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# Demystifying the asymmetric nexus between farmers' productivity and institutional agriculture finance flow: Empirical evidences from Agra District of Uttar Pradesh, India

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***Abstract***
*The present research study has investigated theasymmetric nexus between farmers' productivity and institutional agriculture finance flow in context to Agra, district of Uttar Pradesh, India. In this regard, a standardized questionnaire or tool; Farmers Perception and Satisfaction Measurement Scale (FPSMS)has been constructed in order to measure themeasure the perception and satisfaction level of the farmers about the institutional framework and schemes for agriculture finance, present position of institutional agriculture finance flow, institutional agriculture finance, performance of institutions towards agriculture finance, and impact of institutional agriculture finance on production, employment and farmers' income in the study area. For that sample 500farmers, working in different rural and semi-rural area of Agra district was collected. Moreover, we have employed 'One sample t test and gap analysis' to examine the relationship between farmers' productivity andinstitutional agriculture finance flow. Estimations suggested that there is positive association been found between farmers' productivity and institutional agriculture finance flow in context to Agra, district of Uttar Pradesh, India. On the basis of research findings, recommendations to policy makers, industry professionals, academicians, and stakeholders are being suggested in order to improve the farmers' productivity with the help of institutional agriculture finance flow.*

***Keywords:*** *Farmers' Productivity, Institutional agriculture finance flow, Agra, India, One sample t –test*

## I. Introduction

In India the role of Agriculture is very important; in the other sense Agriculture performs most important part in Indian Economy. Agriculture still remains the backbone of our Indian economy. It is reported that the role of Agriculture affects about 14% of the Gross Domestic Product (GDP) and about 2/3rd population of India depend on the Agriculture. After two years of back-to-back poor monsoons and drought conditions in several parts of the country, Agriculture in India picked up momentum during 2016-17, due to normal monsoon rains. Agriculture provides employment to about 48.9% of the total workforce in India, but contributes only 15.2% to the country's Gross Value Added (GVA). About 85% of operational holdings in the country are in the small and marginal categories, and the average size of an operational holding is only1.15 hectares. Agriculture Finance is the study of financing and liquidity services credit provides to farm borrowers. It is also considered as the study of those financial intermediaries who provide loan funds to Agriculture and the financial markets in which these intermediaries obtain their loan able funds." Finance in Agriculture is as important as other inputs being used in Agriculture production. Technical inputs can be purchased and used by farmer only if he has money (funds). But his own money is always inadequate and he needs outside Finance or credit. Agriculture Finance capitalizes farmers to undertake new investments and/or adopt new technologies. The following factors are responsible for the need of credit in Indian Agriculture- low income of farmers, uncertain income, increase in expenditure, typical production pattern, inability to raise funds from other sources. Realizing the importance of Agriculture credit in fostering Agriculture growth and development, the emphasis on the Institutional framework for Agriculture credit is being emphasized since the beginning of planned development era in India.A large number of formal Institutional agencies like Scheduled Commercial Banks (SCBs), Co-operatives Banks, Regional Rural Banks (RRBs), Non– Banking Financial Institutions (NBFIs), and Self-help Groups (SHGs), etc. are involved in meeting the short and long-term needs of the farmers. Several initiatives have been taken to strengthen the Institutional mechanism of rural credit system. The main objective of these initiatives is to improve farmers" access to Institutional credit.

## II. Review of Literature

In India more than 50% of popular is depends upon agriculture for their livelihood and occupation directly and indirectly (Source; Directorate of Economics & Statistics, 2018). Moreover, agriculture is the crucial sector for the growth and development of the Indian economy and significantly contributing national well-being and future perspectives. Therefore, it is top most priorities of Governments (both Central and State) to improve the productivity and performance of agriculture sector and ensure establishing proper institutional agriculture finance. Likewise, to any other sector, agriculture also needs capital and sufficient funds for survival and growth, and for conducting the farming activities and financial support to the farmers. Agriculture credit system is one of the important steps in this context which helps immensely in improving the productivity and performance of the agriculture sector in India. Earlier, in the absence of financial flow and credit system, Sahukars, Mahajanas, Moneylenders etc. were the main for financing for the farmers for performing the farming activities. These moneylenders used to lend money at very high interest rates that causes financial burdens to farmers and they wound never get off any economic benefits even after selling all of their crops. Furthermore, in the year 1991 when financial reform came to existence this scenario had changed due to agriculture credit, financial flow and various other Governmental schemes for the famers and agriculture.

In order to provide credit policies and financial assistant to the farmers and agriculture schemes such as NABARD and RBI were coming forwards and ensuring to fulfil of capital requirement of farmers. Moreover, on the recommendations of RBI, NABARD and some other agencies like Kisan Credit Card Scheme are also supporting the farmers and strengthening the credit delivery mechanism. On 1st June 1998 KCC scheme was launched by Union Minister of Finance Shri Yashwant Sinha. It is a part of innovative credit delivery system and enables farmers to meet financial requirement timely and hassle free. Time to time on the basis of requirement, several amendments were also taking place in the existing scheme and its guidelines. Major changes were made to incorporate capital requirement for maintenance of farm assets, consumption expenditure, crop production requirement and other allied personal activities i.e., personal accident insurance, coverage of KCC holders under Atal Pension Yojana, covering Fisheries and Animal Husbandry, PM-Kisan Samman NidhiYojana under the Kisan Credit Card Scheme. Institutional credit is playing significant role in the growth, development and welfare of Indian agriculture. It is supplementary for improving the farmers' financial conditions and agricultural productivity, augmenting capital formation in agricultural activities, increasing GDP generated by the agriculture and improving farmer's income (Bisaliah and Dev, 2010; Chand and Kumar, 2004). The institutional credit has good job in agriculture and increased from 10.20 per cent in 1951 (RBI, 1954) to 72 per cent in 2015 (NABARD, 2018). Institutional sources of credit for farmers with the help of credit agriculture schemes in India comes from both Scheduled Commercial Banks (SCBs) and co-operatives. Informal credit players are also playing crucial role and these are private money lenders, land lords, traders, input suppliers, relatives and friends etc. During the financial year 2017-18, sources of crediting to farmers for agricultural activities in India from SCBs was 87.26 %, which include nationalized banks i.e., state bank of India, regional rural banks, private sector banks including foreign banks and remaining is from cooperative banks (12.74 %) which works through either as three-tier or two-tier structure.Moreover, farmers have different level of perception and satisfaction about the agricultural financial flow and its various schemes and initiatives.

## III. Estimations and Results

In order to examine the overall and on individual test item agreement level of farmers (N=500) about the institutional agriculture finance flow in the study area in view of their welfare and agricultural support, and to achieve the proposed objective "To study the present position of institutional agriculture finance flow and to test the proposed null and alternative hypotheses '$H_0$1 There is no significant institutional agriculture finance flow in the study area for the welfare of farmers and 'H1 There is significant institutional agriculture finance flow in the study area for the welfare of farmers', researcher has estimated 'One sample t-test' and Gap analysis and results and computed in below table 1.

**Table 1Agreement Level of farmers about institutional agriculture finance flow via one sample t-test estimations**

| Group | N | Hypothesize Mean | Mean | S.D | Mean Difference | t-ratio | p-value |
|---|---|---|---|---|---|---|---|
| IAFF | 500 | 55 | 36.53 | 11.13 | 18.47 | 37.10 | 0.000** |
| Item -1 | 500 | 5 | 3.34 | 1.050 | 1.660 | 35.34 | 0.000** |
| Item -2 | 500 | 5 | 3.33 | 1.047 | 1.664 | 35.52 | 0.000** |
| Item-3 | 500 | 5 | 3.32 | 1.051 | 1.676 | 35.64 | 0.000** |
| Item-4 | 500 | 5 | 3.31 | 1.063 | 1.684 | 35.41 | 0.000** |
| Item -5 | 500 | 5 | 3.31 | 1.057 | 1.686 | 35.66 | 0.000** |
| Item -6 | 500 | 5 | 3.32 | 1.047 | 1.678 | 35.83 | 0.000** |
| Item-7 | 500 | 5 | 3.30 | 1.058 | 1.692 | 35.76 | 0.000** |
| Item-8 | 500 | 5 | 3.30 | 1.059 | 1.692 | 35.69 | 0.000** |
| Item-9 | 500 | 5 | 3.32 | 1.050 | 1.678 | 35.70 | 0.000** |
| Item-10 | 500 | 5 | 3.32 | 1.051 | 1.676 | 35.64 | 0.000** |
| Item-11 | 500 | 5 | 3.31 | 1.049 | 1.684 | 35.86 | 0.000** |

*IAFF= institutional agriculture finance flow**Source- Primary Data**

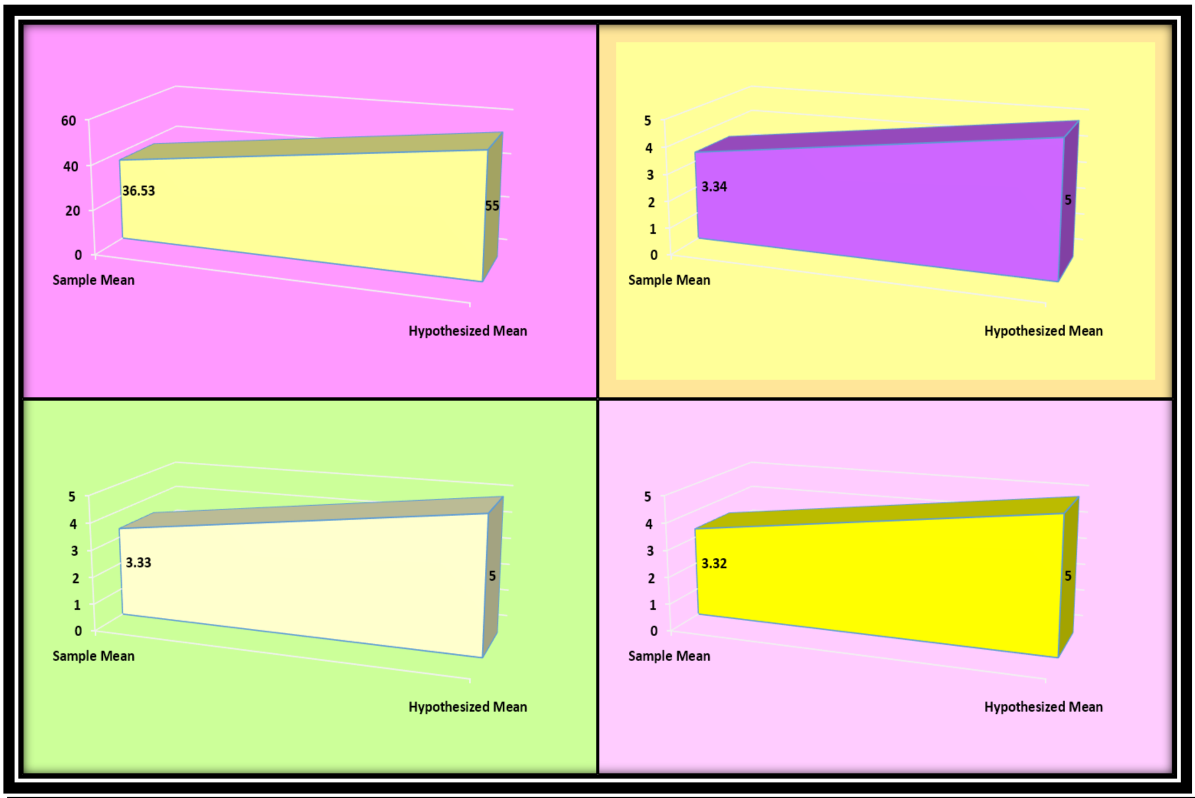
Table 1 shows that sample mean farmers (N=500) agreement level towards overall institutional agriculture finance flow and with each item (1-11) are; 36.53, 3.34, 3.33, 3.32, 3.31, 3.31, 3.32, 3.30, 3.30, 3.32, 3.32 and 3.31 respectively and value of hypothesize or population mean are 55 (test value) for overall agreement and 5 for each item and mean difference of; 18.47, 1.660, 1.664, 1.676, 1.684, 1.686, 1.678, 1.692, 1.692, 1.678, 1.676 and 1.684 between each group's obtained mean scores and test values of S.D., and t-ratio are11.13 (37.10), 1.050 (35.34), 1.047 (35.52), 1.051(35.64), 1.063 (35.41), 1.057 (35.66), 1.047 (35.83), 1.058 (35.76), 1.059 (35.69), 1.050 (35.70), 1.051 (35.64) and 1.049 (35.86) respectively whereas value of p is 0.000 for overall agreement and each group. Which is above the threshold of 0.01 and 0.05 levels and demystifying the significant gap or difference between estimation mean and hypothesized mean of the sample of farmers (N=500) towards institutional agriculture finance flow in the study area.

Therefore, proposed objective "To study the present position of institutional agriculture finance flow" has been achievedand the proposed null hypothesis '$H_0$1 There is no significant institutional agriculture finance flow in the study area for the welfare of farmers is rejected whereas alternative hypothesis 'H1 There is significant institutional agriculture finance flow in the study area for the welfare of farmers' is being accepted.

Further, with the help of area graph and table 2 (category of agreement level), of farmers towards overallinstitutional agriculture finance flow and with each item; The various types of agriculture loan Schemes aresatisfactory The source of agriculture loan is adequate, Fully aware of the subsidies offered, Prefer Institutional sources of agricultural finance The rate of interest for different loans are reasonable, Present Distribution of agriculture loan, Short term loan schemes increase the agricultural productivity, Medium term loan schemes increase the agricultural productivity, Long term loan schemes increase the agricultural productivity Gold loan is affordable to meet agricultural production, Institutional Agriculture finance increases the agricultural productivity, employment and income, The authorities of the bank are easily approachable, Credit facilities and schemes are well informed to beneficiaries and There is timely lending of loans and advances to the customers, is being estimated.

**Table 2Categories of agreement level**

| Average Score | Level | Average Score | Level |
|---|---|---|---|
| 1-11 | Very Low | 0-1 | Very Low |
| 11-22 | Low | 1-2 | Low |
| 23-33 | Moderate | 2-3 | Moderate |
| 34-44 | High | 3-4 | High |
| 45-55 | Very High | 4-5 | Very High |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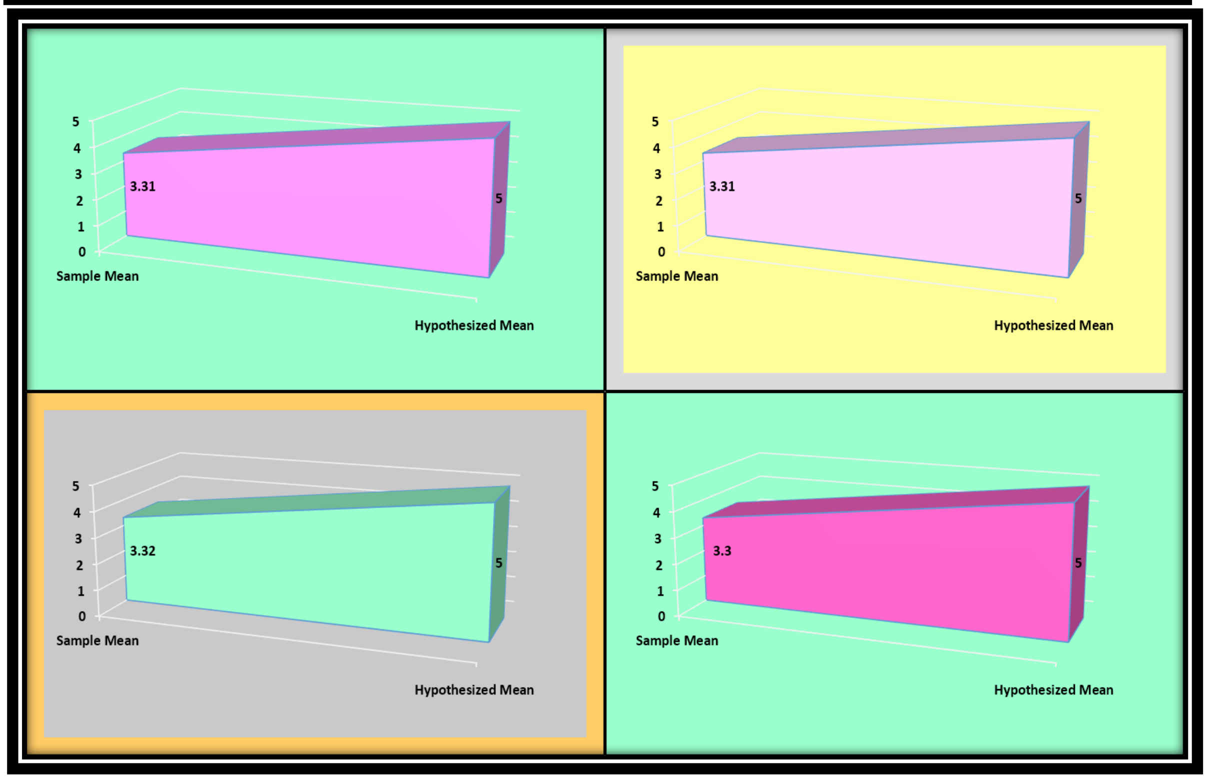
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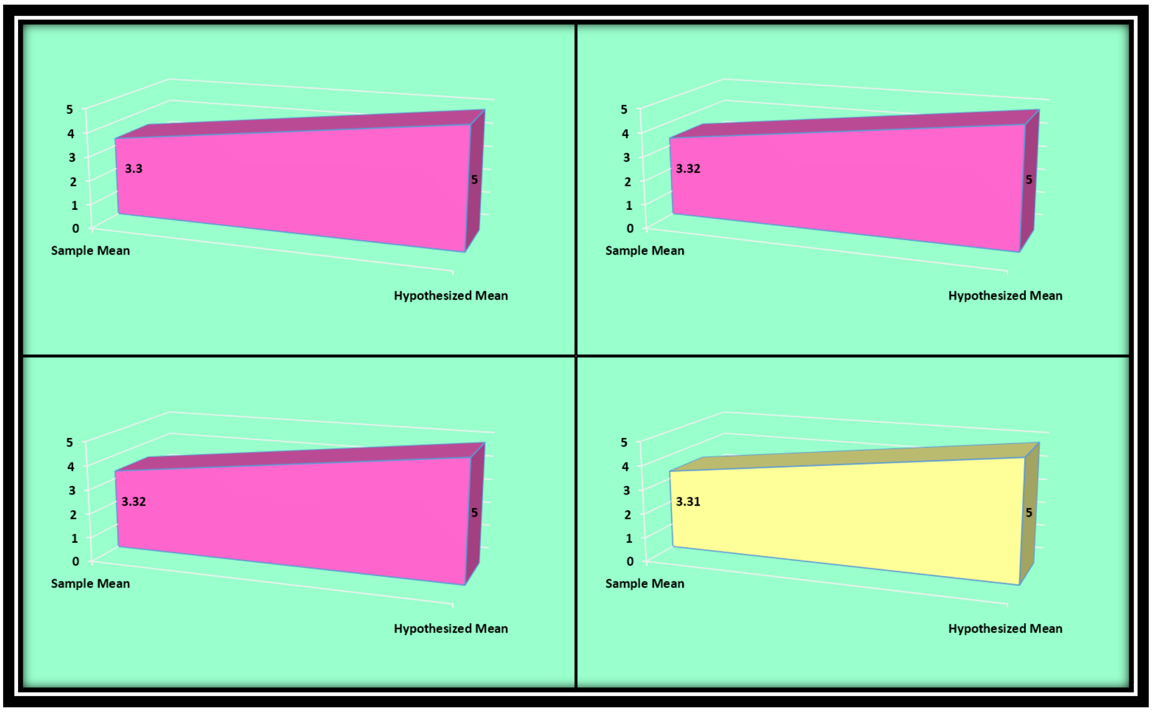


**Figure 1 Area graphs for farmers' agreement towards institutional agricultural financial flow**

From the table 2 and figure 1, it has been clear that overall farmers have high level of agreement towards the present position of institutional agriculture finance flow in the study area in view of welfare of farmers. Furthermore, with each item; The various types of agriculture loan Schemes aresatisfactory The source of agriculture loan is adequate (item-1), Fully aware of the subsidies offered (item-2), Prefer Institutional sources of agricultural finance The rate of interest for different loans are reasonable (item-3), Present Distribution of agriculture loan (item-4), Short term loan schemes increase the agricultural productivity (item-5), Medium term loan schemes increase the agricultural productivity (item-6), Long term loan schemes increase the agricultural productivity Gold loan is affordable to meet agricultural production, Institutional Agriculture finance increases the agricultural productivity (item-7), employment and income (item-8), The authorities of the bank are easily approachable (item-9), Credit facilities and schemes are well informed to beneficiaries (item-10) and There is timely lending of loans and advances to the customers (item-11) as farmers have high level of satisfaction as sample means lies in high satisfaction categories (34-44 and 3-4).

## IV. Conclusion and Recommendations

Findings of the present study suggested that farmers have high level of agreement towards the present position of institutional agriculture finance flow in the study area in view of welfare of farmers. Furthermore, with each item; The various types of agriculture loan Schemes are satisfactory The source of agriculture loan is adequate (item-1), Fully aware of the subsidies offered (item-2), Prefer Institutional sources of agricultural finance The rate of interest for different loans are reasonable (item-3), Present Distribution of agriculture loan (item-4), Short term loan schemes increase the agricultural productivity (item-5), Medium term loan schemes increase the agricultural productivity (item-6), Long term loan schemes increase the agricultural productivity Gold loan is affordable to meet agricultural production, Institutional Agriculture finance increases the agricultural productivity (item-7), employment and income (item-8), The authorities of the bank are easily approachable (item-9), Credit facilities and schemes are well informed to beneficiaries (item-10) and There is timely lending of loans and advances to the customers (item-11) as farmers have high level of satisfaction as sample means lies in high satisfaction categories (34-44 and 3-4).

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