

## Chapter 3: THE SUBSIDY DEPENDENCY INDEX

### 3.1 Introduction

The application of the SDI helps to determine the viability and longevity of an RFI. Jacob Yaron of the Agriculture and Rural Finance division of the World Bank designed the Subsidy Dependency Index (SDI) and first published it in 1992 (Yaron, 1992). The SDI aims to provide an objective assessment and measurement of a specialised credit institution's financial performance (Coetzee 1997). It provides a public interest or economic analysis of an RFI's financial performance. It begins where conventional accounting analysis ends, and it seeks to quantify the cost the state seeks to keep an RFI afloat.

In this chapter, the objectives of the SDI will be outlined and the components of the formula discussed. The applications and shortcomings of the SDI are discussed. The chapter will be concluded with a review of the SDI methodology and interpretation of the SDI calculation results concludes the chapter.

### 3.2 Objectives of the Subsidy Dependence Index

The objectives of the SDI are summarised below:

- a) To provide a comprehensive method for measuring the overall financial costs of operating an RFI;
- b) To quantifying its dependence on subsidies;
- c) To avoid over reliance on financial profitability ratios of conventional accounting procedures;
- d) To provide a public interest analysis of RFI performance and subsidy dependence;
- e) To provide a full account of overall social costs for keeping an RFI afloat;

- f) To introduce a user friendly and simple methodology, which does not require detailed information to calculate.

The application of the SDI helps to determine the viability and longevity of an RFI. It allows the amount of subsidies to be understood in the context of the size of its loan portfolio. The SDI can be used to compare the real costs of intervention, and how these costs change over time.

### 3.3 The SDI calculation

The calculation of the SDI involves taking account of the total cost of operating a development finance institution (DFI), including the actual value of all subsidies received. The SDI is a ratio that measures the percentage increase required in the average lending rate to compensate a DFI for the elimination of all subsidies in a given year while keeping its return on equity equal to the market reference deposit rate. The index assumes that an increase in the lending rate is the only change to be made to compensate for the loss of subsidies, Coetzee (1997).

The SDI formula is outlined below:

$$SDI = S (\text{Subsidy}) / LP * i$$

And,  $S = A (m-c) + \{(E * m) - P\} + K$

Where:

|     |   |
|-----|---|
| S   | Annual subsidy received by the RFI.   |
| A   | Concessionally borrowed funds outstanding.  |
| m   | Interest rate the RFI would be assumed to pay for the borrowed funds if access to borrowed funds at concessional rates were eliminated.       |
| c   | Weighted average annual concessional rate of interest actually paid by the RFI.   |
| E   | Average annual equity.  |
| P/L | Reported annual profit/loss before tax.   |
| K   | The sum of all other annual subsidies received by the RFI (such as partial or complete coverage of the RFI's operational costs by the state). |
| LP  | Average annual outstanding loan portfolio.  |
| A   | Concessional borrowed funds outstanding.  |
| i   | Weighted average on-lending interest rate earned on the loan portfolio.   |

“S” is the “real subsidy” the RFI benefited from. This is called the “real subsidy” and not just the subsidy because the former refers to the total of subsidies less the profit made by the RFI as per the formula. The value of “S” for one institution can be compared to that of other institutions, however for the comparison to make sense, it must be made in the context of the activity levels of the RFI. Information on “S” is important in beginning to make sense of the social cost of the RFI to the fiscus. “S” captures both the economic and financial subsidies. It is important to understand that the profit made by the institution is one of the variables an RFI can effectively manage by reducing its operational costs.

$LP * i$  at the prevailing market reference deposit interest rate ( $m$ ) if the RFI's

This is the denominator of the SDI formula. It represents what the RFI can earn on its outstanding portfolio. Altering the on-lending interest rate ( $i$ ) in the  $LP * i$  function has a major impact on the SDI. This is achieved by the fact that increasing ( $i$ ) increases the profit of the institution, thereby decreasing the real subsidy. Simultaneously the denominator is increased resulting in a decreased SDI. The SDI is affected by different inflation regimes. Higher inflation has the effect of increasing  $i$  as well as the nominal value of  $LP$ . The cumulative effect of a higher  $i$  and  $LP$  is an increased denominator in the SDI formula and a lower SDI value. Provision for bad debts decrease the profit level and increase the SDI. High loan recovery is therefore a key to a successful RFI.

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## SDI

The proportion of  $S$  over  $LP * i$  (expressed as a percentage) represents the measure of the subsidy dependence, the SDI. A SDI of 200% for example means that the average onlending rate has to be increased by 200% in order to eliminate the subsidy dependence. This also means that Every R1 earned in the market place R2 is received as subsidies. A SDI of 33% implies that for every R1 earned in the market R0.33 is extended as subsidy. This also means that the average onlending rate has to be increased by 33% in order to eliminate the subsidy dependence. Thus in each instance to fully eliminate the SDI we need to increase the on-lending rate by the size of the SDI. A SDI of (0%) means that the RFI has achieved financial self-sustainability, whereas, an SDI of 100% indicates that a doubling of ( $i$ ) is required to totally eliminate the subsidy. A negative SDI indicates that an RFI has achieved full self-sustainability and that its annual profits exceeded the total annual value of any subsidies received by the RFI. A negative SDI means that the RFI can decrease its lending rate, eliminate all subsidies and remain self-sustainable. The SDI should be seen as a lower bound for the required increase in the on-lending interest rate, because full self-financing of RFI activities is likely to be

difficult at the prevailing market reference deposit interest rate ( $m$ ) if the RFI's financial performance is dismal (Yaron et al, 1995).

The SDI can be used to evaluate institutions and their progress toward full self-sustainability. The SDI cannot tell us how efficiently the Subsidy received by an institution has been used (Yaron, 1995). However if we define our financial and economic goal for an RFI as achieving a particular level of sustained profits; then operational efficiency and full self-sustainability will be, respectively the first and second phases of this process (Christine et al, 1994). Operational self sufficiency is defined as being able to cover non financial expenses from programme fees, and full financial self sufficiency as being able to cover both financial and non financial costs on a commercial basis, without any capital subsidies.

Christine et al, (1994) observed in their evaluation of RFIs that achieving operational self-sufficiency indicates that operations are generally efficient, with high client to staff ratios and good control of delinquency and default. In-turn an RFI can only be successful if its clients are generally doing well. Thus the SDI can be used as a proxy for a positive development impact on programme beneficiaries. A low and / or decreasing SDI, therefore, can be interpreted as a proxy for success.

### 3.4 Sensitivity Analysis

The changes to the variables in the SDI formula can be used as a guideline on how to restructure the operations of an RFI. Altering SDI variables in a sensitivity analysis will provide indicators on how to achieve a desirable level of sustainability. Table 3.2 serves as an illustration of the effect changes in the SDI components have on the SDI formula.

### 3.5 Conclusion

Given the SDI formula is as follows:

$$SDI = S(\text{subsidy}) / LP^*i$$

$$S = A(m-c) + \{(E * m) - P\} + K$$

An increase in (c) the concessional rate results in a decrease of  $A(m-c)$ , gross subsidies "S" and profit "P". An increase in (m) results in an increase of the SDI. The increase in the SDI is due to an increase in  $A(m-c)$  and  $E*m$  which are both components of the numerator. Increasing voluntary deposits as a share of borrowed funds has the effect of decreasing (A), and thus lowering the numerator and effectively lowering the SDI. Increasing the annual average on-lending interest rate has the effect of increasing the denominator ( $LP^*i$ ) but it decreases the numerator because (P) becomes bigger due to increased revenues. The net effect is to decrease the SDI.

**Table 3.2: Sensitivity of SDI Critical Parameters**

| Parameter Changed<br>→<br>SDI<br>Component affected<br>↓ | Concessional<br>Rate (c) | Market<br>Interest<br>Rate (m) | Voluntary<br>Deposits as a<br>share of<br>borrowed<br>funds(**) | Administrative<br>Costs<br>(ac) | Annual average on-<br>lending interest rate<br>(t) |
|--|--------------------------|--------------------------------|---|---------------------------------|--|
|  | ↑                        | ↑                              | ↑   | ↓                               | ↑  |
| Numerator (S)  | ↔                        | ↑                              | ↓   | ↓                               | ↓  |
| Denominator (LPi)  | ↔                        | ↔                              | ↔   | ↔                               | ↑  |
| $A(m-c)$   | ↓                        | ↑                              | ↓   | ↔                               | ↔  |
| $E * m$  | ↔                        | ↑                              | ↔   | ↔                               | ↔  |
| Gross subsidies  | ↓                        | ↑                              | ↓   | ↔                               | ↔  |
| Profit (p)   | ↓                        | ↔                              | ↓   | ↑                               | ↑  |
| SDI  | ↔                        | ↑                              | ↓   | ↓                               | ↓  |

Notes: (\*) ↑ = increase, ↓ = decrease, and ↔ = no change / effect. The above signs for the partial derivatives of the SDI with respect to key variables do not reflect the effect of changes in P on average annual equity and thus on the  $E * m$  component of the SDI formula. Taking into account these indirect effects results in qualitative changes for some derivatives, but only modest quantitative effects on the SDI, particularly where m is relatively low. (\*\*) Subject to a situation in which the average (financial and administrative) cost of voluntary deposits is lower than the market rate (m), which indicates the marginal cost of mobilising voluntary deposits.

Source: Strauss Commission, 1996a on the work of Yaron, 1995.

### 3.5 Conclusion

The results of the sensitivity analysis give a good indication of how the SDI can be effectively used to inform changes in the operational policies of an RFI. The SDI can also be used to progress towards financial self-sufficiency. It is very difficult to minimise administrative costs. RFIs often lack appropriate cost accounting systems capable of reflecting the costs incurred in providing these services. The administrative costs are directly related to non-financial services often rendered as pre-credit and post-credit establishment programs. The inability of RFIs to achieve financial viability is often blamed on the necessity of providing such services (Coetzee, 1997). The SDI offers an opportunity to measure the progress towards financial self-sustainability, whilst maintaining pre-determined outreach levels.

KFC is a statutory development corporation established by proclamation R33 of 1976 in terms of the Promotion of Economic Development of National Struggle Act, No. 46 of 1983, as amended by the KwaZulu Corporations Act, No. 17 of 1994.

KFC's mission (KFC, 1994) is to contribute significantly to the socio-economic empowerment of the people of KwaZulu-Natal. The KFC's stated priority development principle is to foster a holistic approach to development. The Rural Development Division (RDD) is the key component of KFC's overall development mission. The focus of the RDD is to stimulate the rural economy through the provision of financial services in rural areas. As such in the past any economic activity which entrepreneurs wanted to engage in has been given consideration.