

**ROLE OF KISAN CREDIT CARD SYSTEM IN THE DISTRIBUTION OF AGRICULTURAL CREDIT IN INDIA****DR.S.GANDHIMATHI, ASSOCIATE PROFESSOR,****DEPARTMENT OF ECONOMICS, AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND HIGHER  
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EDUCATION FOR WOMEN, COIMBATORE.****ABSTRACT**

Agriculture contributes around 14 percent to the Gross Domestic Product of India. It provides employment to 50 percent of the work force. Farmers are in need of credit due to seasonal income. Various policy measures such as the nationalization of commercial banks, lead bank scheme, service area approach, administered interest rate etc. But the above policy measures did not bring equal distribution of credit among all categories of farmers. Hence Kisan Credit card scheme was introduced in 1998. Only 0.78 million KCC could be issued in the initial year and it progressed consistently in subsequent years. Putting an emphasis on increasing credit flow to the agricultural sector, NABARD advised the banks to identify and cover all farmers including defaulters, oral lessees, tenant farmers and share croppers, who were left outside the hold of the KCC scheme for any reason so that all farmers are covered under the scheme by March 31, 2007. Further, banks were advised to issue KCCs in a hassle free manner, extend crop loans only through KCCs and renew them so as to ensure quality in operations. About 8.46 crore Kisan Credit Cards have been issued up to end of 2008-09 by the banks throughout the country. In this backdrop, an attempt was made to assess the impact of kisan credit card system on the distribution of credit in agriculture in India. The findings of the study shows that among the selected variables, such as rural branches of the commercial banks, aggregate deposits, agricultural production, borrowing of commercial banks from the Reserve Bank of India and the introduction of Kisan Credit Card scheme; agricultural production and the Kisan Credit Card scheme were statistically significant to determine financial exclusion. In both the regression analysis and the logit regression analysis, the inclusion of kisan credit card system had improved the financial inclusion in the agricultural sector.

**ROLE OF KISAN CREDIT CARD SYSTEM IN THE DISTRICUTION OF AGRICULTURAL CREDIT IN INDIA**

Agriculture contributes around 14 percent to the Gross Domestic Product of India. It proves employment to 50 percent of the work force. Farmers are in need of credit due to seasonal income. Various policy measures such as the nationalization of commercial banks, lead bank scheme, service area approach, administered interest rate etc. But the above policy measures did not bring equal distribution of credit among all categories of farmers. Hence Kisan Credit card scheme was introduced in 1998. Only 0.78 million KCC could be issued in the initial year and it progressed consistently in subsequent years. Putting an emphasis on increasing credit flow to the agricultural sector, NABARD advised the banks to identify and cover all farmers including defaulters, oral lessees, tenant farmers and share croppers, who were left outside the hold of the KCC scheme for any reason so that all farmers are covered under the scheme by March 31, 2007. Further, banks were advised to issue KCCs in a hassle free manner, extend crop loans only through KCCs and renew them so as to ensure quality in operations. About 8.46 crore Kisan Credit Cards have been issued up to end of 2008-09 by the banks throughout the country. In this backdrop, an attempt was made to assess the impact of kisan credit card system on the distribution of credit in agriculture in India.

**METHODOLOGY**

Data for the study were collected from the secondary sources. The secondary data on direct agricultural credit, amount outstanding, short term agricultural credit and outstanding, progress of Kisan Credit Card Scheme and amount distributed under Kisan Credit Card Scheme were collected from the Handbook of Indian economy, (2009), Reserve Bank of India. The distribution of agricultural credit and the disparity in the distribution of agricultural credit was classified into pre and post Kisan Credit Card period. The pre Kisan Credit Card period was considered the period between 1980-1981 to 1997-1998. The post Kisan Credit Card period was between 1998-1999 to 2007-2008. The data were available only for the above mentioned period.

**REGRESSION ANALYSIS**

Multiple regression analysis was employed to identity the impact of Kisan Credit Card System on financial inclusion in India. It was hypothesized that the rural branches of the commercial banks, aggregate deposits, agricultural production, borrowing of commercial banks from Reserve Bank of India, the number of loan accounts of scheduled commercial banks and the Kisan Credit Card scheme were the possible set of factors to determine the financial inclusion in the agricultural sector in India.

The above factors were put into the multiple regression analysis. Among these factors, only five variables such as rural branches of the commercial banks, aggregate deposits, agricultural production, borrowing of commercial banks from the Reserve Bank of India and the Kisan Credit Card scheme were retained in the analysis and the remaining factors were excluded due to their insignificant. The form of the regression equation used in the analysis was

$$Y = a + b_i X_i$$

$$Y = \text{Theil's inequality index}$$

$X_i$  = Rural branches of the commercial banks (Number), aggregate deposits (Rs. Crores), agricultural production (Rs.Crore), borrowing of commercial banks from the Reserve Bank of India (Rs.Crore) and the Kisan Credit Card Scheme (0-absence of Kisan Credit Card Scheme and 1- presence of Kisan Credit Card Scheme).

### LOGIT REGRESSION ANALYSIS

The assumptions and the use of econometric models differ from each other. The assumptions of econometric models is the drawback to the unbiased results. The estimated Theil's inequality index was considered as the dependent factor in the model. The estimated Theil's inequality index was ranged between 0 and 1. Hence the variation in the dependent factor will ranged between 0 and 1. It would be expected to cause biased result to some extent, when the ordinary multiple regression equation was estimated. Hence the financial inclusion equation was specified as logit model, which assume dummy dependent factors to test the reliability of the estimated ordinary multiple regression. The period of the study was classified into the period with the presence of financial inclusion in the agricultural sector and absence of financial inclusion. The period in which the disparity in the distribution of agricultural credit was above the mean level was classified as the period with absence financial inclusion. If it is below the mean level, the period was classified as the period of financial inclusion.

The same set of factors such as number of rural branches, aggregate deposits of scheduled commercial banks, agricultural production, borrowing of scheduled commercial banks from Reserve Bank of India and the introduction of Kisan Credit Card scheme were put into logit analysis.

The probability of a period to be a financial inclusion period is estimated, based on the above banking and agriculture related factors using equation

$$G^* = \gamma z + \varepsilon \text{ (Feder et al., 1990 and Foltz, 2004)}$$

Where  $G$  = probability of a period to be a financial inclusion period

$\gamma$  = parameter co-efficient

$Z$  = Rural branches of the commercial banks (Number), aggregate deposits (Rs. Crores), agricultural production (Rs.Crore) borrowing of commercial banks from the Reserve Bank of India (Rs.Crore) and the Kisan Credit Card Scheme (0-absence of Kisan Credit Card Scheme and 1-presence of Kisan Credit Card Scheme).

If  $G^* > 0$ , the period is a period of financial inclusion period. With the above formulation, the probability that the period of financial inclusion, ( $G^* > 0$ ) can be written as

$$\text{Prob}(G^* > 0) = \text{Probability}(\gamma^1 z + \varepsilon > 0).$$

This formulation leads to a logit model to estimate the probability that a period of financial inclusion. Assuming  $\varepsilon$  has a standard normal distribution  $[N(0, 1)]$ , the log likelihood function for a logit model is

$$\ln L = \sum_{G_i=0} \ln(1 - \phi_i) + \sum_{G_i=1} \ln \phi_i$$

Where  $\phi$  is the standard normal distribution evaluated at  $\gamma' z$  (Foltz, 2004).

## RESULTS AND DISCUSSION

### IMPACT OF KISAN CREDIT CARD SCHEME ON FINANCIAL INCLUSION IN THE AGRICULTURAL SECTOR IN INDIA-REGRESSION ANALYSIS.

To identify the impact of Kisan Credit Card scheme on financial inclusion in the agricultural sector, the regression equation was estimated. It was hypothesised that the number of rural branches of the commercial banks, aggregate deposits, agricultural production, borrowing of commercial banks from the Reserve Bank of India, the number of loan accounts of scheduled commercial banks and the Kisan Credit Card scheme etc., were the possible set of factors to determine the financial inclusion in the agricultural sector in India.

The above factors were put into the multiple regression analysis. Among these factors, only five variables such as rural branches of the commercial banks, aggregate deposits, agricultural production, borrowing of commercial banks from the Reserve Bank of India and the Kisan Credit

Card scheme were retained in the analysis and the remaining factors were excluded due to their insignificance. The results of regression analysis are shown in the table -1.

**TABLE-1**

**IMPACT OF KISAN CREDIT CARD SCHEME ON FINANCIAL INCLUSION IN THE AGRICULTURAL  
SECTOR IN INDIA-REGRESSION ANALYSIS**

Variables	Regression Co-efficient	't' value	Significant level
Constant	0.0303	1.554	Insignificant
Number of rural branches	0.0000079	-1.649	Insignificant
Aggregate deposits	0.00000015	.718	Insignificant
Agricultural production	0.0033	3.189	Significant at 1%
Borrowing of commercial banks form RBI	0.0000078	-.717	Insignificant
Introduction of Kisan Credit Card scheme	0.0152	-3.710	Significant at 1%
R <sup>2</sup>	0.5		
'F' value	3.37		Significant at 5%

Among the selected variables, such as rural branches of the commercial banks, aggregate deposits, agricultural production, borrowing of commercial banks from the Reserve Bank of India and the introduction of Kisan Credit Card scheme; agricultural production and the Kisan Credit Card scheme were statistically significant to determine financial exclusion. The amount of agricultural production had positive relationship with financial exclusion. It implies that the increase in the value of agricultural production would lead to higher amount of financial exclusion in the agricultural sector. The reason behind this factor is that the large farmers had produced higher amount of agricultural products and they had less restriction to avail loan from the schedule commercial banks. They had adequate document to pledge with commercial banks. Hence the increased agricultural production had aggravated the problem of financial exclusion.

But the Kisan Credit Card scheme is one of the scheme to fulfill the credit needs of small and marginal farmers and to improve the credit accessibility and financial inclusion. Hence the significant co-efficient of Kisan Credit Card scheme was negatively related with financial exclusion. It means that the introduction of Kisan Credit Card scheme had significantly improved the financial inclusion and reduced the disparity in the distribution of agricultural credit among various types of farmers.

The estimated financial exclusion equation was explained by 50%. Hence the model holds good fit. It could be identified from the significant 'F' value.

To conclude, among the selected set of economic and banking variables, the Kisan Credit Card scheme had improved the financial inclusion.

#### **IMPACT OF KISAN CREDIT CARD SCHEME ON FINANCIAL INCLUSION IN AGRICULTURAL SECTOR IN INDIA-LOGIT ANALYSIS.**

The assumptions and the use of econometric models differ from each other. The assumption of econometric models is the drawback to the unbiased results. The estimated Theil's inequality index was considered as the dependent factor in the model. The estimated Theil's inequality index was ranged between 0 and 1. Hence the variation in the dependent factor will be ranged between 0 and 1. It would be expected to cause biased result to some extent, when the ordinary multiple regression equation was estimated. Hence the financial inclusion equation was specified as logit model, which assumed dummy dependent factor to test the reliability of the estimated ordinary multiple regression. The period of the study was classified into the period with the presence of financial inclusion in the agricultural sector and financial exclusion. The period in which the disparity in the

distribution of agricultural credit was above the mean level was classified as the period with financial exclusion. If it is below the mean level, the period was classified as the financial inclusion.

The same set of factors as in the regression analysis such as the number of rural branches, aggregate deposits of scheduled commercial banks, agricultural production, and borrowing of scheduled commercial banks from Reserve Bank of India and the introduction of Kisan Credit Card scheme were put into the logit analysis. The results of the logit regression analysis are shown in table -2

**TABLE-2**

**IMPACT OF KISAN CREDIT CARD SCHEME ON AGRICULTURAL FINANCIAL INCLUSION-LOGIT ANALYSIS**

Variables	Logit co-efficients	't' value	Significant level
Constant	19.8292	1.215	Insignificant
Rural branches	.000612	-1.546	Insignificant
Aggregate deposits	0.000009383	1.141	Insignificant
Agricultural production	0.014468	.263	Insignificant
Borrowing of commercial banks	0.0053433	-1.097	Insignificant
Kisan Credit Card scheme	4.70186	2.430	Significant at 5%
Log likelihood function	-8.6421		
Chi-square	24.1712		Significant at 1%

The above estimated logit regression analysis shows that all the selected factors except Kisan Credit Card scheme were statistically insignificant to explain the financial inclusion equation. The Kisan Credit Card scheme was a significant factor to determine financial inclusion in the agricultural sector in the study period. The introduction of Kisan Credit Card had positive relationship with the financial inclusion. It reveals that the introduction of Kisan Credit Card scheme had improved the financial inclusion in the agricultural sector.

It implies that the introduction of Kisan Credit Card scheme fulfilled the objective of financial inclusion in the agricultural sector. The estimated chi-square value (24.1712) was statistically significant at 1% level. It implied that the estimated logit model was statistically significant to explain the financial inclusion equation.

To conclude, in the logit regression analysis also, the introduction of Kisan Credit Card scheme had improved the credit accessibility of marginal and small farmers and the financial inclusion is achieved.

## **CONCLUSION**

Among the selected variables, such as rural branches of the commercial banks, aggregate deposits, agricultural production, borrowing of commercial banks from the Reserve Bank of India and the introduction of Kisan Credit Card scheme; agricultural production and the Kisan Credit Card scheme were statistically significant to determine financial exclusion. In both the regression analysis and the logit regression analysis, the inclusion of kisan credit card system had improved the financial inclusion in the agricultural sector.

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