

Coordination Failure in the Rural Credit Markets

by Atul Mishra

Abstract: This paper tries to explain the curious fact that while at the national level the rural sector saves more than what it invests in itself in India, at the micro level, credit constraint is reported to be the main binding constraint on the activities in the rural economy. The explanation lies in the phenomenon of coordination failure. The public sector rural banks mobilize huge amounts of savings, but because of low rates of interest and high default rates, they do not lend in equal measure. Indeed, in India the public sector rural banks mobilize as savings three times the amount they lend as credit for investment.

Raising the rate of interest at which the rural banks lend will not only raise the savings but also the investment in the rural sector. This is because at the current low level of rate of interest the rural credit market is severely rationed. As the rate of interest is allowed to rise more banks become viable, banks increase their lending, more people are brought into the ambit of rural banks and away from the money lender. The poor especially benefit as this increased rate of interest is still only half the rate of interest that the moneylender charges. The policy suggestion is to allow the public sector rural banks to charge economically viable and market clearing rates of interest.

Introduction

An emerging stylized fact about rural credit markets worldwide is that with the introduction of development financial institutions (DFI), not only do savings go up with an increase in the rate of interest, so does investment (Mosley and Hulme, 1996, vol. II; see different chapters for different countries). This paper attempts to explain this phenomenon. The explanation lies in the phenomenon of coordination failure in the rural credit markets.

It is well known that the spread of formal banking in rural areas has not succeeded in driving out the moneylender from the rural credit market (Mosley, 1996). Instead, moneylenders continue to thrive—partly because of the special kind of credit needs they respond to, which the formal sector does not, and partly because of the transaction cost advantages that a moneylender has in comparison to those of the formal sector bank (Eswaran & Kotwal, 1989). Were it the case that the impact of formal sector banking was merely to replace the moneylenders' business, there would have been little to recommend it; with the constant support required in the form of subsidy in the face of mounting losses, it would have been correctly looked at as a burden on the rest of the economy. However, to the extent that the rural banks have done more than merely replace the moneylenders' business, it hints at the presence of coordination failure possibilities: This is because out of the same total income, there are two or more levels of savings and investment, and state action can lift the economy to the higher equilibria. Since most of the rural banking is under the public sector, we intend to say something on this aspect of the public sector role and performance.

In what follows we first demonstrate the theoretical possibility of coordination failure in the rural credit sector. We then look at the analytics of such a possibility and derive the conditions of coordination failure in the rural credit sector. Finally we consider some innovations in the public sector's role in the rural credit sector.

Atun Mishra is a senior lecturer in Shri Ram College of Commerce, University of Delhi. After a B. A. in Economics from University of Delhi in 1985 and M. A. in Economics from Jawahar Lal Nehru University, New Delhi in 1987, he has taught in the Department of Economics at Shri Ram College of Commerce. His Ph.D. thesis, submitted in May 2001 at the University of Reading, UK is titled "The emergence of entrepreneurship in the rural non-farm economy." The thesis explores the constraints on the emergence of entrepreneurship and identifies credit constraint as the binding one.

Rural Credit: Ground Realities

Although different rural areas do differ in the credit institutions they have, we will work with the following stylized facts about rural credit:

1. The dominant player in the rural credit market is the rural bank. It mobilizes more savings from the rural sector than it disburses in it.
2. Rural banks have not been able to replace the moneylender. If anything, moneylenders are thriving.
3. Rural banks charge low rates of interest but have high transaction costs.
4. Moneylenders charge high rates of interest but have low transaction costs.
5. Rural banks have a high default ratio, whereas the moneylenders have a low default ratio.
6. Rural banks lend only for production purposes (though only a part of lent money ends up as productive), whereas moneylenders lend both for consumption as well as for production purposes.

The rural banking system in India mobilizes more savings from the rural sector than it disburses as loans in this sector (Mosley, 1996). So while the rural banks have to some extent replaced the moneylender, they have also performed an entirely new function which the moneylender was not performing—that is, savings mobilization. In principle this too can leave the situation entirely unchanged if the people who save are also the people who invest (treating the bank as a safe deposit), but to the extent that the banks, by mobilizing savings, channel investible surplus from net savers to net borrowers, they perform a heretofore unperformed activity—and therein lies another possible source of coordination failure.

However, most rural banks suffer from a very high rate of default in loan repayment, which has caused most of these banks to go in the red; sometimes their default rate is so high that their entire net worth has been wiped off (Mosley, 1996). Yet none of these banks have been shut down as they continue to mobilize

impressive amounts of savings. Thus, while on the one hand they continue to lose sometimes up to 85% of their advances in defaults, they also continue to mobilize substantial amounts of savings. This situation would not have been possible without the state standing behind them to write off all bad debt and continue to subsidize rural credit. If these banks had to depend for their viability entirely on their deposits and profitable advances, most of them would have long since gone under—or else they would have had to take on some of the features of the more successful rural banks, that is, higher rate of interest, higher administration expenditure on collection, higher incentive for repayment, etc. That they continue to exist with continuous loss-making subsidized credit advances opens up another possibility of coordination failure

What Is a Coordination Failure?

Coordination failures are situations in which agents fail to coordinate their decisions to arrive at a mutually beneficial state of affairs. This failure to coordinate occurs because under the current state of affairs, no individual agent has the incentive to make a decision that would bring all of them to a better state of affairs. On the other hand, if all of them made the decision simultaneously, a better state of affairs would result. Thus in a given situation, “while the rate of return to coordinated investment may be extremely high, the rate of return to individual investment may be low” (Rodrik, 1995, p. 78). At a given level of capital stock it may not be meaningful to talk about marginal productivity of capital, since the marginal productivity of capital at a certain level of stock now has a range of values that depends on the level of coordination in the rest of the economy. Instead of working with a continuum of coordination possibilities, we will think of a discrete number of coordination possibilities.

The classic case of coordination failure was that of demand externality. Underdeveloped countries are underdeveloped because of small markets for goods, so no single sector can

expand their output. However, if all sectors expanded output simultaneously, they would create demand for each other and thus make viable the higher level of output in all sectors. The fact that the economy could simultaneously sustain more than one equilibria, that they could be ranked, and that when the economy is trapped in the low equilibrium, no agent independently has the incentive to move to the higher equilibrium, whereas a coordinated movement would lift the economy to the higher equilibria—all characterize the existence of coordination failure.

Discussion

The low rates of interest charged by rural banks results in excess demand, and because the rates of interest are fixed, into rationing (Braverman & Guasch, 1989). Since only relatively rich people can provide the collateral, the poor are rationed out. People whose loan demand is not satisfied then turn to the moneylender, whose rate of interest further rises in response to this excess demand.

Thus we have two rates of interest in the rural sector: r charged by the bank, and R charged by the moneylender (R is greater than r). This means that there is a whole range of economic opportunities which promise an expected rate of return between r and R and which are not undertaken for lack of funds.

The rural bank suffers from three problems in its lending activity: it may choose wrong projects to fund because of inadequate information (adverse selection), its employees may cheat the bank by deliberately choosing wrong projects (moral hazard) for private gain, or employees may not have enough incentive to enforce repayment.

It is important to realize that the fact that the rural bank has a high default rate is not just a matter of public sector inefficiency. A private sector monopoly would also suffer from similar defaults even if it covered costs by charging higher interest. So merely allowing the rural bank to charge a higher rate of interest may allow it to cover costs, but it will

leave the essential problem of information asymmetry unaddressed and thus leave the inefficiency aspects unresolved.

Hypothesis: We claim that the fact that rural banks mobilize an amount of savings that is more than what it disburses, combined with the general shortage of credit availability (as seen when private moneylenders not only charge a higher rate of interest but also have a low level of default), suggests the presence of coordination failure. Suitable policy design can lead to a higher share of rural savings going to rural investment.

It must be pointed out that this coordination failure is not policy-induced. In the absence of government intervention, the equilibrium is unique to low savings and low investment.

Analysis

In Figures 1 and 2 we show the time profile of the formal and informal sector credit availability. We see that what is true at one point of time is not true over a period of time. Consider first Figure 1. Here the interest rate in the formal sector is set at less than the break-even rate; i.e., the formal sector banking is subsidized. While it may be advantageous to the rural sector in the short run, we see that the loan availability itself goes down over the long run because the system is not generating surplus. And as the formal sector loan availability goes down, the availability goes up in the informal sector because of the surplus generated in the sector. On the other hand, in Figure 2 the formal sector interest rate is set at or above the break-even rate. Here we see that in the short run, while the rural sector has to bear a higher rate of interest, in the long run this makes for a higher loan availability in the rural sector. Thus subsidy, if not supported from the outside, does not automatically benefit the target group. In the current scenario of economic reforms and fiscal austerity, where all sorts of subsidies are being pruned (in the annual budget of the Government of India in 1997–98, the subsidy was sought to be brought down by half), it is important to recognize these facts.

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In Figure 3a and Figure 3b we show the same phenomenon in terms of its impact not on the volume of loan availability but on the rate of interest. Consider first Figure 3a. The formal sector supply curve is perfectly elastic at the rate of interest r_0 , which is less than the break-even rate and also the market clearing equilibrium rate. The corresponding situation in the informal sector (Figure 3b) shows a comparatively inelastic supply curve intersecting the demand curve at a higher rate of interest. In Figure 4a we begin in the formal sector with the surplus generating rate of interest r_3 . This, over time, shifts the supply curve to the right, and the market clearing rate of interest keeps on falling. The corresponding story in the informal sector (Figure 4b) is that as loan availability increases in the formal sector, fewer and fewer people are required to resort to the informal sector, so that the demand curve keeps on shifting leftwards and downwards because of which the rate of interest in the informal sector keeps on falling. In Figures 5a, 5b, and 5c we bring the insights of the above two to generate the possibility of coordination failure.

In Figure 5a the backward bending curve shows that the investment in the formal sector first increases with the rate of interest and then declines. This is because as the formal sector rate of interest rises, loan availability increases; and as the shorter side of the market rules in disequilibrium (i.e., the formal sector has excess demand at the going rate of interest) total investment made out of borrowings from the formal sector increases. But this happens only up to a point, after which the higher rate of interest compares poorly with the expected rate of return and the investment demand goes down. Figure 5b has the same investment curve as in Figure 5a but it has a savings curve imposed on it. The savings curve completely overlaps the investment curve up to the point at which the investment curve starts bending backwards. This is because up to this point, the savings-investment market was in disequilibrium, and the law of the shorter side ruling meant that equality would hold.

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But after a point, while savings continue to rise with the rate of interest, investment does not. Finally in Figure 5c we show that in a situation in which both the investment and savings curves are upward sloping, this could generate multiple equilibria and thus possibilities of coordination failure. In the next section we see what policy measures this might call for.

Let us now introduce another source of coordination failure, that of moral hazard originating in imperfect information.

In the rural credit market the nature of coordination failure is as follows: From the same total amount of savings mobilized, two different levels of economic activity become feasible: one in which most of the loan is dispersed by the formal sector, which has very poor access to information and thus works with poor screening, monitoring, and enforcement, and most of the loan (as much as 85%) ends up in bad debt; and another, in which

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most of the loan is routed through private agents with excellent local information, who charge higher rates of interest to procure this information, and the level of default is low. (Indeed, this fact has recently been recognized in a policy paper of the Reserve Bank of India, which has asked the rural banks to give loans to self-help groups.) The fact that from the same level of aggregate rural savings we can generate two different levels of entrepreneurship suggests the presence of coordination failure possibilities. The basis of this coordination failure is in the imperfect-information nature of rural credit market—procuring information and transacting in small amounts is costly, and higher rates of interest are required to cover this cost.

Thus if from the same level of aggregate savings we can generate two different equilibria of rate of interest, we would have demonstrated another example of coordination failure. Consider now Figure 6, which shows comparison of capabilities in savings mobilization and productive investment between the public sector rural bank and the moneylender (in this generic term we include other private agents, such as traders, etc.).

	I \ S		
		Rural Bank	Moneylender
Rural Bank		I High Savings Poor Quality Investment	II Poor Savings Poor Quality Investment
Moneylender		III High Savings High Quality Investment	IV Poor Savings High Quality Investment

Figure 6. A comparison of saving and investment capabilities of banks and moneylenders. While banks are good in saving mobilization, the moneylenders are not. The opposite is true in investment.

Box I shows a situation in which both the savings mobilization as well as investment decision are made by the rural bank. We claim that this will result in high savings but poor quality of investment, for the above-mentioned reasons. Box II shows savings mobilization through the moneylender and investment decision by the bank. This is the worst-case scenario, in which both the activities are performed at the low level. This is because moneylenders are poor mobilizers of savings, and banks are poor at determining the productivity of loans. Box III is the best of all possible worlds: where banks mobilize savings and lend them for investment through some private route, such as agents. (This system is already in use in Indonesia. There, moneylenders have been co-opted into the microfinance program. Thus banks give loans to moneylenders, who pass them on to the end users. The moneylenders charge a higher rate of interest than what they pay to the bank, but they also absorb all risk of default (see Mosley & Hulme, 1996, vol. I, p. 74). Finally, in Box IV, moneylenders mobilize savings as well as decide on investment; this gives a low rate of savings mobilization and a high productivity of investment. The Indian rural credit market exists in part in Box I and in part in Box IV. The desired change is in the direction of Box III: already some distance has been travelled in that direction as the banks have started giving loans to self-help groups, with joint liability for repayment and excellent results. Reserve Bank of India estimates that the repayment rate among these self-help groups is close to 100%.

Empirical Evidence

The evidence of the claim that at higher rates of interest, both savings and investments go up comes from diverse countries. In almost all countries, with the coming into prominence of microfinance institutions, the rate of interest charged on loans by the nonmoneylender agencies has gone up, and so has the level of savings and investment.

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At a theoretical level, evidence that with the arrival of MFIs, both savings and investment go up at a higher rate of interest is trivial. Since these institutions are surviving, are mobilizing savings, and are giving credit, they are increasing the volume of investment taking place in the rural sector. However, both with regard to net investment and with regard to average rate of interest (which takes into account the change in the rate of interest of the moneylenders, with the arrival of the MFIs), one has to take into account what is happening in other parts of the rural financial sector. As for net investment, the productive investment component of MFI's credit does not substitute for the moneylender's loan, since moneylenders' loans are mostly for consumption purposes. Can we still claim that with the arrival of MFIs the average rate of interest has gone up? Though there is evidence to the contrary (the moneylenders reduce their rate of interest with the coming of the MFIs; see Mosley & Hulme, 1996, vol.II, p. 23), we compare that rate of interest which is relevant to productive investment. Here, the only relevant rate of interest to compare with is the bank rate of interest, since banks are the only alternative source of finance for investment expenditures in the rural sector. Since rural banks have not lowered the rate of interest at which they lend, the average rate of interest for loans for investment purposes has unambiguously gone up.

Since 1983 the Indonesian government has allowed, and Indonesian financial institutions have taken advantage of, freedom to set their own interest rates. . . . In the BKK and the KURK systems there are a variety of loan models, . . . and the nominal monthly interest rates from 2 percent to 4.8 percent. . . . The effective rates resulting from the variegated menu offered by the BKKs and KURKs range from 26 percent to 130 percent. . . . All the institutions studied here have charged highly positive rates of interest. (Mosley & Hulme, 1996, vol. II, p. 41)

In Indonesia, “real interest rates on normal savings deposits increased from 5.26% in 1982 to 10.7% in 1985, and nationally savings deposits more than tripled over those same three years” (Mosley & Hulme, 1996, vol. II, p. 34).

“The BRI voluntary savings schemes have succeeded beyond all expectations, and as of December 1993 they have just over 7 million savers and have accumulated Rp. 957 billion in client savings” (Mosley & Hulme, 1996, vol. II, p. 43).

During the same period, loans for investment increased from an average of \$199 in 1986 to \$625 in 1992 (Mosley & Hulme, 1996, vol. II, p. 48).

In the case of PRODEM/BancoSol, the number of new borrowers increased from 1737 in 1987 to 15,300 in 1994, just as the average loan size increased from \$92 to \$361 (Mosley & Hulme, 1996, vol. II, p. 7) The amount disbursed increased from \$462,000 in 1987 to \$24.7 million in 1993. During the same period, the value of savings increased from zero in 1987 to over \$3 million in 1994. All this took place at an annual rate of interest of 60% per year (Mosley & Hulme, 1996, vol. II, p. 5).

In Sri Lanka, with the formation of thrift and credit cooperatives, total deposits increased from \$5.5 million in 1981 to \$13.5 million in 1992, just as total loans disbursed increased from \$3.3 million in 1981 to \$5.5 million in 1992. SANASA’s savings mobilized went up from Rs. 418 million in 1989 to Rs. 696.8 million in 1992, whereas its advances went up from Rs. 416 million in 1989 to Rs. 715 million in 1992 (Mosley and Hulme, 1996, vol. II, p. 228). During the same period, SANASA’s (1992) rate of interest ranged between 20% and 80% per year.

Policy

The solution to the problem of credit constraints in rural activities lies not in greater resource mobilization but in innovation in institutional design, since the problem lies in the delivery of credit rather than in the size of aggregate savings. We have already identified the institution as the self-help group, an

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association of poor people who save and borrow collectively; peer monitoring ensures a high rate of repayment of loan. In Figure 7 as we replace money lenders with self help groups, we move to Box III where savings are mobilized by the bank but the investment decision is made by the self help group. This results both in high savings and high quality investment.

I \ S		Rural Bank	Self-help Group
		Rural Bank	Self-help Group
I \ S	Rural Bank	I High Savings Poor Quality Investment	II High Savings Poor Quality Investment
	Self-help Group	III High Savings High Quality Investment	IV High Savings High Quality Investment

Figure 7. Policy innovation replaces moneylender with self-help groups. This is a Pareto improvement over the earlier situation since we now have both high savings and more productive investment.

What is clear at the outset is that withdrawal from rural banking because of losses incurred is undesirable. This is because even if there were no defaults, the break-even rate of interest would still have to be twice the rate currently charged. Thus the losses were, so to speak, planned losses. Indeed, the coordination failure possibilities in the rural credit market arise precisely because of the existence of public-sector rural banking. If there were no public-sector rural banks (PSRB), and the field were left entirely to moneylenders, there would be no coordination failure: this is because in the absence of a financial intermediary (no private-sector bank wishes to open branches in the rural sector, as is evidenced by records before bank nationalization), savings would not be mobilized from the public (the moneylenders do not have the authority to mobilize

savings, and in any case they lack credibility), and we are locked into the low equilibrium, where the moneylender lends from his own savings. The amount lent and borrowed would be very small and at a very high rate of interest. This would be a unique equilibrium, and the economy would be trapped in it, since there would be nowhere else to go. However, with the presence of the public sector rural banks (PSRB), the whole situation changes. This is precisely because of the ability of the public sector banks to mobilize savings. Even loss-making public sector banks thus open possibilities of multiple equilibria. The aim of rural banking should be to maximize this saving mobilization and channel it to the most productive investment in the rural sector over the long run. This means that the rate of interest chosen should be the surplus-generating rate of interest, and in the limiting case, even the market-clearing equilibrium rate of interest. However, the rate of interest is not the only instrument available with the bank. The other instruments are

- Increased expenditure on loan collection
- Increased incentive on loan repayment
- Increased disincentive on default, in the form of lending to groups that have peer monitoring

All these will lead to the attainments of the higher equilibrium and provide for a higher rate of investment in the rural sector.

What is the coordination task of the state? The task required is precisely to mobilize the savings and channel it to productive investment. This leads the economy to a higher-level equilibrium, compared to the situation in which the state does not intervene. This intervention need not generate loss. Note, however, that even if the system generates loss, so long as it generates an amount of savings from the rural sector that is greater than what it lends to the rural sector, it may even be worthwhile to maintain the loss-making banking system: this would depend on how the loss generated on the mobilization of

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the marginal rupee of savings compares with the productivity of the marginal rupee in the rural or urban sector.

Conclusion

We have seen that the presence of subsidized credit by the public sector banks in the rural credit market creates a possibility of multiple equilibria with respect to the rate of interest. This means that when the public-sector rural banks charge low rate of interest on their loans, they create conditions of excess demand and thus of rationing. Charging a market-clearing (as well as surplus-generating) rate of interest results in a rise in both the savings and the investment levels in the rural sector, as evidenced by numerous examples. Further, the higher rate of interest charged by the public sector rural bank is still much lower than what the moneylenders would charge the rationed out loanees in the rural sector.

Notes

Numerous studies (e.g., Mosley, P. & Hulme, D. (1996) *ibid.* Vol II Tables 12.13 and 13.7) show that the economically viable rate of interest in the Indian public-sector rural banks is between 24% and 36% per annum. While this is more than double the current rate of interest at 14% per annum, it is considerably less than 5% per month that the moneylenders usually charge. At a simple rate of interest, it turns out to be 60% per year.

References

- Bardhan, P. K. (Ed.). (1989). *The economic theory of agrarian institutions*. Oxford: Clarendon.
- Braverman, A. and Guasch, J.L. (1989) In P. K. Bardhan. (Ed.) *The economic theory of agrarian institutions*, (pp 340–355). Oxford: Clarendon.
- Cooper, R & John, A. (1988) Coordinating coordination failures in Keynesian models. *Quarterly Journal of Economics* 103 (3).
- Eswaran, M. & Kotwal, A. (1989) Credit and Agrarian Class Structure in Bardhan, P.K. (Ed.) *Economic theory of agrarian institutions*, (pp. 166–184). Oxford: Oxford University Press.
- Mosley, P. and Hulme, D.(Eds.) (1996). *Finance against poverty*, vols. I & II. London: Routledge.

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- Mosley, P. (1996). The regional rural bank in P. Mosley, & D. Hulme, (Eds.) *Finance against poverty*, vol. II. (p. 246). London: Routledge.
- Rodrik, D. (1995). Getting interventions right: How Taiwan and S. Korea grew rich, *Economic Policy* 20.
- Shleifer, A.,Murphy,K.M. and Vishny,R.W. (1989) Industrialization and the big push *Journal of Political Economy* 97 (5); 1003–1026.