IMPACT OF BANKING REFORMS ON AVAILABILITY OF INSTITUTIONAL CREDIT: AN EMPIRICAL ANALYSIS

Dr. Parvathy S.
Assistant Professor, Department of Economics
S.V.R. N.S.S. College, Kerala
parvathysmail@gmail.com

Dr. Prabhakaran Nair V.R.
Professor, Department of Economics
Sanatana Dharma College, Kerala
prabhakarannair@gmail.com

ABSTRACT
Banking reforms in India since 1991 were intended to create market-oriented institutional credit driven by profitability and competitiveness. However, rural credit in India under banking reform was characterised by declining agricultural credit and rural indebtedness. The trends in agricultural credit in the post-reform period tend to argue that rather than bringing rural banking closer to the poor, the reforms altogether altered the structure of social banking as it evolved in the pre-reform period. Against this argument, the paper tested the implications of the competitive banking sector under reforms for the availability of institutional credit to agriculture. The analysis rests on the proposition that reforms intended to bring competitiveness and efficiency have led to the neglect of agriculture in bank lending, resulting in farmers depending on informal credit. Burdened with the exploitative interest rates of informal credit, farmers ended up in debt traps and committed suicide. Using the methodology of the Instrumental Variable Approach, we have estimated the relationship between 'competition' as a proxy for reforms in the banking sector and the availability of formal credit to agriculture. The study showed that where the banking reforms have brought private and foreign banks in to play a greater role, it has resulted in them not lending to farmers through the institutional credit agencies. The estimation further reveals that reforms have neglected farmers in the lower strata who were not able to get credit on account of their inability to offer collateral to banks for getting loans.
Keywords: Banking Reforms, Competition, Institutional Credit, Indebtedness.

Introduction

Despite over three decades of systematic expansion of the banking infrastructure under reforms in the country, the village studies indicate that informal sources of credit-including usurious moneylenders remain important, and are often dominant and growing sources of credit for rural and agricultural households in the post-reform period (Ramachandran and Swaminathan, 2004). It is true that the formal credit market in India has grown rapidly since the reforms, with a variety of financial products. However, the informal market continues to be pervasive, catering to the diverse credit requirements of rural India. In India, bank reforms have led private banks to expand in urban areas at the expense of poorer rural areas, to 'skim the cream' without contributing to long-term growth (Narayana, 2000). The share of farmers indebted to non-institutional credit sources increased significantly in the post-reform period. More importantly, farmers, especially at the lower end of asset-holding classes, have depended on informal credit at high interest rates. The trends and patterns of agricultural credit and indebtedness among farmers in the post-reform period gives a clear indication that the rural credit structure lacks economy-wide efficiency in allocating credit to the different categories of rural households. Financial liberalisation, especially banking reforms, created a market-oriented institutional credit market that worked on the principles of profitability and competitiveness to impart allocational efficiency. But in the post reform period, rural credit was characterised by declining institutional agricultural credit and increased rural indebtedness to non-institutional credit (Reddy and Galab, 2006). In the absence of adequate institutional credit, the credit supplied by informal money lenders was interlinked with the supply of inputs and the marketing of agricultural output. This affected the farmers' capacity to repay loans, and finally, they were caught up in a debt trap. The interlinking of informal money lending is done by using crops as collateral and the commitment on the part of farmers to sell the output to the money lenders (Bell, 1998; Gill, 2000: 2004). The increasing number of farmer suicides during the last three decades is an indication of the growing indebtedness and distress of farmers.

We propose to argue that the rise in the number of farmer suicides in India is an unintended impact of financial sector reforms, especially the changes in the rural institutional credit structure in the country. Though the entry of foreign and private banks along with more financial instruments and products has made the banking sector more competitive and efficient (Sadanandan, 2014), the sectoral deployment of credit in India in the post-reform period witnessed subtle changes, with bank lending to agriculture slowing down tremendously while that of

 Copyright © The Online Journal of Distance Education and e-Learning

personal and professional services increasing sharply (Reserve Bank of India (RBI), 2014). The formal credit institutions in rural areas after 1991, showed a lethargic attitude towards the provision of credit. There has been a contraction in rural banking in general and in priority lending to the poor in particular (Shetty, 2005). The void created by the unmet credit demand from formal financial sources has led to the widespread dependence of Indian rural households on informal credit sources, namely moneylenders and traders (Pal and Laha, 2014). There has been an explicit increase in the share of moneylenders after 1991 in the rural credit structure (Sathyasai, 2008). With increased competition and profitability consideration under reforms, formal financial institutions found it unprofitable and unreliable to lend to agricultural households. The formal sector dominated by banks did not provide sufficient finance as the rural masses are generally landless, devoid of any collateral to offer. As a consequence, informal credit filled the gap in this demand-supply mismatch. The comparative advantages the informal sector enjoys in terms of information gathering, transaction costs, risk management etc. have given them a distinct edge over the formal sector in rural areas (Gill, 2000). The shrinkage in formal credit forced the farmers to borrow from private money lenders at usurious interest rates and become heavily indebted. When faced with a larger debt burden and the inability to repay this debt, rural farmers in India committed suicide. It is noted that such incidences have happened more in states where financial institutions became more competitive under financial liberalisation. In states where farmer suicides are very high, the percentage of farmers' indebtedness is also high. The argument is that, in an attempt to lend more to economic sectors other than agriculture, the share of agricultural credit came down drastically in the post-reform period. This argument suggests a scope to study the interaction between banking reforms and the availability of institutional credit to farmers to shed light on the economic context within which the rural credit markets in the country operate. In this paper, we thus make an attempt to empirically study the impact of banking reforms on the availability of institutional credit. Under the banking reforms, we use the 'percentage of foreign and private banks' deposits in total deposits' as a proxy for *'competition'.*

The present study is organised as follows: The introduction of the paper is followed by a review of studies in Section 2. To reflect the intensity of the problem of indebtedness under reforms, in Section 3, we have analysed trends in rural credit and farmer suicides in India. The research methodology and data sources used for the study are given in Section 4. Section 5 provides the results and discussion. Section 6 concludes the paper.

Review of Literature

Agriculture plays a crucial role in economic development by generating output and employment for a large section of the population. In developing economies, the rural population is predominantly dependent on agriculture (Soubbotina, Sheram, 2000; Mylott, 2009; Fan et. al., 2005). While the manufacturing sector needs direct input from agriculture in the form of raw materials, the service sector is indirectly dependent on agriculture (Yadav, Sharma, 2015). Being a crucial input in agricultural development, the inadequacy of institutional credit will negatively affect farm output (Guirkinger, Boucher, 2008; Feder 1990). The elimination of people from basic financial services will lead to low output in the economy (Chattopadhyay, 2011). Since agriculture in developing economies is dominated by small and marginal farmers, governments should play an active role to improve the living standards of farmers (Khandker, Koolwal, 2015). However, the majority of farmers do not have access to adequate institutional credit. The vulnerabilities of farmers in terms of the fall in farm prices as a result of the integration of domestic and world markets need to be addressed (Bhalla, Singh, 2009). In the post-WTO period, the production of agricultural commodities had been fluctuating with declining farm prices and an increasing cost of cultivation (Reddy, 2006). The world reference prices for wheat, rice, and edible oil started ruling below domestic prices due to uncontrolled free trade bringing instability in domestic prices (Pal, Wadhwa, 2006).

Though neo-liberal policies alone cannot be made responsible for the farmers' indebtedness and agrarian crisis, it is a fact that the externalities of reforms accentuated the farmers' distress (Deshpande, Arora, 2010). A large volume of studies has examined the growth of formal credit for different economic activities and sectors in the post-liberalisation period, etc., and the supply of credit in the pre and post-1991 periods. All these studies concluded that though there was a significant increase in the supply of credit to the rural sector since nationalisation, the post-1991 period witnessed a decline in rural banking both in terms of infrastructure, networking, and amount of credit allocation (Shetty, 2005; Patnaik, 2005; Chavan, 2005b; Basu, 2005). The post-1991 period is characterised by a decline in rural banking, as reflected in indicators of branch banking and credit disbursement (Rajeev 2011). Many reasons, such as lack of collateral, inability to comply with bureaucratic procedures, illiteracy, etc. were attributed to the inaccessibility of credit in the formal sector (Gupta, Choudhuri, 1997). Financial reforms have significantly cut rural credit along with making productive farm investment more expensive. There were resource and institutional constraints for marginal and small farmers created by the reform process in 1991, which manifested the agrarian crisis of the country. The institutional constraints were evident from the denial of institutional credit to these categories, which resulted in

 Copyright © The Online Journal of Distance Education and e-Learning

low productivity and returns in agriculture (Chavan, 2005). The impact of reforms was evident from the fact that there was a clear-cut change in the institutional policies related to public investment, subsidies, institutional credit, and trade in agriculture, which in turn resulted in the plight of farmers. The impact of reforms was not against all farmers, but discriminatory and provocative enough to widen the gap between institutional credit and the net incomes of farmers among various categories (Reddy, Misra, 2009). National banking policy in the recent period has had an adverse impact on the debt holdings of landless labour households with the squeeze on formal credit and the emergence of professional money lenders. The rural credit policy should build the rural banking system to use small-scale loans as an important national asset (Ramachandran, Swaminathan, 2001). Deprived sections were marginalised under financial liberalisation, which is reflected in both supply side and demand side aspects. The proportion of bank credit to Dalits through small borrower accounts met with a sharp decline in the 1990s and 2000s. Moreover, the proportion of bank credit in total credit declined with a corresponding rise in the share of informal credit, especially money lenders charging high interest rates (Chavan, 2007).

There are wide variations between rural and urban regions across states' banking indicators, with a significant presence of informal sector finance in rural areas. There is a need to widen the scope of financial inclusion so that dependency on informal credit sources can be reduced, especially in the regions and states that are lagging in access to credit. Informal sources play a pivotal role in facilitating savings and credit, and nearly 25 per cent of total households take loans from informal sources while only one-fifth take loans from formal sources (Devaraja, 2011). The capitalist development pursued by Indian states is one of the most important reasons for the low availability of institutional credit, the indebtedness of farmers, and their endangered income security, especially for marginal and small farmers (Chandrasekhar and Parthapratim, 2006).

A number of studies that discussed the agricultural situation in general and farmers' suicides in particular, authentically argued that the most prominent reason is the indebtedness among rural households, especially farmer households (Assadi, 2000; Harper, 2011; Nagaraj, 2008). Some studies specifically pointed out that farmers' average debt holding is higher compared to other rural households (Mitra, Shroff, 2007). It is true that the formal credit market in India has grown rapidly since the 1991 reforms, with a variety of financial products. However, the informal market continues to be pervasive, catering to diverse credit requirements in rural India. Though different reasons, such as unstable farm income, water scarcity, trade liberalisation, the decline in formal credit etc. were attributed by different studies, they pose a pertinent question: if the farmers' indebtedness is the chief reason that forces them to take their lives, then why are the farmers committing suicide only in a few states? It is argued that after the bank reforms of 1991, the public sector commercial banks followed the path of private banks and foreign banks to compete with them and keep up with them in terms of profitability and efficiency (Sadanandan, 2014). In the race to compete with the private and foreign banks and to keep their profitability, the public sector banks gradually reduced lending to the agricultural sector, mainly to small and marginal farmers. Despite the strong presence of competitive financial institutions like banks and cooperatives, rural farmer households depended on informal institutions, including private moneylenders, for credit at exorbitant interest rates. In states where both private and public sector banks were present, the farmers had to depend on private money lenders and traders for credit, leading to a high rate of rural indebtedness. In short, the belief that in the post-reform period the formal sector would serve as a potential source of credit against the exploitative non-institutional credit was proved to be in vain. Rather, competitiveness accentuated the credit crunch, which pushed farmers into the acute debt trap created by the growth of unscrupulous informal credit sources at exorbitant interest rates (Ramachandran, Swaminathan, 2001). The review we have undertaken points to the fact that there is a reduction in institutional lending to agriculture under banking sector reforms. Before undertaking the empirical estimation of the relationship between banking reforms and institutional credit, we discuss the trends in rural lending and farmer suicides, which will set the stage for empirical analysis.

Rural Credit and Farmer Suicides: Trends

One of the important aspects of the agricultural credit system is the availability of banks within the reach of the people. The Indian banking sector was known for its geographic spread across the country due to the government policy of social banking and the deliberate proactive policy of disbursing credit to rural areas. As part of the RBI policy, in the pre-reform period, the commercial banks were required to start at least four banks in unbanked areas to qualify for starting one branch in an already banked area. However, with the reforms in 1991, this policy was abandoned. Under the reforms, it was recommended to close down the non-profitable banks or to merge those institutions with other banks. Thus, it is not surprising to see that reforms had an adverse impact on the further growth of rural institutional banking. As a result of this policy decision, the branches of commercial banks in rural areas, which progressively grew up to 58.46 per cent in 1991, came down drastically to 34.06 per cent by 2020. The reason is that banks began to shut down their unviable rural branches on account of the directed principles of efficiency and competitiveness under reforms. On the contrary, and not

surprisingly, the share of banks in non-rural areas spread across semi-urban, urban, and metropolitan areas has shown tremendous progress under the neo-liberal era. The sharp divergence between rural and non-rural areas since nationalisation in 1989 is vividly shown in table 1.

Year	Rural	Non-Rural
1969	17.63	82.37
1981	49.45	50.55
1991	58.46	41.54
2001	49.40	50.60
2011	36.81	63.19
2020	34.92	65.08

Table 1
Source: RBI, Banking Statistics
Table 1, showing Rural and Non-Rural Branches of Scheduled Commercial Banks (% to total)

The data on the disbursement of credit to the agricultural sector shows that liberalisation measures in the banking sector have failed to accelerate credit flow to rural households. The composition of borrowing in rural areas since 1991 is given in table 2. It is evident that in the post-reform period, household debt from non-institutional sources of credit has increased significantly. The relative share of formal credit increased from 53.3 per cent in 1991 to 57.2 per cent in 2002. Though this increase is definitely an improvement in the institutional sources of lending, by 2012 the share had declined to 56 per cent. The divergence of institutional credit between rural and urban areas showed a contrasting pattern. It is clear that debt from institutional sources of credit is much higher for urban areas, as evident from the fact that the share of institutional credit in urban areas has witnessed a gradual increase from 59.9 per cent in 1991 to 84.5 per cent in 2012.

Agency	Rural			Urban		
	1991	2002	2012	1991	2002	2012
Institutional Agencies	**53.3**	**57.2**	**56.0**	**59.9**	**75.7**	**84.5**
Cooperative societies/banks	25.7	28	24.8	21.9	22	18.0
Commercial banks	20.7	22.7	25.1	16.3	30.6	57.1
Non-institutional agencies	**42.3**	**42.8**	**44.0**	**37.4**	**24.2**	**15.5**
Land lords	3.9	0.6	0.7	0.3	0.2	0.1
Agricultural Moneylenders	8.1	9.6	5.0	0.6	0.6	0.1
Professional moneylenders	13.3	20.6	28.2	14	13.3	10.6
Traders	4	2.9	0.1	1.3	3.5	-
Relatives and Friends	8.9	7.4	8.0	7	13.9	4.2
Others	4.2	1.7	1.4	1.8	5.1	0.5

Table 2
Source: NSSO, All India Debt and Investment Survey (AIDIS), Various Rounds
Table 2, showing Agency-wise percentage share of rural and urban institutional and non- institutional credit

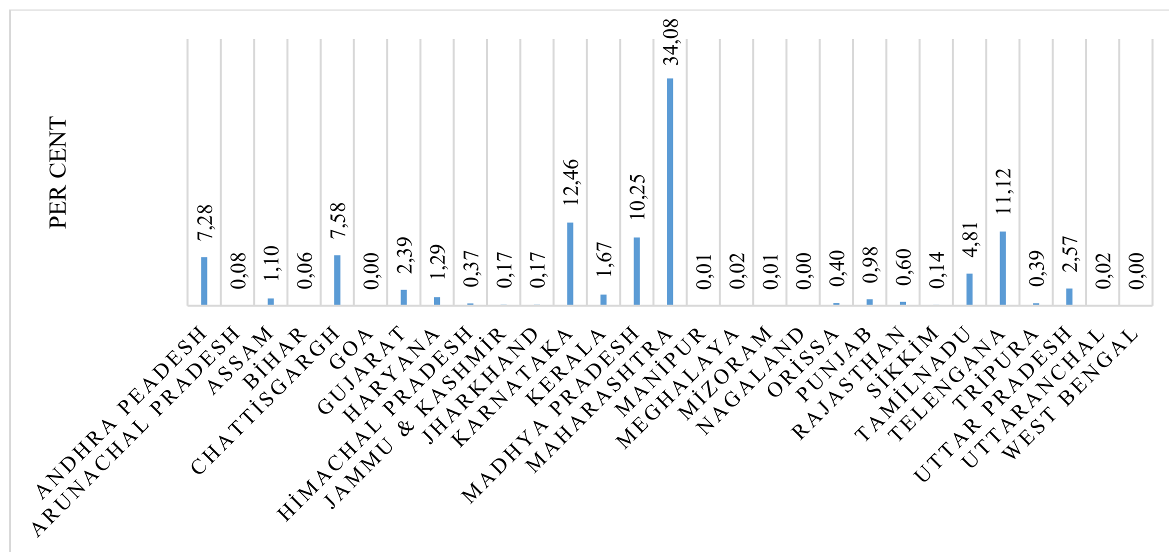
The increase in non-institutional credit in rural areas is solely due to the increase in professional money lenders. In rural areas, non-institutional credit was dominated by credit from professional money lenders. Since 1991, the share of professional money lenders in non-institutional credit in rural areas has witnessed significant growth, from 13.3 per cent in 1991 to 20.6 per cent in 2012. In tandem with the increasing trend of informal credit from professional money lenders, the post-1991 period also witnessed a tremendous increase in farmer suicides. During the period 1995–2015, more than 3 lakh farmers committed suicide in India, as seen in table 3. It is evident that the growth in the number of suicides is not a phenomenon as it has only been in some years. On the other hand, it has happened every year since 1995. In table 3, farmer suicides in India and their percentage of total suicides are given, which shows that the number of farmer suicides in 2015 was much higher than what it was in 1995 (Table 3).

 Copyright © The Online Journal of Distance Education and e-Learning

Year	No. of Farmers/Cultivators Suicides	No. of Suicides-Total	Farmers suicides (as % of total)
1995	10699	87428	12.24
2001	16284	106475	15.29
2005	16956	111802	15.17
2010	15933	132226	12.05
2013	11744	131830	8.91
2015	12590	130639	9.64
Total (1995-2015)	**319219**	**2393207**	**13.34**

Table 3
Source: National Crime Records Bureau (NCRB), Annual Report
Table 3, showing Farmer Suicides during 1995-2015 (Number and Percent)

A close perusal of the farmer suicides in India reveals the pattern that farmer suicides have not occurred in the country as a whole, but they have happened mainly in five states. More than 65% of farmer suicides in India that occurred since 1995 have concentrated mainly across the states Andhra Pradesh, Chhattisgarh, Karnataka, Kerala and Maharashtra (Figure 1). The state-wise occurrence of farmer suicides in India specifically for the year 2015 is given in figure 1. A closer look at the data shows that though farmer suicides are seen in almost all states, in the majority of the states the share of farmer suicides is minuscule. This means that even when farmer suicide is considered a country-wide phenomenon, it is highly concentrated in fewer states. Eight states showed a high share of farmer suicides in 2015. In other words, more than 85 per cent of farmer suicides happened across only eight states: Andhra Pradesh (7.28 percent), Chattisgarh (7.58 per cent), Karnataka (12.46 per cent), Madhya Pradesh (10.25 per cent), Maharashtra (34.08 per cent), Tamil Nadu (4.81 per cent), Telangana (11.12 per cent) and Uttar Pradesh (2.57 per cent) (Figure 1).



Source: National Crime Records Bureau (NCRB), Annual Reports
Figure 1: State wise distribution of farmer suicides in 2015

It is pertinent to note that though the number of farmer suicides is very high, a major share of these suicides happened particularly in fewer Indian states. In these Indian states where farmers' suicides concentrate, agriculture is more commercialised and institutional banking is more developed with the spread of formal financial institutions. We have seen from our analysis that bank credit to agriculture has witnessed declining trends in India. One may argue that the reduction in banking lending, the farmers' dependence on money lenders, and the resultant suicides on account of indebtedness were not accidental occurrences. Rather, the trends in credit disbursement and indebtedness of farmers lend credence to the fact that the reduction in institutional lending to agriculture was clearly a function of competitiveness and efficiency associated with banking reforms that brought the arena of less profitable agriculture and farmers out of the purview of institutional lending. In other words, the commercial banks competing with the private and foreign banks to

achieve efficiency and profitability have diverted the funds to profitable sectors other than priority sectors including the agricultural sector. Banking reforms demanding the competitiveness of banks have thus caused the inaccessibility of institutional credit by farmers and increased indebtedness to money lenders in the informal credit market. We propose the argument that low avalability of agricultural credit the high incidence of farmer suicides is only due to the structural factor – '*competitiveness'* under banking reforms. Against this, we now turn to empirical testing of the causal relationship between '*competitiveness'* under banking reform and the availability of institutional credit to agriculture.

Methodology and Data Sources
The Model: Instrumental Variables (IV) Approach
The methodology we use is the instrumental variable approach. The instrumental Variables (IV) approach is a method of estimation when the correlation between the explanatory variables or the error term exists due to factors like omitted explanatory variables, potential endogeneity, measurement etc. We follow the instrumental variables approach to overcome the problems of biased estimates occurring in the context of potential endogeneity and omitted explanatory variables. A number of instruments are used to study the relationship between banking reforms taken as *Competition (COMP)* and the availability of agricultural credit (AGRICREDIT). These are explained in the following section.

Dependent Variable and Instruments Used
Agricultural Credit *(AGRICREDIT)*
The dependent variable used is the availability of agricultural credit in the economy. We measure AGRICREDIT as the percentage of direct lending to farmers in total credit. We estimate the impact of competition and other explanatory variables in determining the availability of credit.

Competition (*COMP*)
To capture the competitiveness of the banking sector reforms, the main instrument used is COMPETITION measured by the percentage share of foreign and private banks' deposits in total deposits. This is on the assumption that banking reforms have led to the establishment of private and foreign banks under liberalisation that has been guided purely by the principles of profitability (Sahu and Rajasekhar, 2005). We expect a negative relationship between competition and lending to agriculture.

Rural Banking (*RURALBANK*)
In India, rural banks are supposed to lend to the rural sector, especially to farmers. We assume that the rural banks were not guided by the principles of profitability or efficiency considerations under the reforms since their stated policy is to provide credit to the rural population. Based on this, we assume that states, where regional rural banks have a significant presence, will lend more to agriculture. We use the deposits mobilised by regional rural banks to capture the presence of rural banking institutions, viz. RURAL BANKING.

Commercial Banking *(COMMBANK)*
We hypothesise that commercial banks have not directed loans to farmers significantly, since they were following the principles of profitability and competitiveness under reforms like private and foreign banks. We thus expect a negative relationship between commercial banking and agricultural loans. We use the share of deposits of all national commercial banks as a proxy for commercial banking to estimate the relationship.

Cooperative Banking *(COOPERATIVES)*
In the Indian rural credit structure, cooperatives played a pivotal role in financing agriculture. It was expected that where the number of cooperatives is high, the farmers will have easier access to these cooperatives than banks and other financial institutions, as these are guided by the principles of cooperative banking. We use the total number of cooperative societies and banks per 1 lakh population in the states considered in the estimation. We use the log of this variable in the final estimation. The expected relationship is positive.

Marginal Farmers (*MARGIN FARM)*
Marginal farmers include small and medium farmers who generally do not own land or any other asset to offer as collateral to secure loans. So we postulate that if the share of marginal farmers is high in a state, then the lending to farmers will be low. We anticipate a negative relationship between marginal farmers and lending to agriculture. Following the National Sample Survey Organisation (NSSO) classification of farmers in India, we take the share of farmers with less than 2 hectares of land as marginal farmers.

Irrigation (*IRRIGLAND*)
Irrigation is an important input in agriculture that ensures profitability. If the state has a well-connected irrigation system, the banks would be lending more to farmers in these states. On this assumption, the area of irrigated land is taken as a proxy for irrigation.

Agricultural Productivity (*AGRIPROD*)
We assume that, in states having higher growth in agriculture, banks would lend more to farmers on the expectation of a higher rate of repayment of loans by the farmers. The annual growth rate of agriculture is used as an instrument in the model.

Share of Industrial Sector *(INDUSTRY SHARE)*
If the industrial sector has a more prominent role than the agricultural sector, banks would lend more to industrial units. Industry share is captured as industry size, measured as the share of the industrial sector in the State's gross domestic product. We anticipate a negative relationship between industry share and bank lending to agriculture.

Share of Service Sector *(SERVICE SHARE)*
We expect that banks will lend more to services if the share of services is prominently high in the state. As in the case of industry share, service share is the service sector's size. The size of the service sector is the percentage share of the service sector in the state's gross domestic product. We thus expect that there will be a negative relationship between the service sector's share and bank lending to agriculture.

Model Specification
Utilizing the above stated variables as instruments and the relations we have anticipated between each instrument and institutional lending to agriculture, we express the econometric model as follows.
AGRI CREDIT = β_0 + β_1 COMP + β_2 RURALBANK + β_3 COMMBANK + β_4 CO OP BANK - β_5 MARGIN FARM + β_6 IRRILAND + β_7 AGRIPROD - β_8 INDUSTRY SHARE - β_9 SERVICE SHARE + u.

Data and Estimation
Data on agricultural productivity and irrigation were obtained from the Ministry of Agriculture, Government of India. Data on the share of industrial and service sectors in states were collected from the National Accounts Statistics. The Ordinary Least Squares Method (OLS) was used to estimate the specified equation of the endogenous model. We tested the hypothesis that '*competition' under* bank reforms led to a significant decline in agricultural credit. We estimate the equation for the period 1995–2015, covering 17 major states in India. The union territories, small states, and north-eastern states are eliminated from our estimation.

Results and Discussion
The results of the estimation clearly indicated that competition under banking reforms has led to banks withdrawing from lending to farmers in an attempt to increase their profitability and competitiveness in a market-driven economy. The results are given in table 4. The variable COMP which captures competitiveness, shows a negative impact on agricultural credit that is statistically significant. As we have anticipated, in states where the banking reforms have brought private and foreign banks in to play a greater role, it has resulted in them not lending to farmers. Using *competitiveness* as a proxy for banking reforms, we can say that bank reforms per se have not resulted in economy-wide efficiency in the credit market. To make it clearer, in states such as Bihar, Haryana and Punjab the deposits held by foreign and private banks as a share of total deposits were less than one per cent. But these two states together contributed a fifth to a quarter of all bank loans disbursed to farmer households. On the other hand, though foreign and private banks in Kerala and Maharashtra contributed 35-40 per cent of the total deposits; the bank lending to farmer households was less than three per cent (calculation based on RBI data).

Independent Variables	Value
COMP	-0.16** (0.05)
RURALBANK	0.68*** (0.18)
COMMBANK	-0.34*** (0.10)
COOPERATIVES	1.03*** (0.13)
INDUSTRY SHARE	0.13 (0.07)
SERVICESHARE	0.15 (0.06)
ARGIPROD	0.004 (0.01)

 Copyright © The Online Journal of Distance Education and e-Learning

IRRIGATED LAND	0.18^{***} (0.01)
SMALL & MARGINAL FARMERS	-0.06^{**} (0.022)
Year effects	Yes
Constant	20.79^{***} (6.23)
R^2	0.63

Table 4
Table 4, showing Results of OLS Estimation-Dependent Variable: AGRICREDIT
The same is the result of the impact of national commercial banks on agricultural credit. The relationship is negative and significant. In the post-liberalised era, the national commercial banks' lending to agriculture declined. In the race to follow suit with private banks and foreign banks, they also did not lend to farmers significantly in the post-reform period. It is pointed out that in the post-liberalisation period, both public and private banks have become competitive (Sadanandan, 2014). What emerges from these results is that in states where banking reforms have brought competition and efficiency in the financial sector, credit disbursement to farmers was very low. However, in line with our anticipation, the presence of rural banks and cooperative banks in states has resulted in an increased flow of credit to farmers. This is not surprising since these regional rural banks and cooperative banks have not been affected by the so-called efficiency and competition parameters of the neo-liberal policy reforms in the banking sector. Both RURAL BANK and COOP BANK have a positive and statistically significant relationship with farmer lending in our model.

We assume that the large share of marginal farmers in a state will result in banks' lending less to these categories. It is often pointed out in many studies and reports that the farmers in the lower asset strata, such as small and marginal farmers, are eliminated from getting access to formal credit on account of their inability to offer collateral to banks for getting loans. The negative and statistical significance obtained in our model with regard to MARGINFARM is thus unsurprising. A good portion of the marginal farmers had no plots of land, and the increased number of them in total had reduced lending to them. Generally, it is viewed that cultivating small plots of land is not viable and profitable, and this will also contribute to the reduction in the availability of loans. Contrary to MARGIN FARM, variable irrigation increases the chance of securing bank loans for farmers. The variable IRRIGATED LAND has a positive and significant relationship with agricultural lending. This shows that the anticipation of the profitability of cultivating irrigated land helped banks provide loans to farmers in such states.

Contrary to our expectations, the size of the industrial sector, agricultural productivity, and the size of the service sector did not affect lending to farmers. We expected that the increased share of industry and service sectors in states would lead to a reduction in lending to the agricultural sector and farmers. The conclusion is that it is not the size of any sector, but its profitability that matters for banks to lend. The lack of relationship with the size of the industrial and service sectors, agricultural productivity, etc. lends credence to the fact that these were not determining factors affecting lending to farmers. This has led farmers to depend on informal credit sources, which has in turn increased indebtedness.

Conclusion

Though the studies on financial liberalisation argued that financial liberalisation has adversely affected the rural credit flow, none of the studies provided comprehensive evidence for such an argument. We have empirically tested the relationship between banking reforms and the low availability of institutional credit to farmers in India. Using the methodology of the instrumental variable approach, first, we have estimated the relationship between competition under banking sector reforms (COMP) and the availability of institutional credit. The specified equation of the endogenous model estimated using the Ordinary Least Squares Method (OLS) shows that the variable competition affects institutional lending to agriculture, as evidenced by a negative relationship that is statistically significant. This finding lends credence to the fact that the banking reforms have given private and foreign banks a prominent role, with public sector banks competing with them to achieve greater efficiency and profitability, which has resulted in the formal banking sector not lending to farmers. The estimation further reveals that in the process of increased competition under banking reforms, the farmers in the lower asset strata, like small and marginal farmers, were not able to get formal credit on account of their inability to offer collateral to banks for getting loans. Banking reforms in India were intended to create a market-oriented institutional credit driven by profitability and competitiveness. However, rural credit in India under reform was characterised by declining agricultural credit and rural indebtedness. The trends in agricultural credit in the post-reform period tend to argue that rather than bringing rural banking closer to the poor, the reforms altogether reversed the structure of social banking as it evolved in the pre-reform period. The study proved that the competition under banking reforms is an important factor that reduced institutional credit to agriculture and later led to indebtedness and farmer suicides.

References

Assadi, M. (2000). Karnataka Seed Tribunal: Interrogating Farmers' Suicides. *Economic and Political Weekly.* 35(43-44), 3808-3810.

Basu, Priya. (2005): A Financial System for India's Poor. *Economic and Political Weekly.* September 10. 4008-4012.

Bell, C. (1988). Credit Markets and Interlinked Transactions, In: H. Chaney and T.N. Srinivasan (eds.), *Handbook of Development Economics*. Vol. 1, Elseneia Science Publishers: B.V.

Bhalla, G.S. and Gurmail Singh. (2009). Economic Liberalisation and Indian Agriculture: A State-wise Analysis. *Economic and Political Weekly,* 44 (52), 34-44.

Binswanger, H.P. S.R. Khandker., & Rosenzweig, M,R. (1993). How Infrastructure and Financial Institutions Affect Agricultural Output and Investment in India. *Journal of Development Economics.* 41, 337-366.

Chandrasekhar, C.P. & Parthapratim Pal. (2006) "Financial Liberalization in India: An assessment of Its Nature and Outcomes," *Economic and Political Weekly*, XLI (1):975-988.

Chattopadhyay, Sadan, Kumar (2011) Financial Inclusion in India: A case-study of West Bengal. MPRA Paper No. 34269.

Chavan, Pallavi. (2005 b). How 'Inclusive' Are Banks under Financial Liberalisation?. *Economic and Political Weekly*. 40(43), 4647-4649.

Chavan, Pallavi. (2005a). Banking Sector Liberalisation and Growth and Regional Distribution of Rural Banking in India, In: V. K. Ramachandran & M. Swaminathan (Eds.), *Financial Liberalisation and Rural Credit in India* (110-136) New Delhi: Tulika Books.

Chavan, Pallavi. (2005a). Banking Sector Liberalisation and Growth and Regional Distribution of Rural Banking in India, In: V. K. Ramachandran & M. Swaminathan (Eds.), *Financial Liberalisation and Rural Credit in India* (110-136) New Delhi: Tulika Books.

Chavan, Pallavi. (2005b). How 'Inclusive' Are Banks under Financial Liberalisation?. *Economic and Political Weekly*. 40(43), 4647-4649.

Chavan, Pallavi. 2007. 'Access to Bank Credit: Implications for Rural Dalit Households'. *Economic and Political Weekly*, 42 (31): 3219-3223.

Debdatta Pal & Arnab Kumar Laha (2014). Credit off-take from Formal Financial Institutions in Rural India: Quantile Regression Results. *Agricultural and Food Economics*, Volume 2, Number 9.

Deshpande, R.S., and Saroj, Arora. (2010). *Agrarian Crisis and Farmers' Suicides*. New Delhi: Sage Publications.

Devaraja T.S. (2011). *An Analysis of Institutional Financing and Agricultural Credit Policy in India*, Working Paper, sibresearch.org/uploads/2/7/9/9/institutional-financing--devaraja.pdf. (Accessed on February 28, 2016).

Fan, S., Chen-Kang, C., & Mukherjee, A. (2005). *Rural and urban dynamics and poverty: Evidence from China and India.* Food Consumption and Nutrition Division, Discussion Paper No. 196, International Food Policy Research Institute: Washington.

Feder G., L.J., Lalu., J.Y. Lin., and X. Luo. (1990) The relationship between credit and productivity in Chinese Agriculture: A microeconomic model of disequilibrium. *American Journal of Agricultural Economics* 72 (5): 1151-1157.

Gill, Anita (2004). Interlinked Agrarian Credit Markets: Case Study of Punjab". *Economic and Political Weekly*. 39 (33): 3741-3651.

Gill, Anita. (2000), *Rural Credit Markets: Financial Sector Reforms and Informal Lenders*. Deep and Deep Publications, New Delhi.

Guirkinger, C., & Boucher, S. R. (2008). Credit Constraints and productivity in Peruvian agriculture. *Agricultural Economics*. 39(3):295-308.

Gupta, Manas, Ranjan., and Sarbajit, Choudhuri. (1997). Formal Credit, Corruption and the Informal Credit Market in Agriculture: A Theoretical analysis. *Economica.* 64 (254): 331-43.

Harper, M. (2011). Taking Stock: Agrarian Distress in India: Poor Indian Farmers, Suicides and Government. *Enterprise Development and Microfinance.* 22(1):11-16.

Jeromi, P. D. (2007). Farmers' Indebtedness and Suicides: Impact of Agricultural Trade Liberalisation in Kerala, *Economic and Political Weekly*, 42(31):3241-3247.

Jeromi, P. D. (2007). Farmers' Indebtedness and Suicides: Impact of Agricultural Trade Liberalisation in Kerala, *Economic and Political Weekly*, 42(31):3241-3247.

Khandker, S. R., & Koolwal, G. B. (2015). How has microcredit supported agriculture? Evidence using panel data from Bangladesh. *Agricultural Economics*.

Mishra, S. (2006a). Farmer Suicides in Maharashtra. *Economic and Political Weekly*. 41(16), 2006:1538-1545.

Mishra, S. (2006b). *Suicide of Farmers in Maharashtra*, Bombay: Government of Maharashtra.

Mishra, S. (2007). *Agrarian Crisis in Post-Reform India: A Story of Distress, Despair and Death*, *Working Paper No. 1*. Mumbai: Indira Gandhi Institute of Development Research.

Mitra, S., & Sangeeta, Shroff. (2007). Farmers' Suicides in Maharashtra, *Economic and Political Weekly*. 42(49):73-77.

Mohanakumar, S., & Sharma, R. K. (2006). Analysis of Farmer Suicides in Kerala, *Economic and Political Weekly*. 41(16):22-28.

Mylott, E. (2009). Urban-rural connections: A Review of the literature.

Nagaraj, K. (2008). *Farmers' Suicides in India: Magnitudes, Trends and Spatial Patterns*, Madras: Madras Institute of Development Studies.

Narayana, D. (2000). *Banking Sector Reforms and the Emerging Inequalities in Commercial Credit Deployment in India*. Centre for Development Studies, Working Paper, 300, Thiruvananthapuram.

NSSO (1998). Indebtedness of Rural Households as on 30-06-1991, Debt and investment Survey, NSS 48th Round, January-December 1991, Ministry of Statistics and Programme Implementation Government of India, New Delhi.

NSSO (2005). Indebtedness of Farmer Households in India. Situation Assessment Survey of Farmers, Report No. 498, 59th round. 2003. National Sample Survey Organisation, Ministry of Statistics and Programme Implementation Government of India, New Delhi.

NSSO (2014), Key Indicators of Situation Agricultural Households in India. 2012. 70th Round. National Sample Survey Organisation, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

Pal, Parthapratim and Deepika, Wadhwa. (2006). *An Analysis of the Special Safeguard Mechanisms in the Doha Round of Negotiations*, Working Paper No.189, Indian Council for Research on International Economic Relations (ICRIER), New Delhi.

Patnaik, Prabhat. (2005). Financial Liberalisation and Credit Policy., In: V.K Ramachandran and Madhura Swaminathan (eds), Financial Liberalisation and Rural Credit in India. Tulika Books, New Delhi.

Rajeev, Meenakshi, Vani, B.P., and Bhattacharjee, Manojit. (2011). *Nature and Dimensions of Farmers' Indebtedness in India and Karnataka*, Working paper 267, The Institute for Social and Economic Change, Bangalore.

Ramachandran V. K., and Swaminathan, M. (2004). *Financial Liberalisation and Rural banking in India*, Paper presented in the International Conference on "The Agrarian Constraint and Poverty Reduction: Macroeconomic Lessons for Africa", organized by International Development Economics Associates (IDEAs), Ehiopian Economic Association (EEA) and CODESRIA, Addis Ababa, Dec 17-19, 2004.

Ramachandran, V. K., & Swaminathan, M. (2005). *Financial Liberalisation and Rural Credit in India*. New Delhi: Tulika Books.

Ramachandran, V. K., and Madhura Swaminathan. (2001). *Does Informal Credit Provide Security? Rural Banking Policy in India*. Geneva: International Labour Office.

Reddy, D. Narasimha., and Srijit, Mishra. (2009). Agriculture in the Reforms Regime., In: D. Narasimha, Reddy and Srijit Mishra (Eds.). *Agrarian Crisis in India.* Oxford University Press: New Delhi.

Reddy, Narasimha. D. (2006). *Economic Reforms, Agrarian Crisis and Rural Distress*. Fourth Annual Prof. B. Janardhan Rao Memorial Lecture, Warangal.

Reddy, V. Ratna., & S. Galab. (2006). Agrarian Crisis: Looking Beyond the Debt Trap. *Economic and Political Weekly*. 41(19):1838 -1841.

Reserve Bank of India. (2014). *Priority Sector Lending: Targets and Classification*. Mumbai, India: Financial Inclusion and Development Department.

Reserve Bank of India. (2014). *Priority Sector Lending: Targets and Classification*. Mumbai, India: Financial Inclusion and Development Department.

Sadanandan, Anoop. (2014). Political economy of suicide: Financial reforms, Credit crunches and farmer suicides in India. *The Journal of Developing Areas*. 48(4).

Sahu, Gagan, Bihari., & D. Rajasekhar (2005). Banking Sector Reform and Credit Flow to Indian Agriculture, *Economic and Political Weekly*, Vol. XL (53): 5550 -5559.

Satyasai, K. J. S. (2008). Rural credit delivery in India: Structural constraints and some corrective measures. *Agricultural Economics Research Review. 21*:387-394.

Shetty S.L. (2005). Regional, Sectoral and Functional Distributional Distribution of Bank Credit, In: V.K Ramachandran and Madhura Swaminathan (eds), Financial Liberalisation and Rural Credit in India. Tulika Books, New Delhi.

Shetty S.L. (2005). Regional, Sectoral and Functional Distributional Distribution of Bank Credit, In: V.K Ramachandran and Madhura Swaminathan (eds), Financial Liberalisation and Rural Credit in India. Tulika Books, New Delhi.

Shetty, S. L. (1997). Financial Sector Reforms in India: An Evaluation. *Prajnan*, 25 (3-4): 253-87.

Soubbotina, T. P., & Sheram, K. (2000). *Beyond economic growth: Meeting the challenges of global development.* World Bank Publications, World Bank, Washington DC.

 Copyright © The Online Journal of Distance Education and e-Learning

Sridhar, V. (2006). Why Do Farmers Commit Suicide? The Case of Andhra Pradesh. *Economic and Political Weekly*. 41(16):1559-1565.

Taylor, M. (2013). Liquid Debts: Credit, Groundwater and Social Ecology of Agrarian Distress in Andhra Pradesh, India. *Third World Quarterly,* 34(4):691-709.

Yadav, Priyanka., and Sharma, K. Anil. (2015). Agriculture Credit in Developing Economies: A Review of Relevant Literature. *International Journal of Economics and Finance*. Vol 7 (12), Published by Canadian Center of Science and Education.

 Copyright © The Online Journal of Distance Education and e-Learning