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INFRASTRUCTURAL FACILITIES AND AGRICULTURAL DEVELOPMENT IN INDIA: WITH REFERENCE TO AGRICULTURAL CREDIT

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ABSTRACT

Agriculture lies at the heart of rural livelihoods. Despite its declining share in the total GDP, agriculture continues to engage around half the country's total workforce and over two-thirds of the rural workforce. Most of India's poor also depend on agriculture, making the agricultural sector a vital focus area in attempts at alleviating poverty. The strong positive correlation between the level of infrastructure and the economic development has been a well-established fact in the development economics literature. In Keynesian macroeconomic model, the income or the output in the economy derives also from the level of investment made in the economy. Agriculture sector credit flow has been influenced by fallout of implementation of various accounting and statutory norms without taking into account the ground level realities, which led to irreparable damage to the rural financial architecture in the post liberalization era. The analysis shows that small and marginal farmers have been observing bias in agriculture delivery. The reforms period has led declining flow of agriculture credit especially long-term credit. The doubling of credit flow programme did boost the flow of credit but situation changes after 2006-07. The main challenge faced by agricultural credit involves not only ensuring flow of credit to small and marginal farmers, but designing policies and credit delivery systems that have relevance in the present context in terms of production and demand for agricultural products.

KEYWORDS
infrastructure, agriculture, credit, development.

INTRODUCTION
Agriculture lies at the heart of rural livelihoods. Despite its declining share in the total GDP, agriculture continues to engage around half the country's total workforce and over two-thirds of the rural workforce. Most of India's poor also depend on agriculture, making the agricultural sector a vital focus area in attempts at alleviating poverty. Having realised the importance of infrastructure to achieve faster rate of economic growth, the Government of India as well as the State Governments have ventured into making heavy investment in agricultural infrastructure especially from the First Five-Year Plan onwards. The major focus of infrastructural investment has been on irrigation, transportation, electric power, agricultural markets, etc and these not only contributed to the agricultural growth at the macro level but also to wide disparity between different regions in terms of agricultural growth. Since the responsibility of providing infrastructure is with the state which aims at rapid growth of agricultural production for attaining other kinds of developmental goals such as poverty alleviation, there exists a tendency among the decision-makers to invest heavily in those areas where there is a potential for fast agricultural growth. This is also supported by the financial resources available with the concerned governments.

IMPORTANCE OF INFRASTRUCTURE
One of the central questions in the economic growth paradigm is how different factors of production contribute to aggregate output. This contribution is made by income earned by the factors of production, which in a perfectly competitive economy, will equal their marginal value products in the absence of externalities. This has important policy implications in terms of appropriate level of investment in different sectors, since the market will tend to provide capital in response to price signals, which reflect private benefits and ignore externalities. If there are large externalities, there is a need for government intervention to achieve more efficient allocation of resources, though government intervention itself has its own costs. The fact that infrastructure services are often provided by the public sector means they are often not priced at all, or are rationed, and we have difficulty even in estimating the private productivity of infrastructure capital. The strong positive correlation between the level of infrastructure and the economic development has been a well-established fact in the development economics literature. In Keynesian macroeconomic model, the income or the output in the economy derives also from the level of investment made in the economy. It should be noted that out of all the four factors contributing to income of a nation namely, consumption expenditure, investment expenditure, government expenditure and net income from abroad, income from investment comes both from investment expenditure especially by private individuals as well as from government spending. Though the income in the Keynesian model refers to short-term income, usually measured on annual basis, the investment made also includes long-term investment such as investment in basic infrastructural facilities. Since the model is based on the notion that there is a direct positive correlation between income and the investment, investment in infrastructure is economically justified.

AGRICULTURAL CREDIT
Agriculture sector credit flow has been influenced by fallout of implementation of various accounting and statutory norms without taking into account the ground level realities, which led to irreparable damage to the rural financial architecture in the post liberalization era. The agriculture finance is being viewed as a risky proposition now. This has led to piquant situation where the share of small and marginal farmers in total credit flow has declined when share of this group of farmers in operational holdings over the period has increased. Besides, dalit and tribal farmers are largely observing declining share in credit flow. We encounter a situation when these farms have increased their contribution in agricultural production thereby immensely contributing to food security and attaining food self-sufficiency, the share in total credit has declined.

IMPORTANCE OF CREDIT AS AN AGRICULTURAL INPUT
Recent growth of Indian economy has been primarily service-led. The service sector has completely replaced agriculture, which has been traditionally the largest contributor to India's GDP. However, the fact that agriculture has a small share of 14 percent in GDP today comparing to a share of more than 50 percent in total GDP, does not belittle its importance for the Indian economy. This is because first, agriculture remains the largest employer having a share of around 60 percent; second, it holds the key to creation of demand in other sectors and remains by far an important indirect contributor to India's GDP growth. Commercial banks have played an important role in financing the needs of agricultural sector. With the aim of facilitating timely and adequate credit flow to agriculture, the sector has been targeted as a part of the priority sector lending programme introduced after nationalisation of banks in 1969. Since then, banks have become gradually an important source of agricultural credit, although the growth in their share has not been monotonic during 1980s. In the first half of 2000s, there has been a steep rise in the share of commercial banks in total agricultural credit. Starting 1990s, the share of short-term agricultural credit in total agricultural credit has been going up. Newer credit delivery systems in the form of Kisan Credit Card (KCC) were introduced to provide easy access to credit.

Banks like NABARD has grown and evolved over the last three decades from a uni-dimensional apex financing agency into a multi-dimensional institution for shaping and implementing the country's overall rural credit policy. In the first two decades after independence, the conduit for institutional credit to agriculture was the cooperative sector. Although sound in concept, the cooperative sector failed to live up to expectations. With the nationalisation of commercial banks, the decade of 1970 marked the entry of commercial banks into agricultural credit. Over the last 40 years, there has been a striking increase in the credit intensity of agriculture as measured by the ratio of agricultural credit to agricultural GDP. The credit intensity increased from 12 percent in the early 1970s to 67 percent by 2010-11 (Subbarao, 2012).

Capital formation in agriculture has been another aspect that has attracted the attention of researchers. A study by Karmakar (1998) has examined the growth trends in capital formation in agriculture in both public and private sectors. It finds the declining trend in both the public and private sources of capital formation. In fact, as per this study, the share of gross capital formation had declined from 15 percent in 1980-81 to 8 percent in 1990-91. It finds that the real gross capital formation in agriculture sector showed negative growth rates of 2 percent per annum during the sixth plan and 1.4 percent per annum during the seventh Plan. Correspondingly, the share of agriculture sector as percentage of total investment in economy had also declined from 18.2 percent in fifth plan to 15.1 percent in the sixth plan and further to 11.9 percent during the seventh Plan.

PERFORMANCE OF AGRICULTURAL CREDIT

There have prevailed various inter-state differences in the access to institutional credit as well as the loan amount obtained by farm households even for the same size class of landholding. Owing to which, an analysis of status and performance of agricultural credit has been the major concern of the available literature on agricultural finance. Such literature facilitated policy makers in taking review of progress already made and thereby it helped them in taking the appropriate corrective action. There appeared a large number of studies that have examined this aspect. Sahu (2008), for example, analyses the trends in the supply of agricultural credit by institutional agencies in fourteen major Indian states. It observes that the growth rate of agricultural credit was higher during per-reform period compared to the reform period in most of the states. It also observes that the growth rate of agricultural credit was higher during pre-reform period compared to the reform period in most of the states. It notes the unevenness in the growth rate of agricultural credit during the sub periods as well as across the states (Khan et al, 2007).

Similarly, Mohan (2006) examining the performance of the flow of institutional credit finds that despite the increase in the overall flow of institutional credit over the years, there has taken place several gaps in the system like inadequate provision of credit to small and marginal farmers, paucity of medium and long-term lending and limited deposit mobilisation and heavy dependence on borrowed funds by major agricultural credit purveyors. All these have major implications for agricultural development and the well being of the farming community. It urges for taking serious efforts to address and rectify these issues.

SOURCES OF CREDIT

The credit markets do not operate in isolation; rather they generate various kinds of horizontal and vertical linkages. Chaudhari et al. (2002) work out the dynamics of such linkages by taking the case of backward agriculture with a theoretical analysis. Similarly, the issue of interlocking of land, labour and credit markets has gained the attention of researchers. In fact, the institutional credit has been conceived to play a pivotal role in the agricultural development of India. A large number of institutional agencies are involved in the disbursement of credit to agriculture. However, the persistence of moneylenders in the rural credit market is still a major concern. Kumar et al. (2010) on the basis of secondary data compiled from several sources, conclude that the institutional credit to agriculture in real terms has increased tremendously during the past four decades. The main objective of these initiatives has been to improve farmers' access to institutional credit. These initiatives had a positive impact on the flow of agricultural credit. However, the persistence of money lenders in the rural credit market is still a major concern.

ACCESS TO CREDIT

Farmers' access to credit for investments and operations that raise farm productivity remains a significant constraint. Many farmers still rely on informal sources of credit, including extortionary moneylenders. Following the government's efforts to expand the reach of institutional credit, formal credit grew sharply in the 1970s after banks were nationalised and a mandatory priority sector bank lending target to agriculture was introduced. Regional rural banks were also started in 1975 to promote the rural economy and serve small and marginal farmers, agricultural labourers and rural artisans. In 1982, the National Bank for Agriculture and Rural Development (NABARD) was created, essentially to refinance agricultural and rural development agencies and banks. Institutional credit thus doubled from 32 per cent of total credit to farmers in 1971 to 63 per cent in 1981. In the 1990s, the share of institutional credit declined, mainly because of a contraction in commercial banks' rural branch network due to viability concerns. During this period, the share of long-term credit also fell as investment in agriculture slowed down. Several policy measures were introduced to step up credit to farmers. But there are indications that this may be so, as the early 2000s saw a quantum jump in the intensity of institutional credit to agriculture. Yet, the increasing credit intensity in agriculture does not necessarily mean that farmers have greater credit access. First, because banks could not meet the agricultural credit target of 18 per cent of total lending, the Reserve Bank of India (RBI) allowed indirect credit to agriculture (e.g. for agro-processing, agricultural inputs and storage) to be counted towards the target. This led to a huge increase in indirect lending essentially to agri-related enterprises, not to farmers. Direct credit to farmers fell from 85 per cent of total agricultural credit in the 1970s to 55 per cent in the 2000s. Second, even including indirect credit, by end March 2012, 15 of 26 public-sector banks and 11 of 22 private sector banks failed to meet targets. Rather than taking on the high risk of lending to farmers, they preferred paying shortfall penalties in the form of deposits to the Rural Infrastructure Development Fund (RIDF), which the RIDF administrator then invests in rural development. Access to formal credit correlates directly with farm size. Smaller farmers, who tend to have less investible surplus are most affected and continue to be excluded from formal credit and rely on moneylenders and traders, while large farmers have disproportionate access to formal credit. Only 40 per cent of marginal farmers have institutional credit, whereas over two-thirds of medium and large farmers do. The Expert Group on Agricultural Indebtedness emphasised this inadequacy in meeting the requirements of an increasingly modern and commercial agriculture. In 2003, the last year for which data are available, about 49 per cent of farmer households had access to credit and 58 per cent of them availed formal credit, implying that just 30 per cent of all farm households had access to formal credit for agriculture.

Haque and Verma (1988) finds that there has been a remarkable increase in the percentage share of institutional credit to total rural credit over time in almost all the regions of the country, except Assam. It finds that the agricultural moneylenders has made a significant contribution to the supply of total credit in many regions including Meghalaya (21.2 percent), Bihar (18.8 percent), Andhra Pradesh (14.4 percent) and Rajasthan (9.6 percent). It finds that the co-operative credit (year 1984-85) had a per hectare availability ranging from Rs. 24 in Bihar to Rs 1490 in Kerala. The states of Bihar, Jammu & Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, West Bengal and Karnataka had relatively lower amount of cooperative credit per hectare available than national average (Rs. 165). The amount of loan issued per borrower was the highest in Gujarat (Rs. 2,551) and the lowest in Bihar (Rs. 231). Same pattern of loans were observed with regards to commercial banks. Considering the country as a whole, however, per hectare cooperative credit was found to be comparatively high in the small size land holdings of below 2 hectares. The medium and large farms had relatively more credit per borrower. The results of the study have far reaching policy implications as the private agencies including the agricultural and professional moneylenders were found to dominate in the agricultural credit market in many regions where the liberation of farmers from the poverty and debt traps has a very remote possibility (Singh and Kumar, 2003).

TRENDS IN GROSS CAPITAL FORMATION IN AGRICULTURE

Indian agriculture is plagued with shrinking capital formation during recent times. Lack of investment has emerged as a major constraint in increasing GDP from agriculture. Since the mid-1980s, the share of gross capital formation in agriculture's total GCF started declining. In 1980-81, it was 16.1 percent and in 1995-96 it declined to 6.3 percent. However, it rises thereafter for a brief period and stood at 17.6 percent in 2001-02. The share of agriculture and allied sectors in gross capital formation has been declining especially since 2004-05 from 10.2 percent to 6.4 percent in 2012-13 (Table - 1), though the share of public sector has been 7.6 percent or more. The share of private sector fell from 11.9 percent to 6.4 percent during the same period. Private sector, thus, has not been able to compensate adequately for the decline in public sector investment.

The ratio of GCF in agriculture to total GDP has been in the recent times hovering around 2.2 percent, thereby indicating the stagnancy in agriculture sector, though the ratio of GCF in agriculture to agriculture GDP has improved; Rs. 43473 crore in 2004-05 to Rs. 67864 crore in

TABLE 1: GROSS CAPITAL FORMATION IN AGRICULTURE

Year	GCF in Agri Rs. crore	*Share of agriculture sector in total GCF*			*Investment in agriculture as percent of GDP*		
		Public	Private	Total	Public	Private	Total
2004-05	43473	6.0	11.9	10.2			
2005-06	39027	5.8	11.3	9.7			
2006-07	48215	6.7	13.7	11.7			
2007-08	46823	6.5	11.5	10.3	0.4	2.1	2.5
2008-09	44833	7.4	9.2	8.8	0.4	1.8	2.2
2009-10	49198	7.8	7.7	7.7	0.5	1.7	2.2
2010-11	56459	7.9	7.2	7.4	0.6	1.8	2.3
2011-12	62663	8.1	6.9	7.2	0.6	1.7	2.3
2012-13	67864	7.6	6.4	6.7	0.6	1.7	2.3

Source: *Agricultural Statistics at a Glance*, various issues.

2012-13; observing an annual growth rate of 6.13 percent. There is no-doubt that term loan component of bank credit has important bearing on capital formation in agriculture. Over the decades, the share of term loan in the total credit flow has averaged 40 percent. In 1980-81, it constituted 40 percent of total credit flow and marginally went up to 41 percent in 1991-92. In 1996-97, it reduced to 36 percent to remain at 37 percent in next two years. It appears that the base of the doubling of agriculture credit programme led to improvement in share of term loan to 40 percent in 2012-13. Doubling period apparently had a positive impact in improving the ratio of GCF in agriculture-to-agriculture GDP. In 2012-13, drastic reduction took place ratio stood at 29 percent.

The agriculture and allied sector GDP during 2003-04 and 2012-13 (at 1999-00 prices) has grown at a rate of 2.91 percent while public sector GCF in agriculture & allied sectors has observed a significant growth rate of 13.96 percent, but private sector GCF in this sector has lagged behind; almost one third growth rate (4.63 percent) (Table - 2). Total GCF in agriculture and allied sectors has grown annually at a rate of 6.6 percent during this period. However, share of private sector in total GCF in agriculture and allied sector has come down from 82.72 percent in 2003-04 to 71.72 percent in 2012-13. It had peaked at 84.31 percent in 2006-07 but continuously declined since then. On the one hand, the share of public sector improved after 2007-08 to touch 28.28 percent in 2012-13. The gap between public and private sector GCF in agriculture & allied sectors reduced from 4.79 in 2003-04 to 2.54 in 2012-13. It is also observed that GCF in agriculture as percentage of agriculture GDP also improved since 2003-04 from

TABLE 2: GROSS CAPITAL FORMATION IN AGRICULTURE & ALLIED SECTORS

Year	Agri. & Allied sector GDP	*GCF in Agriculture & Allied Sectors*			*Share in Total GCF in Agriculture*		% of GCF in Agri to Agri GDP
		Public	Private	Total	Public	Private	
2003-04	446515	8668	41483	50151	17.28	82.72	11.23
2004-05	445403	8085	37395	45480	17.78	82.22	10.21
2005-06	473248	9712	47266	56978	17.05	82.95	12.04
2006-07	438966	8734	46934	55668	15.69	84.31	12.68
2007-08	482677	10805	42737	53542	20.18	79.82	11.09
2008-09	482910	13019	44830	57849	22.51	77.49	11.98
2009-10	511114	15947	50118	66065	24.14	75.86	12.93
2010-11	531315	18755	54530	73285	25.59	74.41	13.79
2011-12	557122	22107	57221	79328	27.87	72.13	14.24
2012-13	566045	24197	61367	85564	28.28	71.72	15.12
CGR %	2.91	13.96	4.63	6.60			

Source: GoI, *Mid- Term Appraisal of the Eleventh Plan*, Planning Commission, New Delhi.

11.23 percent to 15.12 percent in 2012-13. These are positive changes observed during the present decade.

CONCLUSION

The analysis shows that small and marginal farmers have been observing bias in agriculture delivery. The reforms period has led declining flow of agriculture credit especially long-term credit. The doubling of credit flow programme did boost the flow of credit but situation changes after 2006-07. The main challenge faced by agricultural credit involves not only ensuring flow of credit to small and marginal farmers, but designing policies and credit delivery systems that have relevance in the present context in terms of production and demand for agricultural products. Such policies have to consider the need for agricultural credit due to crop diversification. The present multi-agency approach is inadequate to tackle the pressing need for finance of agricultural extension services too. We need to tackle the issue of how to channel the resources of commercial banks in sustainable and viable manner in order to fund the development of a wide range of allied activities. It is also felt that tenancy laws also hinder flow of credit to tenant and sharecroppers despite guidelines issued by Reserve Bank of India.

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