

A CRITIQUE OF RESEARCH ON RURAL
BORROWING IN INDIA

by

Harpal S. Grewal*

Department of Agricultural Economics
and Rural Sociology
The Ohio State University
Columbus, Ohio
43210

*Post-Doctoral Researcher, Department of Agricultural Economics and Sociology, The Ohio State University. The author is indebted to Dr. Dale W Adams, Professor of Agricultural Economics, The Ohio State University, for his many comments on the preliminary draft of this paper.

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During the last three decades large amounts of resources have been invested in research on rural financial markets (RFMs) in India.^{1/} This has resulted from Indian emphases, since independence, on expanding the supply of formal financial services to rural households. It is difficult to put an exact rupee value on the expenditures incurred on rural finance research, however, the very large number of published and unpublished studies conducted during the last three decades are useful indication of increased attention to RFM research. A review of the Documented Index of Articles Relating to Agricultural Economics prepared by the Indian Society of Agricultural Economics, for example, shows that more than nine hundred studies were published on RFM issues during 1950-80 [Grewal (1982)]. In addition, several hundred unpublished theses and papers have also been written on this topic. Studying rural borrowers has been a major focus of this research.

Despite the amount of work done there has been little effort made to critically evaluate research on rural borrowing. In this paper, I attempt an evaluation of research on borrowing in rural areas of India. First, the major topics covered in these studies and over time shifts in the research priorities are discussed. The representative studies on

* Post-Doctoral Researcher, Department of Agricultural Economics and Rural Sociology, The Ohio State University. The author is indebted to Dr. Dale W Adams, Professor of Agricultural Economics, The Ohio State University for his many comments on the preliminary draft of this paper.

^{1/} Rural financial markets are defined to include all financial credit and saving activities that take place in rural areas [Adams].

major borrowing issues are then selected for conceptual and methodological reviews. The study concludes with suggestions for future borrower level research priorities and general theoretical and analytical techniques that might be used.

Before independence, the emphasis of rural household studies was mainly on problem of indebtedness. The first All India Rural Credit Survey in 1954 made an indepth investigation of economic life of rural households in India. This survey collected information on sources and uses of funds in rural areas, term structure of rural loans, rates of interest on borrowings from different sources, and loan repayment arrangement. The analysis of these issues was continued in the later years through the Rural Credit Follow-up Surveys and by independent researchers.

During the last two decades, the research priorities in rural finance have changed significantly. A large number of studies in the 1960s and the 1970s were conducted to assess the demand for rural credit, particularly agricultural credit, and the impact of loans on rural borrowers. Some attention has also been devoted to investigating costs of borrowing in RFMs and loan defaults and delinquencies. Little research has been done on many important issues such as impact of RFM policies on access to credit by rural households, relationship between access to loan facilities and income distribution and resource allocation in the rural sector, and worth of preferential credit policies to

rural households in general and to the rural poor in particular. Also, the topics of extent and nature of credit rationing in rural areas, elasticity of demand for credit, sources and uses of funds by rural households, and extent of substitution and diversion of loans were largely missing from recent research.

Rural Credit Demand Studies

Studies on rural credit demand in India have largely focused on estimating agricultural credit requirements. Some researchers have also studied determinants of farmers borrowing behavior [Desai and Naik, Gupta, Shah and Patel, and Subbarao]. The rather uniform findings of these studies suggest that owned funds of farm households were generally insufficient to allow them to take full advantage of their investment opportunities. It has been recommended, therefore, that abundant credit should be extended to cultivators to encourage adoption of improved agricultural inputs.

Consistency in the results of most of credit demand studies should strengthen the reliability of their findings and recommendations. A careful review of these investigations, however, reveal that a majority of them have serious theoretical and methodological flaws. The fungibility and divisibility characteristics of finance, for example, are ignored in most of these credit demand studies.^{2/} A large number of these studies explicitly or implicitly use the assumption that demand

^{2/} The dictionary meaning of the word fungible is, "being of such a nature or kind that one unit or a part may be exchanged or substituted for another equivalent unit or part in the discharging of an obligation" [Morris]. For a detailed discussion of fungibility and its implications for credit research, see Von Pischke and Adams.

for agricultural credit is determined only by a household's farm activities. The off farm, non-farm and household business of cultivators are usually not included in the analysis. It is also perceived that owned funds of farmers available for agricultural uses are independent of their access to loan facilities. Because of these assumptions, the models used in the studies seriously underestimate borrowers' ability to reallocate funds among farm, off-farm, non-farm and household uses through substitution and diversion of borrowed funds. Consequently, the actual credit needs of the households may be significantly under or over estimated. Based upon the methodologies used, credit demand studies can be grouped as budgeting studies, econometric studies, and programming studies.

Most budgeting studies use two methods to assess farm credit demand. Many researchers deducted owned investable funds of cultivators from their budgeted farm level capital requirements [Bhanja; Garg, et al.; Singh and Kahlon (1971); Singh; Suryawanshi, et al.]. In other studies, the estimated amount of funds needed by farm households was deflated to a predetermined percent and the resultant amount was considered as their demand for credit [Bansil; Gupta and Singh; Shakara Murthy, et al.; Subbarao].

The budgeting technique is relatively simple to use and does not require a computer. But, the methods used to estimate credit demand in the studies are weak. The researchers who estimated borrowing needs of agriculturists by deducting their owned funds available for farm level uses from the budgeted funds requirements ignored the fungibility of financial instruments. This reduces the reliability of their findings

and recommendations. The other technique applied in budgeting studies is also not sound since the percentages used to deflate total funds requirement to calculate the credit needs in these studies were chosen without strong theoretical or empirical justification.

Recently some researchers have used econometric models to analyze the demand for farm loans. The results of three representative studies are presented in Tables 1 and 2. Kumar, et al used an unit-output-price production function to develop a credit demand function. The function was estimated using Indian small farm data. They found that credit demand by cultivators was highly inelastic to changes in rates of interest, but that the demand for loans with respect to input and output prices was very elastic. The study revealed that to enable the small farm households to participate in credit markets, input and output pricing policies were more important than the interest rates. The findings of this and other similar studies also should be treated with caution since the possible substitution and diversion effects of borrowing by households are not fully accounted for in the models used. For example, Kumar, et al. assume that the amount of owned funds available for agricultural uses was determined by the operator's preceding year profits. However, factors such as access to borrowing facilities, borrowing costs, and relative rates of return on investments in farm and non-farm businesses of the households were not included in the analysis.

Dhawan, Kahlon and Singh, et al. used econometric techniques to evaluate the allocation of loan funds for different agricultural uses by households. As shown in Table 2, they found that farmers generally made

TABLE 1. Impact of Changes in Interest Rates and Input and Output Prices on Demand For Credit and Use of Inputs by Marginal Farmers of U.P., India.

Price Change Assumption	Percent Increase in Demand for Credit		
	Season I	Season II	Season III
Ten Percent Decrease in Price of Variable Inputs	46	37	32
Ten Percent Decrease in Rate of Interest	3	2	1
Ten Percent Increase in Price of Output	41	30	30
	Percent Increase in the Use of Variable Inputs		
Ten Percent Decrease in Variable Inputs Price	32	30	26
Ten Percent Decrease in Rate of Interest	2	2	1
Ten Percent Increase in Price of Output	29	27	26

Source: Kumar, et al.

TABLE 2. Estimated Regression Coefficients (RC) and Ratio of Marginal Value Product (MVP) to Input Cost (IC) of Factors Affecting Demand for Credit in Econometric Studies.

Item	Singh et al.				Dhawan and Kahlon	
	Less Progressive Farms		Progressive Farms		RC	MVP/IC
	RC	MVP/IC	RC	MVP/IC		
Intercept	-	-	-	-	3.3051	-
Operational Area	0.3682*	0.75	0.5293**	1.49	0.3135**	1.04
Labor Days Used	-	-	-	-	-0.1865	-0.76
Expenditure on Irrigation	0.2216**	6.63	0.1494**	1.27	0.0935	0.50
Expenditure on Implements and Machinery	-	-	-	-	0.1168*	1.51
Investment on Draft Animals	-0.048	-0.94	0.0432	1.01	-0.1103*	-0.48
Investment on Milch Animals	-	-	-	-	0.1753**	2.62
Expenditure on Seeds, Manures and Fertilizers	0.2170**	2.80	0.1690***	1.45	0.3246*	1.60
R ²	0.56	-	0.68	-	0.8103	-
Number of Observations	70	-	76	-	32	-

* Significantly different from zero at 0.10 level.

** Significantly different from zero at 0.05 level.

*** Significantly different from zero at 0.01 level.

Sources: Dhawan and Kahlon; Singh, et al.

capital allocation decisions by considering marginal rates of return from investment opportunities. The severity of credit shortages faced by farmers, as reflected by the ratios of marginal value product to factor costs including interest on borrowings, may be over exaggerated in these studies since borrower loan transaction costs were not included. As Adams and Nehman have shown, total effective costs of borrowing to rural households may be significantly higher than the rates of interest paid. Credit use decisions of households are not made based only upon the interest rates but on the total cost of obtaining loan. The quality of the results of econometric studies may be further weakened by multicollinearity, heteroskedasticity, autoregression, and specification bias problems in the used models. Few researchers have tested their models against such weaknesses.

Programming techniques have been widely used in credit demand studies the last two decades. A majority of researchers used single or multiperiod linear programming models. The credit requirements of farm households in these studies have been estimated by either introducing a capital borrowing activity directly in the model, or by subtracting owned investable funds of the households from total capital needed in the optimum plans.

Table 3 presents per acre farm credit requirements of cultivators as estimated in representative programming studies. The findings of these and other studies show that farmers, irrespective of type and size of agricultural business, need abundant credit facilities to augment their own funds. Many researchers also find that adoption of improved

TABLE 3. Annual Per Acre Production Credit Requirements Based on Estimates of Programming Studies on India.

Author(s)/Farm Categories	Per Acre Annual Production Credit Requirements ^{a/}	
	Existing Level of Technology	Recommended Level of Technology
(Rupees)		
Sharma and Prasad		
(a) Small Farms	128	327
(b) Medium Farms	134	326
(c) Large Farms	76	343
Singh and Jha*		
(a) Low Income Farms	1,536	2,448
(b) High Income Farms	1,490	1,490
Agarwal and Kumawat (1974A)		
(a) Small Farms	259	585
(b) Medium Farms	245	406
(c) Large Farms	232	316
Grewal (1975)		
(a) Marginal Farms	619	1,385
(b) Small Farms	491	1,426
Dhawan and Kahlon*		
(a) Without Irrigation Purchased Activity	722	2,322
(b) With Irrigation Purchased Activity	1,164	4,974

^{a/} Total Annual Per Acre Credit requirements were calculated by adding the estimated credit demand for the kharif and rabi seasons.

* Refers to total farm level annual credit requirements.

Sources: Agarwal and Kumawat (1974A); Dhawan and Kahlon; Grewal (1975); Sharma and Prasad; Singh and Jha.

technology by the cultivators will further increase their demand for farm loans.

Programming models allow researchers to simulate changes in household credit needs in response to variations in rates of interest, level of technology, resource availability, and factor and product prices. A large number of these studies have several methodological weaknesses. Most serious of all, as in the case of budgeting and econometric studies, is the improper handling of fungibility of credit. The assumption of household owned funds allocation decisions as independent from their access to credit in almost all the studies overlooked possible substitution and diversion of funds by borrowers. As a result, the actual demand for credit of rural households may be seriously over or under estimated.

The objective functions used in most linear programming studies are based upon single valued expectations. In other words, it is presumed that farm households make investment decisions by considering only the profits from different enterprises. No provisions are made in the models to account for risk awareness of cultivators in selecting enterprise mix. The allocation of large amounts of resources to high pay-off activities and manifold increases in farm income in the optimal plans developed by researchers, therefore, should not be surprising. Some researchers have introduced maximum and/or minimum resource use constraints for model activities in order to include risk factors in farmers' decision making [Baker and Bhargava; Gangwar and Ghaker; Grewal (1975); Singh and Jha; Subrahmanyam]. Only a few of them tested whether

their models closely represented actual decision making behavior of cultivators.

Another common weakness in programming studies is that the cost of borrowing to households is underestimated. The cost of credit used in almost all these investigations was the rates of interest charged by lenders. The transaction costs incurred by borrowers to obtain loans were not included. Also the liquidity reserve value of credit to households was not considered except by a few researchers. Consequently, the actual demand for borrowings by households is likely to be overestimated.

Cultivators use many non-storable resources such as family labor, land, owned draft power and irrigation capacity. Due to seasonability in utilization, and the inability to store the services provided by such resources, they may become surplus in some periods and scarce in others. For example, the amount of family labor available for farm operations may fall short of demand during crop planting and harvesting seasons, and may be surplus in post planting and harvesting periods. In order to avoid the transfer of these non-storable resources from surplus to scarce periods in programming models, such periods should be identified and maximum limit on the utilization of these resources in each period be fixed equal to their actual availability. While some researchers have used this approach, the demand for rural credit in a number of other studies [Agarwal and Kumawat (1974A); Sharma and Prasad; Subrahmanyam] may be overestimated since there were no provisions made to prevent the transfer of non-storable resources from surplus to scarce supply seasons.

Research on the Impact of Loans on Borrowers

Another issue that has been extensively studied in India is the impact of loans on rural borrowers. Most investigators used the farm business of rural borrowers as the unit of analysis to measure the impact of agricultural loans. The substitution and diversion effects of loans on households were, however, not fully captured in most of these studies as the off-farm, non-farm and consumption activities of the borrowers were not included in the analysis. Methodologically, the loan impact studies can be grouped into descriptive, econometric and programming studies.

The descriptive studies measured the impact of loans by comparing the farm business of borrowers and non-borrowers, or of borrowers before and after using credit. As shown in Table 4, the findings of these studies strongly suggest that use of credit significantly increased income and employment opportunities of farmers. Borrowing also had a positive impact on farm investments, cropping patterns and intensities, and benefit cost ratios of farm enterprises.

Descriptive techniques are simple and, like the budgeting method, do not require computers. The most serious weakness in descriptive studies is the attribution problem. The differences in income and other variables between borrower and non-borrower farm households or in the case of borrowers before and after the use of loans may not be solely attributed to the use of credit. Factors such as changes in technology over time, difference in resource structure of various types and sizes of farm households, access to high yielding inputs and other socioeconomic constraints may significantly affect the farm income, resource use

TABLE 4. Estimated Impact of Loans on Farm Business of Rural Borrowers in Descriptive Rural Credit Studies on India

Author(s)*	Percent Increase in				
	Gross Farm Income/Acre	Net Farm Income/Acre	Variable Farm Expenses/Acre	Total Fixed Farm Assets	Cropping Intensity
Lavinia, <u>et al.</u>	56	68	30	--	--
Sharma					
(a) High Yielding Varieties	108	--	--	--	--
(b) Improved Varieties	17	--	--	--	--
(c) Other Crops	5	--	--	--	--
Garg and Singh	43	41	50	--	12
Jain and Jain					
(a) Average farm size 2.87 ha	--	29	23	15	3
(b) Average farm size 6.11 ha	--	40	11	6	8
(c) Average farm size 19.34 ha	--	49	12	22	2
(d) Average farm size 41.05 ha	--	33	32	12	2

* Study by Jain and Jain compared farm business of borrowers before and after receiving loans. All other studies compared farm businesses of borrower and non-borrower households.

Sources: Garg and Singh; Jain and Jain; Lavinia, et al.; Sharma.

patterns and efficiency of cultivators. The researcher must also recognize the reasons why the non-borrowers did not obtain loans or whether they borrowed from alternative sources. In a study by the World Bank, the impact of credit on increases in net production of borrowers was segregated from the impact of other variables. It was estimated that only 28 percent of the total increase in net production of farmers could be attributed to use of loans.

In recent years production functions, input demand functions, and efficiency gap functions have been used to assess the impact of borrowing on rural households in developing countries (David and Meyer). In Indian production functions and input demand function studies have been widely used [Pawar; Raju, et al.; Schluter]. Credit is represented by different variables in production function studies. These investigators conclude that the use of loans by farmers had a significant impact on agricultural incomes. Some researchers have also shown that borrowing had complementary effects on the productivities of other factors of production used by cultivators.

Input demand function studies analyze the impact of loan use on demand for farm inputs such as fertilizer, high yielding crop varieties and family and hired labor. A study by Schluter represents this method of measuring the impact of loans on borrowers. He looked into the impact of cooperative credit and uncertainty on labor use, adoption of modern crop varieties, use of fertilizer, intensity of cropping, and utilization of animal and machine power by borrower farmers. The maximum availability of cooperative credit and farm income were used to

TABLE 5. Linear Regression Estimates of Factors Determining the Adoption of Modern Rice and Wheat Varieties and Use of Fertilizer by Farmers in Surat District, India, 1971-72

Variable	Modern Varieties		Fertilizer
	Rice	Wheat	
Crop Acreage	0.666***	0.541***	--
Gross Cropped Area	-0.056*	0.006	--
Maximum Amount of Cooperative Credit Available	0.182*	-0.114	82.6760**
Non-Agricultural Income	0.089	0.016	8.5748
Dairying Income	0.100	0.073	25.6555**
Non-farm Assets	0.020***	-0.005	--
Number of Family Members Available for Farm Work	0.011	-0.009	--
Education	-0.005	0.076***	-4.9516
Home Consumption Requirements	0.005	0.009	--
Value of Kharif Crop Sales	--	-0.30	--
Total Assets	--	--	-0.5847
Region	--	--	-33.5019
Acreage under HYV Rice	--	--	66.9975**
Acreage under Improved Rice Varieties (Improved)	--	--	54.3586**
Acreage under Unirrigated Traditional Rice Varieties	--	--	46.2817**
Acreage under Unirrigated Cotton and Jowar Crops	--	--	-7.9983
R ²	0.76	0.54	0.74
Number of Observations	59	50	50

* Significant at .05 level.

** Significant at .01 level.

*** Significant at .005 level.

Source: Schluter.

proxy the financial constraints in the model. Farm size, nonfarm assets, technology and education level were used to represent risk bearing ability of cultivators. The results of the study, as shown in Table 5, reveal that the cooperative loans enhanced the utilization of modern rice varieties and fertilizer application by farmers. In the case of demand for new wheat varieties, the regression coefficient had a negative sign, though it was not statistically significant.

Econometric credit impact studies do not have attribution problem. These studies, however, analyze only partial impacts of credit on borrowers; off-farm, non-farm and household activities of farmers were not included in the models. The results of econometric studies may also have selectivity bias. In India, as in other developing countries, institutional rural credit is concentrated mainly among large and influential farm households. These agriculturists may have higher efficiency of resource use and greater access to high yielding inputs than average farmers. The data used in econometric studies may be collected from samples including relatively large numbers of highly efficient and large sized cultivators. The generalization of the results of these investigations, therefore, may overstate the true impact of borrowing on farmers.

Programming models have been most commonly used to estimate the impact of credit on rural borrowers in India. Most investigators used linear models; however, non-linear models were also used in some studies. The farm level optimum production plans were developed in programming studies by representing the situations of with and without

the use of loans [Agarwal and Kumawat (1974B); Baker and Bhargava; Grewal (1975); Schluter; Singh and Jha; Sirohi and Gargwar; Tiwari and Sharma). These plans were then compared to analyze the changes in farm income, employment, cropping pattern, and cropping intensity, resulting from access to loan facilities. A number of studies also assessed the impact of borrowing at different levels of agricultural technology.

The results of some representative programming studies are summarized in Table 6. These investigations unanimously revealed that the use of loans by farmers significantly increased their income and employment. The researchers also found that the use of credit combined with high yielding technology has a greater impact on economic condition than the access of either loans or modern technology alone.

Most of these programming impact studies have the same strengths and weaknesses as do the credit demand studies that used programming models. The application of programming techniques has enabled the investigators to simulate the impact of changes in resources of farmers, changes in rates of interest, and changes in factor and product prices on the benefits of using loans. Focusing on the farm business instead of the entire range of decisions made by farm households in most studies, however, ignored the substitution and diversion effects of farm loans on non-farm activities of borrowers. Also, the implicit assumption used in almost all the studies that the amount of owned funds allocated by farmers for agricultural investments was independent of the access, as well as the amount of loan borrowed by them, did not clarify the problem of measuring additionality.^{3/} Similarly, the cost of loans

^{3/} See Von Pischke and Adams for more details on the problem of additionality in evaluating credit projects.

TABLE 6. Impact of Loans on Farm Income of Borrower Households, Programming Studies on India

Author(s)/Farm Size	Percent Increase in Income/Acre	
	Existing Technology	Recommended Technology
Sirohi and Gangwar		
(a) Small Farms	14	--
(b) Medium Farms	8	--
(c) Large Farms	30	--
Singh and Jha*		
(a) Low Income Farms	18	29
(b) High Income Farms	23	23
Agarwal and Kumawat (1974B)		
(a) Small Farms	38	238
(b) Medium Farms	47	159
(c) Large Farms	39	178
Grewal (1975)		
(a) Marginal Farms	59	219
(b) Small Farms	30	213

* Refers to percentage increase in total farm income.

Sources: Agarwal and Kumawat (1974B); Grewal (1975); Singh and Jha; Sirohi and Gangwar.

used in the analysis by most investigators was underestimated as transaction costs were not included. In many studies proper adjustments were also not made to prevent the transfer of non-storable resources from surplus to scarce supply periods in the models, and only a few researchers calibrated the models used with the actual decision behavior of rural households. These weaknesses may have caused errors in the findings of many programming loan impact studies.

Research on Rural Loan Repayment

The default or delinquency rate on rural loans in India in 1975-76 was about 39 percent in the case of primary agricultural cooperative societies and 48 percent in commercial banks [Desai]. Despite this, relatively little research has been done on these problems. A majority of the studies on this topic have attempted to identify socioeconomic characteristics that distinguished between defaulter and non-defaulter borrowers [Ames; Desai and Rao; Pandey and Muralidram; Patil]. Some researchers also estimated the loan repayment capacity of rural households [Singh and Kahlon (1976)].

The research on identification of defaulter and non-defaulter mainly focused on household characteristics such as size of land holding, cropping pattern, availability of irrigation, assets structure, farm and non-farm income, consumption expenditures, debt outstanding, family type and size, and age and education status of head of the family. Econometric and chi-square techniques were mainly used in the analysis. The results of these investigations show that the households with small farm size, low income, large financial obligations and high

family expenses generally default or delay the repayment of loans. The estimates of repayment capacity of rural households strongly suggest that the use of credit can generate enough additional income to repay the principal and interest cost of borrowing. It has also been established that adoption of improved technology by farmers will further improve their debt servicing abilities.

Poor loan repayments may affect functioning of the financial systems in at least three ways. First, default losses are a direct cost to financial intermediaries and adversely affect their economic viability. Second, since defaulters are generally not given other loans by the banks, this may shrink the clientele size of formal financial institutions. On the other hand, as the households ineligible for formal loans have to rely upon private money lenders for their credit needs, this may increase market concentrations. Third, the programs of rural savings mobilization through financial markets may also be hurt because of high loan defaults as the defaulters generally do not participate in such projects. It is, therefore, important to improve loan repayment in order to expand the coverage and increase the efficiency of RFMs.

Previously done repayment studies focused upon relatively few characteristics of borrower that determined their ability to repay loans. A number of other factors such as timeliness of loan disbursement, access to inputs and technical guidance, and loan repayment conditions also affect the amount of additional income generated from loans. In addition to the debt servicing capability, the willingness of borrowers to repay is also important. The perceived value of credit services provided by financial institutions and the relationship between

borrower and lender influence the willingness of people to repay a loan. For example, borrowers may not want to lose a source of credit by defaulting on loan if they perceive the availed services as highly valuable. Similarly, in the case of short-term credit programs, the loan repayment rates generally decrease towards the end-period of the program because the borrowers stop seeing it as a future source of liquidity. The interest rate subsidy often involved in credit programs may also encourage the borrowers to delay loan repayment to reap the maximum benefits of the subsidy.

In India, as in many other developing countries, laws and regulations protecting borrowers against loan foreclosures by lenders also may promote loan defaults. Many times the propaganda of opposition political parties against the government also encourage the people not to fulfill their loan obligation. All these factors determining ability as well as willingness of borrowers to repay loans need to be carefully examined in order to understand and alleviate high loan defaults and delinquency problems in RFMs.

Studies on Costs of Borrowing in Rural Financial Markets

In recent years efforts have been made to investigate the costs of borrowing by rural households in India [Datey, Jain and Jain; Mohan and Singh; Naryana Kurup; Thingalaya]. The estimates of total cost of loans to borrowers from formal financial institutions in these studies range between 10 percent and 20 percent per annum. It has also been established by some researchers that when all costs of obtaining a loan are considered, the total cost of borrowing to rural households from formal and informal lenders do not differ significantly.

The total effective cost of a loan to a borrower includes real interest charges as well as transaction costs. The real rate of interest charged by lenders forms the interest cost (or subsidy) of borrowers. The expenditures incurred in securing necessary documents to apply for a loan, filing the loan application, satisfying the contractual agreement with the lender, and repayment of loan constitute transaction costs of obtaining credit. A delay in loan disbursement may also impose costs on borrowers because of a possible loss in the purchasing value of loans due to inflation and/or decreases in the returns derived from the credit used. The loss of credit reserve due to using a loan is also a cost to the borrowers. All of these costs should be accounted in research on borrowing costs. When judged from this angle, most of the Indian studies on rural household costs of securing loans are incomplete, and the actual borrowing costs is significantly underestimated, especially for borrowers of small amounts.

The findings of most rural borrowing costs studies in India also have limited applicability in evaluating the borrowing preferences of rural households. This is because these studies are mainly focused on ex post loan costs. In other words, the borrowing costs are estimated of households that actually obtained loans. However, the ex ante perceived cost of a loan to a household may be significantly different than ex post cost if there is uncertainty involved in the approval of loan request.

For example, assume a farmer finds that to obtain a Rs. 100 loan for one year, he will have to pay 10 percent interest. His cost to file loan application is Rs. 5, and the expenses to be incurred on signing

loan contract and repaying the loan are Rs. 10. Also, assume that there is no change in prices during the loan contract year and the farmer does not perceive any loss of credit reserve from borrowing this Rs. 100. Now if he is certain about the approval of his loan application, his ex ante and ex post borrowing costs will be the same and equal to 25 percent. However, if the farmer sees that the chances of getting his loan approved are 50 percent, his perceived cost of borrowing at the time of filing application will be $(\frac{5}{0.5} + 10 + 10)$ or 30 percent. His cost if the loan is approved will still be 25 percent. The higher the uncertainty in loan approval to a borrower, the more will be the difference between his ex ante perceived cost and ex post cost of obtaining a loan. The ex post borrowing costs estimates of the studies on India have to be converted into ex ante estimates before these are used to analyze the credit-source preferences of rural households.

SUMMARY AND CONCLUSIONS

Indians can have a good deal of pride in the recent rapid expansion in rural financial markets and associated research. The involvement of more skilled professionals in RFM research and increased access to computer facilities over time have improved the conceptual and methodological techniques applied in these studies. A careful review of the representative rural borrowing studies in this paper, however, indicates that a number of serious organizational, theoretical, methodological and data deficiencies dominate these research efforts.

Too many studies focused on relatively a small number of issues. This resulted in a considerable amount of duplication and redundancy in

research. The major thrust in the past investigations was on estimation of demand for credit and impact of loans on rural borrowers. While some attention was also devoted to loan default and delinquency problems and costs of borrowing in RFMs, little or virtually no research has been done on many other important issues. These include the impact of access to credit facilities on income distribution and resource allocation in rural areas, worth of subsidized loans and selective credit control policies to rural households, and cash flow management problems of rural households.

In the majority of credit demand and loan impact studies, credit is treated as a production input rather than as access to additional liquidity. Consequently, the fungibility and divisibility of finance were not properly dealt with in most studies. Likewise, specification of the costs of borrowing and attribution problems ran through most studies.

I suggest that research priorities on rural borrowers in India should be reorganized. For example, the causes and consequences of loan default and delinquency, and the nature, extent and impacts of credit rationing in rural areas should receive immediate research attention. In addition, borrowing costs in RFMs, the impact of access to loan facilities on income distribution and resource allocation in rural areas, and the worth of preferential credit policies to rural households in general and the rural poor in particular should also be considered as short-run research priorities. The topics of sources and uses of funds and cash flow management by rural households, cost elasticity of rural loan demand, and creditworthiness of rural households are proposed for

intermediate period research portfolio. In the long run, some research attention should also be devoted to preparing capital budgets for farm and non-farm rural enterprises and investigating the extent of substitution and diversion of loans by borrowers.

Considering the fungible nature of financial instruments, the assessment of credit demand and impact of loans on rural borrowers is theoretically and methodologically cumbersome. Such studies also require detailed information on farm, off-farm, non-farm and consumption activities of the households. These data are not readily available and are extremely expensive to gather. Because of these difficulties and the large amount of research already done on these issues in the past, I suggest that credit demand and borrowing impact issues should receive less emphases in future research.

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