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JOINT LIABILITY LENDING AND THE PEER SELECTION EFFECT*

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We show that the joint liability lending contracts derived in Ghatak (2000) violate an *ex post* incentive-compatibility constraint which says that the amount of joint liability cannot exceed the amount of individual liability. We derive and characterise optimal separating joint liability contracts incorporating this constraint.

In a recent article in this JOURNAL Ghatak (2000) shows that joint-liability lending contracts, similar to those used by credit cooperatives and group-lending schemes, will induce endogenous peer selection in the formation of groups in a way that the instrument of joint liability can be used as a screening device to exploit this local information. The article derives a menu of optimal joint liability contracts that is able to implement the first-best allocation.

We take one of the two versions of the standard adverse selection model that Ghatak considers, namely the Stiglitz-Weiss version where safe and risky projects have the same mean returns, and make two points. First, we show that a curious feature of the optimal contract derived in Ghatak (2000) is that the amount of joint liability in the groups exceeds the amount of individual liability. This raises the problem that when one member of the group fails and the other succeeds, the latter may prefer to announce that both succeeded and pay the interest rate for both rather than paying back her own loan and paying joint liability for her partner. Second, in the light of this problem, we examine the consequences of introducing a constraint that requires that the amount of joint liability cannot exceed the amount of individual liability, which seems to be in line with what group-lending programmes do in practice. We derive and characterise optimal joint liability contracts by adding this constraint to the contracting problem. We show that even with this restriction, the result that joint liability contracts can improve repayment rates and welfare (in a Pareto sense) goes through. However, the parameter region for which joint liability dominates individual lending in terms of repayment and welfare (in a Pareto sense) shrinks if one imposes such a restriction. Moreover, while the first-best level of welfare can be achieved for risky borrowers, it can no longer be achieved for safe borrowers due to this additional constraint.

1. A Property of the Ghatak (2000) Model

Ghatak (2000) assumes that there are two types of risk neutral borrowers, who are endowed with one unit of labour and a risky investment project. The investment project requires a unit of investment. Borrowers do not have initial wealth, so they cannot self-finance their projects. A borrower decides whether to invest in the

* We thank David de Meza for detailed comments that led to significant improvements.

project and, therefore, raise funds from outside lenders, or not to undertake the project. There are two types of borrowers in the population, safe and risky, with probabilities of success p_s and p_r, respectively, where $1 > p_s > p_r > 0$. The proportion of risky borrowers equals θ. There is an opportunity cost of participation for borrowers of both types in the form of an exogenously given reservation payoff. The outcome of project j, $j = s,r$ is R_j if successful and 0 if unsuccessful. In the Stiglitz-Weiss version of the model, all projects have the same expected return, i.e., $p_sR = p_rR_r = \bar{R}$. There is a single bank which is risk neutral and is willing to lend so long as it earns an expected return ρ which is the opportunity cost of capital per loan. This is equivalent to a situation where there are many competitive banks that offer contracts that maximise the expected payoff of borrowers, subject to incentive-compatibility, limited liability and zero-profit constraints. There is asymmetric information: the bank only knows the distribution of borrowers but the probability of success of a particular borrower is private information.

In an individual liability contract, banks offer a standard limited liability debt contract at a rate of interest r. In a joint liability contract, on the other hand, in addition to a rate of interest on her own loan, a borrower has to pay a joint liability component c, if other borrowers fail when it succeeds. Ghatak (2000) shows that under a joint liability contract, borrowers would form groups that are homogeneous, i.e., there will be positive assortative matching in group formation. This follows from the fact that any borrower would prefer to have a safe borrower as a partner, since a partner's type matters only when a borrower succeeds and her partner fails. However, at the same time safe borrowers would value having a safe partner more because *ex ante* they are more likely to be in a situation where they succeed and the partner's type matters. Next he derives conditions for optimal separating joint liability contracts that achieve better outcomes than individual liability contracts.[1] While an individual liability contract may lead to underinvestment, joint liability can achieve the first-best. Below we formally state this result and then proceed with our argument.

Ghatak (2000, p. 615) shows that the solution to the optimal separating contract is given by any pair of contracts on the zero-profit equations for banks such that $r_s < \hat{r} < r_r$ and $c_r < \hat{c} < c_s$ where the liabilities on the safe and risky borrowers in the separating contracts are r_s, c_s and r_r, c_r, respectively, and where $\hat{r} = \rho(p_r + p_s - 1)/p_rp_s$ and $\hat{c} = \rho/p_rp_s$.
Necessary assumptions for a separating equilibrium to exist that achieve a better outcome than individual liability contracts are:

$$\bar{R} > \rho + \bar{u} \tag{1}$$

$$\bar{R} < \frac{p_s}{\bar{p}}\rho + \bar{u} \tag{2}$$

$$\bar{R} > \rho\left(1 + \frac{p_s}{p_r}\right) \tag{3}$$

where $\bar{u}$ is the reservation payoff of the borrowers and $\bar{p} = \theta p + (1 - \theta)p_s$ is the average probability of success of safe and risky borrowers.

[1] Ghatak (2000) also derives optimal pooling contracts. In the remainder of this article, we focus on the separating contracts, but a similar argument applies for pooling contracts.

Equation (1) guarantees that both types of projects are socially productive, and should be undertaken in the first-best. Equation (2) implies that the participation constraint for safe borrowers is not satisfied with an individual liability contract. This implies that under individual liability contracting, the adverse selection problem leads to underinvestment. Finally, (3) is a feasibility constraint for joint liability in the sense that it guarantees that a successful borrower has enough to pay both individual and joint liability commitments. Ghatak (2000) shows that the incentive compatibility constraints of safe and risky borrowers bind in equilibrium:

PROPOSITION 1 *A necessary and sufficient condition for joint-liability to strictly improve welfare in the Pareto sense, and raise repayment rates and total surplus with respect to individual lending, when the bank makes zero profits out of risky and safe borrowers is:*

$$p_s\frac{\rho}{\bar{p}}+\bar{u}>\bar{R}>\max\left[\rho\left(1+\frac{p_s}{p_r}\right),\rho+\bar{u}\right].$$

Both types of borrowers achieve exactly the same allocation as in the full information case.

Proof. The first part of this Proposition follows by combining (1), (2) and (3). For the second part note that zero profits for the bank on loans to safe and risky borrowers implies that $r_ip_i + c_i(1 - p_i)p_i = \rho$ for $i = s,r$. The net surplus of borrowers i ($i = s,r$) equals $\bar{R} - r_ip_i - c_i(1 - p_i)p_i - \bar{u}$, which given the zero profit condition is equal to$\bar{R} - \rho - \bar{u}$, which equals the full information surplus. ■

Notice that joint-liability contracts of this form resemble random interest rates.[2] In particular, a borrower of type i is offered a contract under which, conditional on success (which has probability p_i) they pay r_i with probability p_i and $r_i + c_i$ with probability $1 - p_i$. However, there is an important difference. Because of endogenous matching, joint liability exploits local information and this improves efficiency. If matching was purely random then joint liability contracts would be no different from random interest rates.

We are now ready to make the following important observation concerning Proposition 1:

OBSERVATION 1 *The extent of joint liability is greater than the extent of individual liability under the optimal separating joint liability contract, i.e.,* $\hat{r} < \hat{c}$.

Proof. This follows from the fact that $p_r < p_s < 1$ and so $p_r + p_s - 1 < 1$. ■

Observation 1 has a curious implication. Consider a group of two safe borrowers. When one fails, the other has to pay her own r_s plus c_s because her partner has

[2] We thank David De Meza for suggesting this interpretation. It has been noted by de Meza (2002) that random interest rates can achieve higher efficiency than deterministic interest rates in the Stiglitz-Weiss framework. Conditional on success a borrower is charged either a low interest rate or a high interest rate. If the high interest is set above R_s but less than or equal to R_r, safe borrowers will default when the interest rate is high, but risky borrowers will make the payment to avoid all their revenue being seized. This will make the expected interest cost of risky borrowers higher than that of safe borrowers, and will be more attractive to safe borrowers than the standard deterministic debt contracts. If the cost of seizing revenue when a borrower defaults is low, random interest rates too can improve efficiency relative to deterministic interest rates.

failed. It is in her interest to transfer an amount r_s to her failed partner who can then pay the lender this amount, pretending to have been successful. The two partners can then generate a surplus $c_s - r_s$ and hence, it will be in their joint interest to do so. This will lead to a break down of the optimal separating joint liability contract.[3] To avoid this problem, an additional constraint needs to be imposed on the contracting problem, namely, $c_s \leq r_s$.

Before examining the consequences of this additional constraint, it should be noted that the theoretical literature is not clear about the interpretation of c. In practice, there are differences in the way microfinance institutions enforce a joint liability contract. Sometimes microfinance institutions require the group to pay a fixed penalty for a group member's default. In this case, the interpretation of c is literal. But in most cases a group has to repay at least a certain fraction of the debt owed by a defaulting group member, otherwise the entire group is excluded from future loans. Usually, the defaulting member pays back other group members this amount in future periods (Huppi and Feder, 1990). If these loans from one group member to another are always repaid in the future, in cash or in kind, it may seem that in an intertemporal sense joint liability does not impose a cost on a borrower who has to cover for her partner. That would indeed be true if credit markets were perfect, but given that these borrowers face borrowing constraints to start with (which after all is the reason for introducing such lending schemes) such sacrifices of present consumption are costly. In this case, the interpretation of c is therefore more subtle – it is the net present discounted value of the cost of sacrificing present consumption in order to pay joint liability for a partner. Either way, c is unlikely to exceed r and so the constraint $c_s \leq r_s$ is a reasonable one.

2. Implications of $c_s \leq r_s$

What happens to optimal separating joint liability contracts when we impose the additional constraint to rule out the problem we noted in the previous Section, namely, $c_s \leq r_s$? We examine this by considering the pair of contracts $(r_r, 0)$ and (r_s, r_s). That is, risky borrowers are offered an individual liability contract that specifies an interest rate r_r to be paid by the borrower if her project is successful and 0 otherwise. In contrast, safe borrowers are offered a joint liability contract that specifies that the group as a whole must pay $2r_s$ so long as at least one group member succeeds, and 0 otherwise. In this model, the key problem facing the banks is how to discourage risky borrowers trying to imitate safe borrowers. If individual lending contracts that will be offered under full information are

[3] In Ghatak (2000) the contracting environment explicitly rules out this problem. He assumes that the outcome of a project of a borrower is observable by the bank at no cost and is verifiable; however the realised returns of a project are too costly to be observed by the bank. However, Ghatak uses the costly state verification argument to justify this informational assumption and under joint liability the costly state verification argument is subject to a problem. If one borrower declares she has succeeded and the other declares she has failed, the bank will verify the output of the failed borrower and demand a payment of $r_s + c_s$ from the successful borrower. But they are better off by claiming both succeeded in which case the bank does not verify output of any borrower and the successful borrower pays $2r_s$. Therefore, it is important to characterise optimal joint liability contracts incorporating an additional constraint that takes care of this problem.

offered in the presence of adverse selection, it will be the risky borrowers who will try to mimic the safe borrowers and not the other way around. As a result, the goal of the bank would be to raise the extent of joint liability faced by safe borrowers up to a point where the incentive compatibility constraint of risky borrowers will bind in equilibrium, as in Ghatak (2000). This implies that the expected cost of a risky borrower from borrowing under the individual liability contract $(r_r, 0)$ must be equal to the expected cost of forming a group with another risky borrower and borrowing under the joint liability contract (r_s, r_s):[4] $p_r r_r = p_r r_s + p_r(1 - p_r) r_s$.

The fact that joint liability is set to the maximum possible level (i.e., we assume $c_s = r_s$) is without loss of generality as the following Lemma shows:

LEMMA 1 *Under the optimal screening joint liability contract subject to the constraint* $c_s \le r_s$, $c_s = r_s$.

Proof. Since banks are competitive, the problem of choosing the optimal joint liability contract for safe borrowers is minimising the expected costs of safe borrowers, $p_s r_s + p_s(1 - p_s) c_s$ subject to the following constraints:

(*i*) incentive compatibility:

$$p_r r_r = p_r r_s + p_r(1 - p_r) c_s$$

(*ii*) zero profit from risky borrowers:

$$p_r r_r = \rho$$

(*iii*)

$$c_s \le r_s.$$

In the (r_s, c_s) plane the slope of the iso-cost curve for safe borrowers is $-1/(1 - p_s)$ whereas the slope of the iso-cost curve for risky borrowers if they choose the contract meant for safe borrowers is $-1/(1 - p_r)$ and so the former is higher in absolute terms. Because of this property, from Figure 1 it is straightforward to see that the solution to the above constrained minimisation problem involves setting c_s at the highest feasible possible level, namely, $c_s = r_s$. ■

Using the zero-profit condition for risky borrowers, from the above analysis, we get

$$r_r = \frac{\rho}{p_r} \tag{4}$$

$$r_s = \frac{\rho}{p_r(2 - p_r)}. \tag{5}$$

Note that as $2 - p_r > 1$, $r_r > r_s$, i.e., risky borrowers are offered a higher interest rate than safe borrowers but incentive compatibility is maintained, as a

[4] Recall that by Lemma 1 of Ghatak (2000) a risky borrower will not be able to convince a safe borrower to join her group.

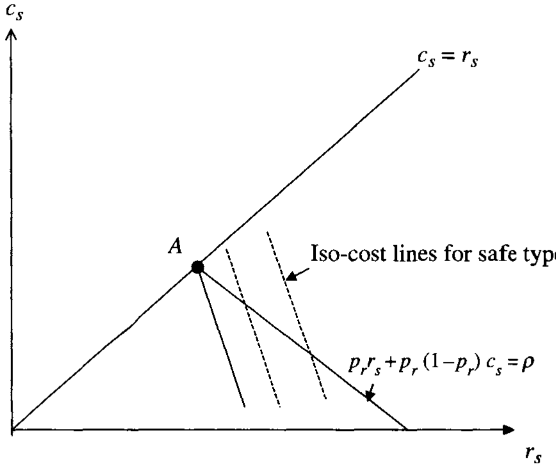

Fig. 1. *Optimal Joint Liability Contracts*

safe borrower pledges to repay her partner's loan if she succeeds and her partner fails.

The question we are interested in is as follows: are there parameter values for which joint liability lending can *strictly* improve welfare of safe borrowers, compared to individual liability lending (where they earn a net payoff of 0) without hurting risky borrowers, raising total surplus and repayment rates in the process?

The participation constraint of safe borrowers requires:

$$\bar{R} - \frac{p_s(2-p_s)}{p_r(2-p_r)}\rho \geq \bar{u}.^5 \tag{6}$$

Also, we have to check if the limited liability constraint holds under the joint liability contract (r_s, r_s): $R_s > 2r_s$. This can be rewritten as:

$$\bar{R} > \frac{2p_s}{p_r(2-p_r)}\rho. \tag{7}$$

This yields the following result:

Proposition 2. *A necessary and sufficient condition for joint liability lending to strictly improve welfare in the Pareto sense, and raise repayment rates and total surplus with respect to individual lending when the restriction $c_s = r_s$ is imposed is:*

[5] As the expression $x(2-x)$ is increasing in x for $x \in [0,1]$, $p_s(2-p_s) > p_r(2-p_r)$. So (1) is not sufficient to ensure (6). At the same time, under individual liability lending, the condition for there to be inefficiency is given by (2). A necessary condition for (6) and (2) to be satisfied simultaneously is:

$$\frac{(2-p_s)}{p_r(2-p_r)} < \frac{1}{\bar{p}}, \text{ or } \theta > \underline{\theta} \equiv 1 - \frac{p_r}{2-p_s}$$

where $\underline{\theta} \in (0, 1)$.

$$p_s\frac{\rho}{\bar{p}} + \bar{u} > \bar{R} > \max\left\{\frac{2p_s}{p_r(2-p_r)}\rho, \frac{p_s(2-p_s)}{p_r(2-p_r)}\rho + \bar{u}\right\}.$$

Proof. This is immediate by combining (2), (6) and (7). ■

Observe that if (3) holds, then (7) is satisfied as well, since $1 + p_s/p_r > 2p_s/[p_r(2 - p_r)]$.[6]

Therefore, so long as either

$$\frac{2p_s}{p_r(2-p_r)}\rho > \frac{p_s(2-p_s)}{p_r(2-p_r)}\rho + \bar{u},$$

or,

$$\rho + \rho\frac{p_s}{p_r} > \frac{p_s(2-p_s)}{p_r(2-p_r)}\rho + \bar{u} \geq \frac{2p_s}{p_r(2-p_r)}\rho$$

the first part of the condition given in Proposition 1 implies the one given in Proposition 2. Otherwise $c_s = r_s$ imposes additional restrictions on parameter values. This is not surprising, since as we impose an additional constraint on the contracting problem, the parameter space for which a net efficiency gain is going to be realised shrinks.

The following Proposition characterises optimal joint liability contracts under the additional constraint:

PROPOSITION 3. *Suppose there exist separating joint liability contracts, when individual liability contracts are sub-optimal, and the restriction $c_s = r_s$ is imposed. Then banks make zero profits out of risky borrowers, but make positive profits out of safe borrowers. The net surplus of risky borrowers is equal to the full information outcome; the net surplus of safe borrowers is lower than the full information outcome.*

Proof. Zero profits on loans to risky borrowers follow immediately from (4). This implies that the net surplus of risky borrowers equals the full information outcome: $\bar{R} - p_r r_r - \bar{u} = \bar{R} - \rho - \bar{u}$. Bank profits on loans to safe borrowers equal:

$$r_s p_s + r_s(1-p_s)p_s - \rho = r_s p_s(2-p_s) - \rho.$$

Using (5) this can be rewritten as: $\rho[p_s(2 - p_s)/p_r(2 - p_r) - 1]$. Since $p_s(2 - p_s) > p_r(2 - p_r)$, bank profits out of safe borrowers are positive. The net surplus of safe borrowers is now smaller than the full information outcome: $\bar{R} - r_s p_s(2 - p_s) - \bar{u} < \bar{R} - \rho - \bar{u}$. ■

Therefore, the main implication of the constraint $c_s = r_s$ is that the full information outcome for safe borrowers cannot be achieved. However, joint-liability

[6] Simple algebra shows that this inequality is equivalent to $1 > p_s/(2 - p_r)$, which is true since $1 > p_s > p_r$.

lending can still improve welfare, as compared to individual lending, although the range of parameters for which this will be the case shrinks.

The fact that banks make positive profits out of safe borrowers might appear odd in a competitive equilibrium setting.[7] All banks would want to lend to safe borrowers only, but to try to compete with each other, they cannot offer a lower interest rate since that will violate the incentive compatibility constraint of risky borrowers. However, this feature is however not novel. There are many instances of models with asymmetric information where due to the presence of a binding incentive-compatibility constraint rationing or positive profits can exist in equilibrium in competitive markets. The work of Shapiro and Stiglitz (1984) shows that unemployment could be an equilibrium phenomenon in a competitive market because of the no-shirking condition needed to give workers work incentives. Besanko and Thakor (1987) show in the context of credit markets that the probability of granting a loan could be used as a screening device and, even if markets are competitive and all borrowers have net surplus generating projects, some of them could be granted a loan with only a probability, to discourage other types from mimicking them. These kind of rationing phenomena are consistent with competitive behaviour due to incentive problems as they effectively introduce certain rigidities in prices. A similar reason applies to positive profits. A recent paper by Chiappori and Bennardo (2003) shows in the context of an insurance model that positive profits can exist in a competitive equilibrium as the zero-profit condition violates the incentive-compatibility constraint.

There is also the empirical question: is it true that joint liability lending programmes are profitable, as the model suggests? There is no conclusive evidence regarding whether joint liability contracts are more or less profitable than standard debt contracts (Morduch, 1999). Any direct comparisons between joint liability programmes like the Grameen Bank with other lending programmes using standard debt contracts are not convincing, whether they show the Grameen Bank in more favourable light or less. The main empirical concerns are controlling for other programme characteristics, endogenous programme placement and endogenous selection of borrowers into programmes (Morduch, 1999).

One might conclude from the fact that the Grameen Bank needs a subsidy of about 10 cents per dollar or that its repayment rate is 90% – these numbers are taken from Morduch (1999) – that it is therefore not profitable. This is not a very compelling argument since the Grameen Bank's explicit goals are poverty alleviation and empowerment of women, which are very different from that of commercial banks. So even if it runs the most efficient operation possible, and even if the effect identified in our model is in full operation, the Grameen Bank could deliberately and optimally choose an interest rate that is lower than the opportunity cost of its loans. In other words the opportunity cost of capital ρ in our

[7] Ghatak (2000) also analyses the De Meza-Webb version of the adverse selection where safe and risky borrowers earn the same revenue when their projects are successful, but because risky borrowers have a lower probability of success, they have lower expected returns. It turns out that for this version of the adverse selection problem, even if we impose this constraint the original result in Ghatak (2000) goes through, namely the full information outcome can still be attained (that is, the bank will earn zero profits from both types of borrowers) although due to introducing a new constraint, the relevant range of parameters will shrink. The results are available upon request.

model could be equal to $\hat{\rho} - s$ where $\hat{\rho}$ is the true cost of capital to the Grameen Bank, and s is the amount of the subsidy chosen to fulfil their social objectives. As Morduch (1999) points out, given that the Grameen Bank is very successful in targeting the poor, the social case for subsidising its operations is quite strong.

The next and final result of this note shows that by allowing the probability of granting a loan to be a screening device, as in Besanko and Thakor (1987), in addition to joint liability, banks earn zero profits from both types of borrowers in the JLL separating equilibrium and also safe borrowers are strictly better off. Therefore, in a competitive market we would expect the profits of the banks to be bid down to zero. The following Proposition characterises the optimal joint liability contract in this case:

PROPOSITION 4. *If banks use the probability of granting a loan as an additional contracting instrument, then safe borrowers will be offered a joint liability loan with a lower interest rate than in Proposition 3 but some loan applicants will be turned down. Banks will make zero profits out of both types of borrowers. The net surplus of risky borrowers will be equal to the full information outcome; the net surplus of safe borrowers will be lower than the full information outcome but strictly higher than in Proposition 3.*

Proof. Let q_s be the probability that a safe borrower is offered a joint-liability loan (r_s, r_s). A risky borrower is offered an individual-liability loan $(r_r, 0)$ with certainty (since both types of projects are socially profitable, and the incentive-compatibility constraint of only the risky borrowers is binding, it is efficient to offer risky borrowers a loan with certainty). The incentive-compatibility constraint of risky borrowers is: $\bar{R} - p_r r_r = q_s\{\bar{R} - [p_r r_s + p_r(1 - p_r)r_s]\} + (1 - q_s)\bar{u}$. Using the zero-profit condition for safe borrowers, $p_s(2 - p_s)r_s = \rho$, we find

$$q_s = \frac{\bar{R} - \bar{u} - \rho}{\bar{R} - \bar{u} - \tau\rho}$$

where

$$\tau \equiv \frac{p_r(2 - p_r)}{p_s(2 - p_s)}.$$

Obviously τ is positive, and as $p_s(2 - p_s) > p_r(2 - p_r)$, it is strictly less than one. This in turn implies q_s is positive and less than one. Safe borrowers are strictly better off in expected terms when rationing is used compared to the allocation where only joint-liability is used as a screening device. In the former case, their expected payoff is $q_s(\bar{R} - \rho) + (1 - q_s)\bar{u} = (\bar{R} - \rho - \bar{u})^2/(\bar{R} - \tau\rho - \bar{u})^2 + \bar{u}$ and in the latter case their expected payoff is $\bar{R} - (1/\tau)\rho$ and straightforward algebra establishes that the former is greater than the latter. Therefore, starting with a situation where only joint-liability is used, an individual lender will have an incentive to offer a loan package that offers a lower interest rate to safe borrowers but a positive probability of not getting the loan that will yield safe borrowers a higher expected payoff, and therefore attract safe borrowers away from other lenders. This process will eventually result in zero profits for the lenders. ■

Even without joint liability, the probability of granting a loan can be used as a screening device (Besanko and Thakor, 1987). In this case, the incentive-compatibility constraint of the risky borrowers is: $\bar{R} - p_r r_r = q_s(\bar{R} - p_r r_s) + (1 - q_s)\bar{u}$ and using the respective zero-profit conditions for both borrowers, we can solve $q_s = p_r/p_s$ which is clearly lower than the value of q_s when joint liability is used. This demonstrates once again that joint-liability can improve upon individual-liability in terms of efficiency due to endogenous sorting based on local information.

4. Conclusion

The main message of this article as well as Ghatak (2000) is that by exploiting local information, joint liability lending can improve efficiency compared to standard debt contracts in the presence of asymmetric information about borrower types. When other potential screening instruments, such as collateral, are not available, joint liability lending becomes a particularly attractive method of lending.

We conclude by offering some thoughts on the kind of environments in which joint liability lending is likely to work well. One question that often comes up is why don't we see this form of lending in developed countries? Why is it observed mainly in developing countries? The answer partly lies in differences in the informational and contracting environment between developed and developing countries.

In developed countries collateral can be used more easily than in developing countries due to better titling of property and a more efficient legal system. In contrast in developing countries, even if the poor have some assets (e.g., a small plot of land) it often cannot be used as collateral because of the absence of these institutions (De Soto, 2000). Also, in developed countries there exist institutions that allow better flow of information among lenders (e.g., credit rating). These factors reduce the need of using contractual mechanisms such as joint-liability to overcome credit market failures.

Also, the informational environment in this article assumes borrowers live close to one another and have better information about each other's projects than the lender. This is more plausible in the close-knit, stable rural communities of developing countries than in more individualistic and high-mobility societies of developed countries (Schreiner and Morduch, 2001).[8] This suggests that successful institutions cannot simply be transplanted from one environment to the other.

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[8] Schreiner and Morduch (2001) emphasise this factor in discussing why microfinance programmes in the US modelled after successful ones in developing countries, such as the Grameen Bank, have not been very successful. They point out that the poor in the US are not tied to a village or plot of land. Like all Americans, the poor move often and each move cuts some of the social and economic ties that might otherwise strengthen a joint liability group.

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