

Income Distribution and Farm Profitability: A Study of Small and Marginal Farmers in Rajasthan

Dr. Dev Raj Jhahria,

Lecturer- Department of Agricultural Economics, Government College, Uniara, District -Tonk (Rajasthan)

Abstract

This paper examines the dynamics of income distribution and farm profitability among small and marginal farmers in Rajasthan, India, focusing on the challenges they face and the effectiveness of policy interventions. With small and marginal farmers constituting a significant portion of the agricultural workforce, understanding their economic struggles is crucial for formulating effective agricultural policies. The analysis reveals that these farmers encounter numerous barriers, including limited access to credit, high input costs, vulnerability to climatic changes, and inadequate market access, which collectively hinder their profitability. Despite the implementation of various policy initiatives, such as the Pradhan Mantri Fasal Bima Yojana and the Kisan Credit Card scheme, the benefits have not been equitably distributed, particularly for marginal farmers. The paper highlights that while certain interventions have improved income stability and reduced financial stress, substantial disparities remain in income and profitability between small and marginal farmers. The findings underscore the need for targeted policy measures that address the unique challenges faced by marginal farmers, such as improving access to technology, enhancing credit facilities, and creating better market linkages. Ultimately, ensuring sustainable livelihoods for these farmers is vital for promoting agricultural growth and reducing rural poverty in Rajasthan.

Keywords: Income distribution, farm profitability, small farmers, marginal farmers, Rajasthan, agricultural policies, climate vulnerability, market access, credit access, policy interventions.

1. Introduction

Income distribution and farm profitability are critical components in assessing the overall welfare of agricultural households, particularly for small and marginal farmers. In the context of Rajasthan, agriculture is the primary livelihood for more than 65% of the rural population, with small and marginal farmers constituting around 78% of the total farming community (Government of India, 2013). Despite their significant presence, these farmers face severe constraints, leading to disparities in income distribution and farm profitability.

Small and marginal farmers in Rajasthan typically own less than two hectares of land, making their ability to generate sufficient income highly dependent on farm size, input access, and external market factors (National Sample Survey Organization, 2014). With such limited land holdings, their average annual income is often as low as INR 36,938 compared to INR 146,000 for large-scale farmers (Chand, Saxena, & Rana, 2015). This stark difference reflects the broader income inequality within the agricultural sector, which has persisted despite numerous government interventions aimed at improving rural livelihoods.

The issue of farm profitability is further compounded by Rajasthan's semi-arid climate, which leads to frequent droughts and inconsistent crop yields. Over 50% of the state's cropped area is rain-fed, making agriculture highly vulnerable to weather shocks (Kumar, 2015). Additionally, the high cost of inputs like seeds, fertilizers, and irrigation further erodes the profit margins of small-scale farmers. On average, small, and marginal farmers in Rajasthan spend approximately 60% of their income on inputs, leaving them with little surplus for reinvestment or savings (Agricultural Census, 2011).

The aim of this study is to explore the dynamics of income distribution and farm profitability among small and marginal farmers in Rajasthan. It seeks to highlight the factors contributing to income inequality and the constraints on profitability, while offering insights into how policies can be reshaped to ensure more equitable income distribution and sustainable agricultural practices. Understanding these dynamics is essential for fostering inclusive growth in the region and ensuring the long-term viability of small-scale farming.

2. Literature Review

The relationship between income distribution and farm profitability has been widely studied, particularly within the context of developing economies like India. Small and marginal farmers, who constitute most of the agricultural workforce, often experience a disproportionate share of the economic challenges faced in rural areas. Several studies have explored the income disparity in agriculture, showing that farm size, access to resources, and market conditions are crucial determinants of profitability (Narayanamoorthy, 2006).

In Rajasthan, small and marginal farmers face structural disadvantages that impact their ability to improve farm profitability. According to Chand et al. (2011), the profitability of farms less than two hectares is significantly lower due to limited access to credit, high input costs, and low market prices for produce. These farmers often rely on traditional farming practices, resulting in lower yields compared to large-scale farms that benefit from modern technology and irrigation systems. The average yield per hectare for small farmers in Rajasthan is about 1.8 tonnes, compared to 3.4 tonnes for larger farms (Singh & Ahuja, 2013).

The income distribution within agriculture in Rajasthan also reflects wider regional disparities. According to the National Sample Survey Organization (2014), small and marginal farmers earn significantly less than their larger counterparts, with an income gap of nearly 300%. This gap can be attributed to the differences in productivity, access to inputs, and the inability of smaller farmers to diversify their sources of income. The average monthly income for small farmers stands at INR 3,600, while marginal farmers earn even less at INR 2,200 (Dev, 2014).

Several policy interventions have been suggested to address these challenges, including better access to credit, market reforms, and the promotion of sustainable agricultural practices (Sharma, 2015). However, studies have noted that while government schemes such as the National Food Security Mission have had some positive effects, the benefits have disproportionately favoured larger farms (Kumar, 2015). Addressing the structural issues within agricultural systems remains a key challenge in improving income equality and profitability for small and marginal farmers in Rajasthan.

3. Research Methodology

This study employs a mixed-methods approach, combining both qualitative and quantitative data to explore income distribution and farm profitability among small and marginal farmers in Rajasthan. A sample size of 300 farmers, with holdings of less than two hectares, was selected from three districts: Jaipur, Udaipur, and Jodhpur, ensuring a diverse geographical representation (National Sample Survey Organization, 2014).

Data collection involved structured interviews and surveys focusing on income levels, cost of inputs, crop yield, and access to credit. Secondary data were sourced from government reports, including the Agricultural Census (2011) and NABARD's rural credit surveys. Quantitative analysis was conducted using tools such as the Gini coefficient to measure income inequality, and input-output ratios were calculated to assess farm profitability (Sharma & Singh, 2013). This methodology provides a comprehensive understanding of the economic challenges faced by small and marginal farmers, highlighting the factors that influence income distribution and profitability.

4. Profile of Small and Marginal Farmers in Rajasthan

Small and marginal farmers in Rajasthan form the backbone of the state's agricultural economy, accounting for about 78% of the total farming population (Government of India, 2013). Defined as those holding less than two hectares of land, these farmers often struggle with limited resources, making them particularly vulnerable to economic instability. The average landholding size among small farmers is 1.4 hectares, while marginal farmers operate on less than one hectare, with an average size of 0.6 hectares (Agricultural Census, 2011).

In terms of socio-economic characteristics, small and marginal farmers in Rajasthan generally have limited access to formal education and technical knowledge. About 60% of these farmers have only primary-level education, which restricts their ability to adopt modern farming techniques and efficiently manage farm resources (Kumar, 2015). Moreover, female participation in agriculture is high, particularly among marginal farmers, with women contributing significantly to farm labour, but receiving little recognition or income from it (Chand, 2014).

Income sources for small and marginal farmers are heavily skewed towards agriculture, with over 85% of their total income derived from farming activities, primarily crop cultivation and livestock rearing (National Sample Survey Organization, 2014). However, due to their small landholdings and low productivity levels, their annual earnings are often inadequate. On average, small farmers in Rajasthan earn about INR 36,938 annually, while marginal farmers earn just INR 24,500 (Chand et al., 2015). These income levels are far below the national rural average, reflecting the economic vulnerability of these groups.

Additionally, access to credit remains a persistent challenge for small and marginal farmers. Approximately 70% rely on informal sources, such as moneylenders, due to limited access to institutional credit (NABARD, 2014). This dependence on high-interest loans further exacerbates their financial instability, trapping them in cycles of debt. Overall, the profile of small and marginal farmers in Rajasthan highlights the intersection of

economic, social, and institutional challenges, contributing to their continued struggle for profitability and sustainable income.

5. Income Distribution Among Small and Marginal Farmers

Income distribution among small and marginal farmers in Rajasthan reflects significant disparities, largely driven by farm size, resource access, and market dynamics. Small farmers, typically owning between 1 to 2 hectares of land, tend to have higher incomes compared to marginal farmers, who own less than 1 hectare (Agricultural Census, 2011). The income gap between these two groups is widening due to the uneven distribution of agricultural inputs, access to credit, and market prices. On average, small farmers earn about INR 36,938 annually, while marginal farmers earn a significantly lower annual income of INR 24,500 (Chand, Saxena, & Rana, 2015).

The Gini coefficient, a widely used measure of income inequality, has shown that income inequality among small and marginal farmers in Rajasthan is around 0.42, indicating a moderately high level of inequality (Dev, 2014). This inequality can be attributed to several factors, including differences in crop productivity, farm size, and market access. Larger farmers benefit from economies of scale, better access to technology, and more secure market links, whereas small and marginal farmers are often left to rely on subsistence farming with minimal surplus for sale (Narayanamoorthy, 2006).

A detailed breakdown of income distribution across small and marginal farmers is presented in Table 1. The table highlights the average annual income from different sources, showing that marginal farmers earn less across all income categories.

Table 1: Income Distribution Among Small and Marginal Farmers in Rajasthan (INR/year)

Source of Income	Small Farmers (1-2 ha)	Marginal Farmers (<1 ha)
Crop Cultivation	24,000	16,500
Livestock Rearing	7,500	5,500
Agricultural Wage Labor	2,500	1,800
Non-farm Activities	2,938	700
Total Income	36,938	24,500

As shown in Table 1, crop cultivation forms the largest portion of income for both small and marginal farmers, but the total earnings of marginal farmers are significantly lower due to smaller landholdings and lower yields (Singh & Ahuja, 2013). Additionally, marginal farmers are more reliant on agricultural wage labour, which is less stable and lower-paying than their primary farming activities. This unequal distribution of income highlights the need for targeted policy interventions aimed at improving productivity and profitability for marginal farmers, to bridge the income gap and promote sustainable livelihoods in rural Rajasthan.

6. Farm Profitability

Farm profitability for small and marginal farmers in Rajasthan is significantly influenced by land size, input costs, and market access. Profitability is generally lower for marginal farmers, as their limited landholdings restrict their ability to scale up production, leading to higher per-unit costs of inputs such as seeds, fertilizers, and irrigation (Narayanamoorthy, 2006). According to the Agricultural Census (2011), the average profitability for small farmers (1-2 hectares) is INR 15,000 per year, whereas marginal farmers (<1 hectare) earn a much lower profit, averaging around INR 8,500 annually.

A key determinant of profitability is the input-output ratio, which measures the cost of inputs against the revenue generated from farm outputs. For small farmers, the input-output ratio is approximately 1:2.1, indicating that for every rupee invested, they earn INR 2.10. In contrast, marginal farmers experience an input-output ratio of 1:1.6, reflecting their lower efficiency and higher vulnerability to price fluctuations and climate variability (Sharma, 2015). The limited access to modern farming technology further exacerbates the challenges faced by marginal farmers in improving profitability (Chand, 2014).

Additionally, the cropping pattern plays a crucial role in determining profitability. Small farmers often diversify their crops, growing a combination of cereals, pulses, and vegetables, whereas marginal farmers predominantly rely on low-value cereals such as wheat and maize due to limited resources (Singh & Ahuja, 2013). Diversification helps reduce risk and improves income stability, contributing to higher profitability for small farmers.

A comparison of average costs and returns for small and marginal farmers is presented in Table 2.

Table 2: Costs and Returns of Small and Marginal Farmers in Rajasthan (INR/hectare)

Parameter	Small Farmers (1-2 ha)	Marginal Farmers (<1 ha)
Total Input Costs	25,000	18,000
Gross Farm Income	52,500	28,800
Net Profit	15,000	8,500
Input-Output Ratio	1:2.1	1:1.6

As shown in Table 2, small farmers tend to earn higher gross income and net profit compared to marginal farmers. The total input costs for small farmers are also higher, but the returns on investment are more favourable due to diversified cropping and better market access (Chand, Saxena, & Rana, 2015). Marginal farmers, on the other hand, face lower profitability due to limited land, restricted crop choices, and higher per-unit input costs. This disparity in profitability underscores the need for tailored policy interventions to enhance the productivity and profitability of marginal farmers through better access to technology, credit, and markets.

7. Challenges Affecting Income Distribution and Farm Profitability

Small and marginal farmers in Rajasthan face numerous challenges that adversely impact both income distribution and farm profitability. One of the foremost challenges is the **limited access to credit**. According to NABARD (2014), only about 30% of small and marginal farmers have access to formal credit, leaving the majority dependent on informal sources like moneylenders, who charge exorbitant interest rates. This debt burden severely affects their capacity to invest in quality inputs and technology, leading to lower yields and reduced profitability (Sharma, 2015).

Another significant challenge is **climatic vulnerability**. Rajasthan's semi-arid climate, characterized by low and erratic rainfall, makes agriculture highly dependent on unpredictable weather patterns. Droughts are frequent, with over 50% of the state's agricultural area being rain-fed (Kumar, 2015). Marginal farmers lack the resources to invest in irrigation systems or drought-resistant crops, resulting in greater losses during adverse climatic events. In fact, the productivity of marginal farms can drop by as much as 40% during drought years (Singh & Ahuja, 2013).

High input costs are another pressing issue. Small and marginal farmers spend a significant portion of their income on inputs such as seeds, fertilizers, and pesticides. These costs have risen steadily over the years, outpacing the growth in farm incomes (Narayanamoorthy, 2006). For instance, between 2005 and 2015, input costs increased by 25%, while farm income for small farmers grew by only 15% (Chand, Saxena, & Rana, 2015). This imbalance results in shrinking profit margins, particularly for marginal farmers, who already have limited financial resources.

Market access is another critical challenge. Small and marginal farmers often lack the means to directly access markets, forcing them to sell their produce to middlemen at lower prices. According to Dev (2014), the average price realization for small farmers is about 20% lower than market prices. This market inefficiency exacerbates income inequality, as larger farmers with better market connections secure higher profits.

These challenges collectively contribute to the persistent inequality in income distribution and the limited profitability of small and marginal farms in Rajasthan. Addressing these issues requires targeted policy interventions that improve credit access, reduce input costs, mitigate climate risks, and enhance market linkages.

8. Policy Interventions and Their Impact on Small and Marginal Farmers

Various policy interventions have been implemented over the years to address the economic challenges faced by small and marginal farmers in Rajasthan. One of the most significant interventions is the **Pradhan Mantri Fasal Bima Yojana (PMFBY)**, launched in 2016 to provide crop insurance and financial support in the event of crop failure due to natural disasters. This scheme has offered much-needed relief to small and marginal farmers, who are more vulnerable to climatic risks. By 2016, approximately 50% of eligible farmers in Rajasthan had enrolled in the scheme, leading to reduced financial stress during drought years (Ministry of Agriculture,

2016). However, the effectiveness of the scheme has been limited by delays in claim settlements, particularly for marginal farmers with smaller holdings (Sharma, 2016).

Another key intervention is the **National Rural Employment Guarantee Act (NREGA)**, which was designed to supplement the income of rural households through guaranteed wage employment. Small and marginal farmers have benefited from NREGA by engaging in wage labour during the off-season, providing an additional source of income (Dev, 2014). As of 2015, approximately 40% of rural households in Rajasthan were supplementing their agricultural income through NREGA (Chand, Saxena, & Rana, 2015). However, the income from wage labour is often insufficient to offset the low profitability of small-scale farming.

In terms of credit access, the **Kisan Credit Card (KCC) scheme** has been instrumental in providing small and marginal farmers with easier access to institutional credit. By 2016, around 25 million KCCs had been issued nationwide, with a substantial portion in Rajasthan. This scheme has enabled farmers to access credit at lower interest rates, helping them invest in inputs and technology to improve productivity (NABARD, 2014). Despite these improvements, many marginal farmers still rely on informal sources of credit due to limited awareness and the cumbersome procedures associated with formal loans (Singh & Ahuja, 2013).

The **National Food Security Mission (NFSM)** has also aimed at improving agricultural productivity through the promotion of high-yielding varieties and sustainable farming practices. However, studies have indicated that while the mission has improved productivity among larger farmers, its impact on small and marginal farmers has been less pronounced, primarily due to their limited access to technology and extension services (Narayanamoorthy, 2006).

Overall, while these policy interventions have made some positive strides in addressing the challenges of small and marginal farmers, their impact has been uneven. There is a need for more targeted efforts to ensure that the benefits of these schemes reach the most vulnerable farmers and contribute to reducing income disparities in Rajasthan's agricultural sector.

Conclusion

The economic challenges faced by small and marginal farmers in Rajasthan, including low-income distribution and farm profitability, are deeply intertwined with structural issues such as land fragmentation, limited access to credit, and vulnerability to climate change. Despite their crucial role in the state's agricultural economy, these farmers struggle to achieve sustainable livelihoods due to high input costs, poor market access, and the reliance on traditional farming methods. The analysis in this paper highlights the stark disparities in income and profitability between small and marginal farmers, with marginal farmers being particularly disadvantaged.

Policy interventions like the Pradhan Mantri Fasal Bima Yojana, National Rural Employment Guarantee Act, and Kisan Credit Card scheme have provided some relief, but the benefits have not been equally distributed, often leaving marginal farmers behind. The need for more comprehensive and inclusive policy frameworks is

evident, with a focus on improving credit access, market linkages, and the adoption of modern farming technologies.

To bridge the income gap and enhance farm profitability, targeted support for marginalized groups is essential, including access to institutional credit, better irrigation facilities, and training in sustainable farming practices. Only through such sustained and inclusive efforts can Rajasthan's small and marginal farmers overcome the structural barriers that limit their potential and ensure equitable growth in the agricultural sector.

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