty and inequality.
8) Lack of transparency regarding cost and benefits of the SDFIs performance. The measuring of related benefits is extremely difficult, costly, lengthy and complex. Measuring of costs, however, is relatively easy, inexpensive and warranted even when benefits are not known. Vested interests, politicians, management of SDFIs, their staff, well-to-do clients and particularly borrowers in arrears have maintained keen interest in obscuring the actual cost of the SDFIs operations.
9) Intervention and pressure of interest groups and their lobbyists that influence the lending terms in favor of their constituencies at the expense of taxing the rest of the society or the other clients of financial intermediation.
10) The performance of SDFIs and related institutions has the tendency to deteriorate close to election dates when an increase in debt-forgiveness and enhancement of concessionary lending terms were often advocated by populist politicians in pursuit of voters support.
11) *The pendulum shift:* the tension between the "development" mission of the SDFIs vs. obtaining adequate financial results, often led to a shift in SDFI's priorities. Frequently, when fiscal austerity measures become inevitable, the delivery of the relatively low value loans is often abandoned or substantially reduced in pursuit of improving the SDFIs' financial outcome, thereby causing mission drift and often negating the justification for creating the SDFI and provision of concessionary resources.

However, even within the prevailing political economy framework, substantial changes can or in some countries, have already been made, thereby contributing to improved SDFI performance: Salient donors and states can ensure progress toward meeting the preferred modes of operations by insisting that the SDFIs' performance is meaningfully and routinely evaluated..

The Development of Assessment Criteria Used in Evaluating SDFI Performance

Performance assessment criteria that could serve in evaluating SDFIs were, by and large, missing until the beginning of the 1990s. The debate on the social costs, the contribution of SDFIs in supporting the underserved and their impact on economic growth, export, SME growth or poverty reduction caught more attention during the last decade when reforms of the real and the financial sectors took place. Liberalization, economic reforms and the pressure to reduce direct state interventions in financial markets stimulated interest in evaluating the performance and the value added of SDFIs. That, in turn, required a framework for assessment criteria of SDFI performance.

An illustration to the lack of widely agreed assessment criteria for SDFI performance can be found in the otherwise excellent World Bank's *1989 World Development Report* (WDR) "Financial Systems and Development," that provides a somewhat blurry assessment of SDFI performances by highlighting their contribution to development on one hand, and elaborating on their shortcomings regarding financial performance on the other. However, this WDR did not provide a comprehensive performance framework including assessment criteria, let alone instrumental tools, which were essential to determining resource allocation and the optimal level of SDFI support.

The WDR reads, "The Most common type of non-bank intermediary in developing countries is the development finance institutions (DFIs). Most are public or quasi-public institutions that derive much of their funding from the government or from foreign assistance. Originally, they were intended to provide SMEs with the long-term finance that the commercial banks would not supply. During the 1970s that mandate was broadened to include the promotion of priority sectors. Using government funds, DFIs extended subsidized credit to activities judged unprofitable or too risky by other lenders. In particular, the DFIs found it difficult to finance projects with high economic but low financial rates of return and remain financially viable at the same time.[16]"

This evaluation expressed to some degree the uneasiness regarding the SDFIs performance. Moreover, thorough evaluations of SDFIs were often hampered by an over-reliance on traditional accounting data and financial ratios that provide, at best, a partial and often a misleading picture of the SDFI's performance, although these ratios are suitable to reviewing and analyzing the performance of for profit financial intermediaries.

A framework that was introduced in the early 1990s for assessing the SDFI performance[17] has gained wide acceptance among practitioners and academics. It proposes two primary assessment criteria, *outreach* and *self-sustainability* (Figure 1 below). It argues that SDFIs, which provide a broad range of services to a well-defined target clientele in an efficient

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[16] World Bank. *1989 World Development Report: Financial Systems Development*. Pg. 106. World Bank Group: Washington, DC.

[17] Yaron, J. 1992. "Successful Rural Finance Institutions." World Bank Discussion Paper 150. World Bank: Washington, DC.

manner, are likely to have the desired impact of expanding incomes and/or reducing poverty. Evaluating the performance of SDFIs based on these primary criteria could serve as an easily quantifiable proxy for the impact of rural financial intermediation. Yet, this framework doesn't claim to capture the full impact of the intervention at the level of the ultimate borrowers.

Outreach could be measured by several indicators, such as number of clients, the average loan size (as proxy for income level served), and the percentage of female clients (when providing access to credit to women is considered a social objectives (as is clearly the case in Bangladesh but not in west Africa). Further elaboration on the various dimensions of outreach was introduced by M. Schriener (1999) who identifies six dimensions of outreach, namely depth, worth to users, cost to users, breadth length and scope that are instrumental in better assessment of the outreach obtained by the intervention[18].

Self-sustainability is assessed by calculating the subsidy-dependence index (SDI) of the SDFI, which measures the percentage by which a SDFI's prevailing average yield obtained on its OLP would have to increase to make it self-sustainable, i.e. subsidy independent. The SDI also indicates the cost to society of subsidizing an SDFI measured against the interest income earned by the SDFI in the marketplace. The SDI also computes the annual subsidy per $ of average annual OLP received by the SDFI—an efficiency indicator.

Furthermore, the SDI calculation is imperative to evaluate the use of subsidies for lending versus alternative uses aiming at supporting target clients through non-financial intermediation. The main factors that contribute to the self-sustainability of SDFI are: adequate on-lending rates, solid interest rate spreads; very high rates of loan collection, and contained administrative costs.

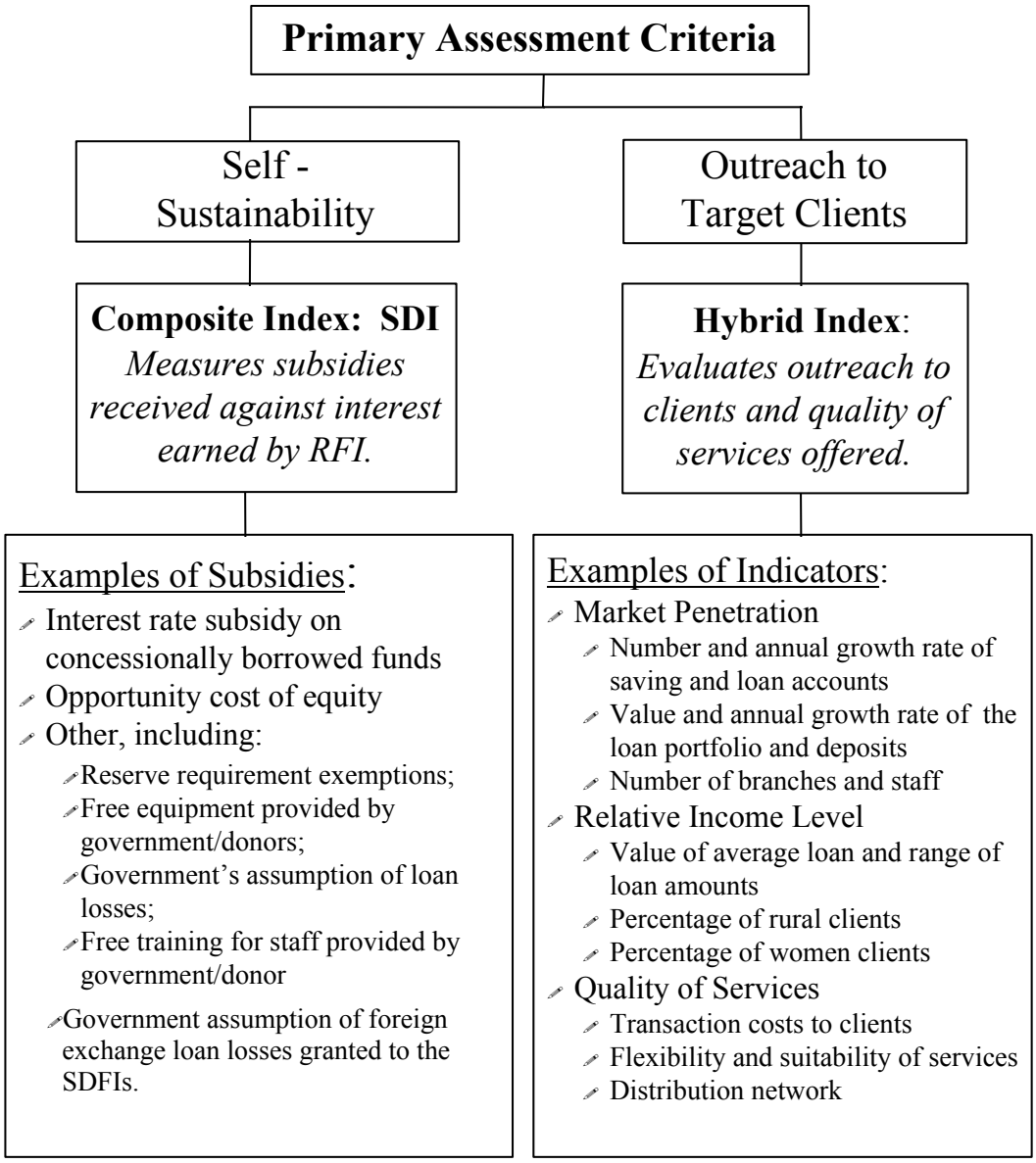
The Differences between the Output Index (OI) and the SDI

Both the OI and the SDI can serve not only in shedding light on what actually happened in the past but also enrich the planning and budgeting of subsidies and targeting of the clientele that is intended to be served. Yet, there is a clear difference between the OI and the SDI.

Output Index (IO). The OI of financial products is a hybrid arbitrary index that should reflect the priorities and weights assigned to its components, which may change over time. The main advantage of the OI is that it forces the authorities that foot the subsidy bill to clarify their objectives, priorities and better define the target clientele. It also allows for a more precise measurement of the related costs associated with achieving such objectives. The OI can further assign a different and higher weight to lending or provision of saving services to persons who are in deep poverty (e.g. those whose income is less than half of the poverty line) or to SME activities when they are considered growth engines and contributing to a more equal income distribution.

[18] Schreiner, M. 1999. "Aspects of outreach: a framework for the discussion of the social benefits of microfinance" Center for Social Development Working Paper 99-5. St. Louis: Washington University.

Figure 2: Primary Assessment Criteria



Source: Jacob Yaron, McDonald Benjamin, and Gerda Piprek: 1997. "Rural Finance: Issues, Design, and Best Practices." No. 14, Environmentally and Socially Sustainable Development Studies and Monographs Series. The World Bank.

Subsidy Dependence Index (SDI). In contrast to the OI, the SDI is a comprehensive index that captures the subsidy dependence of the SDFI concerned in one number. The SDI is instrumental in:

a. Placing the total amount of subsidies received by an SDFI in the context of its main activity level, as measured against interest income earned on its loan portfolio and against average annual OLP;

b. Tracking an SDFI's subsidy dependence over time;
c. Comparing the subsidy dependence of different SDFIs that provide similar services to a similar clientele in the same or different countries; and
d. Providing a notion of matching grant—the numerator is the subsidy granted by the society, measured against the denominator- the value of fees and interest payments paid by clients. Further elaboration on the SDI methodology is included in Annex 1.

OI and SDI as Evaluation Tools. The dialogue of donors with borrowing countries and SDFI managements can be significantly enriched by using the OI and the SDI as routine instruments measuring a SDFI's performance during appraisal, supervision and completion of projects. As with any other financial measurement tool, however, the SDI is only as accurate as the data used to compute it. The SDI has been practiced in evaluating several SDFIs but there is no significant experience related to the use of the OI.

A pro-forma OI and SDI computations that are prepared together with the pro-forma financial statements of the SDFI could effectively shed light on the efficiency of the SDFI and consequently on the social desirability of financially supporting the SDFI concerned.

Why Rely on the Traditional Financial Ratios in Analyzing the SDFIs Performance is not Good Enough?

Analysts relying on conventional accounting data to measure the financial performance of SDFIs face two main problems:[19]

1) The difference between expense and income (including reimbursement of specific expenses by state or donor) captured and reflected in the SDFI income statement and those expenses and incomes not recorded in the SDFI income statement.
2) The lack of a design in conventional accounting practices to reflect and appropriately report on all types of subsidies received by an SDFI.

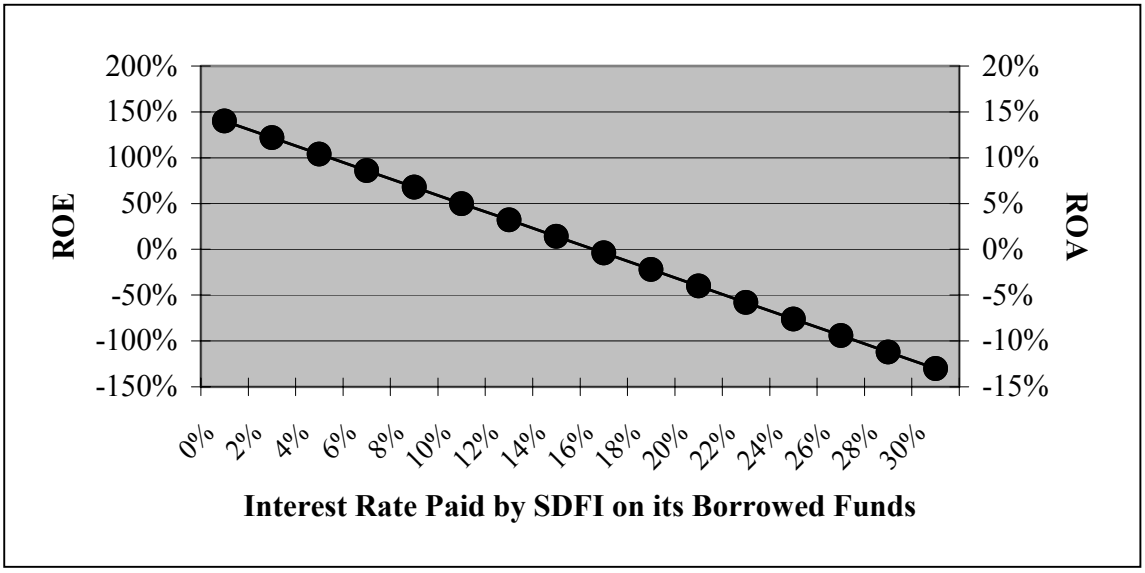
In contrast to the profit maximizing financial intermediary who does not differentiate between profit that is subsidy-dependent and profit that is fully subsidy-independent as long as continued subsidization is ensured, the information on the cost of subsidies received by the SDFI is essential in determining the social justification for the existence of and continued support to the SDFI.

The reliance on traditional financial ratios in analyzing the financial performance of SDFIs results often in missing to unearth the value of subsidies involved although the outcome of the traditional financial ratios used in such analysis is substantially influenced by the subsidies injected to the SDFI. The level of subsidized borrowed funds the SDFI benefits from determines the two widely used profitability ratios of return on Assets (ROA) and return on Equity (ROE). Hence, each of these two ratios is to a large degree, in the context of SDFI not an independent variable but a depended one. Since the cost of borrowed funds is determining

[19] Yaron. J. 1992, "Assessing Development Finance Institutions: A Public Interest Analysis" World Bank, Discussion Paper 174

the ROA and ROE of the SDFI, the conclusion is that without the appropriate knowledge of the value of the subsidies involved, these financial ratios could be meaningless or even misleading as indicated in the diagram below.

Figure 3: Effect on a SDFI's ROA and ROE Based of Changing the Interest Rate Charged on its Borrowed Funds



Key Assumptions: equity equals 10 percent of total assets, the average annual yield obtained on total assets is 20 percent, and administrative expenses are six percent of total assets.

Is a Full Fledged Cost-Benefit Analysis the Practical Solution in Assessing the Performance of a SDFI?

To fully evaluate the impact of SDFI operations, it is necessary to rely on a very demanding, rigorous econometric measurement that requires establishing a reliable control group. Getting a control group usually requires random assignment of access to a SDFI (or random assignment of qualified applicants) but such social experiments consume large amount of funds, time and expertise and are still subject to potential debilitating critiques[20]. Such studies are clearly warranted, despite difficulties associated with generalizations beyond the specific context in which such studies are conducted. However, based on past performance, it is unrealistic to expect that such econometric studies would be carried out and financed by states, international, or regional donors in more than one out of 50 or even 100 interventions. Therefore, a simple, much less costly instrument is warranted.

In principle, a complete evaluation would use cost-benefit analysis or cost-effectiveness analysis to compare social value (of the intervention) with social cost in general equilibrium.

[20] Heckman and Smith. 1995. "Assessing The Case or Social Experiment" *Journal of Economic Perspectives* 9 (2): 85 –110.

In practice, it is so expensive to measure social value and social cost that almost all evaluations proceed in terms of outreach and sustainability in partial equilibrium.[21]

It is also assumed that SDFIs that have the ability and willingness to appropriately report on their performance, based on the two proposed primary assessment criteria of outreach to target clientele and subsidy dependence are usually better performers than SDFIs that either cannot or are not willing to deliver such information. Therefore states and donors should create an environment that encourages supported SDFIs to report on their performance and be routinely evaluated and monitored with respect to their performance using the OI and the SDI.

The use of shadow prices, which reflect the social cost of investing in the real goods sectors rather than using financial pricing became a common practice in assessing and measuring the social desirability of investments. Applying economic shadow prices permits calculation of the economic rate of return (ERR), which often diverges from the financial rate of return (FRR). Application of the SDI calculation seeks to achieve a similar goal, to measure more accurately the social cost involved in an SDFI's operations. There is, however, a substantial difference between the outcomes of ERR and the SDI computations: the SDI does not claim to fully assess and measure the social benefits of resource allocations made through the SDFI to the ultimate borrowers. The SDI, however, better estimates the social cost of the subsidy involved by applying approximate market interest rates to the financial resources used by the SDFI when their accounting cost is set administratively lower.

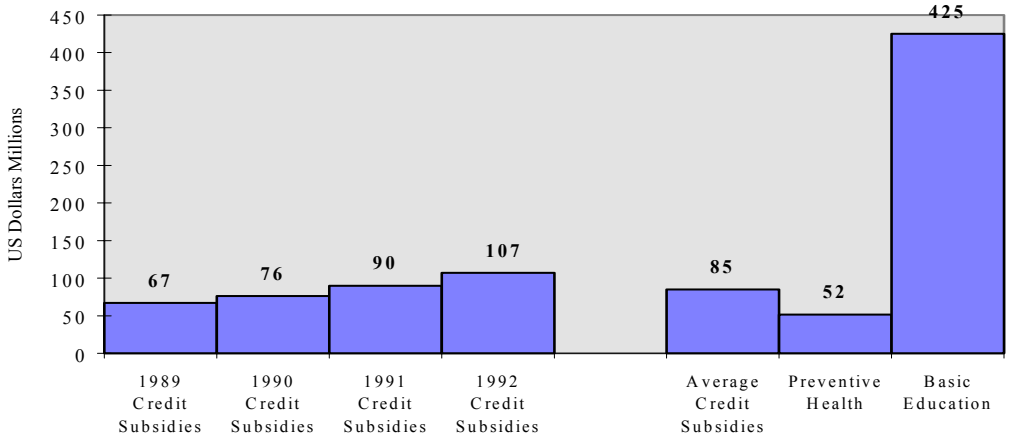
[21] Navajas, S. et al. 2002. "Microcredit and the poorest of the poor: Theory and evidence from Bolivia" in "*The Triangle of Microfinance*." edited by M. Zeller and R. Meyer. The International Food Policy Research Institute.

Box 6: The Usefulness of Cost-Cost Comparisons in Public Spending

The advantage of applying cost-cost comparisons is demonstrated below:

The figure below shows the allocation of US$340 million in public subsidies to a state-owned agricultural credit bank in an African country over a four-year period. The amount of subsidy was determined by using the SDI methodology to unearth the overall value of subsidies from which this bank benefited. The annual average amount of subsidy for the period is US$85 million. This amount was found to be equivalent to *20 percent* of public expenditure on basic education during the same period, and *165 percent* of public expenditure on preventive health in a country with a high illiteracy and high infant mortality rates. The information provided by the SDI calculation enriches the public debate on the allocation of scarce resources at a time when state funds were shrinking and the role of the state was being re-examined. This cost-cost comparison enables the following question to be considered: *"Does this support for the agricultural bank represent an optimal allocation of scarce public resources?*"

Comparing Subsidies for Rural Finance with Funding for Basic Education and Preventive Health Care



Source: Adapted from Lyn Squire :"What We Expect from a Bank Project—The Rural Finance Context." Seminar presentation at the World Bank, December 8, 1995. Washington, DC.

The Outstanding Performance of the BRI Unit Desa (BUD) – a rural microfinance profit center of a state-owned Bank in Indonesia

The Indonesian experience in transforming the BIMAS- a directed and heavily subsidized agricultural credit program into BUD, a profitable, subsidy independent, rural finance profit center within BRI –a state owned bank, could provide many lessons to countries that seek to improve the outreach and self-sustainability of their SDFIs. The transformation started in 1984, when it became clear to the Indonesian authorities that they could not afford to continue supporting the ailing agricultural credit profit center BIMAS. Falling oil revenue on one hand and deteriorating loans collection on the other, made the BIMAS dependence on subsidies too great for the Government of Indonesia (GOI) to support. The GOI instructed the BRI, the state-owned bank that hosted BIMAS, to drastically change the "rules of the game" or to shut down all operations. An initial, one time, subsidy of about $70 million was extended to the BRI to test different modes of operation to achieve self-sustainability.

The management of BRI with the assistance of advisors from Harvard Institution for International Development (HIID) designed a rural finance profit center (BUD) that has become the flagship of the world rural microfinance industry. BUD introduced profound changes in policies, in targeting clientele, in modes of operation, and in the pricing of lending and savings instruments used—measures aimed at achieving self-sustainability. BUD, against all odds succeeded in achieving full coverage of its costs two years later in 1986. Since then, it has generated profits that are unprecedented in rural finance operations or in universal banking, yielding return on assets of 5 to 6 percent, with a minor decline after the 1997 crisis when the ROA fell for one year to 5 percent.[22]

Reasons for the success of BUD

The achievements of BUD are remarkable when contrasted with the performance of most agricultural SDFIs that remain a hallmark of traditional, supply-led government attempts to promote agriculture and rural development. The performance of most of these SDFIs in terms of outreach and self-sustainability has generally been disappointing due to a variety of external and internal factors. The key features of BUD that explain its success in shifting the paradigm from traditional agricultural credit to rural financial intermediation are detailed below:

(1) *Borrower Eligibility Requirements*. Client targeting was broad to include funding of any profitable rural enterprise rather than narrowly focusing on farmers. The main criterion for loan approval by BUD is the projected cash flow from use of the loan funds and borrowers' repayment capacity.

(2) *Mandatory Savings*. BUD does not have an obligatory savings programs. In addition to the negative effect of forced saving in obscuring both the cost of credit to the borrower and the actual net credit outstanding, BUD regards this practice as a particularly inefficient form of financial intermediation. BUD has built its success on mobilizing voluntary savings from

[22] This chapter draws on Robinson, M. "The Micro-finance revolution.", 2001.

people who want to save excess funds and lends that money to creditworthy people who wish to borrow.

(3) *Collateral Requirements*. BUD was legally required to take collateral, but was flexible in doing so. For example, BUD would take a pledge of anything the borrower owned such as chairs, beds, etc. The documentation of collateral for each loan, however, was more for the purpose of establishing the borrower's serious intent to repay rather than to provide basis for legal action or an alternative source of loan repayment.

(4) *Loan Maturity and Repayment Terms*. There were many possible maturities and repayment schedules to match the cash flow of the enterprise for which the loan was made. For ease of understanding, standardized loan tables were prepared and provided to the client, which gave the amount of the loan payment, broken down into interest and principal.

(5) *Maximum and Minimum Loan Sizes*. The maximum loan size initially set by BUD was important as it determined whether the system could reach the low-income clientele and eventually achieve break-even status. The maximum loan size of the sole loan product was set at Rp 1million (about $1,000 in 1984) initially and was gradually increased to Rp 25 million (about $13,500) by May 1990. Based on average salary levels, a loan the size of about Rp 120,000 covers the staff time to approve a loan, collect installments, and pursue borrowers in default. The minimum loan size remains at Rp 25,000 (about $10 in 1996), although since 1987 few loans of less than Rp 100,000 have been made. The average outstanding loan size was about $500 in 1996 and is now about $700.

(6) *Lending Interest Rates*. Based on the assumptions outlined earlier, the interest rate charge on loans was set so that BUD could break-even within two years. It was estimated that a monthly interest rate of 1.5 percent calculated on the original loan balance (flat basis) could accomplish this. No charges were levied other than interest (no fees), because culturally such charges would represent corruption. There was an "Incentive to Pay on Time" (IPTW) scheme whereby each six months, borrowers who had made all payments on time were refunded a substantial sum equal to a flat interest rate of half a percent per month (about 12 percent per annum measured against a declining loan balances).

Differences between BIMAS and BUD

Table 1: Indonesia: BUD–The main characteristics and difference between BUD and BIMAS

Attribute	BIMAS Credit Program 1970-84	BUD 1984-present
Institutional objective	Disbursement conduit for subsidized credit	Profit-making, full-service rural bank
Financial autonomy	BIMAS windows in BRI branches, with accounts subsumed in the financial statements of BRI's branches. Lending interest rates are government-imposed	Distinct profit centers, with separate financial accounting. Lending interest rates are decided on independently, in light of self-sustainability considerations
Operational autonomy	Limited—borrowers chosen in practice by extension workers of the Ministry of Agriculture, which certified BIMAS participants	Full—borrowers selected on the basis of the financial viability of their farm or off-farm enterprise
Staff evaluation and accountability	Primarily based on the volume of disbursements or on hectares covered	Primarily based on the profitability of individual BRI-UD units
Staff incentives	Civil service-like flat salary structure, promotions were seniority based.	Profit-related individual bonus incentives, promotions
Target market	Rice farmers	Any income-generating enterprises
Client incentives	Timely payment incentive: effectively none	Timely payment incentive: substantial interest rebate, larger follow-on loans
	Penalty for delinquency: curtailment of further loans, although not well enforced	Penalty for delinquency: curtailment of further loans; incentives well monitored and enforced
Interest rates	12 percent (subsidized); below both the inflation rate and the interest rate paid on small savings deposits	Around 30 P.A. (not subsidized); well above both the (pre-crisis) inflation rate and the interest rates paid on small savings deposits
Main sources of funds	Concessionary lines of credit, plus grants	Client deposits at market rates of interest
Dealing with losses	Soft budget constraint: operating losses covered by government	Hard budget constraint: loss-making operations suspended
The bottom line	Heavy losses and subsidy dependence	Exceptionally high profitability and subsidy independence since 1987

(1) Access vs. Interest Rate Subsidization. BUD's management faced a daunting dilemma that is typical to many SDFI operations. Subject to budget constraint, there was a need to choose between supporting the provision of financial services to a large number of clients in a sustainable fashion or subsidized financial services to a limited number of clients. BUD decided not to engage in subsidizing "priority" clients or sectors. This approach required a sharp increase in interest rates from 6 percent p.a. to about 32 percent p.a., or to 22 percent, when adjusted for inflation. Saving interest rates were adjusted too and were fixed based on the liquidity and the size of the account, to reflect the transaction costs associated with the servicing the saving accounts concerned within a range of 0 to 16 percent p.a.

To overcome political resistance to such a significant interest rate hike, the interest rate was announced in terms of percentage paid over the original amount of the loan, while the loan was paid in twelve monthly repayments. The spread was increased substantially as the average cost of funds was about 9 percent only. The lucrative spread of about 20 percent enabled coverage of the high administrative costs associated with building up the new system and servicing low-income clients, with small valued accounts that require frequent transactions derived from the popular one year maturity loans that are repaid in twelve monthly installments.

(2) Incentives. Incentives were essential to break the vicious cycle of non-repayments. Hence, substantial incentives were used to ensure high loan collection. For example, borrowers were granted a twelve percent interest rebate on loan that was paid promptly (all twelve monthly repayments) and borrowers who paid their current loan on time were also eligible to double their loan size in subsequent years. This is a significant incentive to clients whose alternative is borrowing from a moneylender who charges a much higher interest rate and is more likely to drastically ration lending to this clientele than BUD.

Also, incentives for staff were introduced to ensure a better screening of clients and high loan recovery. Staff could benefit from a bonus equivalent to two months of salary if the unit (that generally consisted of four employees) made a profit. However, profit, in sheer contrast to the past, was measured very conservatively. Provision for doubtful loans was made against any installment not paid on the due date, and interest income was recognized on a cash basis. Therefore, staff behavior changed when they became aware that lax approach to screening of borrowers and to tolerating poor loan repayments would cost them dearly in terms of lost bonuses.

(3) Eligibility. Eligibility has also changed. Instead of 'rice growing' that was used by BIMAS as the sole eligibility criteria, BUD decided that any income generating activity would be financed. This shift in paradigm facilitated the introduction of high lending rates (although still substantially lower than what money lenders charge) and the financing of mainly off-farm activities rather than primary farming operations. With rising rural GDP per capita there is usually an accompanying increase in the share of off-farm operations. Therefore, the shift in the borrowing eligibility also helps achieve better resource allocation.

(4) Loan Recovery. Loan recovery improved dramatically and loan losses were below 2 percent of the annual OLP, well covered by the relatively high spread between lending and

deposit rates. Many clients have made use of their eligibility for larger loans arising from their timely loan repayments; however, most of the loans were much smaller than US$1,000.

(5) Managerial Information System. A modern, efficient managerial information system was introduced to ensure timely reporting on crucial management aspects such as loan recovery, arrears and their aging, specific clients' repayment track records, branches profitability, staff and clients' bonuses and the like.

(6) Savings. Saving became very popular and within three years of the transformation. Outstanding savings started to exceed the OLP, although the latter also grew at an annual rate that exceeded 25 percent. As a result, BUD became financially independent, as there was no need to borrow from the other BRI profit centers. A few years later, savings reached twice the value of the OLP, and after the crisis of 1997 the figure stabilized at a ratio of 3 to 1 and was further reduced to around 2 to 1 by September 2002. Saving accounts were small and in view of the (pre-crisis) annual inflation rates, real deposit interest rates which were below nominal rates of 7 to 8 percent–were slightly negative or zero.

(7) Operating Costs. The operating costs of servicing low-income clients are substantially higher than the standard practiced in commercial banking given the small denomination of transactions and the frequent repayments of loans and withdrawals of deposits.

(8) The Subsidy Dependence Index of BUD. BUD's SDI was negative, about –44 percent before the financial crisis in 1997 and has not changed much after the crisis. A SDI of –44 percent means that BUD could have reduced the yield obtained on its loan portfolio by 44 percent (from about 32 percent p.a. to about only 18 percent p.a) and still obtained sound profitability as measured by ROE and ROA. The negative SDI of BUD reflects its remarkable financial performance.

BUD achieved self-sustainability (SDI of zero) for the first time in 1986, only two years after commencing its operations. This achievement is also attributed to the fact that BUD was operating as a separate profit center within a large bank and consequently could benefit from economics of scale and scope including daily clearance of the surplus liquidity usually generated by BUD. Presently, BUD serves more than 27 million depositors and more than 2.7 million borrowers with a variety of financial services generating a substantially favorable impact on rural development, yet with no need for any support from the GOI or local governments. It was important to rely heavily on rural savings and to price such savings appropriately. These allowed BUD to built long lasting lending relationships with low income, collateral lacking clientele and efficiently serve them while fully covering the related cost involved.

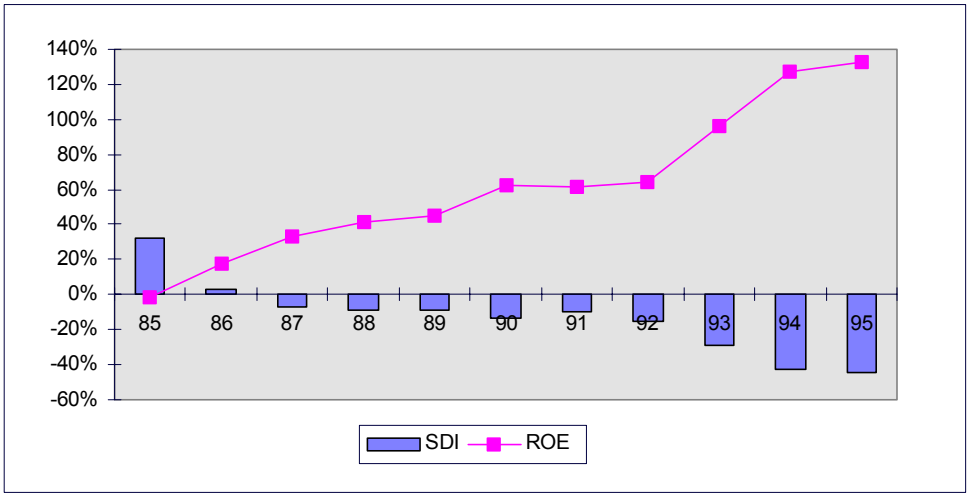
BUD's experience proved that low-income clients can benefit from financial intermediation services that are well priced. Moreover, scarce public funds could better serve the target clientele by contributing to "institution building" of self-sustainable SDFIs rather than subsidizing loans to ultimate clients in "priority sectors" or regularly having to bailing-out SDFIs that suffer from poor financial performance.

Table 2. BRI-UD's Outreach and Financial Self-Sustainability

Outreach:	1985	1990	1995
Avg. Annual Loan Volume ($ million)	162	562	1,178
Number of Outstanding Loans (million)	1.0	1.9	2.3
Avg. Outstanding Loan Amount / Borrower ($)	162	296	512
Avg. Annual Deposit Volume ($ million)	49	685	2,382
Number of Deposit Accounts (million)	NA	7.3	14.5
Avg. Deposit Amount / Saver ($)	NA	94	164
Financial Self-Sustainability:			
Nominal Avg. Yield Earned on the Loan Portfolio (%)	27.4	31.5	31.6
Nominal Avg. Interest Rate Paid on Deposits (%)	10.5	11.3	9.7
Nominal Interest Rate Spread (%)	16.8	20.2	21.9
Inflation	4.7	7.4	9.4
Real Average Yield Earned on the Loan Portfolio (%)	21.7	22.4	20.2
Real Average Interest Rate Paid on Deposits (%)	5.6	3.6	0.3
Lowest Nominal Lending Interest Rate Needed for Financial Self-Sustainability (%)	36.2	27.2	17.5
Lowest Real Lending Interest Rate Needed for Financial Self-Sustainability (%)	30.1	18.4	7.3
Operating Costs as a Percentage of:			
Average Annual Net Loan Portfolio (%)	20.5	12.9	12.6
Half of the Average Annual Net LP and Deposits (%)	31.5	11.6	8.3
Average Annual Total Assets (%)	15.1	8.0	5.3
Profits ($ million)	-0.8	34.3	170.2
Percentage of Profitable Units (%)	48.3	89.1	95.7
Avg. Ann Deposit Volume / Avg. Ann LP Volume	0.31	1.22	2.02
Subsidy Dependence Index (SDI)	**32.2**	**-13.7**	**-44.5**

Source: Yaron, Benjamin and Piprek. 1997. " Rural Finance: Issues, Design and Best Practices", The World Bank, Monograph # 14 ESSD.

Figure 3: BRI-UD's SDI and average ROE



Source: S.Cheritonenko, C. Pattern and J. Yaron, 1998, "Case Studies in Microfiance" Sustainable Banking with the poor, The World Bank.

Can Other SDFIs Learn from the Outstanding Performance of BUD?

Many SDFIs can benefit from internalizing the efficiency gained by the modes of operation practiced by BUD. Lending to low-income rural clients entails a much higher administrative cost per $ OLP compared to lending to SMEs or other larger-scale clients (e.g. exporters, housing, industrial borrowers and the like). Low-income rural clients usually can't offer effective collateral and therefore costly sophisticated systems of incentives to staff and clients need to be established to ensure high rates of loan recovery.

Accounting data, financial illiteracy and formal audited financial statements are usually scarce among rural low-income clientele when compared to other types of priority clientele served by SDFIs.(e.g. large scale agricultural or industrial enterprises). Hence, SDFIs serving higher-income clients can, even more easily than BUD, achieve self-sustainability when adhering to commercial imperatives, secure the autonomy to determine lending rates that adequately reflect risks and apply sound spreads and performance based incentives to staff and clients.

Conclusions and Recommendations

The states and salient donors supported the SDFIs for many years and despite the decreased role of SDFIs within the financial sector of many developing countries, the SDFIs are likely to remain important. Only modest achievements have been made with respect to transparency and meaningful evaluation of the performance of the SDFIs so far, despite the enormous amounts of subsidies that have been granted to the SDFIs. Over-reliance on traditional financial ratios led, by and large, to partial, often meaningless or misleading performance evaluation picture.

Short of rigorous econometric measurements that are relatively very expensive and therefore only rarely applied, the use of the evaluation framework that is based on two primary assessment criteria a) the degree of subsidy independence of the SDFIs; and b) the achieved outreach to target clientele, can contribute significantly to improved performance of the SDFIs. Introducing this evaluation assessment framework could enhance transparency related to performance evaluation and accelerate introducing and implementing the "best practices" in financial intermediation related to well defined target clientele and priority sectors.

Against the background of the prevailing political economy that often would not allow eliminating the SDFIs and the findings that in a few cases the social gain of SDFIs' operatios exceed the cost of the subsidies the SDFI benefited from, states and salient donors can play a major role in ascertaining that scarce public funds allocated to SDFIs are more efficiently used and higher value of "product" is obtained per dollar of subsidy granted. Using the OI and the SDI indices could serve in achieving improved outreach and subsidy independence and states and salient donors should ensure using such indices for planning, budgeting and ex-post performance evaluation on a routine basis. This approach would also contribute to enlighten evaluation regarding the social desirability of continued support to the SDFI- often also a pre-requisite to closure of SDFI if it is found warranted.

When supporting SDFIs, the below list of conclusions and recommendations related to improved performance of SDFIs should be taken seriously by the states and donors:

- SDFIs have been established, supported and frequently bailed-out to achieve objectives related to accelerated growth and poverty reduction by financing priority sectors or clientele.
- The performance of most of the SDFIs fell short of original expectations.
- There is an increase in renewed interest in SDFIs in many developing countries. The notion that the state should only ensure the existence of an enabling environment is not likely to be accepted by many of these countries. Yet, it is possible to ensure that improved "products" are delivered by SDFIs at much lower cost to society. However, this depends on implementation of clear performance assessment criteria in planning, monitoring and evaluating the SDFIs operations.
- In recent years, a consensus has been built regarding the futility of using scarce public funds to subsidize lending interest rates to ultimate clients or priority sectors as an instrument to improve the profitability of the sector concerned. Instead, such funds are increasingly directed to institution building in SDFIs in pursuit of achieving long-

term self-sustainability for SDFIs aimed at augmenting access to credit to these priority sectors and clientele.

- Political intervention in credit allocation, which artificially lowers lending rates in attempts to "assist" the ultimate clients, often generates misallocation of resources and guarantees long lasting demand for subsidies, thereby pushing the SDFI under.
- When political intervention is in its utmost damaging form of debt- forgiveness (rendered or promised), rational borrowers will expect "more of the same" in the future, thereby inflicting long lasting blow to the culture of financial discipline and to the objective of SDFIs' self-sustainability.
- Some rigorous economic studies have indicated that a few SDFIs generated social gains that exceed the subsidies they received. These SDFIs, by and large, have adopted "good practices" in financial intermediation and distanced themselves from the "old school" of narrowly directed and heavily subsidized lending rates, inadequate pricing of products rendered, lack of incentives to staff and clients and non-autonomous poorly skilled management.
- While econometric measurement used in evaluating the outcome of SDFIs' performance is warranted, it is plausible that only a few SDFIs would be assessed by using such methods, due to the high costs and high level skills required to carry out such studies.
- Donors and states should use the proposed methodology of the OI and SDI which could provide them with a relatively inexpensive evaluation of the SDFI performance. This framework also provides performance benchmarks related to other SDFIs serving similar clientele with similar products and would contribute to improved resource allocation by indicating the social desirability for rendering further support to the SDFIs.
- Confining SDFIs to second tier operations could contribute to improved performance when private sector FIs are left to carry out the first tier operations. Auctioning of subsidies (or guarantees) related to well defined financial "products" delivered to the target clientele by the private FIs, can contribute to a more cost-effective utilization of scarce public funds and facilitate higher return per unit of subsidy. Auctioning would also require enhanced transparency related to costs, subsidies and the nature of the "products" delivered to the target clientele.
- The modes of operation introduced in BUD, namely adequate pricing of products in pursuit of subsidy independence, sound spreads, individual performance based incentives for staff and clients, efficient management information system (MIS) and the like proved to generate tremendous achievements in terms of enhanced outreach and subsidy independence. Other SDFIs should internalize these policies, modes of operations and procedures that facilitated the BUD's unprecedented achievements. However, replication of these policies and modes of operation should take into account adjustments necessary to accommodate the different socio-economic characteristics of the clientele served and cultural values in their respective countries.

ANNEX 1. The Computation of the Subsidy Dependence Index (SDI)

The objective of the SDI methodology is to provide a comprehensive method of assessing and measuring the overall financial costs involved in operating an SDFI and quantifying its subsidy dependence. The SDI methodology suggests moving away from over-reliance on the financial profitability ratios used in conventional accounting procedures for the financial analysis of SDFIs. The SDI method provides a public interest analysis of SDFI financial performance and its subsidy dependence. This type of analysis involves taking full account of the overall social costs entailed in operations, including the full value of all subsidies received by the institution.

Conventional accounting practice measures the cost of funds priced at their actual cost. The ROE and ROA are more often representative of the volume of subsidies that were injected into the SDFI through concessionary borrowed funds rather than the institution's "true" financial performance. The opportunity cost of an SDFI's borrowed funds, that is, the cost the SDFI would have to pay for its funds if access to concessionary funds were eliminated, is not taken into account. The SDI calculation assumes that the volume of the SDFI's outstanding loan portfolio remains unchanged. Hence, the change is caused by substituting voluntary savings for concessionary borrowed funds (or other accessible sources) at a market related interest rate.

Thus, if the central bank makes a loan to an SDFI at 2 percent, conventional accounting practices list the cost of the loan at 2 percent p.a. However, if the cost of alternative non-concessionary funds is 12 percent p.a., then the SDI considers the 10 percent difference in interest rates on those funds and identifies this as the subsidy received by the SDFI. The rationale for doing so is that if the subsidized SDFI paid only 2 percent p.a. on central bank rediscounting facilities instead of the prevailing market deposit rate of 12 percent p.a., the reported accounting profit and the financial ratios measuring the SDFI's profitability would not convey that these ratios were only obtained due to the significant subsidy embodied in the concessionary funds.

To illustrate the futility of the current financial reporting system one may ask: what is the meaning of an SDFI's return on equity of 20 percent when 50 percent of the SDFI's financial obligations constitute concessionary borrowed funds from the central bank carrying an interest rate significantly below market deposit interest rates, and when one-third of its payroll cost, 80 percent of its loan losses and all training expenses are assumed by the State or by a donor? Clearly adjusting the numbers to reflect such subsidies is needed to meaningfully assess the SDFI performance.

Providing a SDFI with concessionary funds is the most common method of intended subsidization, yet calculating the value of the subsidy implicit in the SDFI's concessionary borrowed funds requires information not included in the SDFI's financial statements.

Computing the SDI provides two quantitative answers that are aimed at putting the value of the SDFI subsidy received in its relevant context. The first step is measuring the value of total

annual subsidies (explicit and implicit) received by the institution against the value of the annual average OLP of the SDFI.

The second ratio is the complete SDI ratio, whereby the numerator of the total annual subsidies received by the SDFI is unchanged, but the denominator is changed and instead amounts only to the income of interest and fees earned on the OLP. This ratio provides an answer to the question of what is the percentage increase needed in the annual yield on the SDFI's loan portfolio compared to it's the current yield achieved, if full subsidy independence is to be reached. This full SDI ratio provides also the notion of 'matching grant' when the numerator is the grant received from society and the denominator is the value of interest and fees paid by the ultimate clients for the financial services they receive.

The amount of the annual subsidy received by a SDFI is defined as:

$$S = A (m - c) + [(E * m) - p] + K$$

where:	
S	Annual subsidy received by the SDFI
A	SDFI concessionary borrowed funds outstanding (annual average)
m	Interest rate the SDFI would be assumed to pay for borrowed funds if access to borrowed concessionary funds were eliminated
c	Weighted average annual concessionary rate of interest actually paid by the SDFI on its average annual concessionary borrowed funds outstanding
E	Average annual equity
P	Reported annual profit before tax (adjusted, when necessary, for loan loss provisions, inflation, and so on)
K	The sum of all other annual subsidies received by the SDFI (such as partial or complete coverage of the SDFI's operational costs by the state

$$SDI = \frac{S}{LP * i}$$

where:	
SDI	Index of subsidy dependence of SDFI
S	Annual subsidy received by the SDFI (see above)
LP	Average annual outstanding loan portfolio of the SDFI
i	Weighted average yield earned on the loan portfolio of the SDFI.

The SDI calculation requires the application of certain procedures as well as judgment. Consistency from period to period is more important than the absolute accuracy of the figures included in the SDI computation. The SDI is a ratio that measures the percentage increase in the average lending interest rate required to compensate an SDFI for the elimination of subsidies in a given year, while keeping its ROE equal to the approximate non-concessionary borrowing cost. The index assumes, for simplicity, while providing a sensitivity analysis, that an increase in the lending interest rate is the only change made to compensate for loss of

subsidy. However, it is clear that any cost savings would automatically be reflected in increase in annual profit (or reduction of annual loss) and therefore inevitably also lower the SDI.

The SDI by itself does not clarify how the subsidy was used or whether most benefits were accrued to the target clientele or were consumed by an inefficient bureaucracy. The latter question, though important, requires far more detailed data and even then is often subject to interpretation. The advantage of the SDI is its simplicity, and as such, it focuses exclusively on the intake of the subsidy. The SDI should be seen in some instances as a lower bound because full financing of SDFI activities is likely to be difficult at current market borrowing rates, if their financial performance is dismal. However, calculating this lower bound is vital for ascertaining either the SDFI's progress toward self-sustainability or the social desirability of its continued subsidy dependence.

A SDI of zero means that a SDFI has achieved full self-sustainability. A SDI of 100 percent indicates that a doubling of the yield obtained on the OLP is required if subsidies are to be eliminated. Similarly, an SDI of 200 percent indicates that a threefold increase in the yield obtained on the OLP is needed to compensate for the subsidy elimination. A negative SDI indicates that a SDFI has not only fully-achieved self-sustainability, but that its annual profits, minus its capital (equity) charged at the approximate market interest rate, exceed the total annual value of subsidies (if subsidies were received). A negative SDI also implies that the SDFI could have lowered its average lending interest rate while simultaneously eliminating any subsidies received in the same year.

Although removal of subsidies received by a SDFI is not always politically feasible or economically desirable, measurement of any subsidy is always warranted, economically and politically, as it could lead to a better resource allocation. Computing the subsidy dependence of SDFIs would contribute to essential disclosure of basic data imperative to enlighten public debate on use of scarce public funds. Without a SDI indicator, the public would be continued to be fed with information that is confined to partial SDFI performance indicators such as "profit," much of which is the residual value of the subsidy received, amount disbursed or the value of the OLP and the amount associated with bail-outs whenever they occur, thereby missing the full picture of the social costs associated with maintaining the SDFI.