

Challenges, Opportunities and Innovation in Indian Rural Economy¹

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Abstract

In this paper, long winding problems of agriculture sector in India has been elaborated with a focus on the core policies, structure, and exogenous factors such as climate change. The aim of the study is to highlight the existing inequalities amongst the farmers based on the land holding and a mixed bag of policy responses by the government. With a high intervening role of official agencies, poor pricing policy, input inaccessibility and low incentives for innovation, agriculture has remained by and large a risky and less profitable venture. In conclusion, a suggestion on minimalistic role for government agencies and decentralised farmers-oriented marketing model for price discovery has been emphasized which is based on the Gandhian philosophy of rural development.

JEL Classification Code: Q13, Q15, Q18, P21, O3

Keywords: Agrarian Crisis, Tunnel Effect, DBT, Agriculture Risk Management (ARM)

¹ This paper is a part of initiative on *Call for New Economic Thought Leaders amongst Youth* by Prof. Raghendra Jha, ASARC, Australian National University. We wish to thank Prof. Raghendra Jha for comments on earlier draft. Expert assistance by Prof. Arnab Mukherji and Prof. MS Sriram (Professor in Center for Public Policy at IIMB) is gratefully acknowledged.

1. Introduction

Food for economic thought can be derived by looking at the state of Indian economy which is staring at the upcoming crisis in agricultural sector and its impact on the other pillars of growth (Lerche, 2011). Partially the policy formulation is responsible for the dismal situation of Indian agriculture which lack strong linkages of agriculture with macroeconomic factors (Dev, 2018). Another aspect of the failure can be looked from the implementation front which works in an already policy crowded environment (Swaminathan, 2007).

The current situation has forced all the major stakeholders (including policy makers, farmers, entrepreneurs) to ask question whether agriculture is a lucrative business in India? What if it is not? If not, then what happens to the rural economy of India? Are all farmers equally affected? Has state done enough to protect their rural electorate? These questions become important as 64% of the rural employment is dependent on the agriculture whereas it has minor share of 39% in total rural economy (Aayog NITI, 2017). This implies a relatively larger population is directly dependent upon the smaller pie.

The evidence of such has been provided by latest study called ICE 360⁰ survey conducted in 2016. It suggests that 89% of the bottom 20% of the population in terms of income resides in rural area. However, there lies significant inequality between the farmers across the states in India in terms of per capita income (Chakravorty et al, 2016). These findings explicitly point out that as a sector agriculture may be shrinking in terms of its share in GDP but there is a considerable amount of dependency for workforce in rural India.

A closer look to the agrarian crisis in India features mainly four issues (a) access to inputs (b) market for outputs and (c) price realization (d) uncertain climate. Looking at these long winding issues, State driven machinery has made several attempts to solve the agrarian crisis, but the responses. The policy responses by Indian State can be represented in the flow chart (Figure 1).

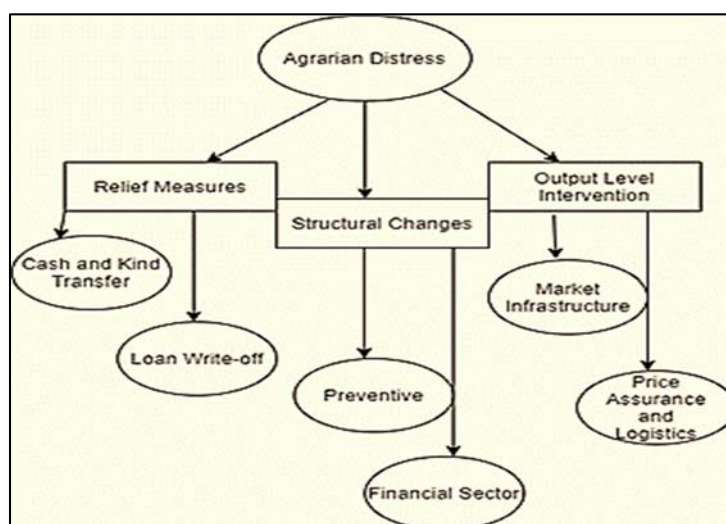


Figure 1: Policy Framework for Agrarian Crisis

However, half-baked policy responses led to agrarian crisis which resulted in massive poverty in rural India and sprawling rural to urban migration (Bhagat, 2016; Munshi and Rosenzweig, 2016).

This has led to immense pressure on the limited urban sources, forcing the poor to lead an inhuman life who mainly migrates from rural area for livelihood (Goli et al, 2011; Baum-Snow et al, 2018).

2. Existing Scenario in Agriculture Sector

The policies were mostly State controlled in terms of inputs and market regulations, specially the diffusion of Green Revolution and adoption of Minimum Support Price. The drive for increasing productivity following the Harrod-Domar Model and shifting of population from agrarian sectors to industrial sectors (mostly service sector) as crafted by Lewis Two Sector model created a wealth inequality, excessive migration to urban areas and loss in livelihood opportunities in leaps and bounds over the years post-independence. The sustained inequality between large farmers and small-medium scale farmers can be understood from the framework known as *Tunnel Effect* suggested by Albert Hirschman. This framework explains why some section tolerate inequality irrespective of their conditions (Hirschman and Rothschild, 1973).

The analogy comes from the vehicular traffic jam. Suppose there are two lanes in the same direction, and a traffic jam occurs in both the lanes. After a long wait, one lane starts moving while others watch. Initially the non-movers feel better in the anticipation of their mobility, however, it fades with time as they remain stuck. With respect to the analogy, small and marginal farmers are in one lane whereas the large farmers in other. Before independence, all farmers irrespective of their land size saw no economic development due to British coercive Trade Policies. However, post-independence, with five-year plans focussing on Industrial and Agricultural Growth, the lane belonging to large farmers with geographical advantage started moving (Frankel, 2006). The inequality becomes more stark post Green Revolution (Gartell, 1977; Dhanagare, 1987). The Green Revolution, meant to increase food productivity, required usage of heavy machinery and state of the art seed and fertilizer technology which mainly favoured the large farmers due to land holding size and economy of scale.

In addition to this, political representation of few sets of farmers also provided negotiation powers to leverage the policies in their favour (Frankel, 2006). Further, government responded to the call of small and marginal farmers as they started agitating by introducing minimum support price (MSP) and crop insurance. However, the MSP failed to realise its impact for small and marginal farmers due to inaccessibility of market (Chand, 2011). Therefore, we aim to discuss major issues in the Indian agriculture to understand the rural economy. Further, we document the alternatives to the existing logjam.

The plan for the paper is as follows. Section 1 discusses the structure of inputs in Indian agriculture. Section 2 furthers the discussion of infrastructure in agriculture by emphasising on the role of investment in India. Section 3 delves into the rationality of price discovery in agricultural markets and role of multiple agencies. Section 4 summarises the risk exposure of farmers especially due to climate change and Section 5 discusses the alternatives models.

2.1 Structure of Inputs in Indian Agriculture

Agricultural inputs like seeds, fertilizers, pesticides, irrigation, and farm machinery, etc. are important ingredients for agricultural yield. However poor institutional credit system, disproportional subsidy scheme, and low investment in agriculture-infrastructure etc., are some of the reasons behind poor accessibility (Nithyashree, 2014).

Quality seed is the founding stone in farming, but only one-third of marginal farmers using certified seeds (Nithyashree, 2014). Based on Swaminathan's Report (2006) adequate quantity, at reasonable price and at desirable time are main issues. Another reason is the non-accessibility due to dependency on non-institutional sources for credits (NABARD, 2017).

Another issue is the lack of irrigation infrastructure has posed additional pressure on agricultural yield. In India only 48% of the net sown area are under irrigation infrastructure majority of which are canals, tube wells and tanks (MoFW, 2016-17). These system are not only capital intensive but also have poor water use efficiency due to use of flood irrigation method (Ministry of Agriculture, 2004).

To solve the issue of poor water use efficiency, the government has launched “*per drop more crop*” under PMKSY to promote the micro-irrigation system like drip irrigation and sprinkler system (ICAR, 2018; MoAFW, 2019). However, the access to modern technology for farmers, especially, small and marginal land holding size, remains challenge in India. Meanwhile, the major barrier to technology access is absence of infrastructure, which is discussed in subsequent section.

2.2 Infrastructure in Agriculture- Role of investment through subsidies

Subsidies are being provided by the government to Indian agricultural sector both in direct & indirect form. Here, we analyse the broad structure & impacts of various subsidies. Irrigation subsidy provides use of State Government constructed public goods such as canals, dams for which low or no prices are charged. Due to poor water pricing policy, groundwater withdrawal is currently at 172% of water, the nonchalant use of which will lead to depletion of resources without adequate replenishment (Jain, 2018).

Another subsidy is provided on fertilizers using policy of “Retention Price Scheme” wherein a fair ex-factory retention price is fixed. A fixed subsidy is announced on per kg based on nutrients annually under Nutrient Based Subsidy Scheme (NBS). Manufacturers can fix the MRP. Farmers pay only 50% of the delivered cost of fertilizer and the rest is borne by the government in the form of subsidy. The involvement of multiple agencies in the input market affected the output market as well is shown with the help of Figure 2.

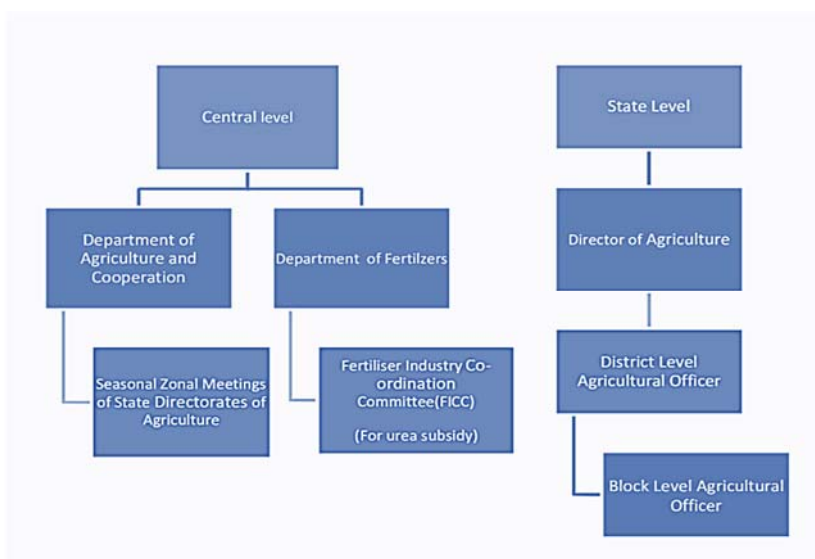


Figure 2: Schematic Representation for multiple agencies in Input market

This resulted in unprecedented fluctuations in prices for many crops, which we have discussed briefly in next section.

2.3 Price Realization

The instability of price can be understood from the theoretical framework known as Cobweb Theorem by Mordecai Ezekiel in 1938 (Ezekiel, 1938). According to this theory, the decision for inputs in any sector is dependent on the prices realized for outputs in the precedent years. Similar decision-

making rationale is followed by Indian farmers in India. To illustrate, Tur Dal, a variety of pulse grown in India, has seen extremely high price realization in 2015. Considering the price into the decision function, farmers allotted higher sources to produce Tur Dal. This led to higher production, markets flooded with the pulse, leading to severe crash in the price. This instability can be attributed to the following: (a) Low in storage capacity (b) No protection from International Markets and (c) Lack of nationally integrated market (Burman et al, 2018).

Historically, governments attempted to stabilise the price through regulations such as minimum support price (MSP) and APMC Act. Additionally, the input or factor prices also face intrusive government regulation. This resulted in spatial disadvantage for farmers, making the small and marginal farmers more vulnerable (Chatterjee & Kapur, 2016). The regulations were mostly derivative of Essential Commodities Act (ECA), 1955, which aimed to control on private storage, transport, processing, exports, imports, credit access and market infrastructure for the stated commodities. (Chatterjee & Kapur, 2016; GoI, 2007). In compliance to regulate the agriculture market, states adopted Agriculture Produce Marketing Act (APMC). However, the services provided in APMC markets are charged from farmers under the categories of commissions (Trebin & Franz, 2010). Despite of hefty charges, the APMC acts proved to be effective in curbing malpractices and introducing transparency in the agriculture market (Acharya, 2004).

Due to this stagnancy, the dependence on middlemen increased which aggravated the transparency in the price realisation. This led to poor access of credit system, hence dependency and exploitation by trading class (Chand, 2012). Additionally, previous studies have found that designated place for market reduces the negotiation power of farmers due to high transportation cost. Due to lowered bargaining power, many farmers fetch unfair deal, specially the small and marginal farmers (Barrett et al, 2012). Further, the stagnated market size growth led to proliferation of multiple agents between producers and consumers (Chand, 2012).

2.4 Uncertainty of climate

The very nature of agriculture being dependent entirely on the suitable agro-climatic condition makes it riskier, irrespective of right amount of abundant credit and input (IRI, 2013). Highly volatile climate adds worries to an existing economically inefficient state of agriculture which characterizes by fragmentation of land, declining land holding, reduced soil nutrients and quality of crops (R. K. Mall et al., 2006). The losses occurred due to risky venture of agriculture also leads to market and enabling environment risk which disrupts the supply chain and causes trade related issues which reduces the profitability of the farmers.

As observed in the past 40 years, the risk due to climate change has increased because of which agriculture is said to be a less profitable venture in India (World Bank, 2015). In this view, Agriculture risk management (ARM) has been one of the key focus of the agricultural policy makers to ensure sustainable and profitable agriculture practices. The climate risk can only be mitigated using crop insurance and integrated farming techniques along with technologies used to forecast arrival of monsoon, simulation models for assessing the cost-benefit of crops (Chakrabarti, 2012).

Therefore, the discussion suggests minimalistic role for government agencies and decentralised farmers-oriented marketing model for price discovery. The alternative models have cues of Gandhian philosophy of rural development. He prioritised society over markets and focused on decentralisation of powers (Guha, 2017). Similar ideas were resonated in the past by the late Dr. APJ Abdul Kalam where he suggested providing urban amenities to rural areas (*PURA*) which majorly discussed about methods to generate local demand hence the local market (Kalam and Singh, 2011). Taking into cognisance of these ideas we discussed the alternative models.

3. Alternative Models: Some Practical Solutions

We discuss the alternatives in terms input regulation, market for output and mitigation for climate change. As far as input regulations are concerned Shift from price policy to income policy will reduce the negative impact of input subsidies. Shift in policy to Direct benefit transfers (DBT) & encouraging investments at the margin more than nominal terms will address the problem of huge leakages and inefficiencies in the existing structure. Subsidies tend to reduce incentives for producers to boost efficiency and shift their focus from efficiency to dependence on subsidies, serving as a long-term crutch.

From the output diversification point of view, streamlining of seed supply chain through blockchain to ensure transparency and faster delivery as was done by Wall Mart for food supply chain (*How Walmart brought unprecedented transparency to the food supply chain with Hyperledger Fabric, 2019*). Another alternative could be Public Private Partnership (PPP) in breeding new seed varieties (Swaminathan, 2006).

In terms of access to technology, Uber Business Model fits the need. In this model, the farmers can pull the resources from owner and pay as per usage. It is like pulling cab services in cities. Some start-ups like *Gold Farm* (goldfarm.in) are already using this business model to provide services to the farmers.

Further, alternative marketing strategies like Farmer Producer Organisations (FPOs), e-NAM etc are experimented in Indian setup. Initial evaluation of alternative models shows the effectiveness of the alternative models. Pavitra et al (2018) found that e-tendering system in Karnataka reduced transaction cost, brought transparency in price discovery, and enhanced the market competition. Further, they also focussed on the role of farmer organisations to provide justice to the producers (Pavitra et al, 2018).

Meanwhile, climate change presented itself as a global challenge, however, the effect is local. To mitigate its effect, crop loss insurance program is required. Pradhan Mantri Fasal Bima Yojna (PMFBY) is one such scheme, but with minimal outreach (ORF, 2019). Better reachability of this program can reduce the economic hardship on farmers due to climate change, however, it remains a short-term solution.

4. Conclusion

Our proposal of decentralized approach to agrarian crisis in India revolves around John Rawls philosophy of Justice. Rawls philosophy contrasted the utilitarian principle of maximizing utility. He said that utilitarianism believes that same ideologue of maximization can be applied to individual or institutions irrespective of their needs and demands. Rawls believed in no universal principle rather he said, “depends on the nature of that thing” (Wenar, 2017).

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