DVARA RESEARCH

Cost of Delivering Rural Credit in India

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Abstract

This note estimates the costs involved in delivering rural credit across five dominant channels: Public Sector Bank lending through its rural branch; Public Sector Bank lending through a Self-Help Group; Public Sector Bank lending through a Micro Finance Institution; Private Sector Bank lending through its rural branch; and Private Sector Bank lending through a Micro Finance Institution. The note analyses each component of cost separately: cost of debt, cost of equity, transaction costs and loan loss provisions, and ascertain their contribution to total cost of credit. The note finds that total costs of rural credit delivery range from 13.75% for a bank lending through AA rated Micro Finance Institutions, to 41.53% for a Public Sector Bank lending directly through its rural branches. Total Tier 1 Capital consumption ranges from a high of 20.08% for lending through Self Help groups, to a low of 0.97% for lending through AA rated Micro Finance Institutions. Given this analysis, the note concludes that the three policy goals of achieving complete financial inclusion, building low-cost financial intermediation infrastructure, and keeping systemic risks low, would be best served by the use of well capitalised high quality intermediaries instead of branches of banks or even self-help groups.

1. Objective

This note assesses the costs of credit delivery from public and private sector banks to rural customers across multiple channels. Funding from banks flows to the end rural customer through three channels: through bank branches; through Self Help Groups (SHGs); and through Micro Finance Institutions (MFIs). The objective of this note is to develop an understanding of the true costs of credit delivery to rural customers and to compare these costs across the various channels.

2. Methodology

The model being explored here is that a bank has a total of Rs.100 million (Rs.10 crore) of credit that has to reach 10,000 rural customers for an amount of Rs.10,000 each, using a number of channels. The channels available to the bank in lending to rural customers are as follows:

2.1 For a Public Sector Bank (PSB):

- **Lending through a rural branch:** A PSB uses its funds to lend to the farmer, say through the Kisan Credit Card (KCC) scheme.
  In this instance, the bank will use its branches to make 10,000 loans each of Rs.10,000 to rural customers.

- **Lending through a Self-Help Group (SHG):** A PSB uses its funds to lend to an SHG. An SHG is a group of 15 to 20 women organised by a Self-Help-Promoting Institution (SHPI)[1]. The loan to the SHG is divided between the members of the SHG. For the purpose of this note, the SHG is considered as a channel because it borrows from the bank and lends to its members, usually charging a margin from them.
  In this instance, the bank will make loans to 666 fifteen-member SHGs, each amounting to Rs.150,000. In turn, each SHG will make loans of Rs.10,000 to each of its 15 members.

- **Lending through a Micro Finance Institution (MFI):** The PSB uses its funds to lend to an MFI. The MFI on-lends these funds to a five-member Joint-Liability-Group (JLG). Repayments are made regularly by the JLG to the MFI, either at weekly, fortnightly or monthly intervals, based on the groups convenience.
  In this instance, the bank will make one loan of Rs.100 million (Rs.10 crore) to an MFI, which will in-turn make 10,000 loans, each of Rs.10,000 to its rural customers[2].

2.2 For a Private Sector Bank:

- **Lending through a rural branch:** The private sector bank uses funds available to it from customer deposits to lend to the farmer, say through the Kisan Credit Card scheme.
  In this instance, the bank will use its branches to make 10,000 loans each of Rs.10,000 to rural customers.

- **Lending through an MFI:** The private sector bank uses its funds to lend to the MFI.
  In this instance, the bank will make one loan of Rs.100 million (Rs.10 crore) to an MFI, which will in turn make 10,000 loans each of Rs.10,000 to its rural customers.

The costs of delivering credit can be divided into four components:

Cost of Debt: This refers to the marginal cost at which the banks are able to raise money.

Cost of Equity: For lending through each channel, the unexpected losses specifically associated with the channel are estimated, which help to understand the quantum of equity that needs to be set aside and a cost has been computed for such equity.

Loan Loss Provision: This refers to the provision that has to be made for expected loan losses, based on historical performance and is typically reflected directly in the rate charged to customer.

Transaction costs: Transaction costs of lending comprise the cost of administering credit. Administrative costs are those which are directly attributable to the processing, delivering, and administering of loans. It may include wages, salaries and costs such as printing, rent, electricity, connectivity, transportation of cash, insurance, overheads, and depreciation. Transaction costs have typically been a challenge in due to the small size of loans, the need for frequent monitoring and the absence of cash clearing infrastructure in remote areas.

Adding up the above costs yields the total cost of delivering rural credit for different channels. Comparing the true costs of credit delivery across these different channels throws light on the most efficient channels that banks could leverage for rural credit delivery.

3. Findings

3.1 Cost of Debt

Source	Channel	Cost of Debt[3]
Public Sector Bank (PSB)[4]	Bank Branch	4.00%
	SHG Linkage	4.00%
	MFI	4.00%
Private Sector Bank[5]	Bank Branch	4.00%
	MFI	4.00%

The cost of debt remains the same across all channels because it is only the source bank whether private or public that is raising this money in the form of retail deposits. This debt is then channelled through branches, SHGs and MFIs for on-lending to the rural customer. The specific channel chosen by the bank does not change the cost at which it raises money[6].

3.2 Cost of Equity

In order to attempt a true estimation of cost of equity, regulatory capital requirements in force have not been considered, but rather the economic capital required under each of the channels is calculated[7]. This calculation is based on an understanding of the nature of defaults (mean and volatility) for each channel[8].

Source	Channel	Default observed by Bank		Default observed by Channel	
		Mean Default Rate	Standard Deviation	Mean Default Rate	Standard Deviation
Public Sector Bank (PSB)	Bank Branch	4.25%	1.35%	0.00%	0.00%
	SHG Linkage	3.97%	1.56%	8.66%	5.13%
	MFI (rated BBB)	3.05%	0.79%	0.22%	0.30%
	MFI (rated A)	0.92%	0.09%	0.22%	0.30%
	MFI (rated AA)[9]	0.01%	0.02%	0.22%	0.30%
Private Sector Bank	Bank Branch	5.40%	1.70%	0.00%	0.00%
	MFI (rated BBB)	3.05%	0.79%	0.22%	0.30%
	MFI (rated A)	0.92%	0.09%	0.22%	0.30%
	MFI (rated AA)	0.01%	0.02%	0.22%	0.30%

Using this data as a basis for calculating unexpected loss, it is possible to estimate cost of equity required under the various channels. The total cost of equity is the sum of the cost of equity for the source bank and the cost of equity for the channel[10].

Source	Channel	Cost of Equity for Bank	Cost of Equity for Channel	Total Cost of Equity
Public Sector Bank (PSB)	Bank Branch	0.89%	0.00%	0.89%
	SHG Linkage	1.02%	4.51%	5.54%
	MFI (rated BBB)	0.52%	0.27%	0.78%
	MFI (rated A)	0.06%	0.27%	0.33%
	MFI (rated AA)	0.01%	0.27%	0.28%
Private Sector Bank	Bank Branch	1.11%	0.00%	1.11%
	MFI (rated BBB)	0.52%	0.27%	0.78%
	MFI (rated A)	0.06%	0.27%	0.33%
	MFI (rated AA)	0.01%	0.27%	0.28%

The cost of equity in lending through SHGs is the highest among all the channels considered, including that of the lowest rated MFI. This is because of the higher unexpected losses in lending through SHGs.

3.3 Loan Loss Provision

The data on observed default rates in the previous section brings out the average expected losses associated with each of the five channels and it is this observed expected loss (over a period of time) that should form the basis for providing for loan loss provision by the bank.

Therefore, expected portfolio losses should be covered by loan loss reserves as per the following table[11]:

Source	Channel	Loan Loss Provision for Bank	Loan Loss Provision for Channel	Total Loan Loss Provision
Public Sector Bank (PSB)	Bank Branch	4.25%	0.00%	4.25%
	SHG Linkage	3.97%	8.66%	12.63%
	MFI (rated BBB)	3.05%	0.22%	3.27%
	MFI (rated A)	0.92%	0.22%	1.15%
	MFI (rated AA)	0.01%	0.22%	0.24%
Private Sector Bank	Bank Branch	5.40%	0.00%	5.40%
	MFI (rated BBB)	3.05%	0.22%	3.27%
	MFI (rated A)	0.92%	0.22%	1.15%
	MFI (rated AA)	0.01%	0.22%	0.24%

Loan loss provisions are a reflection of the quality of underwriting and the data reveals that the rural credit underwritten through the SHG channel is of the lowest quality among all channels. Bank branches and BBB rated MFIs have similar and substantially better quality underwriting than SHGs. The lowest provisions are required for AA rated MFIs indicating the highest quality of underwriting.

3.4 Transactions Costs

The Rangarajan Committee[1] estimates the transaction costs[12] for a private sector bank, public sector bank and a Micro Finance Institution. Since transaction costs are calculated based on loan size, they are very sensitive to changes in size of the loan.

The table below points out the differences in transaction costs[13] across different channels:

Source	Channel	Transaction Costs for Bank	Additional Transaction Costs borne by Channel	Total Transaction Costs for Channel
Public Sector Bank (PSB)	Bank Branch	32.39%	0.00%	32.39%
	SHG Linkage	0.46%	6.30%	6.76%
	MFI	0.50%	8.74%	9.24%
Private Sector Bank	Bank Branch	21.56%	0.00%	21.56%
	MFI	0.50%	8.74%	9.24%

While entry level salaries for clerical staff that operate a rural branch are similar for both public sector[14][2] and private sector banks at around Rs.20,000 per month, yearly increments and bonuses are considerably higher for private sector banks. Field staff compensation for MFIs is around Rs.7,500 per month[15][3].

While both banks and MFIs operate through brick-and-mortar structures for their branch-based operations, MFIs typically follow a hub-and-spoke model, with field officers covering service areas associated with the branch and client interactions happening on the field, while banks prefer to operate inside their branch premises. As a direct consequence, while a bank branch services on an average 274 KCC accounts[16][4], a field officer in an efficient MFI services about 700 customers[17][5], i.e., an MFI branch would typically service over 4,000 accounts but cost about half as much as a typical bank branch.

3.5 Total Costs

The above costs namely cost of debt, cost of equity, transaction costs and loan loss provisions - have been summed up to arrive at the actual total cost of credit delivery to customer through each of the channels.

Source	Channel	Total Optimised Cost[18]	Observed Price to Customer[19] [20] [21]
Public Sector Bank (PSB)	Bank Branch	41.53%	11.25%
	SHG Linkage	28.93%	24.00%
	MFI (rated BBB)	17.29%	27.00%
	MFI (rated A)	14.71%	27.00%
	MFI (rated AA)	13.75%	27.00%
Private Sector Bank	Bank Branch	32.07%	14.00%
	MFI (rated BBB)	17.29%	27.00%
	MFI (rated A)	14.71%	27.00%
	MFI (rated AA)	13.75%	27.00%

Rural credit through bank branches exhibits the highest total cost but lowest observed price to customer. The above table shows that if the bank were to choose the most cost-effective channel to do rural credit, it would lend through a AA rated MFI whose total cost is 13.75%.

Assuming that a PSB wished to keep price to customer fixed at 12%, when it lends through a BBB rated MFI, it needs to provide a subsidy of 5.29% or Rs.529 on each loan of Rs.10,000, whereas it is currently absorbing a loss of 29.53% or Rs.2,953 on each loan of Rs.10,000 that it provides through its bank branch. Given this analysis it is therefore not surprising that banks (both PSB and Private) are reluctant to expand their branch networks and their rural lending operations and prefer to pay the financial penalties of not meeting their priority sector obligations.

4. Policy Implications

This analysis clearly reveals that the channel for credit delivery matters. The five channels examined in this note were:

   i. PSB lending through rural branch;
   ii. PSB lending through SHG;
   iii. PSB lending through MFI;
   iv. Private sector bank lending through rural branch; and
   v. Private sector bank lending through MFI.

The same loan of Rs.100 million (Rs.10 crore) transmitted through each of the five channels to 10,000 small borrowers, receiving Rs.10,000 each, had vastly different implications:

1. Total Channel Cost (including cost of debt, capital costs, and loan losses): This ranged from 13.75% at the lowest end for transmission of this credit through a AA rated MFI to 41.53% for the same task being performed by a Public Sector Bank directly through its branches[22]. This suggests that for every Rs.100 million (Rs.10 crore) that is being lent out as small rural loans by Banks through their branches, over Rs.27 million (Rs.2.7 crore or 27%) is being wasted in the form of higher channel costs.

2. Total Capital Consumption (only unexpected losses): This ranged from a high of 20.08% for bank lending through the SHG channel to a low of 0.97% if the lending is done through very high quality MFIs.

The analysis reveals that it is not the source of funding whether PSB or private sector bank that explains the difference in costs, it is the channel of credit delivery (bank branch, SHG, MFI) that offers much greater explanatory power.

If, for example, there is a policy imperative to deliver farm credit at 12%, then given the Channel costs as computed above, the relative loss from each of the channels is:

Source	Channel	True Total Cost	Total Loss of the Channel
Public Sector Bank (PSB)	Bank Branch	41.53%	29.53%
	SHG Linkage	28.93%	16.93%
	MFI (rated BBB)	17.29%	5.29%
	MFI (rated A)	14.71%	2.71%
	MFI (rated AA)	13.75%	1.75%
Private Sector Bank	Bank Branch	32.07%	20.07%
	MFI (rated BBB)	17.29%	5.29%
	MFI (rated A)	14.71%	2.71%
	MFI (rated AA)	13.75%	1.75%

The above table reveals that Banks would lose a lot less money while meeting the policy goal of lending at 12% to the eventual customer if they were advised to eschew the use of branches and instead work exclusively through low cost partners. It also suggests that creation of branches in remote areas for meeting small loan requirements would not be advisable because it would increase the overall cost of financial intermediation infrastructure by as much as a factor of fifteen without achieving any additional financial inclusion goals. Viewed another way, if the lowest cost channels (the MFI) were given the full benefit of the current cross-subsidisation by the banks when they use their own branches, even at the existing spreads being retained by the MFI, the lending rate to the eventual customer would fall below zero without any need for additional interest rate subventions.

Additionally, on account of the reduced proximity of the branch from the eventual client, and the semi-formal nature of the SHG, the branch and the SHG channels end up consuming significantly more of scarce Tier I Equity Capital than the bank lending through the MFI channel. Requiring banks to provide credit directly through their branches therefore not only costs more but consumes a lot more capital and exposes Systemically Important Financial Institutions (SIFIs) to a much higher level of risk without necessarily achieving any additional financial inclusion goals.

From a policy perspective, this analysis reveals the risks of prescribing credit targets through a specific channel. Within an overall rural credit target framework, banks must be allowed to choose the channel that on a total cost basis (cost of equity + transaction cost + cost of debt), is the most efficient.

Annexure 1

Cost of Equity and Loan Loss Provision

Any calculation of equity as well as loan loss provision requires data on mean and volatility of observed default rates across all the five channels.

1. Default Data

For the PSB default performance, data was obtained from Central Bank of India[23][6]. The calculation of default numbers assumes that Central Bank of India had 40% of its advances in priority sectors, and that the proportion of priority sector defaults to total defaults of the bank mirrored the overall ratio for PSBs as put out by the RBI[24][7].

In order to illustrate, consider the year 2011-12:

    i. Gross advances of the bank = Rs.1,50,725 crore. (from Annual Report)
    ii. Assuming 40% of advances go to PSL; PSL advances = Rs.60,290 crore.
    iii. Gross NPA of the Bank = Rs.7,273 crore. (from Annual Report)
    iv. Ratio of priority sector NPAs to all NPAs for nationalised banks = 48.34% (from RBI data)
    v. Applying this ratio; PSL NPA for the bank = Rs.3,516 crore.
    vi. Therefore, Gross PSL NPA (%) for the bank = **5.83%**

The same approach for calculation is used for all years from 2007-08 to 2011-12.

For SHG default performance, data was available from the Microfinance State of the Sector Report (2011 and 2012), and NABARD[25](2008 to 2010)[8][9][10].

For private sector bank data, ICICI Bank's default performance on loans to agriculture and allied sectors[26][11] was used. This data is available only from 2008-09 to 2011-12, so there is no data for the year 2007-08.

The calculated mean and volatility of NPAs for these channels is as follows:

Channel / Observed Defaults	2008	2009	2010	2011	2012	Mean	SD
PSB Bank Branch	5.44%	4.04%	3.22%	2.73%	5.83%	4.25%	1.35%
PSB - SHG Linkage	2.90%	2.90%	2.94%	4.74%	6.38%	3.97%	1.56%
Private Sector Bank Branch		3.58%	5.62%	7.61%	4.78%	5.40%	1.70%

For the Bank-MFI and Bank-SHG channels, there is a need to consider defaults at two levels. On the one hand, there could be default by MFI/SHG on bank loans, and on the other, there could be defaults by end customers on MFI/SHG loans. In order to compute total equity required, there is a need to assess the equity required at each of these levels.

While Bank-SHG default behaviour is recorded in the previous table, there is a need to calculate the defaults on lending by SHG to the end customer. Data on lending from SHG to customer is very sparse, but one source to enable approximation of this data is the EDA/APMAS report on Self Help Groups in India[27][12]. The following data on customer default to SHG is drawn from this report[28]:

	Karnataka	Orissa	Rajasthan
# of SHGs surveyed	46	37	25
% PAR (>360)	12.00%	9.00%	2.00%

Based on this data, we estimate the mean and volatility of default across regions:

	Karnataka	Orissa	Rajasthan
Weighted Average PAR	5.11%	3.08%	0.46%
Average PAR			8.66%
SD across regions			5.13%

Lending from the Bank to MFI: The one-year default matrix from CRISIL provides the probability of default on debt based on the rating of the debtor. Depending on the rating of the debtor MFI, it is therefore possible to assess the likelihood of defaulting on bank debt.

For the period 2004-2012[29][13][14], using the CRISIL one-year default matrix, the mean and volatility of defaults for the entire ratings scale is calculated.

	2012	2011	2010	2009	2008	2007	2006	2005	2004	MEAN	SD
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.03%	0.04%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%
A	0.74%	0.82%	0.93%	1.00%	0.94%	0.90%	0.98%	1.00%	1.01%	0.92%	0.09%
BBB	1.68%	1.89%	2.82%	4.10%	3.40%	3.30%	3.36%	3.40%	3.47%	3.05%	0.79%
BB	5.15%	5.80%	8.90%	15.90%	15.21%	15.20%	15.34%	15.48%	15.85%	12.54%	4.56%
B	8.88%	8.25%	9.18%	16.30%	29.41%	29.40%	29.41%	29.41%	30.30%	21.17%	10.25%
C	18.44%	21.36%	24.98%	31.20%	28.05%	28.40%	28.40%	28.40%	28.57%	26.42%	4.08%

For the purpose of this analysis, it is assumed that the ratings range for an MFI varies from AA to BBB.

Lending from MFI to customer: In order to assess the defaults on lending from MFI to the customer, data has been obtained from IFMR Capital, a company which securitises portfolios of Indian MFI assets. IFMR Capital has a portfolio of 20 MFIs and while the data is a reflection of the choices of MFI made by the company, it is assumed that banks also make considered judgments on lending and select good quality MFIs. Based on IFMR Capital data of 20 MFIs during the period 2008-2012, the default performance[30] of MFI loans is as follows:

Mean	0.22%
Standard Deviation (SD)	0.30%

We assume that the default performance of MFI portfolios is the same for all ratings of MFIs, because differences in ratings between MFIs are more a function of their exposure to Systematic Risk factors and not their own lending performance.

2. Cost of Equity

In order to compute the cost of this equity across the five channels, the following formulae[31][15] are used:

*Cost of Equity = Hurdle rate * Unexpected Loss (UL)*
Unexpected loss (UL) = n Standard Deviation of default rate*(1-Recovery rate)*
Hurdle Rate = Expected Return on Equity / (1- tax rate) - Risk free Rate

The following assumptions have been made to calculate the equity required for each of the channels:

Recovery Rate	0%
Confidence Level[32]	3σ
Expected RoE for Bank	20%
Expected RoE for MFI/SHG	25%
Risk-free Rate	8%
Tax Rate	33%

Based on these assumptions, the hurdle rates for the bank and MFI/SHG are 21.9% and 29.3% respectively. Using the formulae outlined above, it is possible to calculate the Unexpected Loss (UL) and the cost of such equity:

Source	Channel	UL (Bank)	Cost of UL (Bank)	UL (Channel)	Cost of UL (Channel)	Total UL	Total Cost of UL
Public Sector Bank (PSB)	Bank Branch	4.06%	0.89%	0.00%	0.00%	4.06%	0.89%
	SHG Linkage	4.68%	1.02%	15.39%	4.51%	20.08%	5.54%
	MFI (rated BBB)	2.36%	0.52%	0.91%	0.27%	3.27%	0.78%
	MFI (rated A)	0.28%	0.06%	0.91%	0.27%	1.19%	0.33%
	MFI (rated AA)	0.06%	0.01%	0.91%	0.27%	0.97%	0.28%
Private Sector Bank	Bank Branch	5.09%	1.11%	0.00%	0.00%	5.09%	1.11%
	MFI (rated BBB)	2.36%	0.52%	0.91%	0.27%	3.27%	0.78%
	MFI (rated A)	0.28%	0.06%	0.91%	0.27%	1.19%	0.33%
	MFI (rated AA)	0.06%	0.01%	0.91%	0.27%	0.97%	0.28%

3. Loan Loss Provision

The loan loss provision is equal to the measure of total Expected Loss (EL) in each of the channels. For the Bank-MFI and Bank-SHG channels, it is the sum of expected losses in the Bank-MFI/SHG leg and the expected losses in the MFI/SHG-customer leg. Based on the available default data, the calculated Expected Losses (EL) are as below:

Source	Channel	EL (Bank)	EL (Channel)	Total EL
Public Sector Bank (PSB)	Bank Branch	4.25%	0.00%	4.25%
	SHG Linkage	3.97%	8.66%	12.63%
	MFI (rated BBB)	3.05%	0.22%	3.27%
	MFI (rated A)	0.92%	0.22%	1.15%
	MFI (rated AA)	0.01%	0.22%	0.24%
Private Sector Bank	Bank Branch	5.40%	0.00%	5.40%
	MFI (rated BBB)	3.05%	0.22%	3.27%
	MFI (rated A)	0.92%	0.22%	1.15%
	MFI (rated AA)	0.01%	0.22%	0.24%

Annexure 2

Transaction Costs

1. Public and Private Sector Bank Branches

The Rangarajan Committee estimated that the transaction costs of a private sector bank (using ICICI Bank as the case study) and a PSB (using Central Bank of India as a case study) in lending through their branches:

Transaction Costs	Loan Size = Rs.25,000	Loan Size = Rs.10,000
Private Sector Bank	8.62%	21.56%
Public Sector Bank	12.95%	

The Committee did not estimate the transaction cost of a Rs.10,000 loan for a PSB, but it is possible to estimate this by comparing the costs for a private sector bank in making a Rs.25,000 vs. a Rs.10,000 loan.

For the private sector bank, ratio of transaction cost of Rs.10,000 loan to Rs.25,000 loan is 2.5. Assuming that the same ratio holds for the PSB, the transaction cost for the PSB of making a loan of Rs.10,000 is **32.39%**.

For a Rs.10,000 loan, therefore, the transaction costs for direct lending by a PSB and a private sector bank are:

	Transaction Cost (%)	Loan Size (Rs.)	Number of Loans	Total Transaction Cost (Rs.)
Public Sector Bank	32.39%	10,000	10,000	32,390,023
Private sector Bank	21.56%	10,000	10,000	21,560,000

2. The MFI Channel

For lending through the MFI channel, there is a need to estimate the transaction costs of both the Bank to MFI leg and the MFI to customer leg.

In case of the bank lending to an MFI, the transaction cost to the bank is the cost involved in assessing and monitoring the MFI, which is assumed to be 0.5% of the loan to MFI (which in this case is a Rs.10 crore loan). On-lending by MFI to customer, results in a transaction cost to MFI of 8.74% (on the Rs.10,000 loan), as per the Rangarajan Committee Report[33].

Transaction Costs	Transaction Cost (%)	Loan Size (Rs.)	Number of Loans	Total Transaction Cost (Rs.)
Bank-MFI	0.50%	100,000,000	1	500,000
MFI - Customer	8.74%	10,000	10,000	8,740,000
Total	9.24%			9,240,000

3. The SHG Channel

For the SHG channel, the transaction cost is calculated at 3 levels: (i) SHG; (ii) SHPI; and (iii) Bank. Costs are incurred in two phases, namely the group formation and incubation phase and then the ratings and post-linkage phase.

The basic assumptions for calculating transaction costs are as follows:

Number of members	15
Incubation period (months)	6
Loan duration (months)	24
Loan amount (Rs.)	150,000
Average distance to and from bank (km)	24
Cost of travel (Rs. per km)	3
Period of apportionment of incubation cost (years)	4

To calculate the transaction cost incurred by the SHG, it is assumed that each SHG has 2 group leaders and 1 member responsible for transacting with the bank. In the group formation phase, the SHG incurs costs in opening a savings bank account and bank transactions. In the ratings and post-linkage phase, there are ratings costs, bank transaction costs, Panchayat Level Federation (PLF) meeting costs and stationery and register maintenance costs.

	Cost Head	Cost (Rs.)	Cost (%)[34]	Cost Detail
Group Formation and Incubation Costs	Savings A/C	111	0.07%	Stationery at Rs.300 +Travel for 1 to bank
	Bank Transactions	108	0.07%	Travel for 1 to bank per month for incubation period
Ratings and Post-linkage Costs	Ratings Cost	150	0.10%	Loan Documentation
	Bank Transactions	1728	1.15%	Travel for 1 to bank per month for 24 months
	Panchayat Level Federation Meetings	1728	1.15%	Travel for 1 to PLF meetings per month for 24 months
	Stationery & Registers	1920	1.28%	Assumed at Rs.80 per month for 24 months
Total		**5,745**	**3.83%**	

At the level of the SHPI, it is assumed that the salary of an SHPI staff is Rs.5,000 per month. Based on this, the SHPI level cost break-up is as follows:

	Cost Head	Cost (Rs.)	Cost (%)	Cost Detail
Group Formation and Incubation Costs	Group Formation	73	0.05%	3 visits for 1 hr each + Travel for SHPI staff
	Training	296	0.20%	6 days of training for 5 hrs each + Travel for SHPI staff
	Savings A/C	13	0.01%	1 visit to bank for 2 hrs by SHPI staff
	Monitoring	146	0.10%	1 visit for 1 hr + Travel for SHPI staff for each month of incubation period
Ratings and Post-linkage Costs	Ratings Exercise	250	0.17%	2 visits to bank for 5 hrs each by SHPI staff
	Monitoring	2,328	1.55%	1 visit for 1 hr each by SHPI staff for 24 months
	Bank Visits	600	0.40%	1 visit to bank for 1 hr each for 24 months
Total		**3,704**	**2.47%**	

For calculating bank transactions cost, it is assumed that the salary of a bank staff is Rs.20,000 per month. The costs for the bank turn out to be:

	Cost Head	Cost (Rs.)	Cost (%)	Cost Detail
Group Formation and Incubation Costs	Savings A/C	6	0.00%	15 mins. of bank staff time
	Bank Transactions	38	0.03%	15 mins. of bank staff time per month for incubation period
Ratings and Post-linkage Costs	Ratings Cost	50	0.03%	30 mins. of bank staff time
	Bank Transactions	600	0.40%	15 mins. of bank staff time per month for 24 months
Total		**694**	**0.46%**	

Adding up the transaction costs at all these levels, the overall transaction cost for the bank SHG channel is:

	Transaction Cost (%)	Transaction Cost (Rs.)
SHG level	3.83%	5,745
SHPI level	2.47%	3,704
Bank level	0.46%	694
Total	**6.76%**	**10,143**

Notes

[1]SHPIs organise SHGs to meet regularly in order to make regular savings in a bank for a few months, and to avail a bank loan against the savings (at times such savings may equal up to 50% of the loan amount). SHGs usually undergo training provided by the SHPI on thrift, book keeping, and other activities, before the SHG is connected to a bank.

[2]In view of the variability in credit quality of MFIs, the model considers a credit ratings-wise analysis in the form of BBB, A and AA ratings for the MFI that receives the bank loan.

[3]To compute this number the lowest cost at which banks are able to raise this money is used this is currently the interest rate offered on Savings Accounts. A different number could be used but since this note merely compares the relative costs of different channels the use of a specific number does not change the analysis.

[4]For direct lending rates of public sector bank - Central Bank of India: http://www.centralbankofindia.co.in/site/interest.aspx

[5]For private sector bank lending rates - ICICI Bank: http://www.icicibank.com/interest-rates.html

[6]There could be a separate discussion on the costs of multiple channels for mobilising savings but that is not the subject of this note and for reasons mentioned earlier, the rate being used is the one actually being paid to the depositor.

[7]This is because the regulatory capital requirement is meant to be applicable at the overall portfolio level, based on assumptions of what a typical commercial bank portfolio looks like. At an individual asset level however, the economic capital required could be vastly different from the regulatory capital requirement. Additionally, it could be argued that channels with intermediation would be adversely impacted by double application of regulatory capital requirements, while not accounting for risk mitigation, if any, offered by the nature of intermediation.

[8]The workings to arrive at mean and volatility of default rates are presented in Annexure 1.

[9]There are MFIs / NBFCs in the system that are experiencing client level default rates of as low as 0.10% consistently over a number of years. Rating agencies are unwilling to translate that into higher credit ratings on account principally of the perception of regulatory (as distinct from political) hostility towards the sector. This, they argue, represents an overhang over the sector that needs to be addressed before it is able to access finance at the rates that AAA rated housing finance companies are able to.

[10]The calculations for cost of equity are elaborated in Annexure 1.

[11]For a more detailed explanation of workings to calculate loan loss provisions, please refer Annexure 1.

[12]Annexure IV, Rangarajan Committee Report (2008), available at http://www.nabard.org/report_comfinancial.asp

[13]Complete workings of transaction costs are available in Annexure 2.

[14]http://www.allbankingsolutions.com/Wage-Revision/Settlements/9th-IX-Bipartite-Settlement.pdf

[15]http://webcache.googleusercontent.com/search?q=cache:dqNcjMDHWIEJ:www.themix.org/sites/default/files/MBB-%2520Field%2520staff%2520compensation%2520at%2520Indian%2520MFIs%2520final.pdf+&cd=1&hl=en&ct=clnk

[16]Calculated using data on bank branches in villages, KCC Accounts (http://www.rbi.org.in/scripts/AnnualReportPublications.aspx?Id=1041), assuming 3 clerical staff per rural branch of the bank.

[17]http://www.ifmr.co.in/wp-content/uploads/2011/03/IFMRTrustDiscussionNote-MFIPricingandValuation.pdf

[18]Here the costs associated with each channel are computed on the basis that each channel is treated in an even-handed way by both the regulator and the bank. For example banks recover an additional profit margin in their lending to SHGs and MFIs which in part accounts for the higher observed prices at the level of the SHGs and the MFIs relative to the Optimised Cost.

[19] For Public Sector Bank observed price: Central Bank of Indias rate for direct agriculture advances below Rs.50,000, as per: https://www.centralbankofindia.co.in/upload/obc/MainMenuEnglishLevel-2_Lending_Rates_circular.pdf

[20] For MFI observed price: Interest Rate of 26% and Processing Fee of 1%.

[21] For Private Sector Bank observed price: ICICI Bank's rate for agriculture term loans, as per: http://www.icicibank.com/rural/loans/farmer-finance/service-charges.html

[22] The Business Correspondent (BC) Channel has been kept on par with the Branch for the purposes of credit since the only task expected to be performed by the BC is the sourcing of customers all the other costs would need to be borne by the Bank itself. ICICI Bank had attempted a model of a Credit Franchisee who provides capital against the risks that he bears on behalf of the bank and is then empowered to then sanction loans directly. This model is no longer being pursued by any Bank but would in any case eventually become equivalent to the MFI Channel.

[23] http://www.centralbankofindia.co.in/site/MainSite.aspx$?$status=1&menu_id=6

[24] http://www.rbi.org.in/scripts/PublicationsView.aspx?id=14693

[25] http://www.nabard.org/pdf/Status%20of%20Microfinance%20in%20India%202008-09_131109.pdf, http://www.nabard.org/pdf/Status%20of%20Micro%20Finance%202009-10%20Eng.pdf, http://nabard.org/pdf/Status-of-microfinance-India-2010-11.pdf

[26] http://www.icicibank.com/aboutus/annual.html

[27] "Self Help Groups in India: A study of the light and shades", available at: http://www.microfinanceindia.org/download_reports/light_n_shade_study.pdf

[28] Annexure A 13.3 Portfolio at Risk at 360 days. The data for Andhra Pradesh is ignored because of the fact that bullet repayments may be inflating the default numbers. In the other states, there is regular monthly debt repayment and therefore a more realistic default depiction.

[29] http://crisil.com/ratings/publications.jsp$?$selTab=most_pop

[30] 'Portfolio at Risk' at 90 days

[31] Based on the paper "An approach to risk-pricing of loans" by Chakrabarti, Ahmed, Mullick

[32] Assumes a normal distribution, therefore a 99% confidence level. This is consistent with an "A" credit rating aspiration for financial institutions.

[33] Annexure IV, Rangarajan Committee Report (2008), available at: http://www.nabard.org/report_comfinancial.asp

[34] All percentage costs are calculated as % of the loan to SHG

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