

Impact of Financial Inclusion on Household Income in Rural India with special reference to the state of Uttar Pradesh

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Abstract: The study examines the impact of financial inclusion on household income levels in rural areas across Indian states using panel data from the NABARD All India Rural Financial Inclusion Survey (NAFIS) for 2016-17 and 2021-22. The study employs a fixed effects panel regression model with clustered standard errors to analyse the differential impact of financial inclusion between Uttar Pradesh and other states. Our study highlights that penetration of institutional savings, an important component and driver of financial inclusion, has a positive and significant impact on the average monthly income of rural household at all India level. This indicates that formal savings foster economic empowerment amongst rural households. However, in the case of state of Uttar Pradesh, the effect is weaker compared to the overall impact.

Keywords: *Financial Inclusion, Penetration of Institutional Savings, Rural development, NAFIS, Uttar Pradesh*

I. Introduction

Globally, financial inclusion has emerged as a central pillar of economic development policy, particularly in emerging market economies like India. Financial inclusion can be defined as availability of financial products and services for the underbanked / unbanked segments at an affordable cost. Financial inclusion is a crucial driver for inclusive growth. With nearly 67% of population living in rural areas in India, extending the reach of the formal financial system is an economic and social imperative for sustainable economic development.

Government of India, along with the Reserve Bank of India has been working towards improving financial inclusion in India. Large scale impact initiatives such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), launched in 2014 (aimed at providing universal access to banking facilities) has opened over 56 crore bank accounts with 66.7% from rural / semi-urban areas. This has been complemented by the Jan Dhan-Aadhaar-Mobile (JAM) trinity, which leverages technology to facilitate direct benefit transfers and promote digital payments.

The above metrics indicate robustness of the supply-side interventions. These supply-side interventions not only serve as an instrument for welfare benefits but also enables integration of households into the formal financial system. As more rural households form part of formal financial system, it not only deepens financial inclusion but also has a natural tendency for households to utilise formal financial savings to augment their income. This deepening of financial inclusion in economic parlance is termed as 'penetration of institutional savings' and is measured as proportion of households with at least one member savings with institution during specified period. As penetration of institutional savings increases over time it is likely to be channelised towards productive investments such as education, skill development, investments in financial instruments such as mutual funds etc., to generate better returns than a regular savings account, small enterprise set up etc., apart from consumption. However, the effectiveness of these programmes is likely to be heterogeneous varying across different geographical regions, socio-economic groups and states. Rural areas, with their unique economic landscape, infrastructural constraints and social norms presents a complex environment for financial inclusion policies to succeed.

This study aims to assess the relationship between financial inclusion and rural household income using the NABARD All India Rural Financial Inclusion Survey (NAFIS) for 2016-17 and 2021-22. A state-level panel dataset is constructed using the NAFIS data using two parameters 'proportion of saver households with atleast one member reporting savings with any institution in the last one year (in percentage)' as the independent variable and the 'average monthly income per household' as the dependent variable. The data allows us to examine changes over the period of five years that saw significant deepening of financial inclusion policies as observed from the Reserve Bank of India's Financial Inclusion Index which rose from 43.4 in March'17 to 56.4 in March'22.

II. Review of Literature

The existing literature highlights areas through which financial inclusion can enhance household income and welfare. Chavan P. and Kamra A. (2022) study the state of financial inclusion in rural India on four key dimensions viz., bank deposits, credit, digital payments and insurance. The study observes that while access to bank accounts has improved, the actual usage is limited and the credit access is weak, especially amongst asset-poor households. The study also highlights that access and usage of digital payments is low and insurance penetration is minimal in rural areas. Satyasai K.J.S & Kumar A. (2020) create NAFINDEX, a composite index to measure financial inclusion using data from NABARD All India Rural Financial Inclusion Survey (NAFIS). The index reveals significant inter-state disparities with the state of Uttar Pradesh ranking 23 out of 29 states in index ranking. The study also highlights that the state of Uttar Pradesh has lower index value compared to all India. Saroj M. (2024) studied the role of microfinance in

promoting financial inclusion in Uttar Pradesh. The study highlights how Microfinance Institutions (MFIs), particularly the Self-Help Groups, are empowering marginalised communities, especially women by enabling access to credit and encouraging entrepreneurship. The study emphasises on the crucial role played by MFIs in bridging financial inclusion gap in Uttar Pradesh. Haque, Azeez, and Akhtar (2025) examine the Unified Payments Interface (UPI) usage through logistic regression analysis. The study identifies factors such as income, age, gender etc., as predictors of UPI whereas religion, Jan Dhan Account holders, marital status etc., are insignificant predictors. Manjhi D. (2015) studied the role of Regional Rural Banks (RRBs) in furthering financial inclusion in Uttar Pradesh. The study highlights that financial inclusion is being effectively served by the RRBs in Uttar Pradesh. The study also observes that Government programmes such as Pradhan Mantri Jan Dhan Yojana, Aadhar Enabled Payment System, Pradhan Mantri Jeevan Jyoti Bima Yojana etc., are strengthening financial inclusion in the state. While several studies have qualitatively assessed the impact of financial inclusion in rural areas of Uttar Pradesh, to the best of our knowledge, there is a gap of empirical research that quantitatively estimates its impact on household income and understanding the causal effect of policy interventions.

III.Objectives of the Study

The paper aims to analyse the impact of penetration of institutional savings measured through the ‘proportion of saver households with atleast one member reporting savings with any institution in the last one year (in percentage)’ on the ‘average monthly income per household’ parameter of NAFIS study for rural areas. The paper focuses on the state of Uttar Pradesh (UP). Existing research highlights that while Government initiatives have furthered financial inclusion in the state of UP, there appears to be various factors such as income, gender etc., that influence the impact of financial inclusion in UP. The specific research question addressed in this paper are:

- a. What is the impact of the penetration of institutional savings on the average monthly income of rural households in India?
- b. What is the impact of the penetration of institutional savings on the average monthly income of rural households in Uttar Pradesh and whether it differs from the national aggregates?

IV.Methodology

The analysis is based on a state-level panel dataset constructed from the NABARD All India Rural Financial Inclusion Survey (NAFIS), conducted for the reference years 2016-17 and 2021-22. NAFIS survey is designed to capture a comprehensive picture of the financial landscape of rural households in India. It covers aspects of income, expenditure, assets, debt, saving, insurance and access to financial services.

For our study, aggregate household data at state level covering 28 states¹ has been considered with relevant data obtained from both the survey rounds. The study employs a state-level-fixed-effects panel regression model. By focusing on the within-state changes over time, we isolate the impact of changes in penetration of institutional saving on changes in average monthly income of rural households. The model is specified as follows:

$$MTH_INC_PH_{st} = \beta_1(HH_PCT_SAV_{st}) + \beta_2 (HH_PCT_SAV_UP_{st}) + \alpha_s + \varepsilon_{st}$$

Where,

$MTH_INC_PH_{st}$ is the average monthly income of rural household in state ‘s’ at time ‘t’

$HH_PCT_SAV_{st}$ is the percentage of rural households with institutional savings in state ‘s’ at time ‘t’

$HH_PCT_SAV_UP_{st}$ is the interaction term for Uttar Pradesh

α_s is the intercept for each state²

ε_{st} is the error term

β_1 is the coefficient that captures the average effect of a change in penetration of institutional savings on the average monthly income for all states. It is the baseline national effect.

β_2 is the coefficient that captures the differential effect for Uttar Pradesh. It measures how much the impact of savings in UP differs from the baseline effect. The net effect of penetration of institutional savings on the average monthly income in Uttar Pradesh is the sum of the baseline effect and differential effect ($\beta_1 + \beta_2$).

V.Analysis and Findings

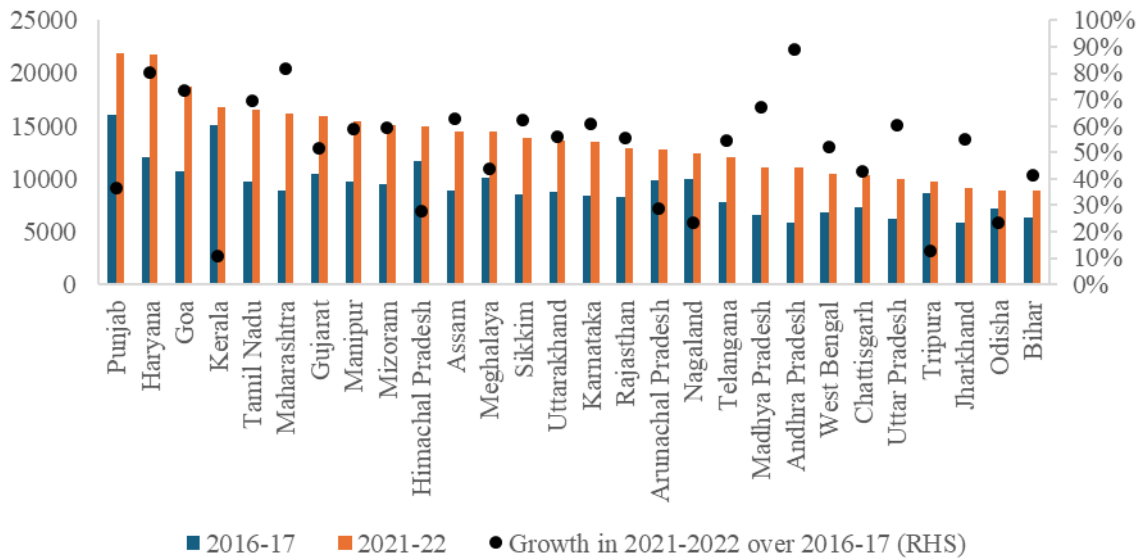
¹ State / UT of Jammu & Kashmir and Ladakh have been excluded from analysis due to non-availability of comparable data between the two rounds.

² It is important to note that while the state-specific intercepts are a fundamental part of the conceptual mode, they are not directly estimated or displayed in Stata regression output. The ‘within’ transformation de-means the data by subtracting the state-specific average from each variable. This process mathematically removes the α_s allowing for unbiased estimation.

The survey results of the NABARD All India Rural Financial Inclusion Survey (NAFIS) for the periods 2016-17 and 2021-22 are compared for the two parameters i.e., average monthly income per household and percentage of households with institutional savings.

In case of the first parameter, there is a clear and upward movements in income for all states. However, the degree of growth and the levels of income remain distinct across states, reflecting regional inequalities. While Punjab, Haryana, Goa and Kerala lead with the highest income levels in 2021-22, however, in terms of growth between the periods, Andhra Pradesh observed the highest growth at 89%. Further, some of these states also observed higher income levels in 2016-17. Their upward movement further increased the income gap with lower-income states such as Jharkhand, Odisha, Uttar Pradesh, Bihar. The lower income states despite observing increase in income levels remain below the other states pointing to slow progress in bridging regional disparities. The state of Uttar Pradesh illustrates this duality as well as it registers a healthy growth in income level to the tune of 60% between 2016-17 and 2021-22 but still it was unable to appreciably move up the ranking compared to some of the other states of India.

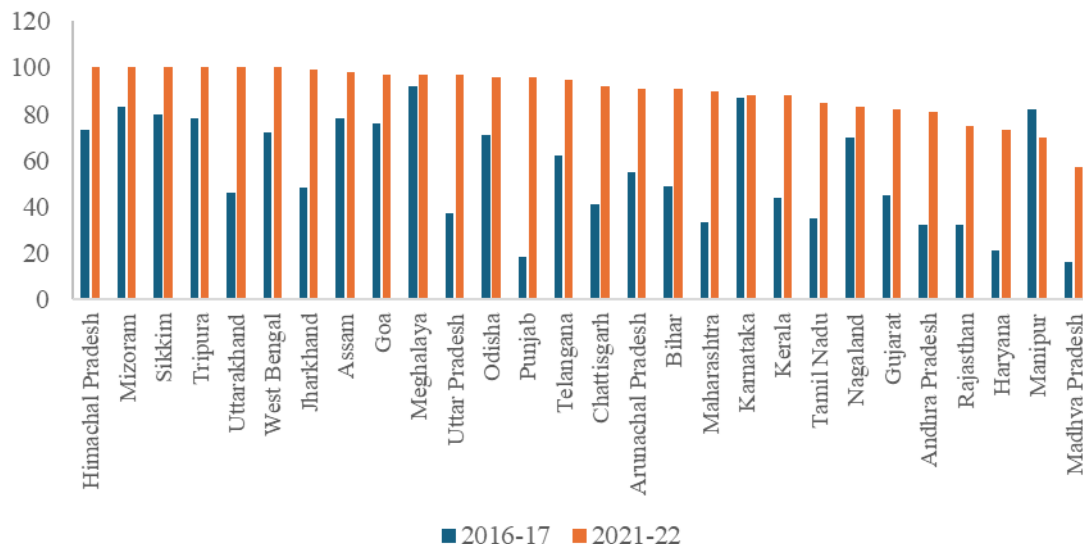
Average Monthly Income per Household (₹)



Source: NABARD All India Rural Financial Inclusion Survey (NAFIS) 2016-17, 2021-22; Authors' calculations

In 2016-17, coverage of households with institutional savings ranged widely between 16-92% which has improved remarkably in 2021-22 and stood between 57-100%. The median coverage also improved sharply from 52% in 2016-17 to 93.5% in 2021-22. In 2021-22, almost all states display appreciable increase in saving penetration with 24 out of 28 states achieving over 80% coverage. The state of Uttar Pradesh also observed a sharp increase in coverage from 37% in 2016-17 to 97% in 2021-22. These trends highlight the far-reaching success of government initiatives for financial inclusion, such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), providing nearly every rural household a point of entry into formal financial sector.

Households with institutional savings (in percentage)



Source: NABARD All India Rural Financial Inclusion Survey (NAFIS) 2016-17, 2021-22

Analysing the above data points together, a nuanced relation emerges. While both income and penetration of institutional savings observed improvement, yet the degree of improvements varies between states. The data in respect of penetration of household with institutional savings shows higher convergence i.e., higher number of states achieve near universal coverage however, the income data highlights gaps. This suggests that while policy success in financial inclusion is largely in ‘access’, its translation into income gains is more complex and heterogeneous. Uttar Pradesh demonstrates a significant improvement in savings coverage but moderate income levels. In contrast, high-income states like Punjab observed appreciable improvement in savings penetration rate from 18% in 2016-17 to 96% in 2021-22 indicating influence of savings penetration on income levels warranting deeper analysis.

Accordingly, the fixed effects regression was undertaken to analyse the impact of penetration of institutional savings on household income levels for rural areas. The regression results are given in the table below-

Table 1- Results of State-level Fixed Effects Panel Regression Model

VARIABLES	(1) AVG_MTH_INC_PH
HH_PCT_SAV	105.8*** (11.06)
HH_PCT_SAV_UP	-42.91*** (11.06)
Constant	3,803*** (778.7)
Observations	56
Number of state_id	28
R-squared	0.684

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The coefficient of 'HH_PCT_SAV' is positive (105.8) and statistically significant (p<0.001). This indicates that for the average Indian state, a one percentage increase in the share of rural households with institutional savings is associated with an increase of approximately ₹105.8 in average monthly income of household. This indicates that deepening financial inclusion through formal savings contributes directly to the economic well-being of rural populations.

However, the coefficient β_2 is an interaction term for Uttar Pradesh (UP) which shows that in UP a percentage increase in rural households with institutional savings has impacted average monthly income of rural household by almost ₹43 less than the average monthly income of rural household of other Indian states. In other words, this implies that while the average monthly income of average Indian state has increased by almost ₹106, the corresponding increase in UP is ₹63 (i.e., ₹106 minus ₹43). This highlights the regional heterogeneity. Although the impact in UP is comparatively smaller, the overall effect is positive and significant, suggesting that institutional savings have a positive impact on income levels. This also suggests that there are structural barriers in Uttar Pradesh that are inhibiting rural households from translating access to formal savings into income gains as effectively as other states. The same can be evidenced in the NABARD NAFIS 2021-22 wherein Uttar Pradesh (UP) has relatively lower average saving amount of saver household at ₹12,401 compared to the national average of ₹20,139. A critical structural barrier contributing to this gap is financial literacy. Uttar Pradesh features among the states with a low Financial Literacy Index, with values below 0.33 for both rural and urban areas, indicating inadequate level of financial literacy thereby limiting the ability of households to engage with formal savings (Dash & Ranjan, 2023). Additionally, caste-based disparities add to the barriers, as certain caste groups are able to avail higher wealth accumulation and greater access to formal financial services whereas marginalised sections remain disadvantaged (Tiwari, Goli, Siddiqui & Salve, 2022). These constraints are compounded by lower level of economic development. These findings underscore the need for targeted intervention to enable rural households in Uttar Pradesh to leverage institutional savings for income enhancement.

VI. Conclusion

We find strong, statistically significant evidence that increasing the penetration of institutional savings has a large and positive impact on rural household income across India. The study also observes that the positive effect of penetration of institutional savings on income is approximately 40% weaker in UP than in the rest of the country. The findings emphasise the financial inclusion agenda and its socio-economic impact and provides rationale for continuing and deepening efforts to promote financial inclusion in rural India. This also signifies the need to move beyond access of financial services to usage of financial services. Further, the relatively lower impact in Uttar Pradesh indicates a need to modify policy approach by enhancing financial literacy programmes, developing tailored financial products for low-income and marginalised households. Strengthening last mile delivery of financial services through special outreach programmes, expanding branch and business correspondent network, investing in rural digital infrastructure to leverage digital finance while developing a robust monitoring and evaluation framework is essential for adaptive and focused policymaking.

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