

# Small Business Finance – Implication of Delay in Formal Sector

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## Abstract

The small business finance is characterized by the existence of formal and informal credit market. This paper looks at the operation of formal and informal credit market in terms of a model. It first considers the hierarchical structure of the formal lending sector and shows emergence of delay in loan disposal as a pooling equilibrium among all types of officials. The paper then presents the loan negotiation process in the formal sector as one of bargaining and uses the results of Rubinstein's bargaining game. It is shown that in the context of this game, the possibility of delay in the settlement of the loan negotiation can induce some of the borrowers to leave the formal credit market and go to the informal market. This explains the coexistence of both types of credit market. The paper therefore has the policy conclusion that the formal sector should look at the behavioral aspects of the loan officials and design policies that can prompt the officials to reduce the time span of loan settlement process for small business finance. Moreover, given the different nature of the formal and informal market, the policy on formal sector should focus on supplementing rather than supplanting the informal market.

**Keywords:** Small business finance, Formal & informal credit, Rubinstein's game

JEL Code: D53, G21

## 1. Introduction

The small business enterprises are significant contributor to GDP and important source of employment in every economy including the developed countries. Table 1 and 2 give an idea about the importance of small manufacturing enterprises in a few select countries. These tables show that both in developed and less developed countries, small sector is very important. In less developed countries tiny informal sector occupies an important position and contributes a significant percentage to the Gross Domestic Product. The financing pattern of small firms is therefore an important issue for its serious policy and resource implications. It is widely believed that small firms have inadequate access to formal finance in developing countries as a result of market imperfections. It is therefore often recommended that there should be subsidized institutional finance for small-scale enterprises. World Bank also approves of SME (small manufacturing enterprises) support programs.

It is often pointed out that the formal credit sector is usually loath in lending to small business. A few reasons are cited to explain this.

- 1) Lending to small business has scale problem. The cost of monitoring per unit of money lent is much higher in small business than in large business.
- 2) The lender considers lending to small business riskier, since the uncertainty of small business and the chance of their going broke is much higher than that of the large business.
- 3) The sanctioning of small lending is done at the lower echelon of management who are often more risk-averse than the higher management, which sanctions large loans.

On account of these problems, the formal sector while sanctioning loan for small business insists for collateral security from the borrowers. Since the loan amount is small, it is possible to cover the loan with collateral, although the realization of the collateral may not be always easy for various reasons. The demand for collateral, delay in loan processing, lackadaisical attitude towards sanctioning loan on the part of bank management often prompt some borrowers to depend on informal credit market for borrowing and therefore two types of loan market-formal and informal exist side by side for small business finance.

Formal sector believes in threadbare appraisal of loan projects, verification of three Cs namely character, competence and capacity. It also depends on the formal recovery system, which means the realization of defaulted loan proceeds from the collaterals through legal process. Obviously this process is costly. The formal sector charges standardized rate of interest and there is minor variation in interest rate charged to different borrowers. In contrast, the informal lending sector often does not rely on formal contract but on relational contract. They do not depend on collateral for recovery of loans. They lend on the basis of past reputation and the overall financial solvency of the borrowers. They

have some extra legal measures at their disposal that can help in keeping the amount of default minimum and so their mode of business does not depend on collateral so much. Their objective is to maximize the interest earning on money lent and therefore they discriminate from borrowers to borrowers.

Several problems, like high cost of legal action, difficulties in taking possession and liquidation of collaterals often make the collateral a worthless contract enforcement instrument in many developing countries. In a theoretical model, Fafchamps (2002) shows how informal credit markets emerge from relational contracting and how trust and reputation alone can sustain them. Fudenberg and Tirole (1991) also discuss extensively how reputation effects can be used to police long-term contract relationships. So it may not be that much surprising to find out that the informal sector does not depend on collateral.

There is a huge literature on the rural credit and credit to small business. Among the recent publications we should mention World Bank Report (2010) on "Doing Business, 2010" and ILO Report (2009) on micro, medium and small enterprises, which contain good summary of the problems faced by small enterprises in a period of economic crisis. Beck & Kunt (2006) show how financing constraint creates hurdle for the growth of small scale business. Ayyagari et al (2005) show the importance of SMEs in all types of economies with cross country survey. Berger & Udell (2005) present a conceptual framework for streamlining small scale finance. However, banks often look at the financing of small sector as a risky proposition and literature has focused on this aspect as well. Ghosh and Ray (2001) study the problem of loan enforcement in an informal credit market with limited information flow. Hoff & Stiglitz (1998) argue that repayment in small business is assured through a combination of private collection efforts and the threat of reputational loss of the borrower in case of default. Ghosh, Mukherji & Ray (2001) consider issues of credit rationing. Ray (2002) and Basu (2002) give nice summary of various issues relating to rural credit. Nkurunziza (2005) discusses the issue of reputation and credit without collateral in Africa's informal banking. We in this paper also model the formal and informal sector to explain the coexistence of the two but we put forward the argument that delay in settlement of loan proposals of small sector by the financing agencies can be the main reason for this coexistence. Thus in this paper we shall show the following.

- 1) Delay in sanction of loans in formal sector is endogenous i.e. inherent in the system.
- 2) Because of the delay, in the equilibrium of formal sector, loan negotiation succeeds only for a fraction of the total number of applicants.
- 3) For the formal sector lender there is an upward rising relation between collateral mark-up and loan amount while for the borrower there is an inverse relation between the two.
- 4) Since the issue of loan negotiation becomes a one to one affair, the situation is one of bilateral monopoly and bargaining. Using the result of Rubinstein bargaining game it is shown that the borrowers who are more impatient leave the formal market.
- 5) The informal market maximizes rate of interest. So they will charge a higher rate of interest than the formal sector but still they get those borrowers who are restless in getting credit.
- 6) Hence coexistence of formal and informal market is the equilibrium with higher rate of interest but lower collateral in the informal market.

In what follows we present the behavior pattern of the formal and informal credit market in section I. In section II we consider the game and reach the results. The paper ends with policy conclusions.

## 2. Model

A borrower wants a loan ( $L$ ) to meet his working capital need. The revenue, net of the loan amount depends on the loan and we assume a twice continuously differentiable production function given by  $R(L)$ . We impose familiar restrictions on the revenue function:

$$R(.) \geq 0 \quad R'(. ) > 0, R''(. ) < 0$$

We assume that only borrowers have knowledge of this revenue function and not lenders. Formal sector lender gets fund at the constant rate of  $i_F$ , which it lends at a constant standardized rate of  $r_F$ .  $r_F > i_F$ .

The informal sector also gets fund at the rate  $i_I$  and lends at a rate  $r_I$ . This  $i_I$  however is not fixed and increases as the informal sector collects more funds. Taking that into account, the informal lender sets the  $r_I$  at the profit maximizing level. The informal sector does not insist on collateral, as it can recover its dues from the borrower by some extra legal power.

2.1 Formal credit market

In this part of the analysis, we show that there is bargaining over collateral between the lender and prospective borrower of the formal credit market. We establish the following lemma.

Lemma 1: *For lender, demand for collateral as a percentage of loans is positively related with loan size while for borrower this relation is inverse. The equilibrium collateral is determined by bargaining and loan is sanctioned only in case of mutual agreement.*

Proof: The profit function of the lender in the formal credit market is given by

$$\pi_L^F = \alpha r_F L - i_F L + (1 - \alpha)[\gamma \beta_L L - c(L)] \dots \dots \dots (1)$$

where  $\alpha$  is the probability of success of the project and recovery of interest,  $\beta_L$  is the mark up of collateral over the loan amount,  $\gamma$  is the proportion of collateral recovered.  $c$  is the cost of recovery of the collateral.  $c$  is positively related with  $L$  and this cost is increasing. We assume that bigger the loan, it is increasingly costly to recover the loan.  $c'(L) > 0, c''(L) > 0$ .

Solving from the first order optimization condition we get

$$\beta_L = \frac{i_F - \alpha r_F}{\gamma(1 - \alpha)(1 - c'(L))} \dots \dots \dots (2)$$

$$\frac{d\beta_L}{d\alpha} = \frac{-\gamma(1 - c'(L))(r_F - i_F)}{(\gamma(1 - \alpha)(1 - c'(L)))^2} < 0 \dots \dots \dots (3)$$

$$\frac{d\beta_L}{dL} = \frac{\gamma(1 - \alpha)c''(L)(i_F - \alpha r_F)}{(\gamma(1 - \alpha)(1 - c'(L)))^2} > 0 \dots \dots \dots (4)$$

We assume  $i_F - r_F < 0$  but  $i_F - \alpha r_F > 0$ , given that the lender of formal sector considers  $\alpha$  to be very small. The above result shows the amount of collateral demanded is positively related to cost of fund  $i_F$ .

Equation (3) shows that the amount of collateral demanded is negatively related with chance of success ( $\alpha$ ) and chance of recovery of collateral  $\gamma$ . Given these parameters, we get a positive relation between  $\beta_L$  and  $L$ , as shown by equation (4). Higher the loan amount the lender demands proportionately higher collateral.

Let us now consider the pay-off function of the borrower.

$$\pi_B^F = h(R(L) - rL) - (1 - h)(\gamma \beta_B L) \dots \dots \dots (5)$$

where  $h$  is the subjective probability of the borrower regarding success of the project.  $R$  is the revenue from the project, executed with the loan,  $\beta_B$  is the collateral mark up that the borrower is willing to offer and  $\gamma$  is the proportion of collateral to be recovered. For simplicity we assume that this  $\gamma$  is same for borrower and lender.

Solving from first order condition we get

$$\beta_B = \frac{hR'(L) - hr}{(1 - h)\gamma} \dots \dots \dots (6)$$

$$\frac{d\beta_B}{dL} = \frac{hR''(L)}{((1 - h)\gamma)^2} < 0 \dots \dots \dots (7)$$

$\beta_B$  is negatively related to  $L$ , given the parameters. The borrower wants to offer lower collateral mark up, higher is the loan amount. A successful negotiation requires that  $\beta_B \geq \beta_L$  for a given loan. •

We can derive from equation (4) and equation (7) in  $\beta - L$  plane the lender's supply curve of loans and borrower's demand curves for loan respectively. As derived the supply curve is upward rising and the demand curve is downward sloping. We further assume that the project requires a minimum amount of loans for which the demand curve starts only from a finite level of loans. But they are for the individual buyer and lender and as such the

auctioneer solution of Walrasian market cannot apply here. It will be a one to one negotiation. So the appropriate framework is the bilateral monopoly where we apply the Rubinstein’s game. Bilateral monopoly is a two-person game whose sum i.e. the surplus is positive if the players reach an agreement on its division. Otherwise the sum is zero. It is always in the immediate interest of either player to reach some agreement rather than none, provided that the share of the surplus allocated to him is greater than zero--the amount he gets if there is no agreement. So the division of the surplus appears indeterminate. But even if one play of negotiation fails there can be next round of negotiation. However each delay to thrash out a settlement, leads to some loss for the impatient players. In this scenario Rubinstein’s game shows that the game converges instantly to Nash equilibrium (Osborne, 2004). If there is scope for renegotiation the player will not come to any settlement unless they think the share is reasonable.

In this game of negotiation between lender and borrower, we introduce the existence of an outside option for the borrower, i.e. the informal credit market and also a rule imposed from the top on the negotiator of the formal sector. The existence of this outside option and the imposed rule may lead to non-observance of Nash solution in the Rubinstein’s game and break down of negotiation for some borrowers.

2.2 Informal credit market

We assume that the informal sector is fund constrained and the cost of fund rises at an increasing rate with amount of loan. We further assume that lender has complete information about borrower’s demand for loans.

Lemma 2: *In the informal credit market lender sets the profit maximizing rate of interest, taking the borrower’s demand into account.*

Proof: The informal credit lender has the following profit function

$$\pi_l^I = gr_lL - i(L)L \dots \dots \dots (8) \text{ where } i \text{ means } i_l \text{ and } g \text{ represents probability of getting the interest. } g \leq 1.$$

The optimizing conditions are

$$\frac{d\pi_l^I}{dL} = gr_l - i - i'L = 0 \quad \frac{d^2\pi_l^I}{dL^2} = -2i' - i''L < 0. \quad i'' > 0$$

$$r_l^* = \frac{i + i'L}{g} > 0 \quad \frac{dr_l^*}{dL} = \frac{i'}{g} > 0 \dots \dots \dots (9)$$

This shows that from the viewpoint of lender there is a positive relation between  $r$  and loan amount.

Let us now consider the profit function of the borrower.

$$\pi_b^I = hR(L) - r_lL \dots \dots \dots (10)$$

where  $R(L)$  is the revenue net of loan amount.

From the optimizing conditions we get

$$r_l = hR'(L) \dots \dots \dots (11)$$

$r_l$  is negatively related to  $L$ , given that  $R''(L) < 0$ .

The informal lender takes this demand function into account and maximizes the following.

$$\pi_l^I = hR'(L)L - i(L)L \dots \dots \dots (12)$$

$$\frac{d\pi_l^I}{dL} = hR'(L) + hR''(L)L - i'L - i = 0$$

This solves a particular  $L$  and a particular  $r_l$ . Corresponding to that the borrower gets a particular expected profit  $\pi_b^I^*$ .

Thus in the informal credit market we consider a monopoly behavior of the creditor. The lender takes the demand function of the borrower in to account and sets particular  $r$ . So the borrower gets a particular expected profit level in case he joins the informal credit sector.

3. The Game:

We consider now the game of the model

First, a game is played between the higher echelon and lower level management of the formal credit sector. Thereafter, the lender in the formal credit market bargains over the amount and collateral of the loan with the borrower on the basis of whatever transpires in the first game.

We make the following assumptions in this game.

- 1) Formal sector plays rule –based maximization and this rule is instructed from top. Here we assume, without any loss of generality that this rule is the solution of Rubinstein game, which the authority asks the agents to follow and the agents adhere to them. This game implies that delay in bargaining imposes some cost on the negotiators and thus a Nash equilibrium is reached. The use of such rule-based decision is justified in the context of organizational behavior literature and in agency theory. Moreover various surveys show how rules are still widely used in practice in corporate finance (Graham and Harvey, 2001). In divisionalized companies, managers mostly implement decisions of the headquarters and in this bargaining process, there is limited role for case-by-case maximization.
- 2) Formal sector and informal sector are compartmentalized and one sector does not compete with the other. But the borrower can switch from one sector to the other.
- 3) Patience level of the bank and the borrower differs. Formal sector has no hurry in settling the loan matter and therefore  $\delta_L$  is close to 1. Some borrowers on the other hand are impatient and therefore their  $\delta_B$  is close to 0.
- 4) Formal sector knows the patience level of the borrower. So it considers the actual  $\delta_B$  for a particular borrower. But the bank does not consider the outside option available in the informal credit market for the borrower. So for some borrowers equilibrium is reached and for some other the negotiation breaks down. The borrowers for whom equilibrium is reached stick to the formal sector.
- 5) Each borrower approaches the formal sector first but if he observes that the pay off in the formal sector falls below that of the informal sector, it moves to the informal sector.

### 3.1 First stage game

Since the formal sector has a hierarchical structure of management, first there is a game between top management and the lower management over sanction of loan. It is a principal agent game. The top management is the principal, which has the objective of keeping corruption and the non-performing asset within limit at the lower level. The agent i.e. the lower management has to give signal that it is serious in its loan appraisal and there is no foul play in sanction of the loan. Delay in loan sanction is a signal to establish that the agent is serious in its loan appraisal.

We make the following assumptions in this game between top and lower management.

- 1) The pay off of the top management depends on whether the loan is good or bad. Good loan prospect gives positive expected utility to the management while bad loan gives negative utility.
- 2) If the loan is good, promptitude in clearing loan proposal gives higher pay off to the top management. Opposite happens in case of bad loans i.e. if a loan is hurriedly sanctioned and then gets bad, the loss of utility is more than the case where loan is sanctioned with time. The logic is that in case of quickly sanctioned bad loans, there is an additional bad feeling that perhaps the predicament of bad loan could have been avoided with little more time taken for appraisal.
- 3) In case of loan going bad, some punishment is inflicted on the lower management, irrespective of the efficiency of the officer concerned. The thinking of the top management in this regard is that in the absence of punishment for bad loans, quality of loans would decline beyond redemption.
- 4) Punishment, however small, affects the employee severely and no reward can compensate the employee in this regard i.e.  $R - P < 0$ .
- 5) Top management can provide a reward system for promptitude. However punishment in case of bad loans has to be more in case of promptitude. Thus speedy disposal increases the amount of reward in case of loan being good, but also increases the degree of punishment in case of loan going bad.
- 6) The organization has two types of officers, competent and incompetent but there is no recorded distinction between these two types of officials.
- 7) We assume that the chance of success of a loan rises with more time taken for appraisal but for competent officials this rises at faster rate.

The above distinction mentioned in 7 could have made it possible to get a separating equilibrium with competent officer taking less time than the incompetent one, but existence of punishment only makes pooling equilibrium possible at the highest possible time.

**Proposition 1:** *Given our assumption that punishment matters a lot there will only be pooling equilibrium where both types of officers take maximum time in loan disposal and knowing that kind of equilibrium behavior, management does not reward promptitude in loan sanction.*

**Proof:**

We use the following notation.

$\alpha_C$  = Probability of loan being good when dealt with by competent officer.

$\alpha_{IC}$  = Probability of loan being good when dealt with by incompetent officer.

$\alpha_C$  and  $\alpha_{IC}$  are positively related with  $t$  where  $t$  is the time taken for loan sanction.

$\alpha_C(t_0) > \alpha_{IC}(t_0)$  i.e. given the time chance of loan being good is more if it is handled by competent person. Also  $\alpha'_C(t) > \alpha'_{IC}(t)$

The pay off of top management is

$U_M = b(A-t)$  where  $b = 1$  when loan is good and  $b = -1$  when loan is bad.

$a$  = Chance of loan being handled by competent persons.

Given that management has no information about  $a$  it assumes  $a = 1/2$

So we get

$$U_M = \frac{1}{2}[(2\alpha_C - 1)(A-t)] + \frac{1}{2}[(2\alpha_{IC} - 1)(A-t)] \dots \dots \dots (13)$$

At least one between  $\alpha_C$  and  $\alpha_{IC}$  should be greater than  $1/2$  for  $U_M > 0$ .

$$\frac{dU_M}{dt} = 1 - \alpha_C - \alpha_{IC} + (\alpha'_C + \alpha'_{IC})(A-t)$$

$(\alpha_C + \alpha_{IC}) < 1$  is sufficient for  $\frac{dU_M}{dt} > 0$  and management being not interested in quick disposal of loans.

This happens when management has a belief that chance of success of small loan is very low.

But suppose  $U_M$  has an interior solution with  $t^* < t^{\max}$ . and to achieve this management introduces a reward – punishment system. Management believes that punishment has to be there; otherwise there will be no control over quality of loans. Then we show that both competent and incompetent official reject the reward scheme and opt for delayed disposal. The explanation of this behavior is that quick disposal makes the official much more susceptible to punishment in case loan goes bad. To avoid that catastrophe officials follow go slow practice.

Consider pay off function of two types of officials.

$$U_C = t + \alpha_C R(t) - (1 - \alpha_C)P(t)$$

where  $t$  shows the utility from procrastination.  $R$  is reward and  $R'(t) < 0$ .

$P$  is punishment and  $P'(t) < 0$  implying quick disposal of loans makes one more vulnerable to punishment, as motive can be imputed in his behaviour.

$$\text{Similarly, } U_{IC} = t + \alpha_{IC} R(t) - (1 - \alpha_{IC})P(t)$$

$$\frac{dU_C}{dt} = 1 + \alpha'_C \{R(t) + P(t)\} + \alpha_C R'(t) - (1 - \alpha_C)P'(t) \dots \dots \dots (14)$$

$$\frac{dU_{IC}}{dt} = 1 + \alpha'_{IC} \{R(t) + P(t)\} + \alpha_{IC} R'(t) - (1 - \alpha_{IC})P'(t) \dots \dots \dots (15)$$

The overwhelming influence of  $P$  and  $P'$  outweighs  $R'$  and makes (14) and (15) zero for both types. When behaviour pattern of officials is such, the management cannot offer any reward in equilibrium. •

The above analysis establishes that formal sector is most likely to be characterized by delay in loan sanction. This delay in the formal sector can now explain coexistence of formal and informal sector, as shown in the second game.

### 3.2 Second stage game

We now introduce the infinite horizon version of the bargaining game. Stahl (1972) and Rubinstein (1982) study this version of the bilateral bargaining game. The lenders and borrowers consider a discount factor  $\delta > 0$  and discounted sum of expected monetary payoffs.

Proposition 2: a) *In the set up of formal and informal sector lender as non-competing, there is equilibrium with differential interest rate despite free movement of borrowers between sectors. Delay in formal sector lending plays the main role in this regard.*

b) *In equilibrium some borrowers are served by the formal sector and some borrowers by informal sector and this segmentation depends on the patience level of the borrowers.*

Proof :a) Profits of the borrower with loan from formal and informal sector are given by

$$\pi_B^F = h(R(L) - r_F L) - (1-h)(\gamma\beta_B L)$$

$$\pi_B^I = hR(L) - r_I L$$

$\gamma\beta_B L$  is the realized value of collateral, net of loan.

Payment through collateral means higher cost on borrower although the lender may realize less amount, as the lender has to incur some cost. Thus  $\gamma\beta_B L > r_F L$ .

$$\text{Let } \gamma\beta_B L = r_F L + e$$

Suppose at some point of time of negotiation, informal credit becomes tie breaking better than formal credit and this is also the equilibrium situation.

$$\delta^t [h(R(L) - r_F L) - (1-h)(\gamma\beta_B L)] = hR(L) - r_I L$$

where  $\delta$  is the discount rate of the borrower.

Since  $\delta^t < 1$

$$h(R(L) - r_F L) - (1-h)(\beta_B \gamma L) > hR(L) - r_I L$$

$$h(R(L) - r_F L) - (1-h)(r_F L + e) > hR(L) - r_I L$$

From this we get

$$(r_I - r_F)L > (1-h)e \Rightarrow r_I > r_F. \dots\dots\dots(16) \text{ Proof of (A) ends.}$$

b) Part 1) As shown in the first stage game, formal sector delays in loan sanction i.e.  $\delta_L^* \gg 0$ . This  $\delta_L^*$  is not borrower – specific and does not consider the idiosyncratic nature of the borrowers.

b) Part 2) According to the result of the Rubinstein game, the equilibrium pay-offs for the lender and the borrower in equilibrium are:

For player 1, i.e the lender, the share is

$$s_1 = \frac{(1 - \delta_B)m}{1 - \delta_L \delta_B} \text{ where } m \text{ is the sum of gain of both lender and borrower from the loan.}$$

For player 2, i.e. the borrower the share is

$$s_2 = m - \frac{(1 - \delta_B)m}{1 - \delta_L \delta_B} = \frac{m\delta_B(1 - \delta_L)}{1 - \delta_L \delta_B}$$

If  $\delta_B$  tends to 0, entire surplus goes to the lender.

The lender makes offer on the basis of  $\delta_B$ .

Now for equilibrium, the condition is  $\frac{m\delta_B(1 - \delta_L)}{1 - \delta_L \delta_B} = m_B^I = A(\text{say})$

$$\frac{dA}{d\delta_L} = \frac{m\delta_B(\delta_B - 1)}{(1 - \delta_L \delta_B)^2} < 0 \dots\dots\dots(17)$$

Suppose formal lender settles the loan quickly i.e.  $\delta_L$  is so low such that for all n buyers

$$\frac{\pi\delta_B(1-\delta_L)}{1-\delta_L\delta_B} > \pi_B^I, \text{ the informal sector faces no demand and } r_I \text{ falls and tends towards } r_F,$$

at which some buyers switch over to informal sector.

On the other hand suppose  $\delta_L$  is so close to 1 that for all n borrowers

$$\frac{\pi\delta_B(1-\delta_L)}{1-\delta_L\delta_B} > \pi_B^I. \text{ Every borrower goes to informal sector. Then } r_I \text{ rises and } \pi_B^I \text{ falls.}$$

Again some borrowers move to the formal sector.

There exists a Nash equilibrium for  $\delta_L^*$  and  $r_I^*$ . Higher is the delay in the formal sector, higher will be the rate of interest in the informal sector.

Now if for 1...k borrowers  $\delta_B^1 < \delta_B^2 < \dots < \delta_B^k < \delta_B^{k+1} < \dots < \delta_B^n$ . Let  $\frac{\pi\delta_B^k(1-\delta_L)}{1-\delta_L\delta_B^k} = \pi_B^I$ .

Then k borrowers, who are relatively impatient go to the informal sector and  $n-k$  patient borrowers remain in the formal sector. •

We can provide an economic explanation of the above result. In our case the formal sector lending official is highly patient by his urge to signal seriousness in credit appraisal, while the borrowers vary in their degree of patience. In general we can hold that even the most patient borrower is less patient than the lender and then we get that  $\delta_L > \delta_B$ . for all borrowers. Then the borrower who remains in the formal sector gets a lower pay off than the lender. But the borrowers have outside option, which they compare with the options in the formal sector.

The borrower for whom  $\delta_B$  is such that  $\pi_B^I > \frac{\pi\delta_B(1-\delta_L)}{1-\delta_L\delta_B}$  switches over to informal credit sector. For the

borrower whose  $\delta_B$  is large, this inequality is reversed. These borrowers remain in the formal sector. So delay in sanctioning of loan determines the choice of the borrower between formal and informal sector.

The above scenario can also throw useful light on the quality of formal credit. A bad borrower can show extreme patience for sanction of the loans while a good borrower is likely to be impatient. Hence there is a chance that the formal sector gets larger percentage of bad borrowers and greater problem of defaults.

The result also implies that subsidized credit may not solve the problem of small borrowers. A borrower who needs a loan urgently, perhaps go to the informal sector even if the rate of interest is much higher. Further a borrower may prefer a higher interest contract than a collateral agreement. A small borrower with a good business proposition may not mind paying high interest but he may find it impossible to arrange for large collateral.

#### 4. Policy conclusions

The policy conclusions follow from the above discussion. While formal sector may need collateral, expeditious sanction of loans and avoidance of unnecessary delay may improve the quality of the loans.

There is a tendency to look at the informal credit sector with suspicion. But informal credit sector provides useful services in the credit market. It will be an improvement in efficiency if the informal credit sector is encouraged to operate freely. Many countries have too many restrictions on the informal credit market and laws are often heavily biased against informal lenders. This is the outcome of the statist policies of the 50s and 60s, pursued in many number of countries. But as our paper shows informal credit market gives significant outside option particularly when expeditious loan availability is important. Hence in the present day liberalized atmosphere, there should be a relook at the role of informal credit system.

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## Appendix

Table 1. Importance of SMEs & Informal Sector Across Countries

Country	Per capita GDP	Share of SME in manufacturing Employment	Share of SME in contribution of manufacturing in GDP	Share of informal sector to GDP
Japan	42520.01	71.70	56.42	11.1
Denmark	34576.38	68.70	56.70	13.6
Germany	30239.82	59.50	42.50	12.8
United States	28232.07	52.54	48.00	12.2
Canada	19946.50	58.58	57.20	11.75
United Kingdom	19360.55	56.42	51.45	10.4
Italy	19218.46	73.0	58.5	22.2
Korea, Rep.	10507.69	76.25	45.90	38.0
Argentina	7483.77	70.18	53.65	21.8
Brazil	4326.55	59.80		33.4
Mexico	3390.17	48.48		38.05
Thailand	2589.83	86.7		38.25
Peru	2162.12	67.90	55.50	50.95
Bulgaria	1486.74	50.01	39.29	31.25
Nigeria	256.55	16.72		76.0

Source : Small and Medium Enterprises across the Globe; Ayyagari M., Beck T. and Kunt A.D., 2005.

Table 2.

Countries	Per capita income US \$	Per capita income Growth rate (90-99)	% of manufacturing lab force in SMEs
Brazil	4,327	0.63	59.80
Cameroon	653	-1.74	20.27
Germany	30,240	1.43	70.36
Indonesia	963	3.09	79.20
Korea, Rep	10,508	5.41	78.88
Turkey	2,865	2.49	61.05
Ukraine	1,190	-7.17	5.38
United States	28,232	1.93	52.54

Source: Policy Research Working Paper 3127, World Bank, Development Research Group, Washington, D.C., 2003.