

**Rural Informal Credit Markets in India:
Exorbitant Interest Rates, Underpricing of Collateral, and Exploitation via Interlinkage**

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Lecture presented to graduate students of the
Department of Economics, Yonsei University
on August 9, 2011.

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The importance of credit has been well-documented in the process of economic development, and although the emphasis is mostly on production credit, the importance of consumption credit has not gone unnoticed either (Eswaran and Kotwal 1989). Although the formal credit market in India has expanded quite impressively in the decades since independence, the informal credit market still remains quite important, particularly in the rural sector. Thus, even today the rural informal credit market accounts for almost one-third of the rural credit market. (Government of India 2003). This is of significance given that the rural sector still accounts for almost 20% of the *GDP*, and a little less than two-thirds of the national employment. The formal credit institutions do not lend without (acceptable) collateral, do not provide consumption loans, cannot be tapped in many emergency situations etc., leaving the peasants to fall back upon informal credit sources in these circumstances.

These credit sources are quite diverse, and comprise professional moneylenders, landlords, commission agents, traders etc. The fact that the peasants often have no other recourse, enforces the power that these lenders have over them. As a result, these creditors are able to exploit the peasants in a number of ways – through exorbitant interest rates on the loans purveyed, through implicit interest charges via underpricing of any collateral pledged, and through exploitation in interlinked markets. In the following analysis, we consider each of these modes of exploitation in turn, to better understand the functioning of the rural informal credit market in India. This may help us to better appreciate not only the need to reduce dependence on

this market on the part of peasants but, quite contrarily, the need to foster links between the formal and informal segments of the credit market.

1. Exorbitant interest charges

1.1 Lender's risk hypothesis

It has been argued that the high interest rates on loans are only seemingly high; in actual fact, they merely reflect the risk of default that lenders face (Basu 1983, Raj 1979). Formally, this may be explained as follows. Suppose a peasant borrows amount L , and is expected to repay an amount $(1 + i)L$, where i is the (implicit) rate of interest on the loan taken. However, on average proportion d of the repayment amount is defaulted upon. The net earnings of the lender are, then:

$$E = (1 - d)(1 + i)L - L \quad (1)$$

and the rate of return works out to:

$$e = \frac{E}{L} = (1 - d)(1 + i) - 1 = (1 - d)i - d \quad (2)$$

Now suppose that the lender's opportunity cost of funds, the rate of interest in the formal credit market, is r . Then, by arbitrage, his effective rate or return from usury e will equal r at the margin. Therefore, in equilibrium, we have

$$r = (1 - d)i - d \quad (3)$$

Note that when $d = 0, r = i$; but when $d > 0, r < i$. In other words, given the risk of default in the credit market, the (implicit) interest rate charged can be justifiably 'high'. A simple numerical example will clarify this. Suppose $d = 0.5$, implying that 50% of the repayment amount tends to be defaulted upon, on average. Also, let $r = 0.1$ or 10% per annum in the formal market, a fairly representative rate of interest in the Indian context. Substituting these values in the equation above, we get $i = 150\%$ per annum, which is a very high rate of interest.

However, empirical evidence shows that the default rates on loans are not that high in rural India. The actual rate is, in fact, less than 10%, which would explain only a small part of the exorbitant interest rate – in the above example, $d = 0.1$ implies $i = 25\%$ only. But the fact is, that rural interest rates tend to be several times this number. We must, therefore, look for alternative reasons for the exorbitant interest rates that we notice in rural credit markets in India. One such is the monopoly power of the lenders.

1.2 Monopolistic markets

Since graduate students would be very familiar with this framework, I need not explain this in any great detail. A monopolist moneylender faces a downward sloping demand curve for credit, which we may express as the following inverse relationship

$$i = i(L) \quad i_L < 0$$

To abstract from other confounding causes, this explanation assumes away the risk of default on the basis of the personalised nature of loan transactions in rural Indian markets. Taking r to represent the opportunity cost of capital as before, the moneylender's optimand is

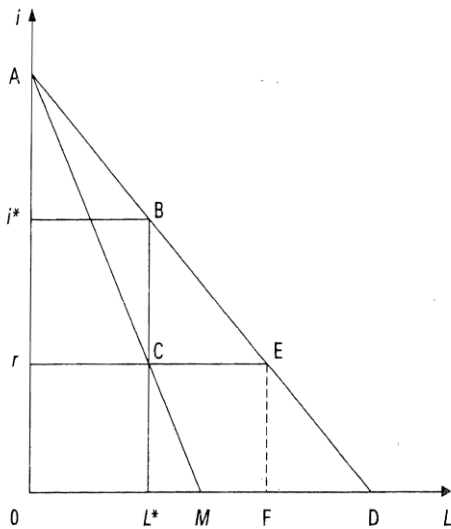
$$\text{Max}_L \quad Li(L) - rL$$

so that the first-order-condition of this problem is

$$i(L) + Li_L(L) = r$$

which is just the usual condition equating marginal revenue with marginal cost. It is easy to show diagrammatically, that in equilibrium $i > r$. By how much the interest charge exceeds the opportunity cost of funds obviously depends upon the elasticities of the functions involved. However, it is easy to appreciate that one can have a situation where the rate of interest charged is exorbitantly high. The diagram below depicts the normal textbook case of monopoly, where

AD is the demand curve and AM is the marginal revenue curve. Given a constant opportunity cost of funds r , equilibrium occurs with the monopolist loaning amount L^* and charging interest rate i^* , where the latter exceeds r .



1.3 All-or-nothing Monopoly

In the specific Indian context, however, the case of the all-or-nothing monopolist would be even more pertinent. After all, by all accounts, the landlord/moneylender has a lot of power over the peasants, and does not hesitate to exercise it (Bhaduri 1977). Therefore, one would expect him to extract the entire surplus from the borrower by offering all-or-nothing loans. As in the above section, I do not delineate this argument in detail, because the mechanics of this case would be well-known to the graduate students. In the ‘normal’ case of the previous section, the monopolist’s revenue is Oi^*BL^* , and his profit equals ri^*BC . By making an all-or-nothing offer to the potential borrower (“you can take a loan of L^* only if you pay $OABL^*$, otherwise I will not

give you a loan”), he could increase his profit to $rABC$. Of course, given this strategy, he maximizes his profit by giving a loan of OF .

2. Underpricing of Collateral

Let us now consider the case of loans that are given against some kind of collateral and, therefore, cannot be defaulted upon in the true sense of the term (Basu 1984). If the peasant is unable to return the loan in cash, he would relinquish all or part of the collateral. The collateral in question need not be, and typically is not, of a type that would be acceptable to a formal sector financial institution. Thus, while it could be assets such as land and jewellery, it could also be draught animals, standing crops, or utensils etc. In a lot many cases, these assets would not have a ready market, and it would be very difficult to determine their ‘market price’. The moneylender/landlord, however, may accept such assets as collateral simply because he may be interested in acquiring them ‘on the cheap’.

The peasant and moneylender negotiate the price p of the asset at the time that the loan is given. This price becomes relevant only when part or all of the asset is exchanged to repay part or all of the loan. Knowing the peasant’s difficult position, and his lack of avenues for the loan, the moneylender is in a position to bid down the price of the asset. Let p_L and p_B be the personal valuations of the asset in the minds of the lender and borrower, respectively. We expect $p < p_B$ and $p_L < p_B$, for otherwise the borrower would be glad to part with the asset. The important question that remains is whether $p < p_L$ or $p = p_L$; for if it is the former, that would amount to underpricing of the collateral by the lender.

As before, suppose the peasant borrows amount L , and is expected to repay an amount $(1 + i)L$, where i is the implicit rate of interest on the loan. At repayment time, the amount of

cash available with the peasant is C , which may or may not be sufficient to repay the entire loan in cash. If C is less than the necessary amount, then the rest is ‘defaulted’ and repaid in terms of the asset. Therefore, the ‘involuntary’ proportion of the loan ‘defaulted’ (that is, not repaid in cash) is given by:

$$\bar{d} = \begin{cases} 0, & \text{if } (1+i)L \leq C \\ 1 - \frac{C}{(1+i)L}, & \text{if } (1+i)L > C \end{cases} \quad (4)$$

However, this need not be the proportion of loan actually ‘defaulted’, that is, the proportion ‘voluntarily’ not repaid in cash. The proportion actually defaulted could be greater than or equal to this proportion, for that would depend upon the relative valuation of repaying in cash versus repaying in kind (in terms of the asset). To derive the actual default function, note that each unit of the loan repaid in cash would cost the borrower $(1+i)$ units, whereas each unit of the loan repaid in terms of the asset is valued at p_B/p units. Therefore, if $(1+i) > p_B/p$, it would be more costly to repay in cash, and the borrower would prefer to ‘default’ and pay in terms of the asset. If, instead, $(1+i) < p_B/p$, the borrower would default as little as possible, in accordance with the function specified above in (4). Thus, the actual proportion defaulted is given by the expression:

$$d = \begin{cases} 1, & \text{if } (1+i) > p_B/p \\ \bar{d}, & \text{if } (1+i) \leq p_B/p \end{cases} \quad (5)$$

The demand for credit function in this setup may be specified as follows:

$$L = L(i, p) \quad L_i \leq 0; L_p \geq 0 \quad (6)$$

where the subscripts denote first partials with respect to those arguments.

The moneylender’s net revenue, comprising interest income in cash and transferred collateral, over and above the opportunity cost of the loan, is given by:

$$R = (1 - d)iL + d \left(\frac{p_L}{p} - 1 \right) L - rL \quad (7)$$

The money-lender chooses i and p to maximise R , given (4), (5) and (6). We will not derive the equilibrium conditions because that does not provide us any special insight into the problem.

Instead, we note two special cases of this optimisation:

(a) Assuming p to be given exogenously, we may derive the equilibrium i , so that we have a theory of interest rate determination;

(b) Assuming i to be given exogenously, we may derive the equilibrium p , so that we have a theory of collateral price determination.

Pursuing the latter possibility, and using equations (4) to (7), we find that three cases may obtain:

Case 1: $d = 1$

Since this is a corner solution, we simply use the argument that in equilibrium we must have $R > 0$, that is:

$$R = \left(\frac{p_L}{p} - 1 \right) L - rL > 0$$

or $p_L > p$

Case 2: $d = \bar{d} = 1 - C/(1 + i)L$

This gives us:

$$R = \frac{iC}{1 + i} + \left(\frac{p_L}{p} - 1 \right) \left(\frac{(1 + i)L - C}{(1 + i)} \right) - rL$$

Differentiating this expression with respect to p , gives us the first order condition:

$$\frac{C - [(1 + i)L]p_L}{(1 + i)p^2} + L_p \left(\frac{p_L}{p} - 1 - r \right) = 0$$

Since $d = \bar{d} = 1 - C/(1+i)L$ in this case, we know from equation (2) that $(1+i)L > C$, so that the first component of the above expression is negative. Therefore, for the first order condition to hold true, the second component must be positive. That is:

$$L_p \left(\frac{p_L}{p} - 1 - r \right) > 0$$

or $p_L > p$

Case 3: $d = \bar{d} = 0$

In this case $(1+i)L \leq C$, and the entire loan is repaid in cash. In other words, the collateral does not exchange hands, and the collateral price is not relevant.

Thus, we find that whenever the collateral exchanges hands, it is undervalued. Further, this proof extends easily to the more general case. In the general case, where i and p are both endogenous, let i^* and p^* be the equilibrium values. Then, $R(i^*, p^*) \geq R(i, p), \forall i, p$; and $R(i^*, p^*) \geq R(i^*, p), \forall p$. This implies that if i^* is exogenously fixed at the optimal value, p^* is the optimal p . But this is exactly how we derived the equilibrium p in the three cases analysed above. Therefore, our conclusion that collateral is undervalued whenever it exchanges hands, holds true even in the more general case. This attests to the power of the landlord/moneylender, who not only charges a high explicit interest rate, but also often earns an implicit non-interest return in terms of undervalued assets. The effective interest rate, then, tends to be exorbitant.

3. Interlinked Credit Markets

Interlinkage refers to a situation where two or more interdependent transactions are undertaken simultaneously (Bardhan 1984). Some of the commonest forms of interlinkage in India are the

interlinking of credit market transactions with those in the labour market, land market, and output market (Bell and Srinivasan 1989; Jodha 1984). Rural agents providing loans use interlinkage as a device to prevent default. Thus, it is a device to overcome ‘potential lender’s risk’, or moral hazard on the part of the borrower. It is also a device that facilitates transactions which would otherwise not be possible – for instance, a labourer may be looking for a loan where he can make the interest payments in terms of labour supplied, leading to the interlinkage of credit and labour market transactions.

While interlinkage has its positives for both parties, it is also a fact that it strengthens the monopoly position of the rural landlord/moneylender. In a pure credit market transaction, the lender can exercise his power in the credit market alone. In an interlinked contract, on the other hand, the landlord/moneylender’s behavior could be more complex – while it may appear that he is not being exploitative in the credit market (for he may provide credit on ‘soft’ terms), he may actually exact rent in the other market(s) that are interlinked with the credit market. Of course, the reasons for providing credit on ‘soft’ terms may be complex – thus, Ray (1998) refers to Islamic customs in Kerala (India) and elsewhere, where interest is prohibited. Alternatively, it may well be that exploitation by charging high interest rates may be too obvious, with severe consequences for the moneylender’s reputation in society. It is such reasons that may motivate him to be more circumspect in how he extracts rent from the peasant. This would not be obvious to the observer unless he understands the implications of the interlinking of transactions in different markets. To appreciate this point, we focus on the interlinking of credit market and labour market transactions in the following analysis (Basu 1983).

Consider a situation where a peasant can procure a loan only if he also works for the landlord. In this manner, the landlord/moneylender can avoid the possibility of default. Let i be

the rate of interest on the loan L , and let w be the wage rate that the peasant receives for his labour. In choosing between different landlords, then, the peasant will consider the ‘utility’ that he gets from the package (w, i) . Let the utility from such a package be:

$$u = f(w, i) \quad f_w > 0, f_i \leq 0 \quad (8)$$

which may be re-expressed (without imputing causality) as:

$$w = \phi(i, u) \quad \phi_i \geq 0, \phi_u > 0 \quad (9)$$

Let \bar{u} be the peasant’s reservation utility, specified exogenously. If package (w, i) does not yield at least this much utility to the peasant he would shift to another landlord. On the landlord’s side, there is no necessity of offering a wage-interest package which gives greater utility, given the excess supply of peasants. The demand for loans is given by the expression

$$L = L(i) \quad L_i \leq 0 \quad (10)$$

The landlord has a well-behaved production function given by

$$X = X(n) \quad X_n > 0, X_{nn} < 0 \quad (11)$$

He maximizes profits from the twin activities of rural production and usury, that is

$$\text{Max}_{w,i,n} \Pi = X(n) - wn + n(i - r)L(i) \quad (12)$$

$$\text{s. t. } w = \phi(i, \bar{u}) \quad (13)$$

where r is the exogenously determined opportunity cost of funds, or the rate of interest in the formal sector credit market. Substituting equation (13) into equation (12), gives us

$$\text{Max}_{i,n} \Pi = X(n) - \phi(i, \bar{u})n + n(i - r)L(i) \quad (14)$$

Differentiating with respect to i and n gives us the first-order-conditions

$$X_n(n) = \phi(i, \bar{u}) - (i - r)L(i) \quad (15)$$

$$\phi_i(i, \bar{u}) = L(i) + (i - r)L_i(i) \quad (16)$$

These equations may be solved recursively to derive the equilibrium values of the exogenous variables as:

$$i = i(r, \bar{u})$$

$$n = n(r, \bar{u})$$

which, using equation (13), would yield the value of w as well. The partial equilibrium would obtain when these conditions hold for each landlord j .

The market equilibrium would, then, be given by the equality of aggregate demand and aggregate supply, that is:

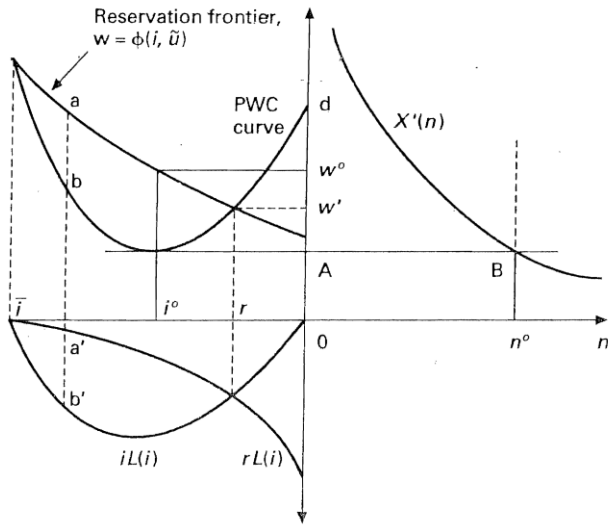
$$\sum_j n^j(r, \bar{u}) = N^S(\bar{u})$$

where we have assumed aggregate supply to be upward sloping (but it could, alternatively, be assumed to be constant for a given time period). This condition determines the reservation wage of the workers, which to each worker is exogenously given as \bar{u} . But it is the partial equilibrium that is more interesting from our present perspective.

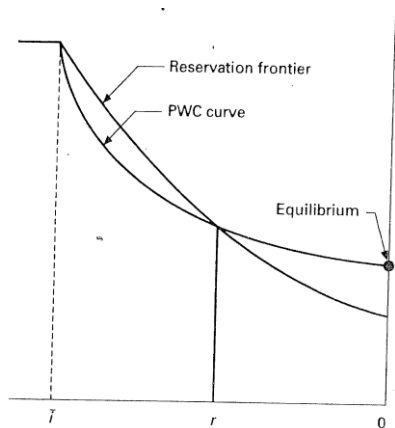
The partial equilibrium framework may be used to derive several interesting implications, of which we draw attention to one. The landlord's maximand as specified in equation (14) may be re-written as:

$$\text{Max}_{i,n} \Pi = X(n) - nC(i, \bar{u}, r) \tag{15}$$

where $C(i, \bar{u}, r) = \phi(i, \bar{u}) - (i - r)L(i)$ is the per worker cost to the landlord. Given r and \bar{u} exogenously, the landlord chooses i to minimise the per worker cost, and then chooses n to maximise his profits. Given plausible behavior on the part of the agents involved, one such solution is depicted in the following diagram where, in equilibrium, we have $i > r$.



However, it is quite possible that $i < r$ in equilibrium, as in the diagram below.



It is important to realize that this latter case does *not* imply that the landlord is not exploiting the peasant. For when $i < r$, implying that loans are subsidized (for the numerous reasons commented upon above), equation (15) tells us that $X_n(n) > w$. In other words, the peasants are paid a wage rate *less* than their marginal product! Thus, in the presence of interlinked contracts, the landlord/moneylender is able to exploit the peasants in a manner that would not be obvious to the observer who chooses to focus on the credit market transaction alone. As before, the extent of exploitation would depend upon the individual case, and cannot be deduced from the general framework etched out here.

Policy Implications

Experts in the area of rural finance note that the phenomena studied above have continued to flourish in India *despite* the impressive expansion of the formal banking system. This is taken to imply that in a lot many situations the large formal sector banking institutions are not well-placed to serve the rural financial needs, because they lack the micro-level information required to monitor the loans purveyed and ensure repayment. For these reasons, such institutions tend to be inefficient, and saddled with considerable amounts of bad debt. The solution appears to be two-fold – on the one-hand to encourage loans to informal lenders in the rural setup (for competition amongst them may improve the terms of lending for potential borrowers), and on the other hand to encourage microfinance institutions, cooperative societies, and self-help groups. All these ideas have been put into operation in recent years.

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This lecture is based on several readings. The students could refer to the following for further details.

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