Agricultural risk management amidst stagnant rural incomes and unequal credit access
Historical context and new empirical evidence from semi-arid smallholder Indian farms

Gaurav Arora (Assistant Professor of Economics), *Sumedha Shukla* (Research Associate),
Indraprastha Institute of Information Technology, Delhi (*IIIT-Delhi*)

The 2011 Census of India reveals that almost 69% population resides in rural areas with agriculture being the primary income source. However, in 2017 the Committee on Doubling Farmers' Income observed that the rural income levels in India remain stagnant and have only worsened to unsustainable levels over the years. Figure 1 shows that the rural inflation rate (as measured by consumer price index) grew faster than agricultural wages over the past two decades. Between 2012 and 2017 the monthly income of an average agricultural household was less than Rs. 8,000, increasing annually at 9.5% against 7.5% inflation rate, implying that almost 80% of growth in incomes was consumed by increasing farm expenditures. Moreover, the agricultural sector, in aggregate, witnessed a drastic decline in its contribution to India's gross domestic product (51% in 1950-51 to 15% in 2016-17) while the percentage agricultural labour force participation reduced from 70% in 1950-51 to 54% in 2016-17, which also indicates falling per capita rural incomes.

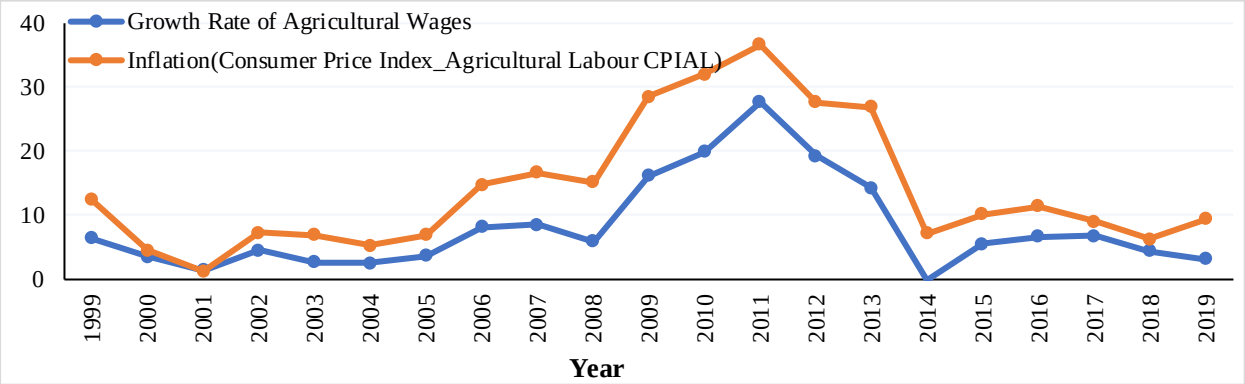

Figure 1: Comparison between growth rate of agricultural wage and consumer price index for agricultural labourers (CPI-AL: Base Year = 1986).

Consequently, the political and policy spheres have increasingly called for interventions to enable higher farm incomes. Low and fluctuating farm incomes in India are a natural corollary of plateauing crop yields (output per acre) since the 1980s, and farm-level risks vis-à-vis crop losses (or output reduction) due to weather variations, pest infestation, animal attacks, etc and crop price volatility. Under these circumstances, the policymaker should devise effective mechanisms for farm risk

management, besides also encouraging research and development for technological development to ultimately facilitate higher crop output. Three main policy instruments for managing farm risks are farm loans or agricultural credit, crop insurance, and the minimum support prices (MSP). While credit and insurance are meant to mitigate production risks, in that they serve as safety nets for household consumption and on-farm investment in the event of crop losses, the MSP serves to sustain farm revenue against fall in crop prices. Here, we analyse and comment on the utility of farm credit, and more specifically the formal creditors (e.g., rural banks) relative to the informal moneylenders or *sahukars*, as a policy tool to mitigate farm production risks. The readers should note that in India the formal rural credit is compulsorily tied to insurance, that is the loanee farmer must also buy crop insurance for the growing-season in which the loan is sanctioned. This property of the formal credit sources should ideally enhance its value proposition relative to the informal sources. However, multiple impediments exist in the formal credit system pertaining to weak institutions that lead to, what economists call, high transactions costs. These transaction costs manifest as delays in credit delivery and institutional bias in loan approvals (e.g., skewed in favour of the wealthier farmers or larger land holders), which induce farmers' reliance on the informal credit sector especially during an immediate cash needs in the times of farm distress. We provide an historical account of the evolution of agricultural credit in India and fresh empirical evidence on unequal credit access in India's semi-arid regions that highlight systemic and persistent inadequacy of institutional credit system that renders the formal farm risk management mechanisms *ineffective*, even more so for the most vulnerable sections of the farming society.

The role of credit in risk mitigation and improving agricultural productivity is well established. While short-term loans are generally used for timely purchase of farm inputs (for example, fertilizers) that enable higher crop yields; medium-term and long-term credit can facilitate the creation of farm assets by funding infrastructural investments. As of 2016-17, the Committee on Doubling Farmers' Income observed, nearly 86% of all farm investment (that is, funds allocated for augmenting the existing capital stock through purchase of tractors, developing storage infrastructure, deepening bore wells, etc.) is undertaken using borrowed funds. This critical role of credit was first recognized by the colonial government who disbursed short-term loans during the drought years of mid-1870s (Mohan

2004). In 1904, the Co-operative Societies Act formalised the role of cooperatives, followed by the legal recognition of credit societies in 1912, in disbursing agricultural credit. However, low repayment levels (for example, about 70% over dues in 1927) warranted additional intervention. In 1935, with the establishment of the Reserve Bank of India (RBI), a dedicated division was setup for governing the matters of rural financing and efforts were made to enhance institutional credit penetration via banks in rural areas (Mohan 2006). However, only 7.2% farmers had access to some form of institutional credit until 1951 (RBI, 1954). The institutional inadequacy in terms of access and size of loans continued to be a challenge through the 1950s and 1960s, which came into sharp focus during the Bihar drought of 1965-67, leading up to the first wave of bank nationalization in 1969 where agriculture was designated as the priority-sector and a fixed proportion of total bank lending was mandated towards the agricultural sector. Yet, the agricultural credit flow didn't show much improvement owing to the fact that the commercial banks were not in tune with the needs of the small farmers who offered little in terms of collateral and the lack of credit history among the rural borrowers was deemed highly risky by the lenders. On the other hand, co-operatives or micro-lending organizations, which were more amenable to providing loans to small farmers, lacked funds to meet the sector's credit demand (Mohan, 2006). With little government support these organisations inevitably relied on pre-existing social networks and farmer wealth, further deepening the social and economic inequality in rural credit access. Eventually the regional rural banks (RRBs) were established in 1980 as an alternative banking structure that combined the strengths of cooperatives and those of commercial banks, followed by a second wave of bank nationalization and creation of the National Bank for Agriculture and Rural Development (NABARD) in 1982. NABARD played a crucial role in promotion of institutional rural credit via the self-help groups (SHGs). Cumulatively, these efforts led to significant improvements in formal credit expansion in the agricultural sector, which plateaued out post-1981 (see figure 2).

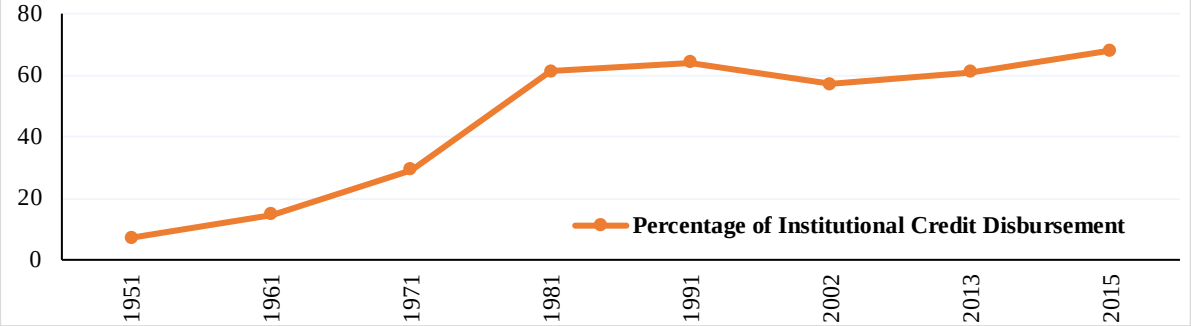

Figure 2: Household-level institutional credit as a percentage of total credit disbursal during 1951-2015.

The inequality in access among farmers and the erosion of lenders' profits (due to abysmal loan repayment rates) challenged the sustainability of institutional credit delivery system in India. The iconic reforms of 1991 introduced the deregulation of interest rates, recapitalization of select RRBs, and higher refinancing support from the RBI. The government too launched many farm credit programs including the Special Agricultural Credit Plan (1994–1995), Kisan Credit Cards (1998–1999), Doubling Agricultural Credit program (2004), Agricultural Debt Waiver and Debt Relief Scheme (2008), Interest Subvention Scheme (2010–2011) and, more recently, the Pradhan Mantri Kisan Yojana (2018) providing zero interest loans via direct benefit transfers to farmers who own less than two acres of land. Despite these efforts, the institutional credit penetration remains low (~61% as of 2013). Recently, NABARD's All India Rural Financial Inclusion Survey (2016-17) showed a direct relationship between asset holdings and formal credit access, i.e. the percentage of households who accessed formal credit increases among higher income deciles. Thus, not only is institutional credit access limited, it is also skewed away from the poorer sections of the farming community who would need it the most.

We investigate a range of social and economic factors that drive credit access among 927 formal and 954 informal credit-taking rural households in the semi-arid states of Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh and Maharashtra, using a farm-level panel dataset during 2001-2014 period. The data are a part of the primary survey conducted under the Village Dynamic Studies for South Asia (VDSA) coordinated by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). We model credit access as a function of three sets of variables representing credit worthiness of the household: land ownership status (size of operational holding, proportion of land

owned vs. rented, and land quality); household demographics (number of members in the household, and age, education and caste of the household head); and asset holdings (value of livestock, consumer durables, non-farm income).

We find that farmers who own land are 1.4 (and 1.2) times more likely to access formal (and informal) credit relative to the landless farmers. Every additional acre of land owned further increases the odds of accessing credit by 1.2 times, which is also in line with the existing evidence (for example, see the 2003 Policy Research Report by the World Bank). Therefore, small, marginal and landless (SML) farmer households that account for about 86% of the total rural households and own less than 48% of agricultural land in India's semi-arid heartlands would lose out in terms of attaining both formal and informal credit. In fact, a 2019 report by RBI showed that only 40% of SML households had access to some form of institutional credit. We further discover that soil quality too has a major impact on the odds of gaining credit access with erosive soils reducing credit access by up to six times as compared to healthy soils.

Our results also corroborate the enduring role of social hierarches as predictors of credit access by the means of caste, education, age and wealth. Households of the forward castes are almost 1.3 times more likely to get farm credit from formal and informal sources relative to their counterparts from the backward castes. The agricultural census of 2012 also showed that scheduled castes and scheduled tribe households account for more than 20% of landholdings in the country but received less than 12% loans under the KCC scheme. Wealthier households, and households having older and more educated heads, are more likely to get credit, possibly due to access to better social and economic networks. Lastly, we also find evidence of significant differential access across states. On average, wealthier, southern states exhibit higher credit access as compared to the western states for both formal and informal credit.

Our results reveal the inability of the formal agricultural credit sector in achieving its primary objective of disrupting social and economic barriers to credit access, which are known to plague the informal credit sector in India. The problem is further compounded because credit and insurance are compulsorily bundled, and, historically the voluntary coverage of crop insurance is under 5% (meaning that ~95% insured farmers also avail formal credit), which would then imply similar

inequalities in crop insurance access in India. Hence, we conclude that the agricultural risk mitigation policy in India systematically excludes the most vulnerable sections of the agricultural community, exposing them to an inevitable poverty trap, particularly in the times of crisis.

The ongoing Covid-19 crisis and inequalities in accessing agricultural credit

The vulnerabilities of India's agricultural institutions and the existing policies has perhaps never been starker. The outbreak of Covid-19 and the consequent lockdown measures brought the country's economy to a standstill. This shock has hit the agriculture sector in an adverse manner. The timing of the Covid-19 lockdowns coincided with the harvest season of the Rabi crop season, and as a result exposed the sector to disruption in the agricultural labour market that translated into delayed harvesting and the lack of storage facilities has led to post-production crop failure for many. In areas where the produce was harvested in timely fashion, the farmers found themselves scampering to sell their produce and were likely left to the whims of the traders with no guarantee of appropriate remunerations, due to inadequate government procurement capacity (Tewary, 2020; Karnataka Bureau, The Hindu, 2020). So, despite having a bountiful crop, farm incomes were still stressed. In the times of distress an ideal risk management system would effectively supplement farm incomes. The Modi government's Covid-19 relief package too targets increased credit availability in the rural areas through the KCCs. However, such institutional relief measures, as observed through the historical accounts and our empirical investigation, are going to be accessible by only select strata of India's rural society and hence unlikely to be effective. In May 2020, in yet another policy shift, the cabinet decided to scrap the compulsory linkage between insurance and institutional credit. However, unless such policy interventions account for measures to improve the crop insurance access for non-loanee farmers, the systemic inequality in credit access is only likely to reflect in insurance adoption in the coming years. As established earlier, the agricultural incomes are unsustainable for India's rural households, especially amidst rising uncertainty. Developing affordable and effective risk management systems that are accessible to all farmers, irrespective of social and economic status, is the need of these times.

References:

Bhende, M. J. (1986). Credit Markets in Rural South India. Economic and Political Weekly, Vol. 21, No. 38-39, A119-A124.

Braverman, A., & Guasch, L. J. (1989). Rural Credit in Developing Countries. Washington, DC: The World Bank.

Chand, R. (2017). Doubling Farmers' Income, Rationale, Strategy, Prospects & Action Plan. New Delhi: NITI Ayog.

Committee on Doubling Farmers' Income, (2017). Report of the Committee on Doubling Farmers' Income, Volume II, Status of Farmers' Income: Strategies for Accelerated Growth, New Delhi: Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture & Farmers' Welfare.

Chaudhari, S., & Gupta, M. (1996). Delayed formal credit, bribing and the informal credit market in agriculture: a theoretical analysis. Journal of Development Economics, Vol. 51. No. 2, 433-449.

Cuevas, C. E., & Graham, D. H. (1985). Rationing Agricultural Credit in Developing Countries: The Role and Determinants of Transaction Costs for Borrowers. International Association of Agricultural Economicsts, 1985 Conference (pp. 680-691). Malaga, Spain: International Association of Agricultural Economicsts.

Deshpande, A. (2000). Does Caste Still Define Disparity? A Look at Inequality in Kerala, India. The American Economic Review, Vol. 90, No. 2, Papers and Proceedings of the One Hundred Twelfth Annual Meeting of the American Economic Association (May, 2000), 322-325.

Iqbal, F. (1986). The Demand and Supply of Agricultural Funds in India. In I. Singh, L. Squire, & J. Strauss , Agricultural household models : extensions, applications, and policy (pp. 183-205). The World Bank.

Kamath, R., Mukherji, A., & Sandstrom , M. (2010). Accessing Institutional Finance: A Demand Side Story for Rural India. Economic and Political Weekly, Vol. 45, No. 37, 56-62.

Karnataka Bureau, The Hindu, (2020). Covid-19 impact: In despair, farmers destroy crops in Karnataka. [Online] Available at: https://www.thehindu.com/news/national/karnataka/covid-19-impact-in-despair-farmers-destroy-crops-in-karnataka/article31229662.ece [Accessed 28th April 2020]

Kohli, R. (1997). Directed Credit and Financial Reform. Economic and Political Weekly, Vol. 32, No. 42, 2667-2669+2671-2673+2675-2676.

Kumar, A., Mishra, A., Saroj, S., & Joshi, P. (2017). Institutional versus Noninstitutional Credit to Agricultural Households in India Evidence on Impact from a National Farmers' Survey. New Delhi: International Food Policy Research Institute.

Kumar, A., Singh, K., & Sinha, S. (2010). Institutional Credit to Agricultural Sector in India: Status, performance and determinants. Agricultural Economics Research Review, Vol. 23, No. 2, 253-264.

Kumar, S. (2013). Does access to formal agricultural credit depend on caste? World Development, Vol. 43, No. 3, 315-328.

Kumar, S. M. (2013). Does Access to Formal Agricultural Credit Depend on Caste? World Development, Vol. 43, 315-328.

Mohan, R., (2004). Agricultural Credit in India: Status, Issues and Future Agenda. Reserve Bank of India Bulletin, November, pp. 993-1007.

Mohan, R. (2006). Agricultural Credit in India: Status, Issues and Future Agenda. Economic and Political Weekly, Vol. 41, No. 11, 1013+1015-17+1019-23.

NABARD. (2018). NABARD All India Rural Financial Inclusion Survey 2016-17 (NAFIS). Mumbai: NABARD.

NSSO. (1992). All India Debt and Investment Survey (AIDIS). New Delhi: National Sample Survey Organization, Department of Statistics, MoSPI.

Rajeev, M., Vani, B., & Bhattacharjee, M. (2011). Credibility of Equal Access to Credit: Does Gender Matter? Economic and Political Weekly, Volume 46, No. 33, 76-79.

RBI. (1954). Report of the All India Rural Credit Survey Committee (1951-54). Mumbai: Reserve Bank of India.

RBI. (2019). Report of the Internal Working Group to Review Agricultural Credit. New Delhi: Reserve Bank of India (RBI).

Tewary, A., 2020. Bihar farmers facing serious labour crunch due to lockdown. [Online] Available at: thehindu.com/news/national/other-states/bihar-farmers-facing-serious-labour-crunch-due-to-lockdown/article31255288.ece [Accessed 28th April 2020].

The Planning Commission of India. (2000). Report of the Working Group on Agricultural Credit, Cooperation and Crop Insurance for Formulation of the Tenth Five Year Plan (2002-2007) . New Delhi: Government of India.

World Bank. (2003). Land Policies for Growth and Poverty Reduction: A World Bank Policy Research Report. Washington, DC.: The World Bank.

World Bank, F. (2009). Gender in Agriculture: Sourcebook. Washington, DC: The World Bank.