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Imperfect Information, Screening, and the Costs of Informal Lending: A Study of a Rural Credit Market in Pakistan

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Many governments have perceived the rural moneylender as usurious. This article takes a first step toward directly testing the validity of this view. In a study of services, costs, and charges of fourteen informal market moneylenders and their clients in Chambar, Pakistan, the article examines whether the high implicit interest rates charged reflect the actual costs of operating in that market. Estimates of the resource costs incurred by informal lenders for screening, pursuing delinquent loans, overhead, and cost of capital (including unrecoverable loans) suggest that lenders' charges are equal to their average cost of lending but exceed their marginal cost. This finding is consistent with the view that the informal credit market is characterized by excess capacity and monopolistic competition in the presence of imperfect information.

Credit surveys in developing countries have generally noted that noninstitutional lenders—moneylenders, traders, landlords, and so forth—charge interest rates far in excess of those charged on similar loans by institutional lenders such as banks.[1] The observed gap in interest rates raises a number of basic questions: Why is it not possible to arbitrage between the low-interest-rate institutional market and the informal money markets charging "usurious" rates of interest? More fundamentally, what determines interest rates in the unregulated market, and why are they so high? One explanation for high interest rates is the problem of asymmetric information (that is, the lender has less information than the borrower about the latter's ability and willingness to repay a loan), with lenders expending resources to screen applicants and passing on the costs to borrowers. Yet it is rare to find evidence about the costs associated with screening and, more generally, about the effect of imperfect information on the behavior of credit market participants.

The objective of this article is to assess the costs incurred by noninstitutional lenders. The assessment is based on the author's survey of a rural money

1. For references and a review of recent surveys, consult Aleem (1985, chap. 1).

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market in Pakistan which serves a market town and surrounding villages with a total population of approximately 2,400 farmers. I compare these costs with interest rates charged and advance the hypothesis that the evidence presented is consistent with Chamberlinian monopolistic competition as it applies to informal credit markets.

Imperfect information affects both the supply and demand sides of the informal credit market: first in its impact on the cost of lending, and second in enhancing product differentiation in cases where each lender has a relatively small number of customers.

When a potential borrower approaches a bank or a moneylender for a loan, it is impossible from casual observation to determine the risk involved in offering him a loan contract. Unlike sellers in other markets, the lender cannot sell loan contracts to every buyer that comes along because this could easily lead to an increase in the riskiness of the loan portfolio, which the lender would find unacceptable. The contract that the lender will offer, if he does make an offer, depends crucially on his assessment of the risk of default. The risk of default is dependent, among other things, on the borrower's credit history and the characteristics of the project he wishes to invest in. To overcome this informational problem, the lender expends significant time and resources on screening the loan applicant in an environment in which credit histories are not documented and pooled. The screening costs involved are further enhanced by moral hazard—any source of information has itself to be screened for reliability.

On the demand side, borrowers are not well informed about the terms under which loan contracts are available from individual lenders, because of such characteristics of informal credit markets as lack of advertising and a time-consuming and imperfect screening process. This enhances product differentiation in an environment in which the lender typically packages lending services with trading and marketing services.

Section I of this article describes the survey from which the data have been obtained. Section II outlines the difficulties faced by lenders in ascertaining the quality of loan applicants and the actions they have taken to overcome the asymmetry in information. Besides providing information on screening and its costs, this section estimates the total costs of the lending operation for informal lenders. Section III compares interest rates in the informal market surveyed with the costs of lending. Section IV interprets the results and the extent to which they conform with the Chamberlinian model of monopolistic competition. Finally, section V brings together the main conclusions of the analysis, including policy implications.

I. Background: Survey Profile and Context

The evidence presented in this article is drawn from a broader theoretical and empirical investigation of the workings of credit markets in developing

countries carried out by the author, which included a detailed survey of the literature and of the established facts about money markets in developing countries.[2] The empirical aspect of this investigation included an intensive micro-level survey covering the supply of and demand for credit in villages served by the market town of Chambar in Sind, Pakistan, during 1980–81. The focus of the Chambar survey was the imperfections in the flow of information in credit markets.

Survey Profile

The often-imagined picture of a single village moneylender with monopoly power over clients in the village does not hold true in the Chambar context.[3] There are in fact a large number of informal lenders serving farmers in the Chambar area. Every village in the area does not have an informal lender. Instead, informal lenders tend to gravitate toward and concentrate in the market town, Chambar, and in some of the larger of the sixteen villages in the area served by Chambar and lying within a five-mile radius of the market town.

Of the sixty informal lenders estimated to be operating in the area, fifteen were based in Chambar, another fifteen were spread among the three largest villages, and the remaining thirty were based outside the market area, including twenty lenders based in urban centers located twenty to fifty miles from Chambar. The survey covered sixty borrowers (farmers) and fourteen noninstitutional lenders operating in the area under study. Borrowers were randomly selected for interviews using multistage stratified sampling.

Interviews with informal lenders were more difficult largely because of concerns that information so obtained may end up with the government. Out of the sixty sources, fourteen were selected for the individual interviews, which lasted approximately three hours each. The selection was not entirely random because it depended on the availability of personal introductions to these lenders. More lenders were prepared to give interviews but were excluded because of time constraints. Interviews were carried out with the understanding that the interviewees would not have to provide information on interest rates charged; information on the costs of borrowing was obtained from the demand side.

A number of institutional sources of credit, primarily banks, were also present in the Chambar area, accounting for approximately 25 percent of the loans transacted in the 1980–81 period. Their operations were also reviewed, but the focus of the study was on the noninstitutional market.

Chambar lies on the east bank of the river Indus, approximately 180 miles north of Karachi. It lies in an irrigated area where multiple cropping is practiced (with cash and subsistence crops being grown in alternate seasons), and

2. See Aleem (1985) for a detailed literature survey. A flavor of the literature can be obtained also from Bottomley (1975), Ghatak (1975, 1983), Iqbal (1987), and Bliss and Stern (1983).

3. See, for example, the evidence on monopoly presented in Chandavarkar (1965, pp. 322–25); see also evidence presented in Bliss and Stern (1983).

high-yielding varieties of crops have been successfully introduced. A striking feature of the rural economy is the seasonal (and uncertain) nature of the farmers' cash flow. The seasons exert a strong influence on the demand for credit because there is a considerable time lag between the time that expenditures are incurred on farm inputs, such as fertilizers, and the crop is harvested and sold. This is reflected in market transactions: not only farm inputs but also food, clothing, and sometimes even medicines and doctors' services are purchased on credit to be paid off at harvest. Seasonal demands have an important bearing on the farmer's credit needs in the area and account for almost 50 percent of his total demand for credit.

Comparing Chambar with Other Credit Markets

The market environment and structure in Chambar share key characteristics widely observed in credit markets in other developing countries. These include:

- *Duality or segmentation in market structure.* As has been observed in other countries, a highly regulated and nationally integrated institutional market with uniform and relatively low rates of interest coexists with an informal market that charges a widely dispersed set of relatively high rates.
- *Lack of specialization by informal market intermediaries.* Although the players and nature of the loan contract in the institutional market are well defined, informal commercial lenders come in various guises (traders, moneylenders, shopkeepers, landlords, and so forth) and are characterized by nonspecialization, with the typical informal lender combining credit with trading in crops and selling general merchandise.
- *Interlinking of loan and commodity contracts in informal markets.* Associated with the nonspecialized nature of the informal lender is the interlinking of loan and commodity contracts: only a limited number of loans were given in the conventional form of outright loans to be repaid in cash with interest. In general, at least one end of the loan transaction involved the delivery of commodities, with the loan either extended or repaid in kind. The cost of borrowing was the rate of interest when this was explicitly agreed upon. In the majority of cases, however, the cost of borrowing had to be estimated from the terms of commodity transactions reported by farmers in the demand component of the survey. For example, if the farmer paid 15 percent extra for purchasing pesticides on a three-month credit, the implicit annual interest rate after compounding was 75 percent. A similar calculation was carried out to estimate the charge and the implied interest rate on loans against which the farmer had agreed to a specific discount on his cotton crop which he sold to the lender.[4] (For details of calculations in more complex transactions see Aleem 1985).

4. It should be noted that, although interlinking of loan and commodity contracts has been observed in many developing countries, its dominance in Chambar may in part also be because of the conformity of this type of traditional contract with local social values. Islam, the main religion practiced in

• *Dominance of noninstitutional or unorganized money markets.* As in many other developing countries, noninstitutional sources of credit still dominate the market for credit. They account for approximately three-quarters of the loans extended in the area, as indicated above.

• *Limited access of smaller borrowers to institutional credit.* Although the evidence is not unambiguous, the results of the survey suggest that, as in most developing countries, larger borrowers have greater access to institutional credit than their smaller counterparts.

• *Absence of security in loan contracts given by informal lenders and the relatively low risk of default.* Informal lenders generally give unsecured loans but face far lower risks of default than institutional sources, who normally lend against collateral but rarely foreclose.

II. Screening and Lending Costs in a Market with Imperfect Information

Screening of Loan Applicants: Significance and Procedures

Informal lenders operating in the Chambar area expend considerable effort to obtain information about loan applicants to reduce the risk of default. Because of the legal problems and associated high costs involved in selling land—the most common asset that farmers can put up as collateral—there were no practical alternatives open to lenders other than a careful screening process. One indication of the consequences of providing loans without adequate screening is the default rates in excess of 30 percent experienced by some of the institutional lenders operating in the area, although other factors, such as corruption and political pressure, also contributed to the problems.

Tables 1 and 2 give the salient features of the long process used by the fourteen noninstitutional lenders to screen loan applicants, including resources employed and average rejection rates. Although there is considerable variation in the methods used by individual lenders, there are some important common features. First, the lender generally does not entertain loan requests from farmers who have not had previous dealings with him, for example, in the sale of harvested crops or the purchase of farm inputs. These dealings, over at least one season, provide important information about the farmer, including his likely marketable surplus and the way he conducts business. Second, most lenders make further inquiries—both in the market and of farmers in the applicant's village who are known to the lender—about the applicant's indebtedness as well as his reputation in the market. Third, if the farmer satisfies the

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Chambar, does not prohibit return on risk-bearing, or profit on a commercial contract. But the conventional loan involving a prearranged fixed rate of interest was considered un-Islamic. There was a clear preference to avoid interest payments, although the prohibition did not deter farmers from seeking low-cost bank loans, which at the time of the survey carried an explicit rate of interest.

Table 1. *Sequence of Steps Used by Noninstitutional Lenders to Obtain Information about Loan Applicants (steps used in the process)*

Lender	Assessment through dealings in other activities (A)	Asking the applicant to provide references or personal sureties from persons known to lender (B)	Making inquiries of other farmers in applicant's village and in the market (C)	Visiting the applicant's farm (D)	Testing him by giving a small initial loan (E)	Was lender prepared to consider applicants who had not gone through stage A?	Location of customers within the Chambar market[a]	
							All over the market area	Concentrated in specific villages
1	1 (1)		2	3	4	Usually not	X	
2	1 (1)		2		3	Never	X	
3	1 (1)		2	3	4	Never		X
4	1 (2)	2		3	4	Yes	X	
5	1 (2)			2	3	Yes	X	
6	1 (2)	2[b]	3		4	Usually not		X
7	1 (1)		2		3	Usually not[c]		X
8	1 (1)	2[b]	3		4	Usually not[c]		X
9	1 (2)	2[b]	3			Usually not		X
10			1	2	3	Yes		X
11	1 (1)		2		3	Usually not[c]		X
12	1 (1)				2	Usually not[c]		X
13	1 (2)	2[b]	3		4	Yes		X
14	1 (1)		2	3	4	Usually not	X	

Note: The numbers in this table correspond to the sequence of steps undertaken by the lender in screening a loan applicant. The numbers in parentheses in step A are the number of seasons over which step A takes place.

a. Lenders located outside the market area (defined as a five-mile radius around Chambar) had customers both inside and outside the market.

b. Only for applicants who had not gone through stage A. (In one instance the lender also wanted gold as collateral.)

c. The exception in these cases were farmers who were living in the same village where the lender operated and whom he knew well.

Source: Author's survey data, available for a nominal reproduction charge upon written request to the author.

Table 2. *Costs of Obtaining Information about Loan Applicants and Some Screening Statistics*

Lender	Resources allocated to obtaining information on average loan applicant: Time (days)	Resources allocated to obtaining information on average loan applicant: Expense (rupees)	Lenders experiencing a decrease in the cost of screening over time?	Average rate of rejection of loan applicants (percent)	Lenders prepared to give loans to farmers borrowing from other lenders as well?	Percentage of repeat borrowers in 1980 summer season
1	3.0	20	Yes	75	No	82
2	0.5	0	Yes	50	No	78
3	2.0	50	Yes	80	No	83
4	1.0	30	Yes	50	No	67
5	0.5	0	Yes	75	No	60
6	1.0	50	Yes	20	No	91
7	0.0	0	Yes	10	Yes	80
8	0.0	0	Yes	20	No	67
9	0.5	0	Yes	90	No	83
10	2.0	100	Yes	70	No	100
11	2.0	30	Yes	25	Yes	85
12	0.0	0	Yes	20	Yes	52
13	0.5	20	No	60	Yes	85
14	1.0	20	Yes	70	No	75

Note: The rupees-to-dollar exchange rate was 9.9 (1981).
Source: Author's survey data, available for a nominal reproduction charge upon written request to the author.

lender's requirements in the first two stages, he gets a small initial loan for one season for a further assessment before he can count on the lender to satisfy all his legitimate credit needs. The average successful applicant takes, on average, two seasons (approximately one year) to get to this stage.

Table 2 shows that the costs of screening are substantial—on average, screening costs one day of the lender's time and Rs20 ($2.02) in transportation expenditures—despite the fact that many of the lenders had been operating in the area for periods in excess of five years and virtually all had experienced a learning curve effect. Variations in the average cost of screening can be attributed to the length of time that the lender has been operating, his market strategy—for example, he could concentrate on borrowers from a specific village or villages, as did some of the lenders who had the lowest rejection rates (10–25 percent), or he could have a diversified clientele from both Chambar and the adjoining areas—and the tradeoff the lender accepted between spending resources on screening and accepting a higher risk of default. The cost of screening, which ultimately has to be borne by the successful applicants, is magnified by the high proportion (on average, more than 50 percent) of applicants who were rejected by the lenders interviewed.

It should be noted that rejection of applicants was not significantly linked to the nonavailability of loanable funds; eleven of the fourteen lenders interviewed

indicated that they could cope with an increased demand for funds by drawing from other lenders from outside the Chambar area for funds (see the discussion below on the marginal cost of funds).

The high rejection rate has important implications for a farmer thinking about changing his source of informal credit and moving to a new lender: if the long screening process was not a sufficient deterrent, then the relatively small chance of success should certainly make him think twice.

Screening and the Risks Facing Noninstitutional Lenders

Table 3 outlines the risks facing the informal lenders operating in the Chambar area. It is clear from the table that the main risk facing the noninstitutional lender, whether he is urban or rural-based, does not arise from nonrecovery. On average the cumulative rate of default (defined as the percentage of loans due that had not been recovered since the lender's inception of lending operations) was 2.7 percent, with twelve out of fourteen lenders experiencing a default rate of 5 percent or less. The cumulative rate of default is a good first approximation of the incidence of bad debt. Given the possibility that some of the more recent overdue loans may eventually be recovered, the cumulative rate of default is, if anything, an overestimate of nonrecoverable debt. It is therefore fair to conclude that the screening actions of the informal lenders are successful in limiting bad debts, especially taking account of the experience of institutional lenders and the fact that virtually all informal loans are unsecured (see table 3).

However, the screening process is not perfect. Delinquent loans, involving late payment, were a constant source of concern to the informal lender. As shown in table 3, lenders face a significant risk of loss from delinquent loans: on average 15 percent of all loans were delinquent with a delay of approximately six months, and over this period interest was waived on 70 percent of these.

Screening and Other Components of Loan Administration Costs

Because there is little paperwork involved and no collateral, informal lenders' main costs in administering a loan are in screening loan applicants and chasing delinquent borrowers. Costs hereafter are cited per Rs100 (the average rupee-to-dollar exchange rate for 1981 was 9.9) either lent (tables 5 and 6 below) or recovered (tables 7 and 8 below). The cost of handling commodities exchanged as part of a loan contract is assumed to be covered in the price of the commodity (these costs would have to be covered in a cash sale as well). Estimates of the costs of administering loans are made on the basis of a valuation of the time and resources allocated to managing a loan from application through recovery. The marginal and average costs of screening, in particular, and of loan administration, in general, are considered separately below.

Marginal costs of screening and loan administration. Table 4 shows the make-up of the marginal costs of loan administration for the fourteen lenders

Table 3. *Risks Facing the Noninstitutional Lender: The Possibility of Nonrecovery and Delinquency (Delay in Repayment)*

Lender	*Percentage of due loans that had not been recovered since the inception of lending operations*	*Percentage of loans against which collateral is taken, and type of collateral*	*Percentage of loans repaid after due date*	*Average delay (months)*	*Percentage of delinquent loans on which no interest is charged for period of delay*	*Conditions under which additional interest is waived*[a]	*Was lender prepared to give extra loans to farmers facing crop failure?*	*Average time spent chasing each overdue loan (days)*[b]
1	1	5 (gold)	25	3	50	(A)	Yes	2–3
2	10	0	20	6	50	(B)	Yes	2–3
3	1	0	25	4–6	40	(A)	No	2
4	0	0	15	6	100	(D)	Yes	3–4
5	3	0	15	6	100	(D)	Yes	2
6	1	0	5	6	60	(B)	Yes	5
7	2	0	20	6	100	(D)	Yes	2–3
8	5	0	20	6	100	(D)	Yes	0
9	1.5	2 (land lease or gold)	8	6	50	(C)	Yes	5
10	1	0	12	6	33	(C)	Yes	5
11	0	0	5	3	100	(D)	Yes	0
12	7	10 (gold)	10	6	100	(C)	Yes	5
13	3	0	20	12	50	(C)	No	2
14	2	0	15	3	50	(C)	No	2

a. (A) "Farmer in financial difficulty—for example, through crop failure." (B) "Exceptional or unavoidable circumstances." (New lender.) (C) "Return of principal is itself at risk" (that is, something is better than nothing). (D) "Always waived" (lenders explained that while no charge was levied on late payment, those who did not have a genuine reason were excluded from future loans).

b. This does not apply to the small credits extended to sharecroppers which were, according to the lenders, not worth running after.

Source: Author's survey data, available for a nominal reproduction charge upon written request to the author.

interviewed in the survey. The key assumptions used in the analysis include the time period and loan size over which screening and other administrative costs are spread, and the valuation of the lender's time. First, it is assumed here that the lender wishes to recover his screening costs from the marginal loan of six months' duration (one season). Screening costs should really be spread over all the loans that the borrower is expected to take; as revealed by table 1, on average 78 percent of customers are repeat customers, implying that on average a borrower remains a repeat customer for approximately four periods, beyond which the farmer generally moved to another lender or left the market until he again needed to borrow funds. Hence the assumption that the lender wishes to recover all screening costs from the marginal loan assumes that the lender heavily discounts the future and makes the figure for marginal screening costs per Rs100 lent to the farmer, if anything, an overestimate.

Second, the relative amount of the charge for screening and other administrative costs depends on the size of the loan over which costs are spread. In calculating the cost of the marginal loan (table 4) it is assumed that on the margin the size of loan given by a lender is the same as he has been giving on average. There was considerable diversity in the average size of loans and it appears that different lenders were catering to the needs of different-size farmers.

Finally, an important assumption implicit in the calculations relates to the valuation of the lenders' time. If lending was the only business activity and the lender had excess capacity (in the sense of time available for administering more loans), then the marginal cost of his time would be zero (neglecting any disutility of work). If he is carrying out other activities as a means of reducing business risk through diversification (the most frequently given reason for nonspecialization), then there is an opportunity cost to his time depending on his gain from these activities. The survey established that lenders are carrying out other activities, but that their profitability was less than that of the lending operation. No measures of the profitability of these other activities were available, however. In fact, it could be argued that providing loans may actually increase the incentive for borrowers to purchase (or sell) commodities from (or to) the lender, thereby increasing his other activities and the gain from them. In the latter situation, the opportunity cost of the lender's time devoted to the marginal loan could be negative. Absent other information, it has been assumed that there is a displacement of other activities and the opportunity cost of his time is estimated according to what the lender expected to earn in paid employment.

To the screening costs in table 4 is added the time cost of chasing delinquent loans. The costs are then compounded to give an effective annual charge. The final column in the table gives the expected cost of administering the marginal loan as a percentage of the loan's value. The mean for the group is 6.54 percent with a standard error of 6.83 percent. The main reasons for dispersion in the estimated costs are variations in the intensity of screening and in the forgone wage.

Table 4. *The Marginal Cost of Administering a Loan per Rs100 Lent*

Lender	Resources allocated to obtaining information about loan applicants: Time (days)	Resources allocated to obtaining information about loan applicants: Expense (rupees)	Expected time to chase overdue loans (days)[a]	Opportunity cost of the lender's time (rupees)[b]	Expected cost for lender of administering marginal loan: Time and resources (rupees)[c]	Expected cost for lender of administering marginal loan: Percent[d]
1	3.0	20	0.63	18,000	229.42	19.01
2	0.5	0	0.50	13,200	42.31	4.51
3	2.0	50	0.50	24,000	242.31	20.32
4	1.0	30	0.53	15,000	103.56	6.01
5	0.5	0	0.30	18,000	46.15	7.85
6	1.0	50	0.25	18,000	122.12	2.45
7	0.0	0	0.50	7,800	12.50	0.50
8	0.0	0	0.00	10,800	0.00	0.00
9	0.5	0	0.40	36,000	103.85	4.20
10	2.0	100	0.60	18,000	250.00	1.67
11	2.0	30	0.00	7,200	76.15	15.82
12	0.0	0	0.50	9,600	15.38	2.07
13	0.5	20	0.40	10,000	48.85	1.63
14	1.0	20	0.30	18,000	95.00	5.49
Mean						6.54
Standard deviation						6.83

Note: The rupees-to-dollar exchange rate was 9.9 (1981).

a. The expected time cost of chasing overdue loans estimated as the average time spent on each overdue loan times the percentage of loans that is expected to be repaid after the due date (table 3).

b. Expected annual wage in employment. Average in the case of a number of partners.

c. Value of the lender's time and resources allocated to administering an average-size loan from application through to recovery. Value of time based on opportunity costs and 312 working days per annum.

d. Costs estimated in previous column expressed as a percentage of marginal loan and compounded to give effective annual rate, because the marginal loan is assumed to be given for six months.

Source: Author's survey data, available for a nominal reproduction charge upon written request to the author.

Average costs of screening and loan administration. The major problem in estimating average administration costs is the treatment of joint costs—overhead and variable costs—between lending and other activities carried out by the informal lenders. The allocation of administration costs to the lending operation depends on the assumption regarding the lender's main activity and on the dependence of the activities on each other. In table 5, loan administration costs have been estimated using two alternative assumptions. If lending is considered the primary activity and other activities considered either relatively minor or complementary to it, then it may be reasonable to allocate all administrative costs to the lending operation. This is the assumption made in columns 2–4 of table 5. In column 5, however, it is assumed that lending is a joint activity carried out in parallel with other trading activities, such as buying and selling crops and the sale of farm inputs and provisions. Trying to allocate overhead and operational costs in these circumstances is difficult. In the table these costs have been allocated according to the time allocated to various activities by the lender.[5] The average cost for the group is Rs49.52 (with a standard deviation of 50.2), using the assumption that lending is a primary activity. This estimate declines to Rs38.72 (with a standard deviation of 41.4) when it is assumed instead that it is a joint activity.

It should be noted that both estimates of average costs are closely associated with the scale of the lending operation and decline sharply as the latter increases. As a corollary, there is a large variation in average costs reflecting in large part the considerable variance in the size of the average annual amount loaned by individual lenders, as shown in column 1 of table 5. The variation in the size of the loan portfolio is in large part a reflection of variation among lenders in the size of clientele: the number of borrowers per lender varied from 10 to 180, with an average of about 40 for the group of lenders interviewed. Thus the high and widely dispersed level of average costs results from the relatively small number of borrowers per lender and the significant variation in the number of borrowers per lender. Estimates of the average costs of administration also depend on the opportunity-cost assessment of the lenders' time, which is the dominant component of overhead costs. An evaluation of the original survey results suggests that the assessment of their own opportunity wage by the lenders in the survey, although subjective, was realistic within the context of prevailing labor market opportunities available to them.[6]

Other Costs of Lending

The remaining costs of the lending operation are captured in the estimated charge on capital. This is made up of the following components: the opportu-

5. For information on time allocation by the lender between credit and other activities, see Aleem (1985, table 20-A). Trying to allocate overhead in the described circumstances is difficult. Using time as a basis for allocating costs is the only reasonable approach within the constraints imposed by available information.

6. See Aleem (1985, p. 249).

Table 5. *The Average Annual Costs of Administering Loans, Estimated per Rs100 lent to Farmers*

Lender	Average amount outstanding over the year (thousands of rupees) (1)	Assuming lending is the primary activity: Variable costs[a] (2)	Overhead[b] (3)	Administration costs[c] (4)	Assuming lending is a joint activity, administration costs[d] (5)
1	89.5	7.92	23.15	31.07	15.54
2	42.0	13.33	74.29	87.62	61.33
3	132.0	7.65	23.64	31.29	25.03
4	226.4	12.19	14.31	26.50	23.85
5	14.5	46.90	157.24	204.14	163.31
6	293.5	8.18	8.79	16.97	11.03
7	197.5	8.51	8.51	17.02	9.36
8	72.5	21.52	16.55	38.07	28.55
9	180.0	10.67	20.00	30.67	26.07
10	6,000.0	6.40	6.60	13.00	7.80
11	19.0	11.58	56.84	68.42	61.58
12	22.0	27.27	48.18	75.45	71.65
13	172.5	18.09	18.09	36.18	21.70
14	195.0	5.64	11.28	16.92	15.23
Mean				49.52	38.72
Standard deviation				50.20	41.40

Note: The rupees-to-dollar exchange rate was 9.9 (1981).

a. Wages to employees, business travel, stationery, and entertainment.

b. Opportunity cost to the lender (and any active partners) and rent of shop and warehouse.

c. Sum of variable and overhead costs.

d. Costs allocated to lending according to the proportion of the lender's time spent on this activity.

Source: Author's survey data, available for a nominal reproduction charge upon written request to the author.

nity cost of funds, a premium for bad or unrecoverable debt, and interest lost on delinquent loans. Table 6 shows the build-up of the capital charge on the margin and on average. This table shows that for the marginal loan, the mean capital charge for the fourteen lenders was 38.8 percent (with a standard deviation of 10.64 percent), whereas on the average loan the corresponding figure is 27 percent (with a standard deviation of 9.5 percent).

The cost of funds. The main reason for the high capital charge is the high (opportunity) cost of funds facing the informal lender. The marginal cost of funds, according to data obtained directly from the fourteen informal lenders, is quite high. It ranges from 20 to 50 percent with an average for the group of 32 percent. The figures for marginal cost of funds were obtained in response to a specific question in the primary survey.[7] In most cases these figures reflect the cost of getting marginal funds from other informal lenders. The survey revealed that on average approximately half of the funds used by the informal

7. See Aleem (1985, table 19).

Table 6. *Other Costs of the Lending Operation: The Capital Charge per Rs100 Lent to Farmers*
(rupees)

Lender	Marginal cost of capital: Marginal cost of funds (1)	Marginal cost of capital: Bad debt (2)	Marginal cost of capital: Interest lost on delinquent loans (3)	Marginal capital charge (1)+(2)+(3)	Average cost of capital[a]
1	36	3.0	1.13	40.13	30.08
2	20	10.0	1.00	31.00	20.92
3	40	3.0	2.01	45.01	23.16
4	36	0.0	2.70	38.70	34.83
5	24	9.0	1.81	34.81	20.85
6	40	3.0	0.60	43.60	39.57
7	20	2.0	2.00	24.00	19.60
8	50	15.0	5.00	70.00	51.75
9	30	4.5	0.60	35.10	25.98
10	30	3.0	0.60	33.60	24.05
11	40	0.0	0.50	40.50	16.20
12	25	7.0	1.25	33.25	22.75
13	30	9.0	3.0	42.00	26.87
14	25	6.0	0.48	31.48	20.75
Mean				38.80	26.95
Standard deviation				10.64	9.48

Note: The rupees-to-dollar exchange rate was 9.9 (1981).
a. Sum of bad debt, delinquency costs, and cost of funds—all on an average basis.
Source: Author's survey data, available for a nominal reproduction charge upon written request to the author.

lender come from his own savings, 30 percent from institutional sources, either directly or indirectly (from cotton mills, wholesalers, and so forth who have direct access to such funds), and the remainder from other informal lenders as well as from clients who use him as a safe deposit (at zero interest) for surplus cash. The use of institutional funds by informal lenders reveals that they are actively involved in arbitrage between the two segmented markets.

If own funds are priced at the marginal opportunity cost of funds (as is the case in table 6), then the average cost of funds ranges from 10.4 to 42.5 percent, with a mean value for the group as a whole of 23 percent. (If own funds were priced at the prevailing bank rate of 10 percent, then the average cost of funds would be significantly lower. The marginal cost of funds, however, is probably a better measure of the opportunity cost of own funds to the informal lender in the conditions existing in Chambar at the time of the survey.)

Premium for bad debt. The premium for bad debt on the marginal loan has been derived from data presented in table 3. As argued above, the cumulative rate of default is a good first approximation of the cost of unrecoverable loans, and these are included in table 6 in the estimation of the average capital charge. The cumulative rate of default ranges from 0 to 10 percent, with a mean value for the group of 2.7 percent. The cumulative rate of default is a reasonable

approximation of the cost of default on an average loan, but it does not, however, provide an assessment of the risk facing the lender at the margin—from new borrowers—which is likely to be higher. An assessment has been made by considering the risks facing those lenders that have recently entered the market. The default rate they faced was two to three times the average for the group. The marginal risk for the more experienced lenders (those that had been in the market more than two years) has been estimated at three times their average risk; the estimates on the expected marginal rate of default range from 0 to 15 percent, with a mean value for the group of 5.3 percent). If anything, this is likely to be an overestimate, as is the case with the screening component of marginal costs discussed above.

Interest lost on delinquent loans. Estimates have also been made of the interest lost on delinquent loans. This is the additional interest accrued (but not recovered) beyond the original due date of the loans (see table 3). The marginal charge for expected loss on interest payments has been estimated in table 6 as the lenders' marginal cost of funds and ranges from 0.48 to 5 percent, with a mean of 1.62 percent. The cost of this component in an average loan is included in the estimation of the average capital charge. It ranges from 0.2 to 4.25 percent, with a mean of 1.2 percent.

Total Costs of Lending

The structure of total costs for the loan operation of the group of informal lenders surveyed is summarized in table 7. The first column gives the total marginal cost per Rs100 of loans recovered. It is the sum of the expected cost of administering the marginal loan (see table 4) and the marginal capital charge (see table 6), with the total adjusted for the fact that losses from bad debt have to be recovered from loans that are repaid. The mean is 48.1 percent with a relatively high dispersion (standard deviation of 14.6 percent). The last two columns give two estimates of the average total cost of the lending operation per Rs100 of loans recovered. These latter estimates have been derived from tables 5 and 6. The first of these two columns assumes that lending is the primary activity and this reveals estimates of average costs with a group mean of 79.20 percent and a standard deviation of 40.8 percent. The second assumes lending to be a joint activity, at par with other business operations being carried out by the informal lenders, and this leads to lower estimates of average total costs, with a group mean of 67.9 percent and a standard deviation of 40.5 percent.

III. Interest Rates and the Cost of Intermediation: A Comparison

Average and marginal costs are compared in table 8 with each other and with observed interest rates. Interest rates shown in the table represent the cost of borrowing, at an annual rate, on loans given during the year before the survey

Table 7. *Structure of Total Costs for the Lending Operation per Rs100 Recovered from Farmers*
(rupees)

Lender	Total marginal cost	Total average costs	
		Lending the primary activity	Lending a joint activity
1	60.97	61.77	46.08
2	39.46	120.60	91.36
3	67.34	55.00	48.68
4	44.71	61.33	58.68
5	46.88	231.95	189.86
6	47.47	57.11	51.11
7	25.00	37.37	29.55
8	82.35	94.35	84.53
9	41.15	57.51	52.84
10	36.36	37.42	32.17
11	56.32	84.42	78.05
12	37.98	105.59	101.51
13	47.95	65.00	50.07
14	39.33	38.44	36.71
Mean	48.09	79.20	67.94
Standard deviation	14.58	40.78	40.52

Note: Because the costs are allocated per Rs100 recovered rather than lent, they will exceed the sum of administration and capital costs shown in tables 5 and 6. The rupees-to-dollar exchange rate was 9.9 (1981).

Source: Author's survey data, available for a nominal reproduction charge upon written request to the author.

by informal commercial sources, and are based on the terms agreed between the farmer and the informal lender at the time of the loan. These rates were derived from demand-side data in which are included both loan contracts with the rate of interest explicitly agreed upon, as well as credit transactions involving sale and purchase of commodities with an implicit cost of borrowing (that is, implicit interest rates) built into the transaction. On an annual basis the average cost of borrowing from commercial sources in the informal market was 78.7 percent. There was a large dispersion in the cost of borrowing from these sources, as reflected in the standard deviation of 38.1 percent, with rates ranging from a low of approximately 18 percent (still well above the 12 percent rate charged by banks) to a maximum of 200 percent.

It is clear from the tables that estimates of average costs (whether one considers lending to be the main or a joint activity) are higher than estimates for marginal costs. If lending is considered to be the primary activity, then average costs exceed marginal costs for thirteen out of the fourteen lenders in the survey. Alternatively, if lending is perceived as a joint activity, then estimates of average costs exceed corresponding figures for marginal costs in ten cases out of fourteen. In either circumstance, marginal cost pricing would lead to losses for the large majority of lenders. In comparing marginal and average costs, it should be noted that for reasons discussed in the previous section, it is

Table 8. *Comparing Costs and Observed Interest Rates per Rs100 Recovered*

Item	Marginal costs	Average costs: Lending the primary activity	Average costs: Lending a joint activity	Interest rate
Mean	48.09	79.20	67.94	78.65
Standard deviation	14.58	40.75	40.52	38.14

Note: The table gives the costs facing the informal lenders and the interest rates they charged. The rupees-to-dollar exchange rate was 9.9 (1981).

Source: Author's survey data, available for a nominal reproduction charge upon written request to the author.

likely that marginal costs have been overestimated. This implies that the divergence between marginal and average costs could be greater than indicated in table 8.

As far as the comparison between average costs and interest rates is concerned, the results support the view that interest rates are equal to average costs, but not unambiguously. If lending is considered the primary activity, then the mean average cost for the group is virtually identical to the interest rates observed in the market. If lending is assumed to be a joint activity, however, then a gap does emerge between costs and rates. The statistical significance of the gap between the mean values of the observed market rates of interest and the estimated average cost cannot be estimated because of the nonrandom nature of the supply-side information; absence of random sampling on the supply side raises the possibility that many of the smaller, higher-cost suppliers may have been left out. (Table 8 reports unweighted means. Using weighted as opposed to unweighted means increases the gap between interest rates and average costs, but does not alter the qualitative conclusion that average costs of lending exceed marginal costs.[8])

IV. Interpretation of Results

The evidence presented above appears to be consistent with the classic Chamberlinian model of monopolistic competition as applied to informal credit markets. Each lender, because he does not specialize, offers a wide range of lending services which vary in terms of the types of loan contract, accessibility to the lender, marketing services provided with the loan, and so forth. As confirmed by demand-side interviews, borrowers perceive each lender to be offering a different product; thus each lender faces a downward-sloping demand curve, which gives him some flexibility to price according to his own circumstances.

Equilibrium in this model involves a distortion in the market: there are too many lenders in relation to the size of the informal credit market. With overhead spread over a relatively small amount of loans, interest rates are forced

8. See Aleem (1985, table 7).

up, above marginal cost, to cover average costs. Further, equilibrium is characterized by a dispersion in prices (interest rates); if interest rates are to cover average costs, then in the circumstances described above not only will the level of rates be raised but they will be spread over a range. The key characteristics of the model are that prices are close to the average costs of lending and above marginal costs, there is relatively free entry into the market, and there is product differentiation.

Interest Rates, Costs, and Market Distortions

Although the evidence is not unambiguous, it is tempting to accept the hypothesis that interest rates are close to the average costs of lending and above marginal cost in the circumstances existing in the Chambar market. Indeed, a number of empirical questions which have been raised can only be answered by more (empirical) research regarding, in particular, the opportunity cost of lenders' time and the extent to which lenders' activities are complementary or competitive. If one accepts the lenders' reported levels of opportunity costs as realistic, however, then even the relatively weak assumption that lending is a joint activity leads to the tentative conclusion that average costs are higher than those at the margin. This implies that, in the long run, the desire to at least cover costs will lead to distortions in the market with prices above marginal costs. In the study, the author was surprised at the large number of lenders operating in the small market area. If this is a long-run norm, then lenders have no choice but to charge relatively high rates in order to cover costs from a small clientele. This observation of "too many lenders" is not unique to the Chambar market. Similar observations have been made in studies of credit markets in other countries.[9]

There is a link between pricing distortions in informal credit markets and the government's policy regarding interest rates on institutional loans. As noted above, on average, approximately 30 percent of the informal lender's funds came directly or indirectly from low-cost institutional sources. Indeed, a major benefit to the lender from nonspecialization was the access trading activities gave him to low-cost and subsidized institutional credit. To the extent that the availability of such subsidized credit allows the marginal lender to remain in the market he otherwise could not because of the small size of his clientele, the policy of subsidizing institutional credit helps to support the distortion in the informal market.

Market Entry

One of the key assumptions behind the Chamberlinian model is that of free entry. Conditions in the Chambar market are broadly consistent with this

9. See Harriss (1983). In this article the author asks the rhetorical question: "Why are there so many small traders?" (p. 240). The author's explanation of the "relative crowding" is, however, different from the reasons given in this article and is based on broader socioeconomic factors.

assumption. The relative ease with which a large number of lenders (some of whom were urban-based), were operating successfully in the market supports this assertion. Indeed two of the lenders interviewed had moved into the area within the past eighteen months to two years. Information about the creditworthiness of clients is a barrier to entry. The ease with which new lenders were able to enter the market and the number of lenders operating in the area, however, suggest that the problem can be surmounted in part by incurring higher screening costs in initial years.

Product Differentiation and the Role of Information Flows

Although the environment (as described above)is supportive of product differentiation, it is unlikely on its own, without accompanying informational problems, to cause the large variations in interest rates that were observed in the survey. Further, analysis carried out on this data in Aleem (1985) indicates that the dispersion in interest rates cannot be explained on the basis of variations in the following key factors: loan size, risk of default, and duration of loan. Imperfections in the flow of information (or more specifically the technology of information flows, including the screening process) contribute to and strengthen product differentiation.

There are two key imperfections in the flow of information in the market that enhance product differentiation. First, on the supply side the screening process carried out by lenders is imperfect. Second, on the demand side, although farmers have a good idea about the location of various sources of credit, they are not well aware of the terms of the loan contracts offered by individual informal lenders. Because of these imperfections the lender does not have an incentive to cut interest rates in order to increase his market share, even when rates are well above his marginal cost of lending. Imperfect information available to farmers about the terms on which loan contracts are being sold in the market implies that a lowering of interest rates is a signal which filters through to only a limited section of the market. Part of the reason farmers are poorly informed is the wide dispersion in noninstitutional rates, unlike the uniform rates charged by banks, which are well known. At the same time information on the demand side appears to flow less readily than in other markets. Lack of advertising, the farmer's reluctance to reveal his indebtedness to others, and the presence of loan contracts with the rate of interest not explicitly defined (and hence difficult to estimate and compare) are all contributing factors.

Even when borrowers become aware of a cut in rates by an informal lender, they think twice before moving from their existing sources of credit. The problem is again one of information. Farmers are discouraged from applying by the long screening process to which they would be subjected, especially as they are uncertain about its outcome and the terms that they would eventually be offered, and they do not wish to jeopardize their relationship with their existing lender. Given the uncertainty about eventual terms, farmers said that

they could end up being worse off than with their existing lender; borrowing from multiple sources was usually precluded by the lender's requirement that the farmer market all his harvested crop through the lender. As a reflection of similar concerns and the extent of the monopoly power enjoyed by lenders, nearly two-thirds of the farmers interviewed said that they would have problems in obtaining credit if their current lender were to refuse to give them a loan.

On the supply side, information problems can prevent the lender from benefiting from any increased demand that follows a cut in interest rates. As indicated above, unlike in other markets, the lender cannot sell contracts to anyone that comes along, for this could easily raise losses from bad debt. But if he tries to separate out the high risks, the lengthy nature of the screening process means that he risks losing to his competitors the advantage gained from the initial cut in interest rates.

V. Conclusions

This article has presented information derived from a survey on the costs of screening loan applicants in a particular setting—a rural money market in Pakistan—together with other costs and the modes of operation of noninstitutional lenders active in the area. It is rare to get such detailed information on the costs and performance of informal lenders, and more specifically on the flow of information in the market, including the process of screening. This information has been used to derive the structure of costs facing informal lenders, including both the marginal and average costs of lending. These costs were then compared with the high and widely dispersed interest rates that were observed in the market. The evidence, although not unambiguous, provides tentative support to the hypothesis that interest rates in the market reflect the average costs of lending and are above marginal costs.

That interest rates are close to average costs and above marginal costs, that entry is relatively free, and that lenders are seen to offer differentiated products are all characteristics of a market that is consistent with the Chamberlinian model. Equilibrium in this model involves a distortion: there is an excess of lenders, and fixed costs must be spread over a relatively small amount of lending. Thus interest rates rise above marginal costs to cover average costs. Such an environment is also consistent with the high and widely dispersed interest rates that were observed in the market. Informational imperfections—the imperfect nature of the screening process on the supply side, and borrowers' lack of awareness of loan terms available from specific lenders—give rise to product differentiation.

In the short term it will be difficult to reduce the problem of imperfect information through, for example, such actions as enforcing laws to advertise the terms of loan contracts offered in the informal money markets. An area in which policy can have an effect is through the structure of institutional interest

rates. The above analysis suggests at least two effects of reducing the subsidy on these loans. First, given that a significant proportion (30 percent) of the funds available to the informal lender came from institutional sources, raising interest rates would raise the opportunity costs of funds for informal lenders, and some of the higher costs will be passed on to borrowers, thus dampening the demand for credit in informal markets. Second, it would discourage further entry into the informal money market (on the margin of lenders who would otherwise not be able to lend), and this could ameliorate the problem of "too many lenders" with its inherent inefficiency.[10]

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10. For a discussion of inefficiency, see Salop and Stiglitz (1977).