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PRODUCTIVITY OF RURAL CREDIT: A REVIEW OF ISSUES AND SOME RECENT LITERATURE*

M.S. Sriram

The policy intervention in agriculture has been credit driven. This is even more pronounced in the recent interventions made by the State in the package announced for distressed farmers, in doubling agricultural credit, providing subvention and putting an upper cap on interest rates for agricultural loans. We use existing literature and data to argue that the causality of agricultural output with increased doses of credit cannot be clearly established.

We argue that Indian agriculture is undergoing a fundamental change wherein the technology and inputs are moving out of the hands of the farmers to external suppliers. This, over a period of time may have resulted in the de-skilling of farmers and without adequate public investments in support services and without appropriate risk mitigation products, has created a near-crisis in agriculture. Thus, we argue that policy interventions have to be necessarily patient and holistic.

Looking specifically at the rural financial markets using some primary data, we argue that it is necessary to understand the rural financial markets from the demand side. We conclude the article by identifying some directions in which the policy intervention could move, keeping the overall rural economy in view rather than being focussed only on agriculture.

INTRODUCTION

The overall thrust of the current policy regime assumes that credit is a critical input that affects agricultural/rural productivity and is important enough to establish causality with productivity. A brief review of the recent policy directions from the State assumes that de-clogging credit for agriculture is desirable. The thrust of doubling agricultural credit in three years through the banking channel, the

revival of co-operative credit structure through the package recommended by the Vaidyanathan committee and the policy response to farmer suicides, including the Vidarbha package, are excessively skewed towards intervention in the agricultural operations through intervention in credit. Committees have also been set up by the state and/or the Reserve Bank of India to look into the aspects of financial inclusion, farmer indebtedness, integrating moneylenders with the mainstream market and farmer distress.

In addition to the above, some policy interventions having implications at the operational level include the pegging of interest rates for agriculture, which yields a risk-adjusted return that is below the weighted average cost of funds. The state governments have gone a step further in announcing interest subsidies over and above the unrealistic levels set by the union. All these are unifocal in making credit available and affordable for agriculture.

All these initiatives give singular importance to rural credit and also look at rural credit from the supply side. In this article, we try to deconstruct this problem and examine the components to see if we can get a better understanding of the rural situation.

However, it is difficult to establish a causal relationship to show that the increased supply and administered pricing of credit will help in the increase in agricultural productivity and the well being of agriculturists. Why such a relationship is difficult to establish is detailed below:

1. Credit is a sub-component of the total investments made in agriculture. The investments come from a basket of sources—ranging from non-monetized investments such as the farmer's labour, saved seeds, use of local resources for pest control and fertilizer—and monetized investments that include both the savings of the agriculturist and borrowings. Borrowings could in fact be from multiple sources in the formal and informal space. We are considering a part of this sub-component—borrowing from formal sources—in order to establish the causality. With data being available largely from the formal sources of credit disbursement and indications that the formal credit as a proportion of total indebtedness is going down, it becomes that much more difficult to establish the elusive causality.
2. The diversity in cropping patterns, holding sizes, productivity and regional variations also make it difficult to establish such causality for agriculture or rural sector as a whole, even if we had data.

Therefore, this article will restrict itself to reviewing the recent work of scholars on the relationship between some broad macro economic trends and their implication on agricultural credit. In the process of our discussion we shall

also be using data collected from some regions of the country to highlight the issues to be discussed anecdotally. We will thus try and turn the discussion around to examine if it is possible to look at the issue of agricultural/rural credit from the demand side. Obviously, we do not have extensive data from the demand side to examine this issue from a policy-making perspective. However, with the limited data that we have from the field we would be in a position to look at some broad patterns. In the process we will also highlight the need for looking at 'rural financial services' as a broad theme rather than limit the theme to agricultural credit. We argue that the rural markets are quite vibrant and offer opportunities for intervention much broader than agricultural credit.

SOME RECENT LITERATURE

While we look at the productivity of agricultural and rural credit, it might be pertinent to review some recent articles that touch on this theme.

An important article that examines the possible relationship uses panel data on rural poverty and the spread of bank branches to argue that increase in access to credit has helped reduce rural poverty. It concludes that the fact that banks open branches makes formal credit accessible and in the long run seems to have a positive impact on poverty (Burgess and Pandey 2003). To illustrate their argument, the authors contrast the poverty rates with the period of pre- and post-liberalization (when the condition to open more branches in unbanked areas was dispensed with). While establishing their argument they also cite others (Eastwood and Kohli 1999) who argue that the expansion of branches actually enhanced the lending to the rural small-scale sector where the growth was faster. Thus, it is possible to take these independent conclusions together to indicate that possibly, the positive impact on poverty might have come from the non-farm sector. In fact the authors argue that market forces possibly may not take care of the poor and backward areas by providing counter example from microfinance, which has grown largely without large geographic target setting from the state. They cite evidence that microfinance has not been successful in reaching the backward areas. So, the thrust of Burgess and Pandey is that in order to address poverty it is necessary to have formal banking outlets. However, the impact on poverty seems to come from non-primary sectors like enterprise and the resultant wage employment that these enterprises generate. They also argue that since banks provide a complete suite of financial products—including savings—they are more effective than pure micro credit institutions. However, the article does not provide evidence of a link between credit and agriculture.

In another article, capital formation in agriculture and the type of current investments being made in agriculture in the context of farmer suicides is examined in

detail to see if there are any inter-linkages (Vaidyanathan 2006). This article also does not indicate any direct relationship between investments and productivity. In fact, the author argues that some of the recent trends in investment in agriculture could be ill-conceived and thus could lead to a negative spiral. He cites the case of increased indebtedness of farmers towards both formal and informal sources in cash crops like cotton, not necessarily resulting in increased productivity, and in many cases leading to failure. He argues that even private capital formation in agriculture might not be yielding better productivity because farmers are digging deeper to tap groundwater, thereby incurring more costs to maintain the same levels of productivity, and in cases where the wells fail, getting into serious indebtedness. Both these observations indicate that while it is important to have increasing investments in agriculture—and much of these private investments in agriculture should be desirably funded through formal sources of credit—there could be no causality between investments and productivity, unless they have been directed in a well thought out manner. Thus, mere increase in supply of credit is not going to address the problem of productivity, unless it is accompanied by investments in other support services. Therefore, public capital formation that address maintenance of larger irrigation structures—that have a long term vision of management of resources like water—are important for addressing productivity.

Another article examines the overall growth of agriculture and the role of credit (Mohan 2006). Agreeing that the overall supply of credit to agriculture as a percentage of total disbursal of credit is going down, the author argues that this should not be a cause for worry, as the share of formal credit as a part of the agricultural GDP is growing. However, even here one is unable to establish the relationship between increased supply of credit and productivity. If we look at Table 1, we find that the relationship between the value of input and the value of agricultural output over the last decade has remained in the same band, with the output being around five times the value of input. The figures are stated at current prices, and if we adjust for inflation, we find that there would be no dramatic increase in the value of output in the past decade. This loosely establishes that while credit is increasing, it has not really made an impact on the value of output figures. This is not a robust way of establishing causality, but points out to the limitations of credit.

It is important to see that even at the highest level of production, credit forms around 5 per cent of the total output value. Thus, expecting something that has so little a share in the output value to have significant impact on the output/productivity values might not be in order. However, the data quoted pertains to agricultural credit from formal sources and given that the short-term credit is increasing as a percentage of inputs, this might actually be replacing informal

Table 1
Gross Value of Output, Value of Input and Short-term Credit
(Rs crore at current prices)

Year	Gross Value of Output	Value of Input	Short-term Credit	Short-term Credit as a Percentage of		Value of Input as a Percentage of Outputs
				Inputs	Outputs	
1993–1994	271,839	55,401	5,424	9.79	2.00	20%
1998–1999	488,731	93,416	10,821	11.58	2.21	19%
1999–2000	514,718	103,170	12,610	12.22	2.45	20%
2000–2001	518,693	107,020	15,442	14.43	2.98	21%
2001–2002	562,024	112,194	18,882	16.83	3.36	20%
2002–2003	557,035	114,613	23,324	20.35	4.19	21%
2003–2004	635,104	127,365	31,972	25.10	5.03	20%

Source: National Account Statistics 2005 (reproduced from [Mohan 2006]) and *Handbook of Statistics on the Indian Economy, 2004–05*, RBI.

credit. Thus, there might still be some headroom to increase credit availability from the formal sources, with the clear intent of moving the customers from the informal to the formal sources rather than for increasing incomes or agricultural productivity.

Data indicates that agriculture in itself is not very profitable and varies widely across states and regions. For instance, the data from the 59th round of National Sample Survey Organization (NSSO), 2003 indicates that in 2002–03, the net receipt from cultivation for each household across the country was around Rs 969 per month. This figure varies widely and forms less than 50 per cent of the overall pie of the income sources of the households. Interestingly, in some states like Jharkhand, Kerala, Rajasthan, Tamil Nadu and West Bengal, the earnings from wage labour are higher than the earnings from cultivation (NSSO 2005: 14). When we look at the overall cost of cultivation we find that interest expense for loans for cultivation averages around 1 per cent of the total cost of cultivation, never exceeding 3 per cent of the cost of cultivation. The most significant costs of cultivation are labour and fertilizer (NSSO 2005: 19).

Significant inputs in percentage terms are labour (22 per cent), lease rental (5 per cent) and other expenses (15 per cent)—a greater investment in these inputs would not increase the inherent productivity of the land. The inputs that establish causality are seeds (16 per cent of input costs), irrigation (12 per cent) and fertilizers (23 per cent). Thus, if we were to ascribe causality to credit we may have to look at the incremental outputs due to investments in these inputs,

which account for about 50 per cent of the costs and see if externally spurred investments would make a difference.

The NSSO data does not show the significance of credit in the overall productivity of agriculture. It also highlights the fact that rural incomes are getting increasingly dependent on alternative and diverse sources.

With these inputs, we can examine if there is headroom for formal sources of credit to replace the current financing patterns. The growth in agricultural finance may be partially filling in this headroom. Even if this headroom were filled up, it would only reduce the borrowing costs of the farmer to a limited extent, without possibly having significant impact on productivity. The credit linked productivity enhancement may come through technological innovations that make agriculture more capital intensive, with a dramatic, incremental input-output multiplier.

Apart from the above very small evidence, we are not able to establish causality between increased availability of credit and agricultural productivity. We may be able to examine this in some detail if the data pertaining to input costs, credit component (both formal and informal), crop production and yield data is available at the district level over a period of time. This comprehensive data however, is difficult to obtain.

ADDRESSING THE ISSUE OF AGRICULTURAL CREDIT

Let us first look at agriculture, independent of overall rural credit. We have a situation where the needs of agriculture are met with aggressive targeting by the State on volumes and pricing. However, the other rural sector is not getting the necessary thrust in the policy pronouncements; because of the uni-focus on agriculture, a large non-farm segment gets left out of the policy space.

At the consumer level, as the pricing of non-farm segment is distinctly different from agricultural credit, it is also likely that the farm credit gets adversely used in other sectors. Because of the policy on the pricing of agricultural credit, there are incentives for customers to involve in cross-purpose arbitrage and possibly in arbitrage across individuals. There are indications that the positive impact on poverty may not necessarily be due to agricultural lending (Burgess and Pandey 2003). The authors have found no evidence of 'elite capture' of the social lending programmes as they find that agricultural loans are well distributed across all land holding patterns. Thus, it is possible to interpret that what goes out as agricultural credit may be reaching the correct client segments, but might not be used for the stated purpose.

When we look at the rural markets from the demand side, we will have to cull out the characteristics of their financial flow patterns. The following paragraphs

are based on a study carried out in 2004–05. One part of the study was located in Dungarpur district of Rajasthan where we had collected data exclusively from 416 poor households.¹ We also collected data from 600 households each, from Dharmapuri district of Tamil Nadu and the West Godavari district of Andhra Pradesh. The Tamil Nadu and Andhra Pradesh data were collected from a random sample of households drawn from villages in the service area of a bank. The idea here is to give a flavour of the diversity of the possible needs for agriculture itself.

Each of these regions is diverse, and endowed differently as far as resources are concerned. Dungarpur is known to be backward, with a fair amount of people migrating in search of livelihoods and agriculture being barely at subsistence level. In Dharmapuri, while the local economy was found to be vibrant, the district is drought prone and survives on rain-fed agriculture. West Godavari on the other hand is a district that has good resource endowments as far as agriculture is concerned.

In Dungarpur we found that only about 25 per cent of the people available for employment indicated that they were involved in cultivation, though at the household level many more households actually had access to land. The census statistics indicate that around 59 per cent of the workers are engaged in cultivation (Census of India 2001). This difference might be partly because of the method of data classification² and also because we were dealing with only poor families who possibly have lesser access to productive land. Of the data collected on cash flows from agriculture, only 7 per cent (28) households indicated that the cash income they get from marketing their produce was greater than the cash expense for investing in agriculture. The market arrival figures seem to confirm this fact that a very low percentage of the production of that area seems to arrive in the market. Here, we are dealing with an absolute subsistence level of agriculture.

In Dharmapuri also we found that around 411 persons (25 per cent of the people available for employment) reported their primary source of engagement as agriculture. In terms of households, these people represented 318 of the 600 households surveyed. The district statistics indicates that around 39 per cent of the workers are engaged in cultivation. Of the 318 households, only about half of the households reported surplus cash flows from agriculture.

In West Godavari, 218 persons (15 per cent of the people available for employment) reported their primary source of engagement as agriculture. These represented 254 of the 600 households surveyed. The district statistics indicates that around 12 per cent of the workers are classified as cultivators. While the incomes reported from agriculture were much larger than in the other two districts, we found that a larger number of people were engaged in wage labour, mostly in agriculture.

The earlier figures indicate that while a large number of households might be involving themselves in agriculture, not all members of the family fall into the cultivator category. There is also a wide variation in the percentage of people involved as cultivators. This data might indeed give some relief to the banking sector—that they might actually be correct in moving towards higher average loan sizes in agriculture—focussing on where agriculture is being carried out commercially, rather than concentrate on fragmented holdings where agriculture is seen as a part-time subsistence based occupation.

For instance, in Durgapur, it would be extremely difficult for a formal financial institution to undertake financing of agriculture because most of the produce is retained for consumption, and thus, even a production loan for agriculture will actually be a consumption loan. In Dharmapuri, while larger number of households report income from agriculture, in terms of providing employment, it engages lesser percentage of the people available for employment. We see here that only about a sixth of the households that we surveyed could carry out commercial agriculture. The picture in West Godavari is slightly different because the average land holding size here is larger than in the other two districts. Thus, while the number of households engaged in agriculture would be less, most of them would be in commercial agriculture. Thus, the scope for commercial lending for agriculture seemed to have a potential in Godavari district.

Combined with the indications from other literature and our own study in three districts, it appears that in general, the supply side policy seems to be chasing targets of a sector that has a mix of both subsistence level activity and commercial activity. The subsistence level activity would not produce enough cash flows to service the loans, unless the household has supplementary income from other sources. However, these households continue to operate in agriculture for reasons of basic food security and cultural aspects pertaining to ownership of land, even if it were not productive. We thus argue that possibly a good part of the 'production' loans for agriculture could actually be 'food security' loans. If one were to seriously analyze the productivity of agricultural credit, it might be a good idea to focus on the larger farm sizes and on clusters that have commercial agriculture where credit might make a difference.

PRODUCTIVITY OF AGRICULTURAL CREDIT: A REVIEW OF OTHER IMPORTANT ISSUES

To address the issue of productivity of agricultural credit, we have to look at the conditions precedent that makes credit effective. In the following section, we review these issues. We need to recognize the fact that Indian agriculture is

going through a fundamental change in recent times and in some areas, leading to agrarian distress. Therefore it is impossible to ignore the following issues.

Technology issues

Indian agriculture has gone through a fundamental change after the green revolution years. Farmers have shifted from their traditional crops to varieties that improve yields, but are resource intensive. An estimated 40 per cent of the Gross Cropped Area was listed under high yielding varieties.³ This is also seen in the shift in cropping pattern from coarse cereals to other grains. For instance, between the decade of the 1950s and 2000, the area under rice, maize, wheat, tur, sugarcane and oilseeds grew dramatically, while the area under jowar, bajra, ragi, barley, small millets, gram, and fibres other than cotton and jute fell.⁴ This shows a significant movement away from saved seeds (which were under the control of the farmers) towards purchased inputs.

During the five decades when we take the average⁵ of the decade of 1950s and compare it with the average of the decade of 1990s, the following facts emerge:⁶

- The overall area under cultivation has increased from around 107 million hectares to around 123 million hectares (14 per cent growth).
- The area under irrigation has increased from around 18 million hectares to about 40 million hectares (120 per cent growth).
- Agricultural production has increased from 65 million tonnes of decadal average to 195 million tons of decadal average (198 per cent growth).
- Yields have increased from 600 kg per hectare to around 1,600 kg per hectare (160 per cent growth).

However, it is also evident from the data that incremental coverage of irrigation is no longer leading to commensurate incremental yields. Part of the explanation might be that in the initial years along with the irrigation, there were significant interventions affecting other inputs such as high-yielding variety seeds and increased use of fertilizers and other inputs.

The need for water for these varieties is increasing while the availability of water might not have kept commensurate pace. Indian agriculture has moved to a stage where almost all the inputs/resources come from the markets. This move is away from recycling of produce on which the farmer had a control. These resource providers may have taken a short-term view of agriculture and agricultural markets.

The first fall out of this inherent change that has happened in the agrarian scene is the de-skilling of the Indian farmer. With every new technology the farmer has to learn afresh. Learning happens over time, with re-skilling not being in correspondence with de-skilling. To master the skill and to understand the externalities involved, the farmer resorts to sowing the same crop over and over. With fragmentation of holdings and land available per farmer getting smaller, the tendency is towards mono cropping. Thus, diversity within the plot in a season and diversity of cropping on the same plot over a period of time takes a back seat.

Commercial crops like cotton are grown on smallholdings, with inadequate land available for subsistence food crops. At the macro level, the data indicates that while the overall area under food grains has grown by around 13 per cent and in food related crops by around 21 per cent in the past five decades, the growth of the area under non-food crops has been much faster. The ratio of food to non-food crops has moved from 80:20 to 74:26 in the past five decades. Given that there is a net addition of cultivable land, we can see the thrust in the overall numbers⁷. However, this figure in itself might not be alarming at the level of the overall economy, but it is important to examine what this does to a smallholder farmer.

The food security net that was largely within the household because of growing food crops might move to the markets. Obviously, the farmer who stops growing food crops and moves to commercial crops has to pay much more to buy out this food from outside due the multiple layers of margins of the intermediaries. This involves cash pay out and the households could get into debt if there is a mismatch between the timing of inflows from commercial crops and consumption necessities. Thus, while on the one hand production needs credit due to external inputs, even consumption becomes credit dependent.

Issues with inputs: Seed

A movement from retained seeds to bought out seeds one element of control is lost. In moving away from traditional to hybrid seeds (40 per cent of the cropped area being under hybrid seeds), the activity has become resource intensive. The genetically modified seeds have taken technology to a higher platform, requiring even greater skills. Either way, the farmer loses. If there is an early success, it gets repeated. But an early success may lead to two negative fallouts. If the conditions are not conducive as the first event, then the downside loss is greater than *ex-ante*; with the difference in prices between ordinary and the research-intensive seeds, the risk of spurious seeds filling the middle price range increases. At the

end of this cycle the farmer is unable to figure out why he lost. The other issues on seeds are:

- Are the prices of research-based seeds justified? Are the risk of germination and other aspects being adequately covered?
- Are the quality parameters clearly articulated?
- Does the state machinery have the wherewithal to deal with deviant behaviour on quality?
- Are the instructions on package of practices, including spacing, recommended by the interested seed companies reasonable, and fall within ethical parameters?
- How does the changed package of practices following new research get conveyed to the farmers?
- Is the produce grown as seed and rejected under quality parameters ejected out of the supply chain? Are there safeguards to ensure that they do not come back into the loop?
- Are there monopolistic tendencies in the market due to the IPR regime that creates opportunities for arbitrage and a market for spurious seeds?
- Is the role of agencies like seed certification agencies clearly defined and are they being held accountable?

Issues with inputs: Research and extension services

Research is moving from the public domain to the private domain. There has been no dramatic increase in the budgets of the state agricultural universities. Overall, the amount budgeted for all the universities and the Indian Council for Agricultural Research has been in the vicinity of Rs 15 billion. Extension services have traditionally come from the state through agricultural extension officers. Post nationalization, public sector banks hired agricultural officers to be posted in rural branches. Though they technically did not provide extension, they probably asked the right questions during the appraisals. While we do not have publicly available data on the staffing pattern of banks, anecdotally the banks do confirm that the recruitment of extension officers in the past decade and half has not happened. The next big chunk of extension came from fertilizer companies. However, due to quota and the sale of fertilizer, the companies promoted fertilizers generically than as a brand. The last bit of extension came from research driven by agricultural universities and institutions of excellence in agricultural sciences.

With economic liberalization, we may say that the extension machinery of the state has failed. The recruitment of agricultural officers in banks has fallen.

The farmers are now dependent on the input suppliers for technical advice. The agricultural universities are strapped for research funds. Private sector companies lap up the graduates of these universities, thus slowly transferring the intellectual capital from the public domain to private space.

Extension offered by self-interested parties has problems. They are integrated in the financial markets driven by quarterly revenue considerations and are generally myopic. There is a conflict of interest with brand-technology owners providing extension, with no alternatives provided from a public institution having no vested interests.

Issues with inputs: Water

Water is a concern expressed time and again. This is a result of the cropping pattern shifting to water guzzling crops—the largest growth of area under crops in the past five decades—represented by rice, wheat, sugarcane and vegetables, which are water intensive. The other crops that have increased area include maize, oilseeds and coconut. Even within crops grown on rain fed conditions, people have moved towards wagering on resource intensive, high-yielding crops. Water use is becoming inefficient because of the following factors.

With a bore well, we create a private asset from something that is a public good. Lucrative agriculture is in areas where there is water. People who have no access to water as a public good (canals, tanks) naturally look for private solutions. As the intensity of digging deeper (with falling water table) increases, it has negative ecological impact (Vaidyanathan 2006). Coastal areas for instance, can have problems of salinity ingress.

The implications for the productivity of agriculture are:

- We need to dig deeper to get the same amount of water, therefore the capital cost of sinking a bore well increases, with an associated increase in the probability of failure. The other capital cost that goes up is associated with the increased cost of the motor and pipelines that have to be used to draw water from so much deeper.
- The recurring cost of drawing water from a deeper well is more due to increased use of diesel or electricity.

People who do agriculture with assured water will not revert to rain-fed conditions. However, the returns fall, as more people dig wells and more water is drawn. This manifests in indebtedness, leading to a debt trap. A study indicated that most finance for private bore wells had actually come from informal moneylenders—thereby also increasing the costs of servicing the loan

(Venkateshwarulu and Srinivas 2000). Fragmentation of land holdings only accentuates the problem. Regulations pegging the sanction of a loan based on ecological considerations and minimum distance parameters between wells only push the farmers to informal sources, as has happened in Warangal.

There are no easy solutions in this. The general shift of privatization of public goods is a theme across all inputs.

Issues with inputs: Pesticides

The issue is also related to agricultural technology and input supplier driven extension services. In addition, there are issues pertaining to spurious products operating in markets that are not mature, but are price conscious. Going to the input supplier for a solution is like going to a doctor with an ailment. Once one is in the clutches, it is difficult to extricate, as one is never sure of the downside of not listening to the advice. There is also a tendency to recommend preventive use of pesticides. The collateral effect of spraying, on the health of the farmer, is a related aspect that may act as an impediment.

The Society for Elimination of Rural Poverty (SERP) in Andhra Pradesh has put in practice of pesticides usage and claims that there is significant reduction in costs with no significant downside effects on yields. This is a good example involving very intensive extension efforts. SERP is able to leverage its pre-existing teams that are doing other work. The other states do not have this infrastructure, and it calls for public investments in this area.

Support systems: Risk mitigation

The one missing link in agriculture is the lack of risk mitigation products. The inherent risk mitigation practices do not work with externally managed input supply and extension services, and affect the basic food security of families.

First, we need to address yield risks. While we have comprehensive crop insurance schemes, they do not address the problems of the individual farmer. The unit for loss assessment is too wide to compensate individual farmers. But the farmers have to pay the premium on an individual basis and there is a mismatch between the unit of payment and the unit of risk settlement. The problem pertains to the costs involved in assessing the risks. The existing insurance product does not address the individual risks.

There are various elements that affect the yield starting with the quality of the seed used and the germination. The growth parameters could be hampered by temperature, rainfall, pest attack and the amount of fertilizers used. Except rainfall

and pest attack, all other parameters pertain to the individual enterprise of the farmer, while what is being compensated is the collective result. It is necessary to break up the risk elements into measurable and identifiable units. Even then, assessment at an individual farm level is difficult.

Temperature and rainfall risks are being experimented, but these need investments in weather stations. In order to effectively cover risk, given the nature of land holding and fragmentation, the solution lies in adopting a self-help group like approach to loss assessment. However, this is very complex to implement. Having loss assessment at least at the gram panchayat level might improve the confidence of the farmers.

From the earlier discussion it is clear that the Indian farmer is at the receiving end—he is in an enterprise where the entrepreneur is not insulated from the enterprise. While in the formal industrial sector, due to the limited liability clause, the entrepreneur is generally insulated from failure, this is not so in agriculture. The inappropriate risk mitigation products also indicate that there are no effective external means of covering this element.

The other risk pertains to the price risk, which also hurts the farmer and makes him vulnerable. Price volatility could somewhat be addressed if commodity trading is opened up for small lots where the farmers could take cover. However, we need to build safety nets so that they do not end up using the commodity exchanges for speculative purposes.

We have also found that increased inputs do not necessarily transfer into better prices. Even if the returns increase, they may not be in proportion to the increase in costs. Farmers do not get adequate price; risks have gone beyond weather and natural calamities to input induced crop failure. In Indian agriculture, the relationship between risk and return is stacked against the farmer. Usually if the risk is very high, in good years the returns also are expected to be high. However, in case of farming the returns seem to have a ceiling while the downside risks are unlimited and could devour the personal finances of the farmer as a result of the failure of an economic activity. If the yield is good, there is no assurance that the price would be good. Therefore, while there is a limit to the upside returns, the downside risks could be as high as 100 per cent of the investments, and could cumulate in a misery as experienced by farmer households that have seen distress and suicide.

ADDRESSING THE ISSUE OF NON-AGRICULTURAL RURAL CREDIT

In addition to the issue of agriculture, it is important to look at the other sectors. The rural economy is not homogeneous to be amenable to schematic lending.

Indeed, our data from three states indicates that it might be appropriate to look at credit as a part of a basket of financial services. However, across regions the following characterize rural transactions:

- The exchanges have a large non-monetized element. While exchanges are on the basis of rupee value, transactions do not get settled frequently. For instance one might agree on a daily wage rate, but ultimate settlement takes place through a few cash exchanges in a season, beyond a minimum daily subsistence that might be settled in kind. The cash exchanges are less. We find this practice prevalent with migrant workers and their *Mukaddams*.
- The sources of cash flows in the local economy are not diversified. In agrarian economies we have heightened economic activities around harvest time. Thus, we find even the other services getting settled around that time. For instance, we found that a local cable television operator in Khammam District had his monthly subscriptions paid up regularly, but his income from new subscriptions would spurt during the harvest time. Traditionally, we know that even service providers like the *dhobi* and the barber were paid in kind around harvest time, in addition to the minimal payments they received through the year.
- The income diversification of individual households is limited, with most households depending on one or two significant streams of income.
- The exposure to risk is higher. We find that rural activities are outside the organized 'formal' entities. Thus, they cannot cover the downside risk. The entrepreneur and the enterprise are seamless, unlike in the urban settings, and any business failure (including agriculture) affects the personal finances. The formal business, on the other hand, can be insulated through the limited liability clause. The general usage of cash is on an inflow-outflow basis rather than an income-expense basis. Thus, any formal insurance is seen as a continuous outflow with no perceivable inflows. In some of the rare cases where they see the merit of the risk cover, the settlement process does not give them confidence to continue an ongoing relationship.
- Because of the above, the rural households are vulnerable. It is argued that people moving out of poverty slip back to poverty due to pressure points (Krishna 2003). If we were able to formulate policies that prevented people from slipping back into poverty, the net poverty reduction figures could show a remarkable progress.

Therefore, when we look at the rural markets from the demand side, it is possible for us to offer an array of need-based interventions that would make an impact on the cash flows, increase monetization and the participation of the formal sector, making exchanges discover market mechanisms.

Non-agricultural rural credit: Supply induced interventions

Even in the non-farm sector, major interventions have been supply induced. Most of the schemes like the Integrated Rural Development Programme (IRDP), Swarnajayanti Grameen Swarozgar Yojana (SGSY) or any schematic lending programmes have looked at lending to the poor for self-employment purposes. There is an inherent flaw in this design because it assumes that all people not involved in cultivation want to be self-employed. Looking at the pattern of engagement of the rural people for earning incomes, it is evident that a significant proportion of the rural population is wage-employed.

Table 2 presents the classification of workers for the nation as a whole.

Table 2
Distribution of Workers by Category—Total and for Rural Areas

Detail	Cultivators	Agricultural Labourers	Household		Total Workers (Main + Marginal)
			Industry Workers	Other Workers	
Total					
Persons	127,628,287 32%	107,447,725 27%	16,395,870 4%	151,040,308 38%	402,512,190
Males	86,328,447 31%	57,354,281 21%	8,312,191 3%	123,468,817 45%	275,463,736
Females	41,299,840 33%	50,093,444 39%	8,083,679 6%	27,571,491 22%	127,048,454
Rural					
Persons	124,682,055 40%	103,122,189 33%	11,709,533 4%	71,141,562 23%	310,655,339
Males	84,046,644 42%	54,749,291 27%	5,642,112 3%	54,761,555 27%	199,199,602
Females	40,635,411 36%	48,372,898 43%	6,067,421 5%	16,380,007 15%	111,455,737

Source: Primary Census Abstract, Census of India, Ministry of Home Affairs, Government of India.

From Table 2 we see that a third of the population works as agricultural labour, and a significant number work outside of agriculture. While it is sharper in the national statistics, we see that even the number of people outside of cultivation is significant. Even people involved in agriculture seem to be employed part time on somebody else's plot as wage earners.

However, it would not be appropriate to say that all supply-induced programmes have not worked. We argue that even microfinance programmes, by

and large, are supply side offerings. Microfinance places several constraints on the borrower by its design. While there might not be a project-by-project evaluation, it directs investments in certain types of activities because of the design constraint. All microfinance programmes have non-negotiables that pertain to the discipline. The design of microfinance programmes expects a regular contact with the members and all loans to be repaid with a certain frequency. This is a supply (design) induced constraint. This forces the borrowers to either look for enterprises that provide such a frequent cash flow, or service the new loan from an extant cash flow. For an economy that is largely oriented towards seasonal income, the requirement of generating cash flows to service the loan and also to save significantly changes the rules of the game. This change is sharper in *grameen* groups, because the frequency of contact is weekly with no scope for default. Thus, people in these programmes are forced to look at activities that yield frequent cash flows.

This strategy may induce livelihood diversification, without actually stating so. In our data, a reason for Dharmapuri district having a large percentage of people involved in enterprise may be due to microfinance programmes that were operating for more than two decades. *Myrada*, an organization that pioneered the self-help group movement, did its early work in Dharmapuri district. Not only are the figures of self-employment distinct in Dharmapuri district, we found that the groups financed wide ranging activities in the district. In our study we found that self-help groups (SHGs) in Dharmapuri had a significant role in meeting the financial needs (savings as well as loans) of the respondents. The supply side constraints of microfinance initiatives pertain to design of the programme and not to the design and delivery of financial products.

Non agricultural rural credit: Demand induced opportunities

When we look at the need for rural credit beyond agriculture, the demand side indicates some market opportunities. The needs of the rural households are no different from those of their urban counterparts. However, the products offered need to be structured properly in order to make them meaningful for the rural areas. One compelling need is that of smoothening the seasonality of cash flows. The formal institutions do not really operate in this space. The SHGs do not seem to see consumption loans as a taboo. The rice credit line experiment in Andhra Pradesh demonstrates how food security can intervene in reducing vulnerability. The scheme had dual purpose of cost savings—as rice is purchased in bulk for the collective and providing food security for the households. It is argued that food stocks helped the poor to bargain for better wages, as they did not have an immediate need to work out of desperation.⁸ If this is indeed the

case, it increases the financial yield for the wage earners and demonstrates that credit has made a difference. The experiment recognizes that there are large numbers of wage earners and the human body is the most productive asset owned by them. This scheme, operated through SHGs, can be easily linked with the formal institutions.

The other demand induced needs for credit can follow the employment pattern in the rural areas. Microfinance deals with income diversification in a limited way, but does not address livelihood issues contributing diversification of income streams. Seasonal migration is a case in point. Seasonal migrants work through a set of contractors called *Mukaddams*. We undertook a study in Ahmedabad and Hyderabad cities, focussing on seasonal migrants in the construction sector. The study shows intricate relationships between the *Mukaddams* and the workers, similar to the relation the farmers have with their input suppliers—a web of interlinked transactions—where the workers are given advances, taken for work, supported for bare subsistence and later given a lump sum wage. It is however, not clear how vulnerable the migrants are. However, as final wage settlements happen at the end of the season, it is likely that they are dependent on the *Mukaddam* to realize the current income and to seek future employment opportunities. There are opportunities for providing an initial loan to reduce the financial dependence on the *Mukaddam* and scope of providing for cash conservation at the destination and services of remittances. This is complex, as the economic activities are happening at two stations—the base of the household and the changing destinations from where they are working.

The other demand-induced loan that is widely documented is for emergency purposes, for which the dependence on informal systems is imperative. While some microfinance initiatives address this by retaining a cash balance, or refinance a bridge loan from the informal sources, it is not widely prevalent. Structuring this from the formal source is a challenge.

The current needs of the households come from a complex web of relationships. It might not be possible to address every need from the formal sources. It needs re-engineering of the current products to address the spectrum of needs. Formal sources may not want to address all the needs. From the view of productivity, we have illustrated how consumption loans on the lines of rice credit line actually may add to productivity, while the other loans are more in the nature of vulnerability reduction. A study indicates that reducing vulnerability in itself could be a laudable goal (Maheshwari 2004). The study compares the pattern of borrowings of members of 2-year old SHGs as against members of 8-year old SHGs and concludes that the cost of borrowing is not different between the two groups. At the initial stages, while the SHG members are heavily dependent on

the moneylender, they also manage their finances by borrowing informally from their friends and relatives who lend at near zero costs. As the SHG grows, their dependence on moneylenders gradually reduces, and concurrently the access to informal finance from networked relationships also reduces. This does not affect the cost of borrowing significantly, but makes the households less dependent on the moneylender. The argument is similar to the vulnerability argument extended in the rice credit line scheme.

In addition there are needs pertaining to asset creation. Some assets lead to augmentation of income sources, some lead to better quality of life. However, we cannot ignore the economic activities that relate to asset creation. Our data from the three districts show the absence of formal sources even in planned events like housing because the design of products is contextually inappropriate. Addressing these needs possibly reduces the dependence on one source and thus makes the households less vulnerable. This in itself could have positive multiplier effects on income yields and productivity.

GENERAL ISSUES PERTAINING TO RURAL CREDIT: INFLUENCE OF MULTIPLE SOURCES

It is evident that the needs of rural credit are not being met by a single agency. The nature of relationships is quite diverse as described below:

- Borrowing from social networks based on reciprocity; there is no appraisal, paper work or collateral. Several times these loans are interest free. This is based on unorganized social capital.
- Forming SHGs and carrying out financial intermediation through them, disproves the notion that the poor cannot save. The paperwork is minimal, collateral is absent and interest margins remain within the community. This works on the organized and formalized social capital.
- Borrowing from informal moneylenders happens when the amount is larger than what social networks can offer. This attracts a high interest, but is timely, quick and flexible. Collateral is negotiated. This disproves the notion that the poor cannot service a high interest rate loan.
- Tied Credit—loans tied to complementary non-financial transactions in land, labour and commodities. The lender deals with the borrower in a 'non-lending' capacity as well; the terms are opaque and tend to be exploitative, even though the transactions costs of borrowing are low.
- Formal financial institutions on the semi-regulated space like companies, chit funds, microfinance institutions.

- Formal financial institutions with state support and patronage in the regulated space like co-operatives and banks.

The question is whether it is desirable to have one dominant source of credit for the rural areas. While it might be desirable to move the financial transactions from the informal (and possibly exploitative) sources to the formal space, the argument that it should be from a single source needs to be examined. It might not be practically possible for a single source to finance the diverse needs of the rural population. Based on our study in the three states we were able to map out the purpose of borrowing (or withdrawal of savings) and the source from which the households borrowed (or withdrew savings) as indicated by our data. The mapping is reproduced in Chart 1.

Chart 1
Pecking Order of Savings/Loan Outlets and Purpose of Savings/Borrowings

<i>Informal</i>			<i>Formal</i>	
Cash Stashed/ Informal	Semi Formal— Money Lenders, Traders	SHGs/Semi formal	Neighbourhood institutions— Co-operatives/ Post offices	'Outsiders'— Banks, Companies, Chitfunds, NBFCs
Emergency and health needs	Consumption, social consumption, asset purchase	Consumption, social consumption, asset purchase, Education	Withdrawal for social consumption, borrowing for working capital, asset purchase	Largely asset purchase, including assets that result in private capital formation

The chart indicates a pattern on how the rural population manage their finances. There are emergency needs at one end and asset purchase at the other. The households straddle between multiple sources for different purposes. Moneylenders seem to be cutting all across the segments, because they are accessible.

The question is whether financial services should be available from diverse sources or limited sources. From the point of view of the customer, it is desirable to have multiple sources offering the services, so that the customer has choices. For the providers it might be good to be a single provider so that any adverse usage and excessive borrowing can be avoided. Ultimately the formal sector will have to find mechanisms of occupying a significant place in each of the need segments. For that, it is extremely important to understand the product attributes of the demand side, so that credit becomes efficient and adds value.

Desirable policy interventions

Our policy interventions look for a quick fix solution. The interventions are finance led. We have to start recognizing that there are no easy solutions and no short term solutions. We need to understand the changing face of Indian agriculture. The provision of financial services is one small part of the issue. The policy has to recognize the fact that rural lending is inherently risky because of the volatility of the underlying economy and there is far less potential for institutions to cover costs. The institutions have to maintain a balance between defaults and administrative/collection costs. Banks do not seem to have a clear idea on what it costs to lend in the rural areas, therefore it might be desirable to institute segmented costing systems where product-wise profitability could be arrived at. If the state still has to make an intervention, it could be used as a basis to target interest subsidies if they are absolutely necessary.

Our argument would be against any interventions in the interest rate space. Instead of controlling at the supply level, it might be a good idea to make rural lending attractive, by removing formal and informal interest rate ceilings. We have seen the microfinance market flourish because the commercial decisions such as interest rates were left to the local conditions. We also see diversity in interest rates applied in the microfinance sphere depending on the situation, but that it is making access friendlier and that it has had an impact is beyond doubt. Banking needs to be unshackled at this stage.

Our data from the field (1616 households) indicated that a large portion of the respondents had borrowed from moneylenders, while a smaller portion had borrowed from SHGs and banks (Table 3). We are not reporting the data from

Table 3
Preference of Households on Attributes of Loan Products

<i>Attributes for Various Agencies</i>	<i>Scores for Attributes: 1 = Very Important, 5 = Irrelevant</i>					<i>Total</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	
Banks/Co-operatives						
Easy Access	153	43	29	14	4	243
Cost of loan	157	64	12	5	5	243
SHG						
Easy Access	283	58	4	3	4	352
Cost of loan	227	91	19	11	4	352
Moneylender						
Easy Access	393	189	152	64	37	835
Cost of loan	156	153	224	187	115	835

other sources (like friends, chitfunds, companies) here as the numbers are small and do not add significantly to the discussion. If we look at the data carefully, we can find that when it comes to the formal sources like the banks, more people think that the loan being cheaper (cost) is an important attribute than access. It is the opposite in case of a moneylender. While this data indicates that people might not be extremely happy with the cost of borrowing from the moneylender, they are quite happy with the fact that it is easily accessible. The microfinance/SHG loans are somewhere in between, ranked high on access and also indicating that the low cost of loan is important to the borrowers. Given that microfinance groups charge higher than the banks, it clearly shows that if we crack the issue of access, there is certainly more headroom to increase the yields to the banking sector and people would be quite happy to bear the increased premium.

We have to recognize that any intervention in rural areas has to have a large non-agricultural element to it; this is the only way we can recognize the seasonality of agriculture. It is absolutely essential to ensure that there are diversified livelihood opportunities across the country. This could happen through dovetailing the livelihood opportunities with other schemes of the government like the rural employment guarantee scheme. It may also be useful to look at migration in a constructive sense and possibly facilitate benign migration in seasons from areas that are poorly endowed with natural resources. Unless the economy is lubricated with constant flow of cash from diverse activities, the vulnerability is only going to increase. In addition there are the usual sore points that have been discussed in literature *ad nauseam*—issues like recognition of tenancy rights; bringing the land records up to date; providing forward/backward linkages; setting up of warehouses and cold chains and clearing the infrastructure bottlenecks.

The issues such as re-negotiation, re-scheduling and re-packaging of loans should be commercial decisions left to the financial institutions. While this flexibility is given to banks for their general portfolio, agriculture suffers from announcements of area wise waiver/repackaging. When this happens in areas that do not have a calamity, it amounts to interfering with the commercial terms of the contracts. This aspect is best left to the discretion of the lender. While targets (these could even be taken to the branch level) have to be set aggressively on priority sector, agriculture and credit-deposit ratios monitored—it might be best to avoid directed credit on 'schemes'.

When we rely heavily on supply led strategy, the entire plan could get derailed. This approach not only hampers the normal lender-borrower relationship that the bank and its client could have, but is also detrimental to the health of the banking system in the long run. The supply side approach actually lends itself more to state-capture because they are loaded with disbursement related targets.

CONCLUSIONS

The basic thrust of this article has been the following: (i) it is extremely difficult to establish the causality of credit-agricultural productivity; there are too many intervening variables; (ii) our policy for rural credit has largely run on uni-focus on agriculture and small supply induced non-farm credit; (iii) the demand side indicates a diverse market; (iv) rural people understand the trade offs between access to financial services and the costs (in terms of access). Therefore the first problem to be addressed by the state is that of access. Market forces will eventually take care of costs; and (v) it is best to have policy interventions in the areas of target setting and branch licensing, while leaving the specifics of individual transactions including write offs and settlements to the commercial acumen of the field functionaries of the institutions.

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Notes

- * This is a substantially revised version of the paper presented at the National Symposium on Farm Credit for Inclusive Growth, College of Agricultural Banking, Reserve Bank of India. Pune: 12–13 January 2007.
- 1. 'Poor' is defined as those who were officially listed in the 'Below Poverty Line' list based on the survey done by the State. We did not impose a participatory wealth ranking or any other criteria, but took the State list as given.
- 2. We engaged the respondents in conversation to check what each member of the family did for a living. For instance, if a person was involved in cultivation and also migrated during some months of a year, and the income from migration exceeded that of cultivation, then their primary employment would be classified as non-farm wage employment and secondary employment would be classified as agriculture.
- 3. All data quoted in this part are from tables on 'Pattern of Land Use and Selected Inputs for Agricultural Production in India'. These figures have been provided by the Reserve Bank of India and were sourced from www.Indiastat.com.
- 4. Data culled from 'Area under crops: Part I', put up by the Ministry of Statistics and Programme Implementation, Government of India; sourced from www.Indiastat.com.
- 5. We have taken 10-year averages to ensure that there are no outlier problems that influence the conclusions.
- 6. Data sourced from tables pertaining to 'Area, Production and Yield of Foodgrains along-with Percentage Coverage under Irrigation in India.' The figures have been provided by Ministry of Agriculture, Government of India; sourced from www.Indiastat.com.

7. Data sourced from 'Area under crops in India', provided by the Ministry of Statistics and Programme Implementation and sourced from www.Indiastat.com.
8. This is based on a conversation the author had with Mr. T. Vijayakumar. T. Vijayakumar is the CEO of Society for Elimination of Rural Poverty that implements the Velugu Programme, and has been at the helm right from its inception.

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