

Farms Fail to Feed: Land Fragmentation and the Migration Imperative in Rural India

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ABSTRACT: This study critically examines the complex and deepening agrarian crisis in rural India, focusing on the interconnected dynamics of land fragmentation, foodgrain production, and the migration imperative. Despite agriculture's historical significance as the backbone of India's economy and a primary source of rural livelihood, the sector is now failing to provide food security or sustainable livelihoods to the very farmers who sustain it. The research highlights how the steady subdivision of agricultural land—driven by demographic pressures and inheritance practices—has resulted in increasingly fragmented and uneconomical landholdings, particularly affecting marginal and small-scale farmers who constitute nearly 86% of India's farming population.

Drawing on longitudinal secondary data from 1990–91 to 2020–21, including Agricultural Censuses, NSSO surveys, and government statistics, the study adopts a mixed-methods approach to examine how declining land per cultivator and stagnating productivity on small plots have contributed to household food insecurity and economic hardship. While food grain production has increased in absolute terms, marginal farmers continue to struggle to produce enough to meet their household needs due to the inefficiencies and limitations of fragmented plots. Consequently, migration—particularly rural-to-urban and seasonal labour migration—emerges not as a choice but as a necessary survival strategy.

The findings reveal a clear contradiction: national foodgrain surpluses coexist with widespread rural hunger, unemployment, and landlessness. The study contends that this paradox results from uneven agricultural development, market-driven reforms, and a lack of structural support for smallholders. Ultimately, the paper advocates for urgent policy reforms to improve land consolidation, enhance tenure security, and strengthen rural livelihoods. Without such measures, the ongoing migration pressure will continue, further eroding the socio-economic fabric of rural India and jeopardizing the goal of inclusive and sustainable agricultural growth.

KEYWORDS: Land Fragmentation, Marginal Farmers, Foodgrain Production, Rural Migration, Food Security, Rural Livelihood.

INTRODUCTION

Agriculture has historically been the backbone of Indian society and economy, supporting millions and ensuring national food security. According to the 2011 Census, over 58% of the Indian population relied on agriculture and allied sectors for their livelihoods. Despite urbanization and industrial growth, the sector that has sustained generations now faces a paradox: it struggles to feed its cultivators. This contradiction is evident in land fragmentation, a silent crisis leading to reduced farm productivity, economic insecurity, and out-migration from agrarian regions.

The transition of Indian agriculture from subsistence to self-sufficiency has been complex. Post-independence, India faced food shortages, prompting the Green Revolution in the 1960s. This transformative period, marked by high-yielding variety (HYV) seeds, fertilizers, and irrigation, led to significant increases in food grain production (Swaminathan, 2006) and achieving food self-sufficiency by the 1970s. However, this success was concentrated in states like Punjab and Haryana, resulting in regional disparities (Frankel, 1971).

Despite agricultural modernization, nearly 86% of farmers remain small and marginal (Agriculture Census, 2015–16). While large landowners benefited from technological advances, smallholders continued subsistence farming with limited access to resources (Das, 2002). Rural population growth has exacerbated land pressure, leading to further fragmentation of agricultural land, with operational holdings decreasing from 1.55 hectares in 1990–91 to an estimated 1.06 hectares in 2020–21 (DES, GovI, 2019).

Fragmented landholdings reduce efficiency, causing lower productivity, higher costs, resource wastage, and boundary disputes. When farms can't provide adequate returns, farmers often seek alternate income sources through migration (Deshingkar & Farrington, 2009). This agrarian distress—characterized by falling farm incomes, rising debt, and climate uncertainties—turns migration into a necessity.

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This crisis is rooted in structural changes in landholding patterns, where fragmentation undermines agricultural viability and disrupts rural social structures. As farming becomes less profitable, rural youth abandon agriculture for non-agricultural employment, resulting in temporary and permanent migration flows (Rogaly, 2003). While migration can provide financial relief via remittances, it also increases vulnerabilities through urban informal labour and poor living conditions.

The rural-urban dichotomy is reconfigured through migration, with land fragmentation at its core. Despite India being a net exporter of foodgrains, marginal and smallholder farmers face food insecurity and livelihood precarity (Mehta, 2011). This contradiction exposes the uneven outcomes of agricultural development and highlights the need for revised rural policies based on landholding patterns. Furthermore, the agricultural landscape is challenged by climate variability, groundwater depletion, and crop commercialization, disproportionately affecting small and marginal farmers whose fragmented holdings increase vulnerability to environmental and market shocks (Sharma, 2012). Government initiatives like PM-KISAN and the National Mission on Sustainable Agriculture (NMSA) have been insufficient in addressing issues of land consolidation, tenure security, and smallholder support. Land fragmentation is thus a socio-economic phenomenon with far-reaching implications for rural livelihoods and food security. This study examines the relationship between land fragmentation and foodgrain production, focusing on marginal and small-scale farmers in rural India. Increasingly subdivided land complicates farmers' abilities to maintain productivity and secure food. The research identifies economic pressures as push factors that drive migration in search of better livelihoods and assesses the impact of land fragmentation on agricultural output and household food security. It highlights the link between fragmented landholdings and rising rural out-migration, emphasizing how shifts in land ownership and agrarian distress reshape rural livelihoods in India.

RESEARCH METHODOLOGY AND MATERIALS

This study investigates the relationship between land fragmentation and rural migration in India, focusing on marginal and small landholding farmers. Using a mixed-methods approach, it combines quantitative data analysis with qualitative insights from academic studies and government reports to understand the drivers and implications of land fragmentation on migration.

The research utilizes a longitudinal methodology, analyzing national-level trends from 1990–91 to 2020–21, and a period of significant change in India's agricultural landscape marked by economic reforms and increased market orientation. Key variables include the land available per cultivator for foodgrain crops, classified by landholding size (marginal to large), which illustrates the impact of fragmentation on food production and the economic viability of small farmers.

The quantitative component employs descriptive statistics to show how fragmentation has reduced land per cultivator, affecting agricultural productivity and food security. Complementing this, qualitative content analysis explores themes such as agrarian distress and employment insecurity, underscoring migration as a survival strategy for marginal farmers.

This research utilizes a range of authentic, publicly accessible secondary data sources. Key sources include the Agricultural Census of India (1990–2021), National Sample Survey Office (NSSO) assessments from 2003, 2013, and 2019, and the Census of India (1991, 2001, and 2011). Additionally, data from the Directorate of Economics and Statistics (DES) provides insights into land use, agricultural inputs, and food production trends.

The methodology combines quantitative assessments of these data with qualitative interpretations, aiming to understand how land fragmentation impacts foodgrain production and drives rural migration as marginal farmers seek alternatives to agriculture. This work contributes to discussions on rural transformation, food security, and sustainable agricultural development in India.

LITERATURE REVIEW

The agrarian crisis in India has intensified over recent decades, driven by declining farm incomes, deteriorating soil productivity, and increasing disjunction between agriculture and livelihoods. A key factor is land fragmentation, which is the subdivision of agricultural holdings into smaller, less viable units. In India, over 85% of operational landholdings fall under marginal (< 1 hectare) and small (1–2 hectares) categories (GoI, 2021). According to Reddy and Mishra (2009), this diminishing land base makes cultivation economically unviable, particularly for resource-poor farmers. Fragmentation raises production costs and hampers the adoption of improved technologies, leading to stagnant or declining yields (Fan & Hazell, 2000).

Additionally, fragmentation creates irregular, scattered plots that complicate farm management, thus reducing operational efficiency. This inefficiency negatively impacts productivity and competitiveness in smallholder farming. Binswanger-Mkhize and D'Souza (2011) assert that without land consolidation and institutional support, agricultural productivity cannot meet the needs of India's growing rural population.

Foodgrain production has stagnated in regions with small, fragmented holdings, even as aggregate production has risen. The Green Revolution's benefits have been unevenly distributed, with areas like eastern India and central tribal belts still facing low productivity (Shiva, 1991; Frankel, 1971). Pingali (2012) notes that per capita food availability remains limited, particularly for smallholder households in economically marginalized areas.

Rising rural-to-urban migration is increasingly linked to declining farm-based livelihoods, driven by shrinking incomes, rising input costs, and climatic uncertainties (Bremner, 1996; Mosse et al., 2002). De Haan (1999) and Rogaly et al. (2002) highlight that migration is a survival strategy for land-poor groups who view off-farm labour as their only viable option. The NSSO's Situation

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Assessment Surveys (2003, 2013, and 2019) reveal that a majority of farmers would prefer to quit agriculture if alternatives existed, with nearly 40% of agricultural households in the 2013 survey reporting agriculture as non-remunerative.

Scholars interpret land fragmentation and migration as indicators of deeper structural transformation tied to neoliberal reforms, which have withdrawn state support and increased market vulnerabilities (Bernstein, 2010; Patnaik, 2007). As a result, marginalized peasantry often ends up in precarious urban labour markets. This migration cycle offers temporary relief but leads to further marginalization with inadequate remittances to reinvest in agriculture (Dasgupta, 2014; Srivastava & Sasikumar, 2003).

A gendered lens reveals that women, often left as de facto heads of households, bear the brunt of declining agricultural returns. Women farmers face unpaid labour and lack land rights, exacerbating the consequences of fragmentation for female-headed households (Agarwal, 1994; Rao, 2012). Male labour migration shifts labour burdens and decision-making responsibilities onto rural women.

RESULT AND DISCUSSION

Analysis of Average Size of Landholding (Overall) and Average Size of Landholding per Cultivator

There is a consistent decline in the average size of operational landholdings in India, falling from 1.55 hectares in 1990–91 to 1.06 hectares in 2020–21 (see Table 1). This nearly 32% reduction over three decades illustrates the intensifying problem of land fragmentation, a consequence of demographic pressure and inheritance laws between family members. The most acute phase of fragmentation appears between 1990–91 and 2000–01, where the average landholding shrinks from 1.55 to 1.32 hectares, a sharp drop of 14.8%, which coincides with India's early post-liberalization years. The trend continues steadily in subsequent decades, indicating a structural transformation in agrarian land distribution that is heavily skewed toward marginal and small holdings.

Table 1: Average Size of Landholding (ha) – Overall - INDIA				
Items	1990-91	2000-01	2010-11	2020-21
i. Average Size of Landholdings	1.55	1.32	1.15	1.06
ii. Average Size of Landholdings under Foodgrain Crops	1.20	0.95	0.96	0.87

But there is a significant concern for the decline in the average size of landholdings dedicated to foodgrain crops, which decreased from 1.20 hectares in 1990–91 to just 0.87 hectares in 2020–21, a decline of 27.5%. This metric is critical as it directly affects farmers' ability to engage in sustainable foodgrain production. While both the overall landholding size and the area cultivated with foodgrains have contracted, the more pronounced drop in foodgrain-specific landholdings suggests a changing cropping pattern that may be influenced by market forces, climatic risks, and challenges related to profitability. Farmers are increasingly shifting from foodgrain crops to cash crops, horticulture, or even leasing their land, as foodgrain cultivation becomes less profitable, particularly on fragmented plots or leaving land without sowing.

This fragmentation of foodgrain landholdings has significant implications. First, smaller plots are less likely to support mechanization and efficient irrigation, which increases input costs and diminishes productivity. Secondly, the risk of crop failure rises with smaller land parcels due to limited diversification and poor risk-buffering capacity. Lastly, household food security is directly affected since smaller landholding sizes often cannot meet subsistence needs, forcing rural households to seek off-farm employment or migrate.

Table 2: Average Size of Landholding / Cultivator (ha)- INDIA				
Items	1990-91	2000-01	2010-11	2020-21
i. Average Size of Landholdings / Cultivator	1.50	1.54	1.66	1.70
ii. Average Size of Landholdings under Foodgrain Crops / Cultivator	1.15	1.11	1.38	1.39

In contrast to the findings in Table 1, Table 2 displays a somewhat unexpected trend. It shows that the average size of landholdings per cultivator has slightly increased, rising from 1.50 hectares in 1990–91 to 1.70 hectares in 2020–21. Similarly, the average size of landholdings dedicated to foodgrain crops per cultivator had grown from 1.15 to 1.39 hectares during the same period. At first glance, this may appear contradictory to the findings presented in Table 1. However, this trend must be interpreted within the context of a declining number of cultivators and a shrinking agricultural workforce.

The increase in landholding size per cultivator does not signify a reversal of land fragmentation; rather, it reflects a reallocation of land among a smaller group of cultivators. As agriculture becomes less viable, many marginal and small landowners are withdrawing from active cultivation by either migrating to urban areas, leasing their land, or transitioning to non-agricultural livelihoods. This

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migration results in a smaller pool of cultivators managing relatively larger aggregated plots. This observation is supported by data from the National Sample Survey Organization (NSSO) and Census reports, which reveal a decline in the share of the workforce engaged in agriculture, dropping from over 60% in 1991 to under 45% in 2021 (GoI, Census Reports).

The concentration of cultivable land among fewer farmers—often medium and large-scale farmers or tenants—raises concerns about agrarian class differentiation and land access inequality. Although some farmers may benefit from increased operational scale, the overall situation remains bleak for the majority, especially those lacking capital or secure land tenure. The rise in the amount of land under foodgrain crops per cultivator (from 1.15 hectares to 1.39 hectares) suggests that those who continue in agriculture are either consolidating land through informal leasing or participating in contract farming models with a focus on specific foodgrain outputs. However, this trend does not alleviate the negative effects of overall land fragmentation. While a few farmers may operate larger plots, the vast majority of marginal farmers remain land-poor, missing out on the advantages of scale and institutional support. As a result, there is a bifurcation in the rural agrarian structure, creating a small class of commercial cultivators and a large population of landless labourers and migrant workers.

The data presented in the two tables provides a nuanced understanding of India's agrarian transformation. Table 1 illustrates the macro-structural crisis of land fragmentation and the declining viability of agriculture for marginal and smallholders. In contrast, Table 2 highlights the micro-dynamics of land redistribution among a shrinking group of cultivators. The broader implication is a deepening agrarian crisis, where smallholder farmers are increasingly pushed out of production due to falling land productivity, leading to a more insecure situation for foodgrain agriculture.

This dynamic reinforces the need for migration. As rural households find it increasingly difficult to sustain themselves on small and unproductive plots, they resort to seasonal, circular, or permanent migration as a strategy for livelihood diversification. Consequently, land is often left fallow, leased out, or cultivated under constraints, resulting in underutilization of agricultural potential and heightened reliance on remittances.

Agricultural and Agro-Demographic Parameters Analysis

There has been a steady decline in the average household size, dropping from 5.6 persons in 1990–91 to 4.7 persons in 2020–21 (see Table 3). Although this demographic transition is modest, it plays a crucial role in determining foodgrain consumption needs at the household level. Smaller household sizes mean fewer mouths to feed per cultivator, which could reduce the overall household-level requirement even as population pressure per cultivator increases at the macro level.

Table 3: Agricultural and Agro-Demographic Parameters - INDA					
Items		1990-91	2000-01	2010-11	2020-21
i.	Yield (Foodgrain) - Kg/ ha	1380	1626	1930	2386
ii.	Average Size of Household (Persons)	5.6	5.3	4.9	4.7
iii.	Population Pressure (Persons) on Per Cultivator	7.57	8.08	10.19	11.12

On the other hand, the population pressure on each cultivator has risen sharply, increasing from 7.57 people per cultivator in 1990–91 to 11.12 people per cultivator in 2020–21 (see Table 3). This trend indicates that while household sizes are declining, the burden of feeding a growing population is disproportionately placed on a shrinking agricultural workforce. Many former cultivators have left farming due to unviable land sizes, poor returns, or economic distress, resulting in fewer active cultivators available to meet national food needs. Therefore, the rising food grain production per cultivator must be viewed in the context of increasing demographic stress.

Additionally, when considering food grain production—specifically the actual production minus field-level wastage (which is approximately 3.2% of the total production)—the results at the national level are very positive and encouraging. There has been a significant increase in food grain production per cultivator, which rose from 1,536 kg in 1990–91 to 3,210 kg in 2020–21, more than doubling over three decades. This positive trend closely correlates with improvements in food grain yield, which increased from 1,380 kg/ha in 1990–91 to 2,386 kg/ha in 2020–21. This growth in yield reflects the cumulative effects of technological advancements, the expansion of irrigation facilities, increased fertilizer use, and the localized success of the Green Revolution and subsequent agricultural innovations.

Despite ongoing land fragmentation as shown by declining landholding sizes in previous tables, production level per cultivator have improved. This indicates that yield enhancement have partially compensated for the challenges posed by reduced land size. This is a significant finding, as it shows that smallholders, even with limited land access, have managed to increase foodgrain output per unit area by utilizing better inputs and intensification strategies. However, these improvements are not evenly distributed and tend to benefit those with better access to credit, technology, and irrigation.

Table 4: Foodgrain Production (Kg.) and Requirement Scenario on Average Size of Land under Foodgrain Crops / Cultivator - INDIA

Items	1990-91	2000-01	2010-11	2020-21
i. Foodgrain Production (On average size of Landholding under Foodgrain Crops / Cultivator)	1536	1747	2578	3210
ii. Foodgrain Requirement (Actual based on by ICMR recommendation for Population Pressure)	1253	1338	1687	1841
iii. Foodgrain Production ($\pm$) - (On average size of Landholding under Foodgrain Crops / Cultivator)-(i.-ii.)	+ 283	+ 409	+ 891	+ 1369

The increasing surplus of food grain production over the actual requirements per cultivator, based on by ICMR norms and recommendation. This surplus has grown from +283 kg in 1990-91 to +1,369 kg in 2020-21, (see Table 4), which indicates that, on average, cultivators are producing significantly more than what they need for subsistence. In theory, this surplus could improve household food security, enhance market participation, and increase incomes.

However, this seemingly positive scenario conceals several underlying issues. First, surplus production is not evenly distributed, and many marginal farmers still face food insecurity due to smaller size of landholdings, unequal access to inputs, market opportunities, and storage facilities. Second, the marketability and profitability of surplus food grain production are compromised by price volatility, inefficient procurement systems, and rising input costs, which undermine the economic viability of even those farmers who produce a surplus.

Furthermore, the surplus must be analysed in the context of non-food expenses, increasing debt levels, and broader livelihood insecurity in rural India. Even if a farmer is food secure in terms of caloric intake, they may still choose to migrate due to inadequate income, limited access to education and healthcare, and ongoing agrarian distress. Therefore, a production surplus does not necessarily equate to well-being or economic security.

Despite an increase in production per cultivator, agriculture remains unprofitable for many due to small land sizes, rising input costs, and uncertain output prices. As a result, the push to migrate stems not from absolute food insecurity but from relative economic insecurity. Families often migrate to diversify their income, invest in education, or escape cycles of debt.

This highlights a key argument of the research: land fragmentation undermines the economic viability of agriculture, particularly for marginal cultivators. Even with improved productivity, the returns from fragmented land are often insufficient to meet the aspirations or survival needs of rural households. Therefore, migration becomes a rational strategy in light of declining per capita land availability, growing population pressure, and limited employment opportunities outside of farming in rural areas.

National Food Surplus and Household Deficit Status

The analysis of foodgrain production in relation to the average size of landholdings devoted to foodgrain crops reveals a significant trend when compared to household foodgrain requirements. In 1990–91, the estimated standard foodgrain requirement per household was 927 kilograms, which steadily declined to 778 kilograms by 2020–21. This reduction is primarily due to a decrease in the average household size, which fell from 5.7 persons per household in 1990–91 to 4.7 in 2020–21.

In this context, all categories of landholding farmers—except for marginal farmers—produced foodgrain quantities that exceeded their household requirements. Marginal farmers, defined as those who hold less than one hectare of land, consistently produced less than the minimum needed for household consumption. In 1990–91, the average production from marginal holdings was just 494 kilograms, significantly below the household requirement (see Table 5). Although this production increased to 855 kilograms by 2020–21, it is slightly more of the reduced requirement.

Table 5: Foodgrain Production (Kg) on Average Size of Landholdings under Foodgrain Crops- INDIA

Landholding Size	1990-91	2000-01	2010-11	2020-21
i. Marginal (< 1 ha.)	494	535	691	855
ii. Standard Requirement Per Household [Calculation based on by ICMR Recommendation (165.56 Kg/Capita/Year)]	927	877	811	778
iii. Small (1.0-2.0 ha)	1630	1700	2223	2564

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iv.	Semi-Medium (2.0-4.0 ha)	2952	3038	4129	4712
v.	Medium (4.0-10.0 ha)	5651	6107	8482	9931
vi.	Large (> 10.0 ha)	13479	14968	22849	25891
vii.	Overall Average Size	1603	1495	1794	2009

The persistent shortfall in food production highlights the structural food insecurity that continues to affect marginal farmers, despite gradual yield improvements over the years. These farmers typically have landholdings that are too small to generate enough food for their households, let alone produce a surplus for the market or allow for reinvestment in farming. Even with enhanced productivity per unit area, these small plots are economically unviable due to their limited size and high input costs, making marginal farming an unsustainable primary livelihood option.

In contrast, small farmers with landholdings of 1-2 hectares consistently produce surpluses of food grains that exceed their household requirements. By 2020-2021, their average production reached 2,564 kilograms, which is more than three times the subsistence threshold. This level of output is sufficient to meet both household needs and support commercial sales. As landholding size increases, the scale of production rises dramatically: semi-medium farms (2-4 hectares) produced 4,712 kilograms, while large farms (over 10 hectares) generated an average of 25,891 kilograms in 2020-2021. This considerable variation underscores the advantages that larger farms possess, including greater economies of scale and better access to irrigation, credit, technology, and institutional support. Such farmers not only enjoy food security but also have a greater integration into the broader agricultural economy.

Production levels across all farm categories have increased over time, reflecting improvements in productivity and the use of modern inputs. For instance, marginal farms increased their production from 494 kilograms in 1990-1991 to 855 kilograms in 2020-2021, a 73% increase. During the same period, large farms more than doubled their output from 13,479 kilograms to 25,891 kilograms. However, these gains have not been evenly distributed. The absolute increases for medium and large farmers far outpace those for marginal farmers, indicating deep-rooted disparities in the adoption and impact of agricultural technologies. Innovations such as high-yielding varieties, improved irrigation methods, and mechanization have largely benefited larger holdings. In contrast, smaller farms have struggled to access and implement these advancements due to financial and institutional constraints.

Rather than narrowing the productivity gap, technological progress has widened it, entrenching inequality within the rural agrarian structure. This reality reinforces the notion that marginal farmers face systemic disadvantages that render farming an unsustainable occupation. When cultivation does not meet basic food needs, despite intensive labour and family involvement, migration becomes a rational and necessary option. Many rural households find that moving to urban centers in search of wage labour offers a better chance of survival than remaining tied to unviable plots of land.

The inability of marginal farms to satisfy household food grain needs raises questions about the prevailing notion of self-sufficient rural India. It also challenges the assumption that smallholder agriculture can single-handedly ensure food security at the grassroots level without robust policy support. The ongoing precarious state of marginal farming suggests that it functions more as a coping mechanism rather than a sustainable livelihood strategy. This situation demands urgent policy interventions, including employment diversification, social safety nets, and rural infrastructure development.

An important paradox emerges when considering these trends. While India has achieved food grain surpluses at the national level, a significant portion of its food producers—especially marginal farmers—remain food-deficient at the household level. This contradiction illustrates a scenario of production without equity, whereby the benefits of national food self-sufficiency are unevenly distributed. Those at the bottom of the agrarian hierarchy continue to face hunger and economic insecurity, even as national output rises.

This paradox is a critical component of the ongoing agrarian crisis, where marginal farmers are often net buyers of food in a sector they are meant to sustain. This situation underscores the need for policy discussions to shift focus from aggregate production goals to addressing the micro-level realities of land inequality, limited resource access, and entrenched poverty. These structural imbalances cannot be resolved by productivity improvements alone; they require a broader transformation of agrarian and rural development strategies.

Table 6: Distribution of Number of Landholdings under Foodgrain Crops (%) - INDIA

Landholding Size Categories	1990-91	2000-01	2010-11	2020-21
i. Marginal (< 1 ha)	59.4	63.0	67.1	68.6
ii. Small (1.0-2.0 ha)	18.8	18.9	17.9	18.3
iii. Semi-Medium (2.0-4.0 ha)	13.1	11.7	10.0	9.0
iv. Medium (4.0-10.0 ha)	7.1	5.4	4.2	3.6
v. Large (> 10.0 ha)	1.6	1.0	0.7	0.5

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The issue is compounded by changes in the composition of landholding categories over time that the share of marginal farmers has consistently increased, rising from 59.4% in 1990–91 to 68.6% (see Table 6) in 2020–21. This trend indicates a fragmentation of landholdings and a growing number of economically vulnerable cultivators, i.e., marginal landholders. In contrast, the shares of other landholding categories—small, semi-medium, medium, and large—have steadily declined. The most significant decrease occurred among semi-medium farmers, whose share fell from 13.1% in 1990–91 to 9.0% in 2020–21. Similarly, the share of medium farmers declined from 7.1% to 3.6% during the same period, while the proportion of large farmers dropped from 1.6% to just 0.5%. This shift reflects a broader trend toward the marginalization of Indian agriculture. As landholdings become increasingly fragmented and the majority of cultivators fall into the marginal category, the crisis of viability intensifies. The predominance of marginal farmers in India's agrarian structure highlights the urgent need for institutional support mechanisms and alternatives for rural employment. Without such measures, the agricultural sector will continue to push millions toward migration and economic insecurity, undermining the overarching goals of food security and rural development.

Migration Trend of the Agricultural Workforce

The share of the agricultural workforce within the total rural population indicates a growing reliance on agriculture-based employment, but there are significant changes in the internal dynamics (see Table 7). Between 1990–91 and 2020–21, the overall share of agricultural workers in the rural population increased from 29.3% to 35.4%. However, this increase masks an important transformation within the workforce: the proportion of cultivators has steadily declined from 17.5% in 1990–91 to 13.9% in 2020–21, while the share of agricultural labourers has risen sharply from 11.8% to 21.5% during the same period.

Table 7: Agricultural Workforce Share (%) in Total Rural Population – INDIA

	Items	1990-91	2000-01	2010-11	2020-21
i.	Agricultural Workers	29.3	31.5	31.6	35.4
ii.	Cultivators	17.5	17.1	14.3	13.9
iii.	Agricultural Labourers	11.8	14.4	17.3	21.5

This structural change indicates a weakening base of land-owning cultivators and a growing population of landless or near-landless labourers who rely on wage work. The decline in the share of cultivators points to trends of dispossession, marginalization, or withdrawal from active farming, especially among small and marginal landholders. Meanwhile, the increase in agricultural labourers reflects rising rural inequality and a concentration of land ownership in fewer hands. As a result, those without land or with insufficient small holdings are compelled to seek work on others' farms.

Table 8: Migration Trend of Agricultural Workers (%) - INDIA

S.No	Parameters	1990-91	2000-01	2010-11	2020-21
i.	Agricultural Workers (Migrants)	63.1	62.1	65.4	67.5
ii.	Cultivators (Migrants)	30.9	30.3	32.0	33.4
iii.	Agricultural Labourers (Migrants)	32.2	31.8	33.4	34.1

There is a rising trends of migration among agricultural workers from 1990 to 1991, 63.1% of agricultural workers reported migrating; by 2020-21, this figure had increased to 67.5%. A closer examination reveals that the migration of cultivators rose slightly from 30.9% to 33.4%, while migration among agricultural labourers increased from 32.2% to 34.1%. These statistics indicate that a significant and growing portion of the rural agricultural workforce is migrating, either seasonally or permanently, in search of better livelihoods (see Table 8).

The link between these migration patterns and the conditions of marginal landholding farmers is both direct and troubling. Marginal farmers, who own less than 1 hectare of land, represent the majority of the rural farming population in India. Due to the small size of their holdings, they struggle to produce enough food grains for subsistence. As a result, many marginal farmers transition to wage labour or migrate entirely.

The simultaneous decline in the share of cultivators, paired with the rise in agricultural labourers and their migration levels, highlights a significant livelihood crisis. Marginal landholders frequently move from being self-employed cultivators to wage-dependent labourers and, when even these labour opportunities become scarce or poorly paid, to migrants. In this context, migration is not an indicator of economic opportunity but rather a reflection of agrarian distress, particularly among those unable to sustain themselves through agriculture alone.

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Furthermore, the increase in migration among agricultural labourers correlates with a rise in landlessness or near-landlessness. As marginal holdings become further fragmented through inheritance or rendered nonviable due to climate and market vulnerabilities, rural households are forced to diversify their income through migration. Often, members of marginal farming families migrate seasonally to urban centers, take up informal construction or service sector jobs, and send remittances back to support rural households that can no longer depend solely on farming.

Thus, the data in Tables 7 and 8, when analysed alongside the status of marginal landholding farmers, present a stark picture of the agrarian transformation occurring in rural India. It reflects an agricultural economy under stress, unable to provide stable and viable livelihoods for a growing segment of its population. Marginal landholders, constrained by uneconomical plot sizes and inadequate returns, are gradually being pushed out of cultivation, forced into wage labour, and ultimately compelled to migrate. The widening divide between land-rich and land-poor households exacerbates rural inequality and calls for urgent intervention focused on livelihood diversification, rural employment guarantees, and social protection. These measures are necessary to mitigate the migration imperative rooted in agrarian crisis and to safeguard the burgeoning urban areas for better livelihoods and sustainable quality of life.

CONCLUSION

The analysis of landholding patterns, food grain production, workforce shifts, and migration trends reveals a growing agrarian crisis in rural India, particularly impacting marginal landholding farmers. The average size of operational holdings has steadily declined, from 1.55 hectares in 1990–91 to 1.06 hectares in 2020–21. This trend reflects increasing land fragmentation driven by demographic pressures and inheritance divisions. The decline is even more pronounced in land devoted to food grain crops, raising serious concerns about household food security and the economic viability of farming for smallholders.

Marginal farmers, who make up the majority of India's agrarian population, often struggle to produce enough food grain to meet their families' basic needs. While food grain production on marginal holdings increased from 494 kg in 1990–91 to 855 kg in 2020–21, it still falls short of the minimum household food grain requirement, which has slightly decreased due to smaller household sizes. These farmers remain food insecure, operating on fragmented and low-yielding plots that are too small to adopt mechanized or modern farming practices.

The agricultural workforce is also undergoing significant changes. The share of cultivators in the rural population is declining, while the proportion of agricultural labourers has increased markedly, from 11.8% in 1990–91 to 21.5% in 2020–21. This shift indicates growing landlessness or withdrawal from farming. Additionally, migration among both cultivators and labourers is rising, with over two-thirds of agricultural workers identified as migrants by 2020–21.

This migration is largely driven by necessity rather than aspiration. It serves as a coping mechanism for land-poor households that cannot rely solely on farming for their survival. This situation illustrates a stark reality: India's rural economy, which heavily depends on small-scale agriculture, is failing to provide food security and sustainable livelihoods for a significant portion of its population. The paradox of national-level food grain surpluses existing alongside widespread rural food insecurity and agrarian distress highlights fundamental inequities in resource distribution and access.

In conclusion, the agrarian sector in India is experiencing a silent but profound transformation characterized by land fragmentation, a declining share of cultivators, an increasing reliance on agricultural wage labour, and rising rural-to-urban migration. Marginal landholders remain at the center of this crisis. To reverse this trajectory, there is an urgent need for structural reforms that ensure equitable land access, provide smallholders with technology, credit, and market support, and offer alternative livelihood opportunities. Without such interventions, the imperative to migrate will continue, and the vision of a self-reliant rural India will remain elusive.

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