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Changing Structure of Rural Livelihood in India

Saudamini Das

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NABARD Research and Policy Series No. 13/2023

भारत में ग्रामीण आजीविका की बदलती संरचना
Changing Structure of Rural Livelihood in India

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Changing Structure of Rural Livelihood in India

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Chairman's Message

Research plays a crucial role in the policy formulation process. Research studies and analyses thereoff provide evidence-based recommendations for addressing issues that are currently being faced by the targeted community. However, it is often seen that topics of research are confined to certain aspect of an issue, thereby limiting its scope for policy recommendations. Further, the research reports available may often be very technical and hence less communicative to the policymakers. To overcome the above limitations, NABARD initiated one of its kind series titled "Research and Policy" to commission research papers that may help collate all the research findings on a given theme in a capsule form.

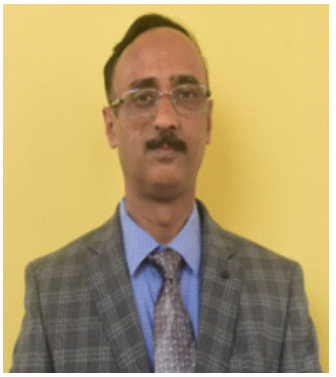
Under this series, eminent research scholars in different fields of agriculture research have been requested to document research in their own field highlighting various issues with policy relevance prescriptions and suggestions for future research.

The present paper on "Changing Structure of Rural Livelihood in India" is written by Dr. Saudamini Das, an authority on the subject. I hope that the paper will be beneficial to researchers, policymakers, and bankers to solve the emerging challenges at the ground level.

My best wishes to the authors of the Research and Policy Series and the Department of Economic Analysis and Research (DEAR) of NABARD for initiating such a utilitarian and one of its kind series.

Shaji K. V.

Foreword



There exists an abundance of academic research on subjects related to agriculture and rural development, primarily dwelling in the technical domain. However, much of this research often lacks the accessibility needed to advise policy decisions effectively. It is imperative that research not only enhances our understanding of these matters but also translates into robust policies, ultimately benefitting the diverse population across the country through improved public policy and efficient services. With this intention, the much-needed series titled "Research & Policy" was initiated by DEAR. Our aspiration for this series is to encompass both the length and depth of research within a clear and concise presentation tailored for policymakers.

I am delighted to introduce the thirteenth publication in this series, titled "Changing Structure of Rural Livelihood in India," authored by Dr. Saudamini Das, Senior Visiting Fellow, Institute of Economic Growth, Delhi. This study has used macro level data from the Census of India, National Sample Survey on employment unemployment and Periodic Labour Force Survey to analyse and draw conclusions on livelihood shifts in rural India.

It is envisioned that this series will serve as a vital link between the academic researchers and policymakers, facilitating a more effective exchange of knowledge and ideas for the betterment of lives of people at the ground level.

Dr. Ajay K Sood
Deputy Managing Director

Preface

Indian agriculture showed impressive resilience during the pandemic times and became the primary driver of economic growth. Even though the sector was able to withstand the Covid-19 shock, there are still a number of structural problems that must be addressed if it is to continue to support sustainably the majority of the population that depends on it. In search of solutions to address various issues and constraints amidst risks and uncertainties, agricultural research is what comes to my mind as one of the most powerful tools to eradicate extreme poverty, ensure food secure future and create agriculture as a sustainable livelihood. Under the guidance of Dr. Ajay K Sood, DMD and with the motivation to address the emerging/current challenges facing Indian agriculture through research and effective policy interventions, the Department of Economic Analysis and Research (DEAR), an in-house research wing of NABARD, initiated the Research and Policy Series.

This series gives us a glimpse of research findings on topical themes in a capsule form thereby making it more effective and communicative to policy planners. This also distinguishes itself from opinionated articles and research available on the concerned topics of interest. For making these series a success, we approached eminent researchers in the field of agriculture and agricultural economics, as our purpose was to get researcher's heart and their experience which they gained during their long passionate innings on paper highlighting various issues, policy relevance, prescription, and suggestion for future papers on the themes of interest to NABARD.

India, being predominantly agrarian, relies heavily on rural livelihoods for its socio-economic development. However, various factors such as urbanisation, climate change, technological developments, etc., have led to significant transformation in rural areas. Therefore, the study on the changing structure of Rural Livelihood in India holds significance in understanding and addressing the challenges faced by rural communities. The current paper titled "Changing Structure of Rural Livelihood in India", written by Dr. Saudamini Das, Professor, Swami Shradhanand College, University of Delhi, and Senior Visiting Fellow, Institute of Economic Growth (IEG), Delhi, analyses the changes in the occupational structure of rural India at the all-India level, across states,

ecological zones of the states and Periodic Labour Force Survey (PLFS) regions over a period, between 2000 and 2020. The author then uses a sustainable livelihood framework to examine the factors that cause occupational changes in the society. The paper also highlights the type of policy interventions needed and the areas for future research to understand the changing landscape of rural livelihood in the country.

In bringing this series as planned, we would like to express our sincere gratitude to Shri. Shaji K. V., Chairman, NABARD for his unstinted support and guidance. We are grateful to the author who agreed to write on this theme in such a short period of time.

I also acknowledge the contribution of officers of DEAR, NABARD especially Dr. Vinod Kumar, GM; Dr. Ashutosh Kumar, DGM; Mrs. Geeta Acharya and Ms Neha Gupta, Manager; Shri Vinay Jadhav, Assistant Manager, and others who coordinated with the authors and the editor to bring out the series as envisaged. Thanks are due to Dr. J. Dennis Rajakumar, Director, EPWRF and his team for their contribution in copy editing and bringing uniformity to the document.

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Abbreviations

DEAR	Department of Economic Analysis and Policy
GDP	Gross Domestic Product
IHDS	India Human Development Survey
NABARD	National Bank for Agriculture and Rural Development
NAFIS	NABARD All India Rural Financial Inclusion Survey
NIC	National Industrial Classification
NSS	National Sample Survey
NSDP	Net State Domestic Product
NGO	Non-Governmental Organisation
NTFP	Non-Timber Forest Produce
OECD	Organisation for Economic Cooperation and Development
PLFS	Periodic Labour Force Survey
SCs	Scheduled Castes
STs	Scheduled Tribes
SLF	Sustainable Livelihood Framework

Executive Summary

Unlike the developed countries in the Organisation for Economic Cooperation and Development (OECD), the structural shift of the Indian economy after seven decades of development has not been labour-replacing. While the share of the primary sector in gross domestic product (GDP) has decreased over time, its share in employment still remains high. However, the country is witnessing a shift away from farming and other agriculture-related activities. This study focuses on the changes in occupational structure of rural India between 2000 and 2020. First it differentiates between occupational shifts and occupational diversification, then uses a sustainable livelihood framework to examine the factors that cause occupational changes in the society, and finally discusses the changing structure of rural livelihood by analysing the occupational shifts of rural main workers over time.

The livelihood pattern of a region depends on a wide variety of economic, social, climatic and geographical factors, and is a reliable indicator of the well-being of the households. Within the broad framework of livelihood dynamics, two types of livelihood changes are discussed – occupational shift and occupational diversification. Diversification happens when rural families construct a diverse portfolio of activities and social support capabilities in order to survive and improve their standards of living without leaving their main occupation. In contrast, a shift occurs when the present occupation stops being rewarding, or the households acquire new skills and enter a different high-paying sector leaving the previous main occupation. Shifts are usually facilitated by the presence of different types of capital like economic, human, social and so on, and by an enabling environment created by government's initiative. Diversifications are a short-term phenomenon, whereas occupational shifts are long-term and cause structural shifts in the economy. Livelihood diversification is much studied globally as well as in the Indian context, but the occupational shift has received limited research attention. This study tries to address this issue and describes the changing rural livelihood scenario in India over the years, from 2000 to 2020, by utilising data sourced from different secondary sources.

Objectives and Roadmap of the Study

This study uses macro level (state, district, ecological region and National Sample Survey region) data from the Census of India (2001 and 2011), two rounds of

National Sample Survey (NSS) data on employment unemployment (1999-2000 and 2004-2005), and four rounds of Periodic Labour Force Survey (PLFS) data (from 2017-18 to 2020-21) to analyse and draw conclusions on livelihood shifts in rural India. It uses National Industrial Classification (NIC) 1998 and collapses the data on the industrial categories based on NIC 2008 classification to NIC 1998 categories. It analyses only the rural main workers and looks at the following objectives specifically:

- To examine the trends in employment of rural main workers across different industrial categories between 2001 and 2020.
- To analyse the share of rural main workers from the decennial population census 2001 and 2011, NSS rounds 1999-2000 and 2004-2005, and PLFS rounds 2017-18, 2018-19, 20019-20 and 2020-21. Marginal workers have been excluded from the analysis.
- To analyse growth rates of workers during 1999-2004, 2001-2011, 2004-2018, 2004-2020, and 2017-2020.
- To make a comparison of the above analysis at the all-India level, and across states, ecological zones of the states and PLFS regions.

The rural main workers have been classified into the following ten broad categories based on NIC 1998 classification. Workers sub-categories based on NIC 2008 classification for the later years have been appropriately combined to make them comparable to NIC 1998 categories.

The ten categories used for census data are the following:

- Cultivators
- Agricultural labourers
- Workers in plantation, livestock, fishing, forestry, hunting and allied activities
- Workers in mining and quarrying
- Construction workers
- Workers in manufacturing, gas and water works

- Workers in wholesale and retail trade
- Workers in hotels and restaurants services
- Workers in transport and storage
- Workers in all other activities

The ten categories used for NSS-PLFS data are the following:

- Cultivators
- Agricultural labourers
- Workers in mining and quarrying
- Construction workers
- Workers in manufacturing
- Workers in transport and storage
- Workers in electricity, gas, and water
- Workers in wholesale and retail trade
- Workers in hotel and restaurant services
- Workers in all other activities

Main Findings

Occupational changes, in terms of increase, decrease and no change in the share of workers, are summarised in Table 1. According to NSS and PLFS data, the share of cultivators as rural main workers has decreased between 1999-2000 and 2018-19. However, as per PLFS data, the share has increased in the last two years, 2019-20 and 2020-21. The share of agricultural labourers has decreased steeply between 1999-2000 and 2020-21. In rural India, the share of construction workers has increased the most, followed by the share of workers in financial intermediaries and real estate, and then share of workers in trade and transport. People leaving agriculture seem to have joined the construction sector, as other sectors showing labour absorption require more skill which people working in agriculture before may not possess.

Table 1: A Summary of the Major Occupational Changes

Period	Increase in the share of workers	No change in the share of workers	Decrease in the share of workers
2001-2011 (census data)	Agricultural labour; mining; construction; hotel and restaurant; financial inter-mediation, etc.	--	Cultivators; plantation, etc.; manufacturing; trade; transport
2004-2020 (NSS and PLFS data)	Construction; trade; transport; financial intermediation, etc.	Mining, manufacturing; electricity and gas	Cultivators; agricultural labourers; hotel and restaurant;
2017-2020 (PLFS data)	Cultivators; construction	Mining; electricity and gas	Manufacturing; trade; transport; hotel and restaurant; financial inter-mediation, etc.

Notes: 1. Plantation, etc., refers to plantation, livestock, forestry, fishing, hunting, allied activities.
2. Financial intermediation, etc., refers to financial intermediation, real estate, renting and business activities, and others.
Source: Author's estimates based on Census, NSS and PLFS data.

The broad observations on agricultural sector are the following:

- Share of cultivators as main rural workers have gone down significantly during both decades, 2001 to 2010 and 2011 to 2020.
- Share of agricultural labourers increased between 2001 and 2011 as per the census data, but went down between 1999 and 2020 as per NSS and PLFS data.
- After 2018, the share of cultivators has significantly gone up in many states and the country as a whole, and this may be because of the reverse migration induced by the COVID-19 lockdown.
- The share of workers in all categories in different ecological zones of states between 2001 and 2011 were similar to what one observes at all-India and at the state level.

Policy Implications

As per the sustainable livelihood framework, a long term shift in the main occupation happens if the governments provide a good enabling environment that

helps households to move to a better occupation leaving the old one, or if the present one becomes risky with uncertain income and high cost. In case of rural India, workers leaving agriculture seem to have gone to construction activities, as this sector witnessed the highest increase in the share of workers, and could accommodate less skilled workers, and people leaving agriculture may not possess enough skill. As people leaving agriculture are going for temporary work, it shows desperate out-migration rather than a shift induced by an enabling environment to make a better future. This type of structural shift may also be temporary, as people may again try to shift back to agriculture once the construction work is over.

Ecological zones represent different ecological features. A comparison of occupational shift across ecological zones of different states did not show any marked difference. They depict similar changes as witnessed at the all-India level and in the states, suggesting that neither climatic nor locational factors are causing such occupational shift, thereby, hinting at the need for implementation of macro level policies for the country.

Limitations and Issues for Future Research

The study has multiple caveats. It just describes the occupational shift of rural main workers over time without going into the analysis of causal factors. There is also a short analysis on the well-being of workers, that is, whether such shift has uplifted rural well-being. In spite of the differences in sampling strategies, both NSS and PLFS data are combined in the analysis and that may be giving rise to some biases in the growth rates or trends. Any future research should try to unbundle these issues, especially the factors responsible for making workers to drift away from agriculture to construction in rural India. The second pertinent issue is examining the economic impact of such rural occupational shifts on the rural well-being; whether leaving agricultural sector has made workers better off, and whether such well-being is stable.

Changing Structure of Rural Livelihood in India

1. Introduction

Structural transformation of an economy in the form of declining dependence on the agricultural sector, in terms of share in both national income and employment, is a sign of development, and has been witnessed globally in the developed countries. As the economy develops, more and more people leave agriculture and join occupations in other sectors which are providing higher wages. Such transfers lead to an increase in agricultural wages as labour productivity starts rising, and finally one witnesses a declining gap in labour productivity between agriculture and non-agricultural sectors, meaning that income gaps between the two groups are minimised as the economies progress (Timmer, 2009). The Indian economy has undergone a major structural transformation over the years, and the share of agriculture in national income as well as in employment has come down, but a little differently compared to other developed countries. The sector's contribution to gross domestic product (GDP) has moved down from more than 50% in 1950 to around 16.3% in 2021-22, but its share in employment has remained more or less sticky, especially in recent years. From more than 70% in the pre-2000s, its share in employment came down to around 52% in the 2010s, and still remains at 43% by 2020-21. Thus, rather than moving along the Lewis Path (Lewis, 1954) defined in terms of labour-income ratio (the share of agriculture in GDP to share in employment) approaching 1 as labour productivity in agriculture approaches that in non-agriculture (Dorin *et al.*, 2013), the Indian economy is seen to have been caught in a Lewis Trap Path (Patel *et al.*, 2022). In this path, the active population in agriculture increases, and income gaps between the agriculture and non-agricultural sectors widen leading to greater inequality and poverty. This description reflects the agricultural scenario in India at present.

Along with high dependency, the productivity of agricultural workers has been highly volatile due to exogenous factors like climate change, market uncertainties, etc., and people depending on the sector are seen to be making many intra- and inter-sectoral movements or shifts in their main income-earning activities to cope with the stress. These types of occupational shifts at the macro level are less talked about in the literature. Researchers have studied the rural livelihood extensively, but the focus has been on livelihood diversification, its impact and the drivers of diversification,

and little attention has been paid to the assessment of macro-level structural changes in livelihood. Again, most of the studies have used survey data and made a cross-sectional comparison of households with and without diversification. A few such studies have also used secondary data, either from the India Human Development Survey (IHDS) panels, or the 2001 and 2011 decennial census to study diversification.

This paper studies the rural occupational shifts (not diversification) between 2001 and 2021; that is, it explores the major transformations taking place in the main income-earning activities in rural India over the years using data from secondary sources. Mainly medium and long-term structural shifts in rural livelihood are assessed with the help of secondary data from Decennial Census, National Sample Survey (NSS) rounds and Periodic Labour Force Survey (PLFS). The changes in broad categories of rural occupations, as defined in National Industrial Classification (NIC) 1998, are discussed in the analysis. As the data published after 2010 are based on NIC 2008, the classifications used in 2008 are matched with NIC 1998 categories for the purpose of comparison. The shifts are shown at the level of states, ecological zones and NSS-PLFS regions for different periods. For the purpose of analysis, the census data have been used for the period between 2001 and 2011, and combined NSS rounds and PLFS data for the period 2004 to 2021, and PLFS data for the period from 2017 to 2021.

The paper is organised in nine sections. Section 2 describes the concept of sustainable livelihood. Section 3 provides some description on the differences between livelihood shifts and livelihood diversification and their determinants. Section 4 outlines a scheme for understanding structural shifts in rural livelihood. The findings of the study are reported in section 5. Whether occupation shift has improved well-being of rural people is critically analysed in section 6. The major findings are summarised in section 7, important issues and type of policy interventions needed are identified in section 8, and finally issues for future research have been highlighted in section 9.

2. Sustainable Livelihood

Livelihood is the economic activity that is required to support and to sustain a given standard of living (Ellis, 1998). It encompasses multiple dimensions like cash or kind income, social institutions (kin, family, compound, village and so on), gender relations, property rights, etc., and provides the social identity to a person. The live-

lihood pattern of a region depends on economic, social, climatic and geographical factors, and is an indicator of the well-being or welfare of the households. Within the broad framework of livelihood dynamics, two types of movement are talked about – livelihood or occupational shift and occupational diversification. Livelihood diversification happens when rural families construct a diverse portfolio of activities and social support capabilities in order to survive and improve their standards of living without leaving their main occupation. In contrast, an occupational shift occurs when the present occupation stops being rewarding, or the households acquire new skills and enter a different high-paying sector leaving the previous main occupation (Lahiri and Nandi, 2021; Pal and Kynch, 2000). Diversifications are a short-term phenomenon, whereas occupational shifts are long-term ones and causes structural shifts in the economy. With development, people shift out from agriculture to industries or to the tertiary sectors with varying rates of transition across urban and rural areas. Though livelihood diversification is much studied globally as well as in the Indian context, occupational shift has received only a limited attention. Though there are multiple theoretical approaches to study livelihood transition, the most frequently used one is the sustainable livelihood framework (Department for International Development, 1999).

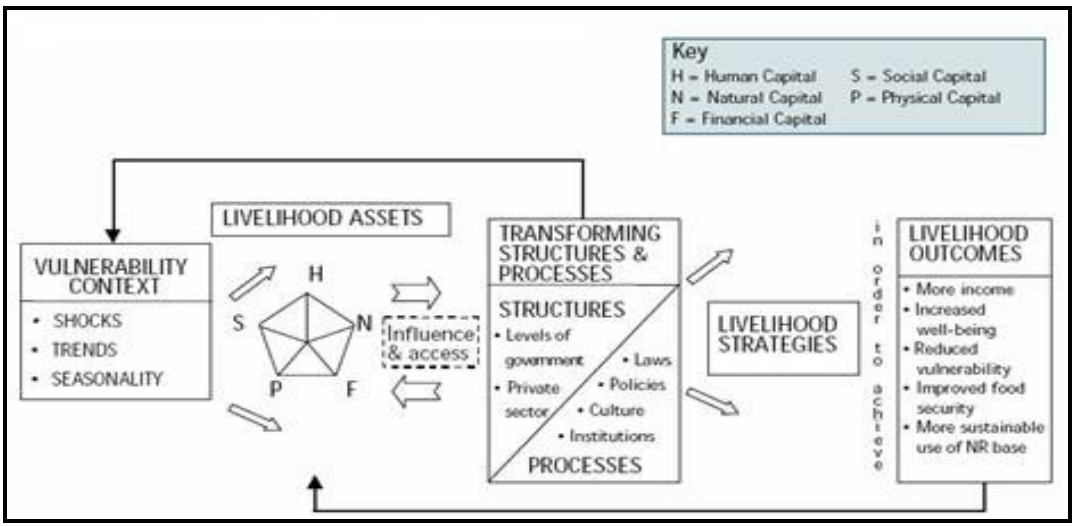
2.1 Sustainable Livelihood Framework and Occupational Shift

Taking people out of the poverty bracket has been one of the important priorities of all governments. Due to various positive interventions or initiatives like livelihood diversification, asset building, government support, etc., and the occurrence of adverse events like job loss/income loss, death of breadwinners, accident, or natural calamities, households move out and move into poverty. Further, it has been suggested that identifying the households which move out or into poverty and understanding the factors that push them to move out or into poverty helps in formulating effective poverty eradication strategies (Radeny *et al.,* 2012; Thorat *et al*., 2017). The government has implemented various targeted policies, social protection and safety nets to uplift the rural poor. However, apart from government support, the households themselves also practice many strategies to overcome poverty and remain self-sufficient through additional income generation. The literature suggests livelihood diversification and social capital are the main sources of support for escaping poverty in rural areas (Ellis, 2000). However, most of the studies assessing poverty reduction,

focussing on economic capital and social capital as a strategy for poverty reduction, has received little attention (Islam and Alam, 2018). Using the sustainable livelihoods approach, Khosla and Jena (2020) showed that there is a positive relationship between the pursuance of non-farm activities and escaping poverty. Zeeshan *et al.,* (2019) also showed that increased non-farm activities involvement by farm households reduced poverty in rural India.

Both livelihood shift and livelihood diversification are studied, explained and commented upon through the Sustainable Livelihood Framework (SLF) popularised by Department for International Development (1999). The SLF, as depicted in Figure 1, explains that the livelihood choice and transition depend primarily on a household's access to five livelihood-related assets (human capital, natural capital, physical capital, financial capital and social capital), and their quality, and household's ability to make use of these assets and put them into productive uses. Households' access and ability to use these assets and make livelihood choices depend on various transforming structures, such as governments and processes like laws, policies, institutions and cultural aspects. Exogenous factors like seasonality, climate shocks, etc., which are described under the vulnerability context affect the livelihood assets, and are addressed by the transforming structures and processes.

Figure 1: Sustainable Livelihood Framework



Source: Mitra *et al.* (2022)

The right livelihood strategies provide better livelihood outcomes (income, well-being, food security, sustainable use of natural resource base) and those, in turn, contribute to livelihood assets, which in turn induces households to further improve their livelihood strategies. This explains the livelihood dynamics. Such factors that induce the household to change or diversify their livelihood are clubbed as either pull (mobilising/enabling) or push (triggering/distress) factors in economic analysis (Kassie *et al.,* 2017; Rusali, 2009).

Depending on the vulnerability context and state of livelihood assets, the state tries to improve the enabling structures and processes so that people choose the right livelihood strategies and improve their well-being. Ensuring a sustainable livelihood, for instance, by reducing dependency on agriculture especially in rural areas, that does not erode the natural resource base of the region, has been a policy priority of every government in India, and there have been multiple livelihood-related interventions in the country. Such interventions have been designed around local or regional needs – such as promoting best practices in agriculture, end-to-end value chains for farm and non-farm produce, setting up poultry, dairy, fishery, piggery, non-timber forest produce (NTFP), high-value agriculture or micro enterprise-based income opportunities in areas where crop incomes are highly vulnerable, establishing a range of household interventions in stressed or vulnerable regions, launching water management projects in water-stressed areas, and so on. Interventions have aimed at ensuring food security,

Box 1

One important livelihood intervention evaluation has been the evaluation of 'Aajeevika – Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (NRLM)' by the International Initiative for Impact Evaluation (3ie). This mission was implemented by the Ministry of Rural Development (MoRD), Government of India, in 2011 in 13 poorer states of India, and had multiple components aimed at providing sustainable livelihood and increased household income. The 3ie conducted evaluation in 2019-20 and covered 9 of the 13 states. Some of the broad findings of the evaluation on the treatment households were: (i) increase in income by 19% over the base amount, (ii) decline in share of informal loans by 20%, (iii) increase in savings by 28%, (iv) increase in women labour force participation (4%), and (v) increase in number of social schemes availed (6.5% more schemes). There are multiple such reports describing the impact of individual schemes and missions, but one question that has remained unanswered is the macro impact of these interventions in terms of medium or long term changes in the structure of rural livelihoods.

economic recovery, strengthening the rural health infrastructure, etc. Though not all interventions are evaluated promptly, there have been success stories, project-based evaluations, regional cross-checks, etc. The Box 1 describes the assessment of one of the most important and well-designed livelihood interventions, the *Aajeevika – Deendayal Antyodaya Yojana*, rolled out by the Ministry of Rural Development of the Government of India in 2011. The programme seemed to have improved rural well-being to some extent, but the effect has been region specific and so are the impacts of the multiple other interventions. This study will bring out a macro picture of rural livelihood changes over the years and examine the type of occupational shifts happening in the country.

As mentioned at the beginning, though the Indian economy is witnessing a structural transformation over the years, it has taken the Lewis trap path (Patel *et al.*, 2022) with a widening income gap between agriculture and non-agricultural sectors. Agriculture is witnessing high dependency having an overall employment share of 43% by 2020, and much larger for rural areas (around 59% to 60%) causing rural distress in many forms. How the high dependency and volatile productivity from agriculture are shaping the occupational decision of the farmers, especially in the main income-earning activities in rural India over the years is also analysed in this paper.

3. Why People Shift Occupations

Occupational shift and livelihood diversification are indicators of both an upward moving dynamic society as well as the presence of livelihood stress. As mentioned before, livelihood diversification happens when rural families construct a diverse portfolio of activities and social support capabilities in order to survive and improve their standard of living without leaving their main occupation. In contrast, when households make a long-term shift in their main occupation, it is called an occupational shift. Both, shift as well as diversification, can happen due to pull (facilitating) factors and/or push (stress) factors. People shift occupations when the present occupation stops being rewarding, or the households acquire new skills and enter the high-paying sectors. Though shift and diversification are different phenomena, both are influenced by similar factors.

3.1 Determinants of Occupational Shift

Occupational change is induced by a motivation to end poverty, whereas occupational persistence is also an equally strong motivating factor as people prefer to be

in their comfort zone and continue doing what their parents or grandparents were doing. Factors that influence occupational shifts are family background, experience from age, education, family size, etc., (Lahiri and Nandi, 2021; Pal and Kynch, 2000). Persistence is seen to be a strong factor in rural areas and among some groups of people like Scheduled Tribes (STs), and it gets weaker with the spread of technology and education. It is observed that with the availability of rural technology, non-routine cognitive analytical, as well as non-routine cognitive interactive task intensity of jobs has increased in India, while manual task intensities have declined, which means the persistence to follow traditional work pattern (manual jobs) has gone down in India. This is similar to the global observations (Vashisht and Dubey, 2018). The younger generation seem to have a higher occupational mobility compared to their parents or grandparents, and such mobility is seen to be much faster among the Scheduled Castes (SCs) and STs in India compared to the general caste people, again indicating the possible role of technology and education. Education and developmental activities were found to have caused a shift of employment from agricultural to non-agricultural activities in north eastern parts of India, particularly amongst ST communities (Marchang, 2019).

In contrast to occupational shift, occupational diversification occurs when the households branch out into different subsidiary activities as a means of survival by spreading the risks and guarding themselves against adverse income shocks. In agriculture and allied activities, households engage in multiple livelihood activities like livestock, cultivation, fisheries, forest product collection, and trading/marketing of agricultural products. While some of the activities are conducted as the main activity, some others are done as secondary work, mainly to enhance livelihood resilience (Jha and Tripathi 2010; Sallu *et al.* 2010). Some major reasons for diversification are seasonality, differentiated labour markets, risk-coping behaviour, credit market imperfections, inter-temporal saving and investment strategies, etc., (Ellis 1998). The section below discusses the drivers of diversification in detail.

3.2 Determinants of Livelihood Diversification

Both micro and macro-level factors influence diversification. Micro determinants are the ones that are household specific. Neog and Buragohain (2020) identified micro determinants of livelihood diversification and showed that they varied from area to area, across time, and among individuals. The authors identified features like the age

of the household head, credit availability, family type, family size, monthly per capita income and remittance received, etc., as the prominent ones. Others have found that the household head's experience (age), educational level, family size, social status, training, asset position, access to credit, access to technology, size of land holding, rural infrastructure, and agro-climatic condition of the region as the main driving forces towards livelihood diversification (Khatun and Roy, 2012; Das and Kumar, 2018; Sharma and Singh, 2019; Prasad *et al.*, 2022). Livelihood diversification is also mediated through social relations and institutions like kinship networks (Berry, 1993), gender relations within the household (Hart, 1995), and customs and rules defining property access (Berry, 1997; Platteau, 1992).

Macro determinants of livelihood diversification are categorised under five major headings: seasonality, risk strategies, labour market, credit market failure and coping behaviour and adaptation.

3.2.1 Seasonality

Seasonality is an inherent feature of rural livelihoods (Chambers, *et al.,* 1981; Sahn, 1989; Agarwal, 1994). The cyclical levels of activity implied by seasonality apply both to landless rural families that depend on agricultural labour markets for survival as well as to farm families. An important motive for income diversification associated with seasonality is to reduce seasonal income variability. This requires income-earning opportunities, the seasonal cycles of which are not synchronised with the farm's own seasons. Seasonal migration to other agricultural zones may be one option, and circular or permanent migration of one or more family members to non-farm occupations is another (Alderman and Sahn, 1989).

3.2.2 Risk Strategies

Many researchers consider risk to be the fundamental motive for livelihood diversification (Bryceson, 1996). When definite outcomes in relation to income streams are replaced by probabilities of occurrence, the social unit diversifies its portfolio of activities in order to anticipate and ameliorate the threat to its welfare from failure in individual activities (Alderman and Paxson, 1992). This is just another way of saying that families that are vulnerable to failure in their means of survival do not 'put all their eggs into one basket'. However, there are many different strands to the risk argument, and there is a lot of room for confusing risk arguments with coping arguments, and voluntary decisions with involuntary actions (Dercon and Krishnan, 1996). Income

diversification as a risk strategy is often taken to imply a trade-off between a higher total income involving greater probability of income failure, and a lower total income involving smaller probability of income failure. Research into on-farm diversity has demonstrated that this is not always true; that diverse on-farm cropping systems such as mixed cropping and field fragmentation take advantage of complementarities between crops, variations in soil types and differences in micro-climates that ensure risk spreading with little loss in total income (Walker and Ryan, 1990; Blare1, *et al*., 1992). While on-farm diversity can take some advantage of differences in the risk-proneness of crops or crop mixes to adverse natural events, the protection this affords is only partial. Diversification into non-farm incomes, by contrast, helps to result in low-risk correlations between livelihood components. Household risk strategies are prone to confusion with coping behaviour as some researchers treat coping as an aspect of risk behaviour, as in the phrase 'risk coping strategies' (World Bank, 1990: 90-91; Alderman and Paxson, 1992:2).

3.2.3 Labour Markets

Labour markets also offer non-farm opportunities for income generation differentiated by considerations such as education, skills, location, gender, etc. Work opportunities vary according to skills (for example, in trading, vehicle repair, brick making), education (for salaried jobs in business or in government) and by gender (male wage work in construction or mines versus female opportunities in trading or textile factories). Economic considerations of labour allocation may be overlaid and modified by social rules of access both within the family and in the community, and these rules may result in the 'social exclusion' of individuals and households from particular income streams (Davies and Hossain, 1997).

3.2.4 Credit Market Failures

The availability of funds to carry out timely purchases of cash inputs for agricultural production, as well as to buy capital equipment like ploughs or water pumps, has long been regarded as one of the critical constraints inhibiting productivity growth in small farm agriculture. The severity of this constraint is thought to reside in the poor functioning of rural financial markets in the developing countries (Hoff *et al.,* 1993; Besley, 1995). In particular, because private markets in loanable funds operate unevenly, if at all, in rural settings. There are many reasons for this state of affairs; high costs of setting up banking operations in rural areas, the difficulty and cost of

securing adequate information on potential borrowers, the risk of default on loans, and the absence of collateral to put up against loans are amongst the most frequently identified difficulties. In rural Africa, there remains a generalised problem of low rural credit availability (Bigsten and Kayizzi-Mugerwa, 1995). In rural Asia, private money lending exists but tends to be associated with personalised transactions in interlocked markets that can place the borrower in a permanent state of obligation to the lender (Bhaduri, 1986). Governments and non-government organisations (NGOs) have, of course, for decades tried to overcome these credit market failures (Johnson and Rogaly, 1997), but their success has tended to be intermittent and uneven. Credit market failures provide another motivation for diversifying livelihoods (Binswanger, 1983; Reardon, 1997) with the aim of utilising cash funds generated outside agriculture in order to purchase agricultural inputs or make farm equipment purchases. The use of off-farm income to purchase recurrent farm inputs has been noted in several sources (Evans and Ngau, 1991; Meindertsma, 1997).

3.2.5 Asset Strategies

The livelihood approach to rural poverty reduction (Scoones, 1998; Department for International Development, 1999) identifies five main asset categories that jointly determine the asset status and livelihood robustness of household survival strategies. These categories are natural capital (land, water and trees); physical capital (irrigation canals, implements and roads); human capital (education, skills and health); financial capital or its substitutes (cash savings, jewellery, goats and cattle); and social capital (networks and associations). Some of the subcategories of assets listed here fall outside the capability of the individual rural household to control directly. Thus, rural infrastructure (roads and power) and rural services (health and education) are typically provided as public goods by the government, and investment in their improvement requires an outside agency such as the government, donors or NGOs. Nevertheless, the quantity and quality of such assets make a big difference to the viability of rural livelihoods. Other assets are under household control, and investment in them is made in order to improve future livelihood prospects. It has been observed, for example, that rural households in sub-Saharan Africa devote considerable attention to personalised networks, setting up complex, but informal, systems of rights and obligations designed to improve future livelihood security (Berry, 1989, 1993). This is a form of social capital (Putnam *et al.*, 1993), and is regarded by households as an asset requiring investment with a view to securing potential future returns. The

distinguishing aspect of asset strategies as a motive for diversification is their inter-temporal nature. The process is one of diversifying in order to achieve greater livelihood security in the future. Diversifications undertaken to improve human capital (for example, to finance the schooling of children) may result in even more diverse sources of household livelihood in the future.

3.2.6 Coping Behaviour and Adaptation

Coping is the involuntary response to disaster-related unanticipated failure in major sources of survival. A complementary way that risk and coping have been distinguished is to interpret risk as ex-ante income management and coping as ex-post consumption management in the wake of a crisis (Carter, 1997). Risk strategies imply forward planning to spread risk across a diverse set of activities with some degree of risk attached to each source of income. Coping, by contrast, refers to the methods used by households to survive when confronted with unanticipated livelihood failure, often it is associated with natural and civil disasters including droughts, floods, hurricanes, pests and civil war (Blaikie *et al.,* 1994). At a more individual level, it describes sudden shocks to the family such as illness, divorce or dispossession. Coping mechanisms, in so far as they result in diversification, therefore correspond quite closely to the notion of diversification through necessity.

Coping comprises tactics for maintaining consumption when confronted by disaster, such as drawing down on savings, using up food stocks, gifts from relatives, community transfers, sales of livestock, other asset sales, and so on. A further concept that arises in the context of coping behaviour is that of adaptation. Livelihood adaptation has been defined as the continuous process of 'changes to livelihoods which either enhance existing security and wealth or try to reduce vulnerability and poverty' (Davies and Hossain, 1997).

The above description explains the factors that make people change or diversify their livelihoods, and the sections below describe the type of changes happening in main occupations of rural India over time.

4. Rural Occupational Shift in India

As mentioned before, a detailed macro picture of the rural occupational structure of India is less talked about, though occupational structure at the micro or household level is discussed, mostly with the help of survey or India Human Development

Survey (IHDS) panel data. Inclusive growth has been a prime objective of developmental policies in India, and multiple policies have been laid out for vulnerable sections so that no group remains excluded by the development of the country. However, India is experiencing a sort of jobless growth in recent years as reported by the World Bank (2018), and the employment elasticity of GDP had gone down strongly. The report 'State of Working India 2018' confirms that the GDP growth and employment relationship in India does not confirm Okun's law as a 10% increase in GDP is resulting in less than one percent increase in jobs compared to the 6% - 7% employment opportunities it created in the 1970s and 1980s. Most of the decline in employment has been argued to have happened due to the fall in the number of workers in agriculture and a sharp fall in the absolute number of female workers in the country. 'Workers moving out of agriculture' is a welcome phenomenon for a developing country if people leave agriculture for a better opportunity, but unfortunately, it has not been so in India. There have been concerns about their alternative livelihood as sectors, which are likely to give better opportunity, has been less labour-absorbing in recent years. This has resulted in livelihood insecurity and increased the vulnerability of rural livelihood and farm production. How the rural livelihood scenario is changing over the years, between 2000 and 2020, is described below with data from different sources.

4.1 Broad Objectives and Roadmaps of the Study

This study uses macro level (state, district, ecological regions and NSS regions) data from Census of India (2001 and 2011), two rounds of National Sample Survey (NSS) data on employment and unemployment surveys (1999-2000 and 2004-2005), and four rounds of Periodic Labour Force Survey (PLFS) data for the years 2017-18 to 2020-21 to analyse the livelihood shifts in rural India. It uses National Industrial Classification (NIC) 1998 and collapses the data on the industrial categories based on NIC 2008 classification to NIC 1998 categories. It analyses only the rural main workers and looks at the following objectives specifically:

- To examine the trends in employment of rural main workers across different industrial categories between 2001 and 2020.
- To analyse the share of rural main workers from the decennial census of 2001 and 2011, NSS rounds 1999-2000 and 2004-2005, and PLFS rounds 2017-18, 2018-19, 2019-20 and 2020-21. Marginal workers have been excluded from the analysis.

- To analyse growth rates of workers during 1999-2004, 2001-2011, 2004-2018, 2004-2020, and 2017-2020.
- To make a comparison of the above analysis at the all-India level, and across states, ecological zones of the states and PLFS regions.

The rural main workers have been put into the following broad categories following NIC 1998 classifications.

The ten categories used for census data are the following:

- cultivators
- agricultural labourers
- workers in plantation, livestock, fishing, forestry, hunting and allied activities
- workers in mining and quarrying
- construction workers
- workers in manufacturing, gas and water works
- workers in wholesale and retail trade
- workers in hotels and restaurants services
- workers in transport and storage, and
- workers in all other activities

The ten categories used for NSS-PLFS data are the following:

- cultivators
- agricultural labourers
- workers in mining and quarrying
- construction workers
- workers in manufacturing
- workers in transport and storage
- workers in electricity, gas and water
- workers in wholesale and retail trade
- workers in hotel and restaurant services, and
- workers in all other activities

Table 2 shows the type of workers used in each of the categories. There is some difference in classifications used for census data and those for NSS-PLFS data. Though most of the categories are the same, there is the plantation, livestock, fishing, forestry, hunting and allied activities (henceforth termed as plffha) category in the census data that is not there in NSS-PLFS data. Further, electricity, gas and water have been separated from manufacturing in NSS data, whereas these are clubbed with manufacturing in the census data. The rate of change of total rural workers (male + female) in a particular category over time is measured by regressing the number of workers on a time trend and the coefficient with sign and level of significance is used as a proxy of growth rate over time.[1] This way, the rates of change of different categories of workers are measured at the level of states and ecological zones for census data and at the level of states and NSS-PLFS regions for the NSS-PLFS data.

5. Results

5.1 Change between 2001 and 2011 using Census Data

The results from the analysis of census data are described for the country as a whole and then at the state level. The Table 2 shows the general trend in rural workers for the country as a whole during 2001 and 2011. The rates of growth are calculated with two sets of data, district-level and state-level data for the 2001 and 2011 censuses. Both district boundaries, as well as workers categories, were different in the 2011 census compared to the 2001 census. This study takes the 2001 districts as the base and wherever possible, adds the data of newly created districts of 2011 with the old one to compare with the 2001 data. A similar addition is done for the worker categories of 2011, which were based on the NIC 2008 classification, to compare them with the 2001 categories based on the NIC 1998 classification. In the agricultural sector, the results show that the share of cultivators to have significantly gone down between 2001 and 2011 by 0.6 to 0.7 percentage points and so has the workers in the plantation, livestock, fishing, forestry and allied activities (plffa). The share of agricultural workers has gone up by 0.5 to 0.3 percentage points meaning that main workers have preferred a move towards casual labour in the agricultural sector between 2001 and 2011.

The other significant change in the rural primary sector is that the share of workers in mining and quarrying, and in construction activities has gone up. The

1 $Y_t = a + bT$, where Y is the worker category and T is the time trend. The coefficient b is used as the approximate growth rate.

Table 2: Livelihood Categories Used and Rate of Change of Rural Main Workers During 2001 to 2011 in India: Regression Coefficients with Robust Standard Errors

NIC Sections	Description of sector	Categories used in the study	Estimated coefficients with district level data (standard errors clustered at the level of states)	Estimated coefficients with state level data
A	Agriculture, hunting and forestry, fishing	Share_cultivator share_agriculture labour share_ plantation, etc	-0.007*** (6.85) 0.005*** (5.97) -0.0012*** (4.65)	-0.006*** (4.55) 0.003*** (3.97) -0.0009 (1.31)
B	Mining and quarrying	share_mining	0.006*** (11.38)	0.0086*** (4.55)
C D E	Manufacturing Electricity, gas and water supply Water supply	share_manu-facturing	-0.008*** (13.04)	-0.011*** (5.94)
F	Construction	share_construction	0.0014*** (6.29)	0.0011** (2.06)
G	Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal & household goods	share_trade	-0.0004*** (3.20)	-0.0002 (0.25)
H	Transport, storage and communi-cations	share_ transport	-0.002*** (8.72)	-0.0021*** (5.71)
I	Hotels and restaurants (Accommodation)	share_hotel	0.002*** (9.31)	0.0038*** (7.30)
J to U	Financial inter-mediation real estate, renting and business activities, and all others	share_all_others	0.003*** (5.75)	-0.001 (1.19)
Number of observations			1164	70
Number of groups			583	35

Note: share_plantation, etc., refers to share of plantation, livestock, forestry, fishing, hunting, allied activities.

Source: Author's estimates.

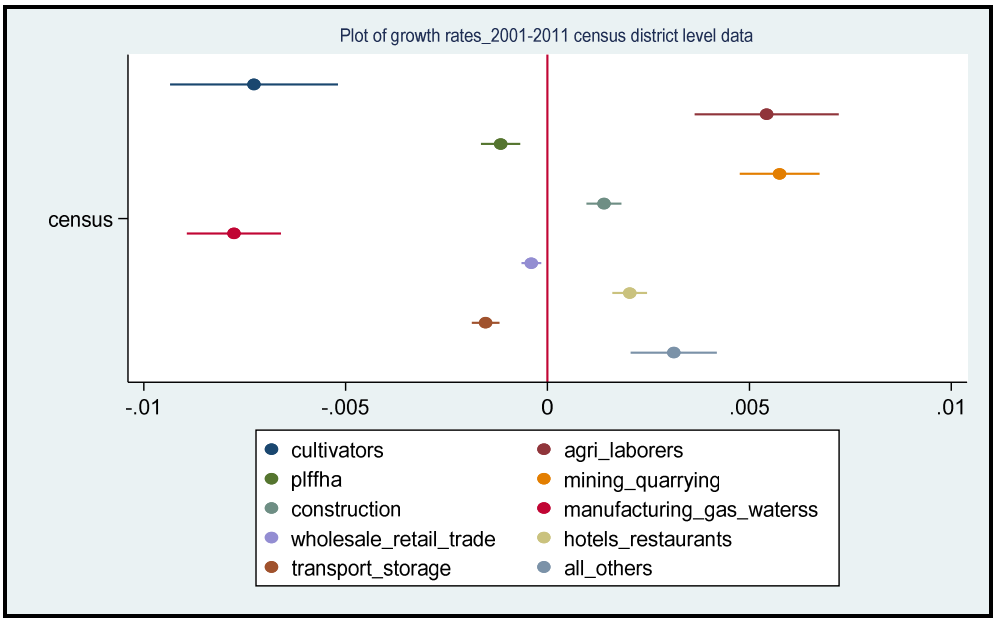
share of workers in manufacturing, trade and transport has gone down, whereas the share of workers in hotels and restaurants and in all other activities (financial services, real estate, renting and business activities, etc.,) has gone up. In this decade, important economic activities like farming, industrial activities, trade and transport have witnessed a decrease in employment share, and sectors like agricultural labour, mining, construction, hotel, restaurants, and financial services registered an increase. Importantly, the primary sector saw a drifting of workers from own farming to casual labour.

In Figure 2, these sectoral growth rates are plotted, and it clearly depicts the sectors recording out-migration and in-migration. The rural main workers such as cultivators and manufacturing sector workers witnessed the strongest decline followed by employment in plantation, livestock, forestry, fishing, hunting and allied activities, transport and storage, and wholesale and retail trade. On the other hand, agricultural labour and mining and quarrying sectors registered the highest increase in employment followed by sectors like hotel and restaurants and others, and construction during this period.

Coming to state level analysis, the rate of change in the share of workers in ten categories is examined first (Table 3) and then a comparison of the nature of changes in the predominant activity (having the highest share of workers) of the states between 2001 and 2011 has been made (Table 4).

Table 3 shows the rate of change in the share of rural main workers in all ten categories for different states of India. It is noticed that the share of cultivators has gone down in all states except Manipur. The decline is significant in Jammu and Kashmir, Himachal Pradesh, Haryana, Rajasthan, Uttar Pradesh, Bihar, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Andhra Pradesh and Tamil Nadu. The decline is insignificant in other states. All states have witnessed an increase in the share of agricultural labourers, and the increase is significant in many of those states (except Bihar, Odisha, Jharkhand and Tamil Nadu) where the share of cultivators has decreased significantly. Like cultivators and agricultural labourers, changes in the shares of workers in manufacturing, construction, mining and quarrying, etc., are very similar to what one sees at the national level for most of the states. The share of workers in mining and quarrying, construction, hotel and restaurants, and in all other activities (financial intermediaries, real estate, etc.) has increased, and the share of workers in manufacturing and transport, storage and communication has decreased. The share of workers in

Figure 2: Sector-wise Rate of Change in the Share of Rural Main Workers Between 2001 and 2011



Source: Author's estimates based on Census data.

plantation, livestock, forestry, fishing, hunting and allied activities and in wholesale and retail trade are either decreasing significantly or are insignificant for some states. One does not find a single state where the shares of cultivators have increased significantly or shares of agricultural workers have decreased significantly. The share of workers in all the other categories, wherever significant, is similar to the all-India picture.

In spite of the change in the shares of all categories of workers, the nature of the main activity remained the same between 2001 and 2011 in most of the states. However, there was either an increase or decrease in the share of workers, as at the national level. Table 4 shows that cultivation remained the main activity of rural workers in 22 states during the period 2001 to 2011, and the share of cultivators have gone down in 20 states except for Manipur (where the share has increased) and Punjab (where the share has remained same). Agricultural labour was the main activity in six states in 2001, and it remains so in 2011, but the share has gone up in four states, has remained the same in Kerala and has gone down in Pondicherry. The five states where financial intermediaries, real estate, etc., (classification J to U) was the main activity, has remained so between the two census years. This share has gone up in two states, has remained same in two and has decreased in one. There is a shift in main occupa-

Table 3: Change in Share of Total Rural Main Workers in Different Sectors of States between 2001 and 2011

States	Cultivators	Agricultural labours	Plantation, livestock, forestry, fishery and allied activities (plffa)	Mining & quarrying	Manufacturing, electricity, gas and water supply	Construction	Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	Hotel and Restaurant	Transport, storage and communication	Financial intermediation, real estate, renting and business activities, and others
Jammu & Kashmir	-0.018***	0.003**	-0.002*	0.006***	-0.006***	0.001**	0.001*	0.003***	-0.001***	012**
Himachal Pradesh	-0.011*	0.002**	0.0004	0.006***	-0.003**	0.003**	0.001	0.003***	-0.001***	0.001
Punjab	-0.001	0.002	-0.007***	0.01***	-0.01***	0.004***	-0.001	0.004***	-0.003***	003**
Uttarakhand	-0.006	0.002	-0.001***	0.003**	-0.005***	-0.0007	0.001	0.002***	-0.001***	005***
Haryana	-0.006*	0.005*	-0.003***	0.008***	-0.01***	0.002***	0.001	0.004***	-0.003***	0.004**
Delhi	0.004	0.002**	-0.001**	0.012***	-0.026***	-0.003*	-0.002	0.008***	-0.005*	0.011
Rajasthan	-0.007***	0.006***	-0.002**	0.004***	-0.006***	0.001**	0.001	0.002***	-0.001***	.003***
Uttar Pradesh	-0.013***	0.009***	-0.0004	0.007***	-0.009***	0.001***	0.001	0.001***	-0.001***	.005***
Bihar	-0.007***	0.003	-0.001***	0.004***	-0.006***	0.001***	-0.001**	0.001***	-0.001***	.007***
Sikkim	-0.007	0.001	-0.001	0.003**	-0.0005	0.002	-0.001	0.003***	-0.001**	0.001
Arunachal Pradesh	-0.004	0.002*	0.0004	0.001***	-0.002**	0.001	0.001	0.001***	0.0008***	0.001
Nagaland	-0.002	0.002**	0.001	0.002***	-0.003***	0.0005	0	0.001**	-0.001**	-0.001
Manipur	0.002	-0.001	-0.001	0.006***	-0.008***	0.001	0.001	0.002***	-0.001**	-0.001
Mizoram	-0.003	0.003**	0.0004	0.001***	-0.001***	0.0006	0.001	0.001***	0.0006***	-0.001
Tripura	-0.004	0.001	0.001	0.005***	-0.006***	0.004*	-0.001	0.002***	-0.002**	-0.001
Meghalaya	-0.006	0	0.0004	0.001**	-0.003***	0.001**	0.001	0.001**	-0.0006	0.002
Assam	-0.002	0.001	-0.001	0.004***	-0.006***	0.003***	0.001	0.002***	-0.002***	0.001
West Bengal	-0.003	0.006*	-0.001	0.011***	-0.014***	0.002***	-0.002**	0.002***	-0.003***	0.001

(Contd.....)

Table 3: Change in Share of Total Rural Main Workers in Different Sectors of States between 2001 and 2011 *(Concluded)*

States	Cultivators	Agricultural labours	Plantation, livestock, forestry, fishery and allied activities (plffa)	Mining & quarrying	Manufacturing, electricity, gas and water supply	Construction	Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	Hotel and Restaurant	Transport, storage and communication	Financial intermediation, real estate, renting and business activities, and others
Jharkhand	-0.015***	0.004	-0.001***	0.006***	-0.009***	0.005***	0.001	0.003***	-0.002***	0.006***
Odisha	-0.005**	0.002	-0.001***	0.006***	-0.008***	0.002***	0.001	0.002***	-0.001***	0.002***
Chhatisgarh	-0.013***	0.013***	-0.001***	0.002***	-0.004***	0.001***	-0.001***	0.001***	0.0006***	0.002***
Madhya Pradesh	-0.013***	0.013***	-0.001***	0.003***	-0.005***	0.001***	0.0007***	0.001***	-0.001***	0.001***
Gujarat	-0.003	0.009***	-0.002*	0.006***	-0.009***	0	-0.002***	0.002***	-0.002***	0.001***
Daman & Diu	-0.005	0.001	0.007	0.031	-0.035	-0.001	-0.001	0.002	-0.001	0.003
Dadra & Nagar Haveli	-0.008	0	0	0.036	-0.028	-0.001	0	0.002	-0.003	0.003
Maharastra	-0.004*	0.006*	-0.001***	0.004***	-0.006***	0.0006	-0.001***	0.001***	-0.001***	0.002***
Andhra Pradesh	-0.007***	0.01***	-0.002***	0.006***	-0.008***	0.001**	-0.001***	0.002***	-0.001***	0.002***
Karnataka	-0.006	0.005	-0.001	0.006***	-0.008***	0.001	0.001	0.002***	-0.001***	0.001**
Goa	-0.001	0	-0.004***	0.01*	-0.016**	-0.001*	0.001	0.005**	-0.004*	0.007
Lakshadweep	0	0	-0.015	0.006	0.005	0.009	0.004	0.008	0.002	0.058
Kerala	-0.0001	-0.001	-0.002	0.01***	-0.014***	0.004***	-0.001*	0.006***	-0.006***	0.003**
Tamil Nadu	-0.008**	0.004	0.0001	0.009***	-0.011***	0.003***	0.001	0.002***	-0.001***	0.002***
Pondicherry	-0.001	-0.01	-0.001	0.009***	-0.013**	0.003	0	0.003*	-0.002	0.01*
Andaman & Nicobar Islands	-0.01	0.008	-0.002	0.009***	-0.022	0.003	-0.001	0.005***	-0.003	0.012

Source: Author's estimates

tion from cultivation to mining and quarrying in Daman and Diu and from manufacturing to mining and quarrying in Dadra and Nagar Haveli. Thus, only the share of cultivators has gone down predominantly between 2001 and 2011, though it still remains the main activity in most of the states.

5.1.1 Are these Changes Due to Risk and Uncertainty from Climate Change?

Drifting away of rural workers from farming to other activities like agricultural labourers, construction workers, etc., could be due to climate uncertainties. There were arguments that crop losses due to uncertain climate, increase in cost of production due to uncertainty and delays in monsoon rain, absence of crop insurance to cover loss from climatic factors, etc., were responsible for decrease in the share of cultivators. To examine this hypothesis, the rate of change has been calculated for all the ten categories of rural workers at the level of ecological zones of each state separately, and are shown in the Appendix Table A1. The names of the districts falling under each ecological zone of the state are listed out on the top row of the table along with names of the ecological zone. One finds a very similar picture, especially with respect to share of cultivators and agricultural labourers; the former going down and the later going up across the ecological zones of every state except Kerala, but changes are mostly insignificant. The change in the share of other category of workers is also similar at the national and state level. Ecological zones capture ecological, physiological and climatic diversities, and similar changes across ecological zones mean that rural workers livelihood choices are not being influenced by local or regional factors, rather by national or macro level issues like market risk or government policy or pricing, which are affecting the entire country. Climate change may not be one of the important factors as high-altitude regions are also showing similar trends like low altitude or plain zones.

5.2 Changes between 2004 and 2020-21 (Based on NSS and PLFS data)

This section describes changes in occupational pattern of rural main workers for period from 2004-05 to 2020-21 using data from NSS and PLFS surveys. The rural main workers are also put into ten categories, but the categories defined here are a little different from the ones used for census data. The differences have been described under section 4.1. With two rounds of NSS (1999-2000 and 2004-05) and four rounds of PLFS (2017-18 to 2020-21) data, changes in rural main occupations for two periods, 2004 to 2020 and 2017 to 2020, have been reported in the study. Despite

Table 4: State-wise Pattern of Change in Rural Main Occupation Category

States	Main rural occupation category/NIC code in 2001	Main rural occupation category/NIC code in 2011	Change in Percentage of main workers engaged (2001 to 2011)
Andhra Pradesh	aglabourers	aglabourers	Increase
Bihar	aglabourers	aglabourers	Increase
Kerala	aglabourers	aglabourers	Same
Pondicherry	aglabourers	aglabourers	Decrease
Tamil Nadu	aglabourers	aglabourers	Increase
West Bengal	aglabourers/cult(28%)	aglabourers(34%)	Increase
Daman & Diu	cultivators	Mining & quarrying	Shift
Arunachal Pradesh	cultivators	cultivators	Decrease
Assam	cultivators	cultivators	Decrease
Chhattisgarh	cultivators	cultivators	Decrease
Gujarat	cultivators	cultivators	Decrease
Haryana	cultivators	cultivators	Decrease
Himachal Pradesh	cultivators	cultivators	Decrease
Jammu & Kashmir	cultivators	cultivators	Decrease
Jharkhand	cultivators	cultivators	Decrease
Karnataka	cultivators	cultivators	Decrease
Maharashtra	cultivators	cultivators	Decrease
Manipur	cultivators	cultivators	Increase
Meghalaya	cultivators	cultivators	Decrease
Mizoram	cultivators	cultivators	Decrease
Madhya Pradesh	cultivators	cultivators	Decrease
NCT_Delhi	cultivators	cultivators	Decrease
Odisha	cultivators	cultivators	Decrease
Punjab	cultivators	cultivators	Same
Rajasthan	cultivators	cultivators	Decrease
Sikkim	cultivators	cultivators	Decrease
Tripura	cultivators	cultivators	Decrease
Uttar Pradesh	cultivators	cultivators	Decrease
Uttrakhand	cultivators	cultivators	Decrease
Andaman & Nicobar Islands	J to U(All_others)	J to U(All_others)	Increase
Chandigarh	J to U(All_others)	J to U(All_others)	Same
Goa	J to U(All_others)	J to U(All_others)	Same
Lakshadweep	J to U (All_others)	J to U (All_others)	Increase
Nagaland	J to U (All_others)	J to U (All_others)	Decrease
Dadra & Nagar Haveli	Manufacturing, electricity, gas, waters	Mining & quarrying	Shift

Note: For description of sectors, see Table 2.
Source: Author's estimates.

the differences between NSS and PLFS sampling techniques, the share of workers from NSS and PLFS have been used to show changes over time. Comparison between 1999 and 2004 is dropped as changes between 2001 and 2011 were shown with the help of census data. Figure 3 shows the shares of cultivators and agricultural labourers during the period 1999 to 2020, both for all India and rural India. One finds the share of cultivators to have increased during 1999 to 2004, have gone down from 2004 to 2018, and then have gone up once again. The pattern of change is similar both for all-India and rural India. In contrast, the share of agricultural labourers has gone down throughout, sharply between 1999 and 2017 and then slowly in the later period. This is in contrast to the findings from the census data for the period 2001 to 2011, showing a declining share of cultivators and increasing shares of agricultural labourers.

Figure 4 shows the movement in the shares of rural main workers in various sectors, and this clearly shows the dominance of construction sector over the others. Though a sizable percentage of workers were working in the manufacturing sector in the early 2000s and before, lots of them have left manufacturing and they seemed to have moved to work in the construction, financial services, or in trade and transport sectors. These country level averages are examined carefully with the help of state level panel data for the period 2004 to 2020. The panel has 175 data points with five observations for each of the state and union territory. The growth rates for the ten categories of workers for the period from 2004 to 2020 are plotted in Figure 5, and for the period 2017 to 2020 (only PLFS data) in Figure 6.

Figure 3: Share of Main Workers Working as Cultivators (Self Employed in Agriculture) and Agricultural Labourers (Casual Workers in Agriculture): All India and Rural India, 1999-2020

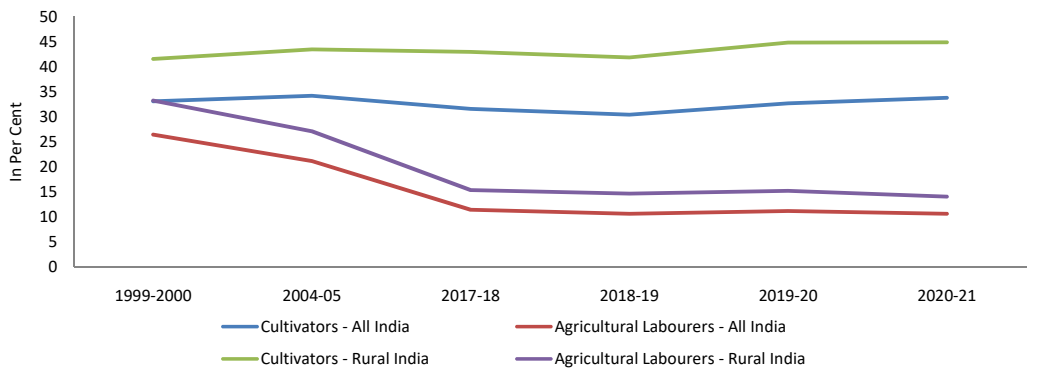


Figure 4: Sector-wise Share of Rural Main Workers in India: 1999-2020

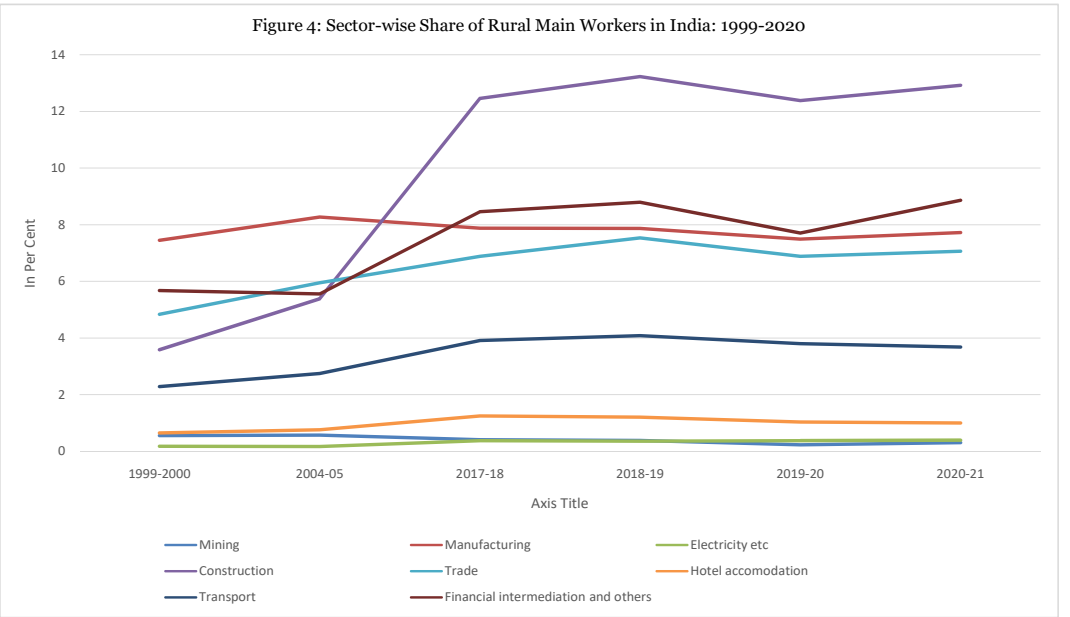
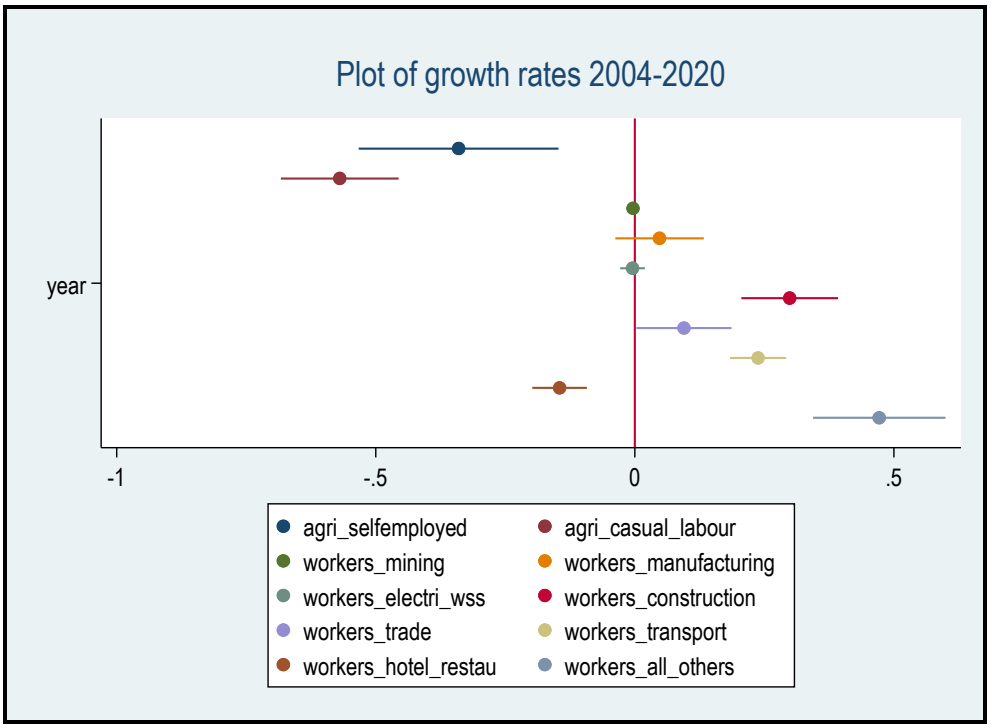


Figure 5 shows the share of cultivators (agricultural self-employed) and agricultural labourers (agricultural casual labour) from among the rural main workers have gone down significantly, and the rate of decline of agricultural labourers is much higher than that of cultivators. The share of workers in hotels and restaurants has decreased significantly, and the share of workers in sectors like trade, transport, construction, and all other services have increased significantly; the highest increase being 'all other activities', followed by construction. Though the all-India average data shows the share of cultivators to have gone up (Figure 2), state level data refutes it as it showed a significant decline between 2004 and 2020 (Figure 5).

However, as observed from Figure 6, the share of cultivators has increased significantly between 2017 and 2020, though the share of other category of workers, except construction workers, have either insignificantly decreased or remained the same. The increase in the share of cultivators between 2017 and 2020 is probably due to COVID related reverse migration in 2020 and 2021. People leaving cities probably shifted to work in agriculture in the villages, and this increased the share of cultivators among the rural main workers.

The rate of change in the share of cultivators and agricultural labours between 2004 and 2018 are plotted in Figure 7, and for the period between 2017 and 2019 in

Figure 5: Sector-wise Rate of Change in the Share of Rural Main Workers Between 2004 and 2020

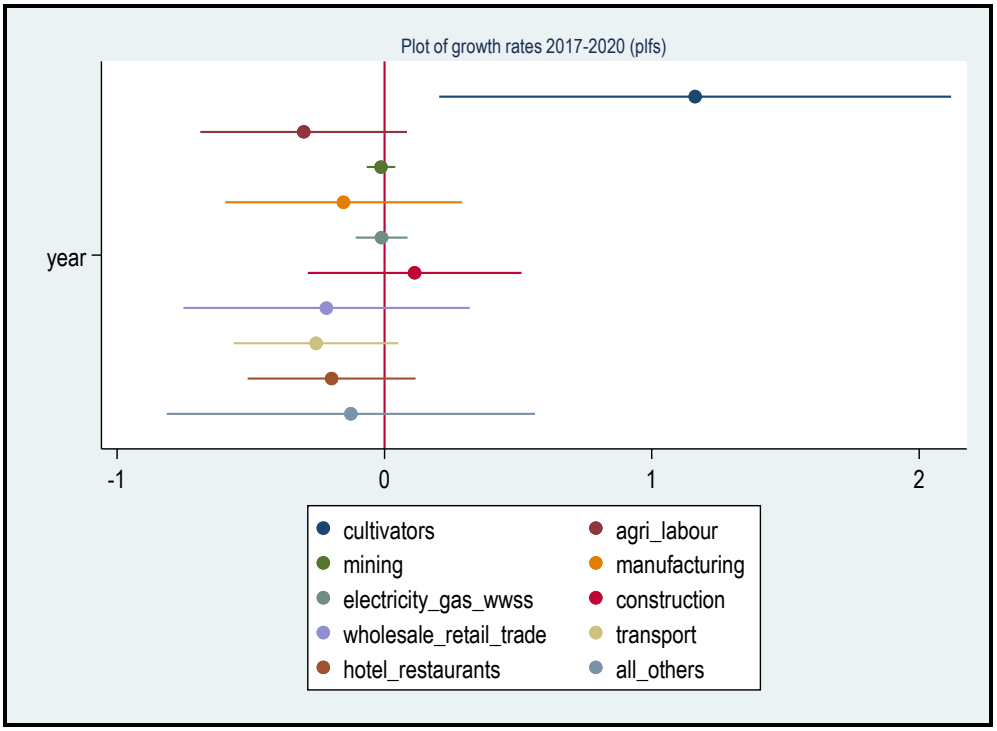


Source: Author's estimates based on state level panel data extracted from NSS and PLFS.

Figure 8, and only for cultivators between 2004 and 2020 in Figure 9. Many states clearly show the upward trend in share of cultivators in these figures in the last two years (2019-20 and 2020-21), that is, after 2018. Between 2004 and 2018, one observes a drift away from agriculture in almost all the states except Chhattisgarh, Gujarat, and Odisha (Figure 7), but after 2017, multiple states have shown an increase in the share of cultivators (Figures 8 and 9). The above analysis clearly concludes that rural India has witnessed a drift away from the agricultural sector between 2001 and 2020, except the last two years when people seemed to have returned to agriculture, probably due to the COVID related lockdown in the cities and reverse migration to the villages.

The other non-agricultural sectors witnessing an decrease in employment in rural India are manufacturing, mining, hotels and accommodation, electricity and water supply, etc., and the sectors providing a significant increase in employment in rural areas are construction, trade and transport, and financial, real estate, and other activities. As two sectors, namely, construction and financial and real estate etc., are seen

Figure 6: Sector-wise Rate of Change in the Share of Rural Main Workers Between 2017 and 2020



Source: Author's estimates based on state level panel data extracted from PLFS

to provide the maximum employment, the workers leaving agriculture seemed to have gone to work in the construction activities. Finance and real estate sector require some basic qualification, and people earlier working in agriculture may not be in possession of the required skills and knowledge. Thus, one can conclude that the rural occupational shift in India has made people to move from agriculture to the construction sector primarily, and not to any high paid sheltered jobs.

5.3 Occupational Change Across PLFS Regions (2017-2020)

Because of the large discrepancies in the coverage of NSS and PLFS regions, the macro level rural occupational changes are calculated over PLFS regions for the period 2017-2020. These changes are measured for all ten occupational categories for each of the PLFS regions of each state (Appendix Table A2). Unlike the ecological regions, where the results derived from the census data reflected similar trends in the respective states, no such pattern is emerging from the results of PLFS regions.

Figure 7: State-wise Rate of Change in Share of Cultivators and Agricultural Labourers Between 2004 and 2018

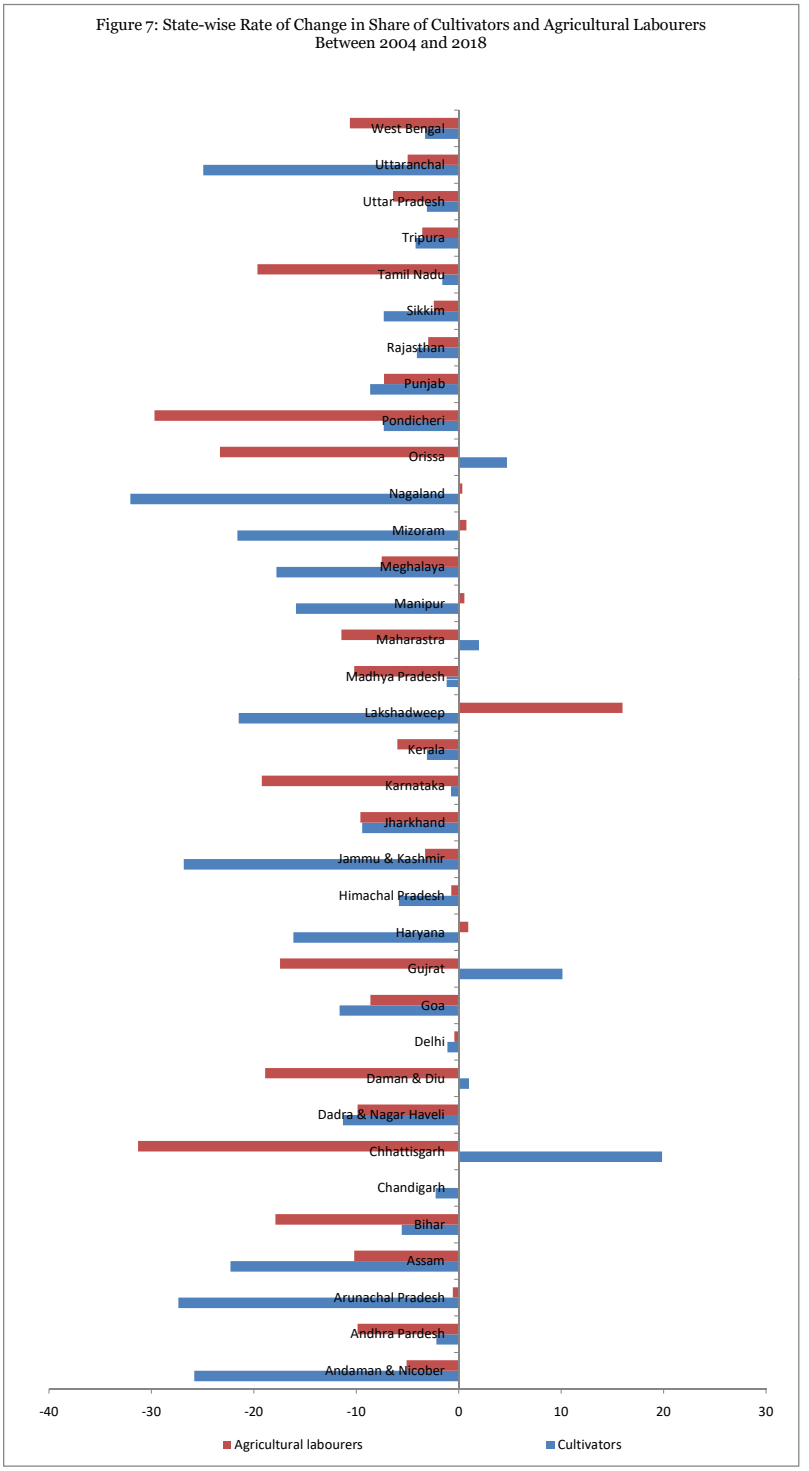
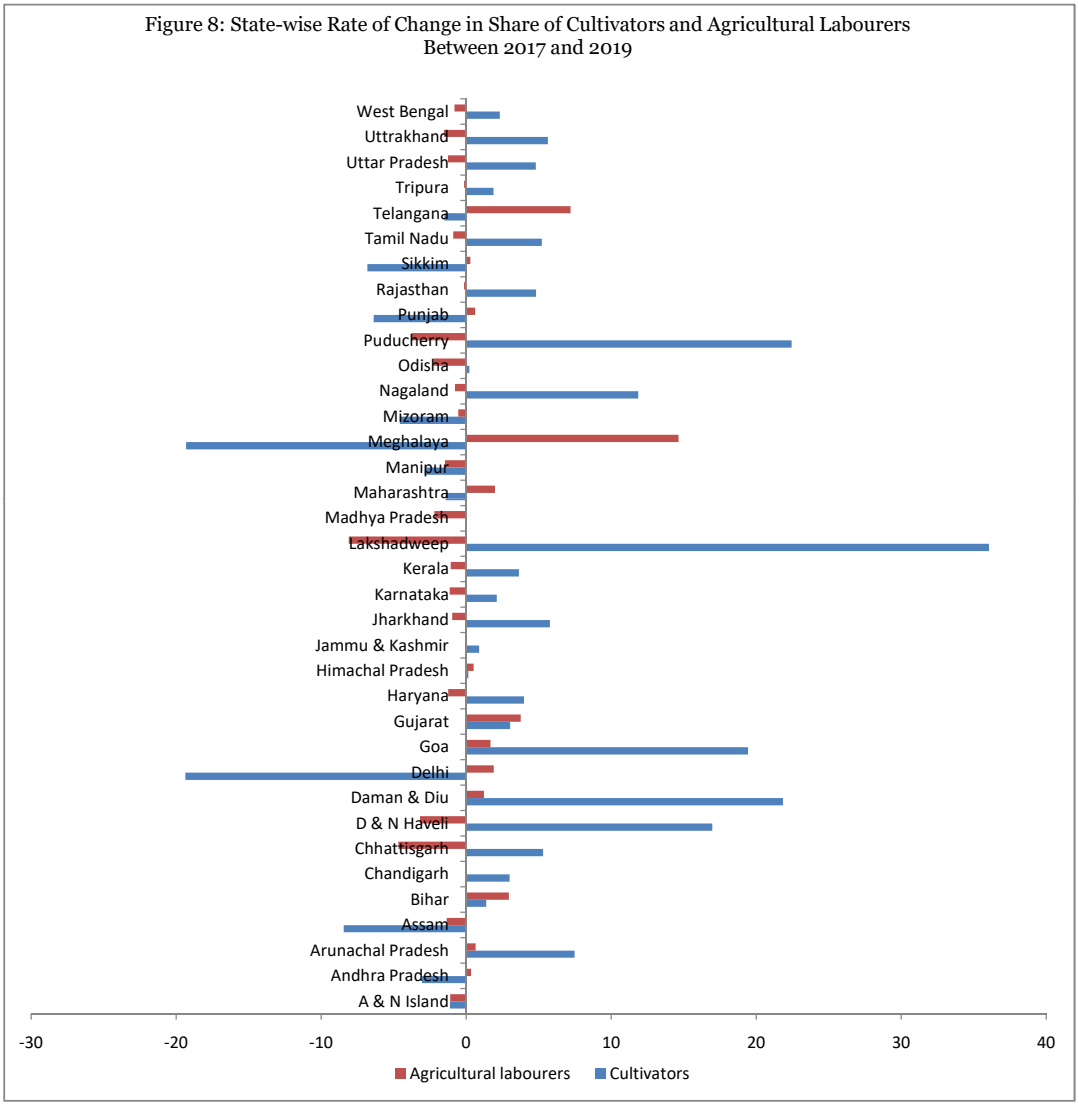


Figure 8: State-wise Rate of Change in Share of Cultivators and Agricultural Labourers Between 2017 and 2019

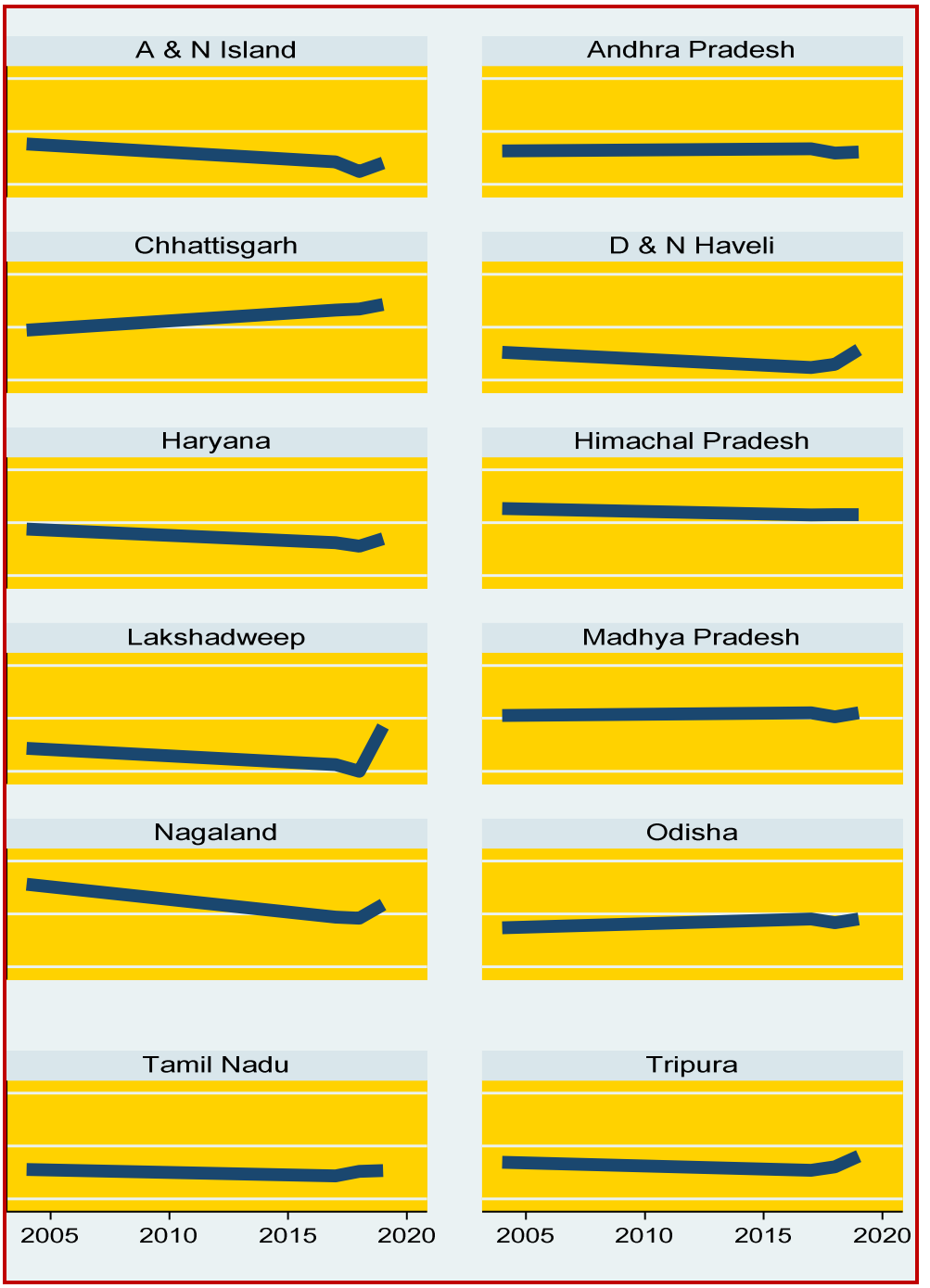


6. Has the Shift in Rural Occupations Improved the Well-being of People?

This question is examined by looking at the association among some income and rural occupational indicators. Income variables used are the per capita net state domestic product (NSPD) for year 2019 (pre-COVID year) at 2011-12 prices, its growth rate during 2011 to 2019, and total annual income and farm income of agricultural households in 2015-16 (NAFIS survey[2]). The three occupational variables are: (a) a dummy variable for states having cultivation as primary rural occupation, (b) another

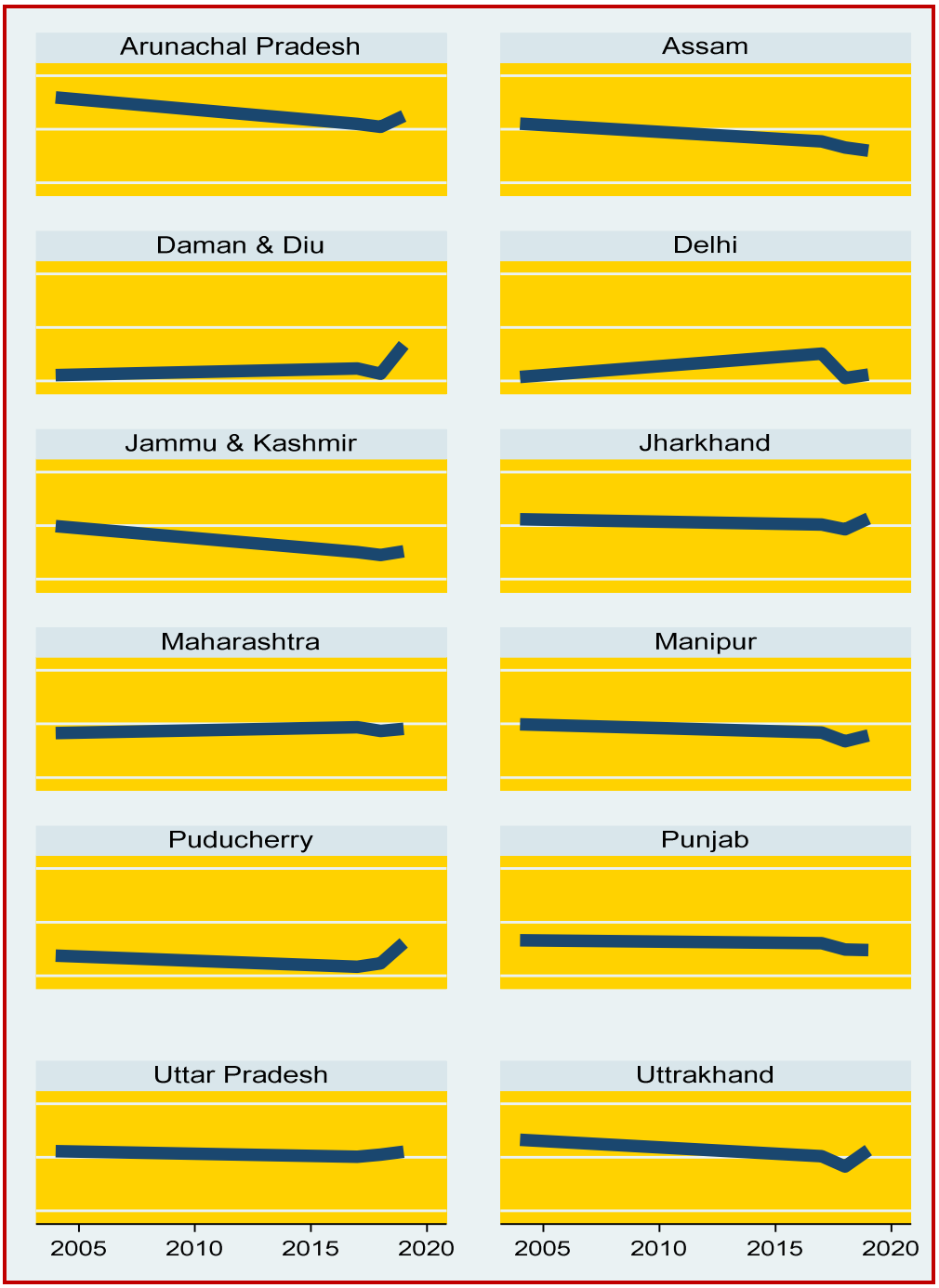
2 Pertain to data collected under NABARD's All India Rural Financial Inclusion Survey 2016-17 (NABARD, 2016).

Figure 9: State-wise Share of Cultivators in Total Rural Main Workers: 2004 to 2020



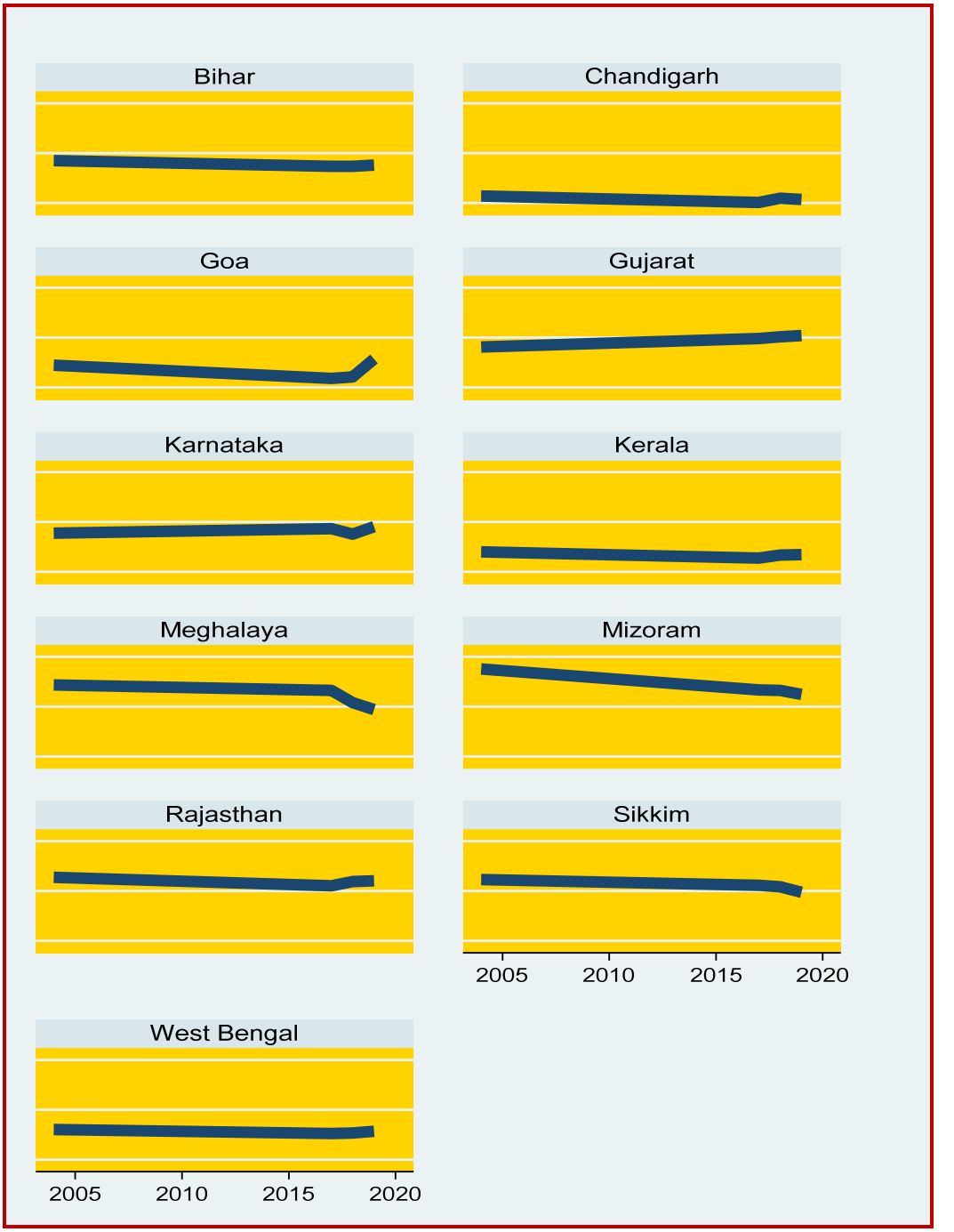
(Contd….)

Figure 9: State-wise Share of Cultivators in Total Rural Main Workers: 2004 to 2020



(Contd….)

Figure 9: State-wise Share of Cultivators in Total Rural Main Workers: 2004 to 2020 *(Concluded)*



Source: Author's estimates

dummy variable showing whether the rural main occupation of the state changed between 2004 and 2020, and (c) change in percentage of main workers between 2004 and 2020. These variables are shown in Appendix Table A3. The correlation coefficients and probability values showing the level of significance for these variables are shown in Table 5.

Table 5 shows three types of change in rural occupations and none of them have any significant correlation on the growth rate of per capita NSDP between 2011 and 2019. Per capita NSDP of 2019 is significantly correlated with all states; but positively with states which changed their rural main occupation and the percentage increase in share of rural main workers, and negatively with states where cultivation is still the main occupation. Coming to agricultural household's total income and farm income, one finds a negative association with all three occupational change variables, though insignificant. Thus, changing the rural main occupation seems to have been beneficial for the states, but it gets negated when one sees the correlation with income of agricultural households. It is negatively linked with all types of changes.

7. Conclusions

The Indian economy has undergone major structural transformations over the years with respect to the sectoral composition of its GDP, with the agricultural sector's contribution going down from more than 50% in 1950 to around 16.3% in 2021-22. However, this transition has been a labour un-absorbent development as agricultural sector's share in employment is still around 43% by 2020, though there are some intra-sectoral transitions. This type of slow occupational shift has been described by Niti Aayog to be contrary to what one witness in case of other developed countries. Rather than moving along a Lewis path, Indian development has been caught in a Lewis trap type of situation (Patel *et al*., 2022). There are limited studies looking at such inter-temporal occupational shift at the macro level, though multiple researchers have studied livelihood diversification in India focusing at regional, sectoral or at some specific class of workers. Studies have focussed on the type of livelihood diversification, the causes behind them (the pull and push factors), the enabling features, the limiting factors, the impact on welfare and so on.

This study analysed the rural occupational shift by studying the trends in employment of rural main workers across different industrial categories during the period from 2001 to 2020. It used the NIC 1998, collapsed the data based on NIC 2008 to NIC

Table 5: Correlation Coefficient between Rural Main Occupational Changes and Per Capita Net State Domestic Product

State Level Variables	Growth rate of per capita net state domestic product during 2011-2019	Per capita net state domestic product in 2019	Total income of agricultural households in 2015-16$ (NAFIS Survey)	Total farm income of agricultural households in 2015-16$ (NASIS survey)
Dummy for "cultivation is main rural occupation"	-0.03 (p=0.87)	-0.41** (p=0.02)	-0.23 (p=0.24)	-0.23 (p=0.23)
Dummy for "rural main occupation has changed during 2004-2019"	-0.11 p=0.56)	0.51*** (p=0.003)	-0.35* (p = 0.06)	-0.32* (p = 0.09)
Change in percentage share of rural main workers during 2004-2020	0.25 (p=0.16)	0.31* (p=0.08)	-0.13 (p = 0.49)	-0.23 (p = 0.23)

Notes: 1. $ Based on data extracted from NABARD's All India Financial Inclusion Survey (NABARD, 2016). Also data was available only for states, not union territories.
2. *,** and *** represent 10%, 5%, and 1% level of significance, respectively.
Source: Author's estimates.

1998 categories, and studied rural main workers falling under ten broad industrial categories. The ten categories are cultivators, agricultural workers, workers in sectors like mining, manufacturing, construction, electricity and water supply, trade, transport, hotel and accommodation, and all other activities like financial services, real estate, etc. This study used the census data for the years 2001 and 2011, two rounds of NSS results pertaining to years 1999-2000 and 2004-2005, and four rounds of PLFS pertaining to years 2017-18, 2018-19, 2019-20 and 2020-21.

Besides working out relative shares of the 10 industry categories, it compared the rate of change in their respective shares over different time periods; that is, 2001 to 2011, 2004 to 2018, 2004 to 2020, and 2017 to 2020. Comparisons of growth rates are made at the all-India level, and across states, the ecological zones of the states, and for the PLFS regions. In deriving results for the country and the states, both state level and district level data have been used. Occupational shifts at the level of ecological zones are made to examine whether they are different from country or state level macro pictures and whether climatic factors are playing any role in making people change their primary occupation.

It is observed that rural occupational structure has undergone major shifts between 2000 and 2020. The period wise detailed results are the following:

- Between 2001 and 2011 (based on only Census data)
  - (a) Sectors or occupations that witnessed a reduction in the percentage of workers are cultivation; plantation, fishery, forestry and allied activities; manufacturing; wholesale and retail trade, and transport.
  - (b) Sectors witnessing in-migration or growth are agricultural labour; construction; mining; hotel and restaurant; transport and communication; and financial intermediation, real estate, etc., (all-others).
  - (c) Ecological zones reflect the same type of occupational shifts as witnessed at country and state level indicating that climatic factors may not be responsible for the drifting away from farming/cultivation witnessed during this period.
- Between 2004 and 2020 (based on NSS and PLFS data)
  - (a) Shrinking activities are agriculture (both cultivation and casual labour) and hotel and restaurants.

(b) Growing or expanding activities are construction, transport and communication, trade, and all other activities (financial, real estate, etc.).

(c) Other sectors did not witness any significant change.

- Between 2017 and 2020 (based on PLFS data),

(a) Only cultivation has witnessed a significant and high growth, whereas all other activities except construction saw negative growth.

(b) None of these changes except that of cultivators were significant.

Thus, the broad observations on the agricultural sector are the following

- Share of cultivators as main rural workers have gone down significantly during both decades, 2001 to 2010 and 2011 to 2020.
- Share of agricultural labourers increased from 2001 to 2011 as per the census data but went down during 2004 to 2020 as per NSS and PLFS data.
- After 2018, the share of cultivators has significantly gone up in many states and the country as a whole, and this may be because of the reverse migration induced by COVID-19 lockdown.
- Workers leaving agriculture seemed to have gone to construction activities as this sector witnessed the highest increase in the share of workers.

8. Policy Implications

As per the sustainable livelihood framework, a long-term shift in the main occupation of households happens under different conditions like (i) if governments provide a good enabling environment that helps households to move to a better occupation leaving the old one, and (ii) if the present one becomes risky with uncertain income and high costs. In the case of rural India, workers leaving agriculture seem to have gone to construction activities as this sector witnessed the highest increase in the share of workers and requires less skilled workers. People leaving agriculture may find construction the most suitable as they do not possess the appropriate skills to get employment in other sectors. As people leaving agriculture are going for temporary work, it indicates desperate out-migration rather than a shift induced by an enabling environment to make an economically better and a stable future. This type of structural shift may be temporary as in the case of construction work and people may again try to shift back to agriculture and end up being worse off.

There is a need for generating additional and long-term employment opportunities for people at the construction sites or for workers getting displaced after the completion of construction work.

Ecological zones represent different ecological features and comparison of occupational shift across ecological zones of different states did not show any difference. They depict similar changes as witnessed in case of the country and the states meaning that neither climatic nor locational factors are causing such occupational shift, thereby, hinting at the need for implementation of macro level policies for the country.

9. Limitations and Issues for Future Research

The study has multiple caveats. It describes the occupational shift of rural main workers over time without going into the analysis of causal factors. There is also limited analysis on the well-being of workers; that is, whether such shift has uplifted rural well-being. In spite of the differences in sampling strategies, both NSS and PLFS data are combined in the analysis and that may be giving rise to some biases in the growth rates or trends.

Future research should try to unbundle these issues especially the factors responsible for making workers drift away from agricultural sector as construction workers, as this seems to have been happening in rural India. Second the pertinent issue is examining the economic impact of such rural occupational shifts on rural well-being; that is, whether leaving the agricultural sector has made workers better off and whether such well-being is stable.

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Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

1. Jammu and Kashmir

Occupational sectors/ agro-ecological zones	Cold Arid Zone (Ladakh, Kargil)	Intermediate Zone (Doda, Punch, Rajouri, Udhampur)	Sub Tropical Zone (Jammu, Kathua, Rais)	Valley Temperate Zone (Srinagar, Badgam, Kupwara, Baramula Pulwama, Anatnag)
Cultivators	-0.02	-0.019**	-0.016	-0.018***
Agricultural labourers	0.001	0.003*	0.004**	0.004**
Plantation, livestock, forestry, fishery and related	-0.008	-0.004	0.00028	0.0003
Mining & quarrying	0.001***	0.002***	0.005*	0.005***
Manufacturing, electricity, gas and water supply	-0.002	-0.001**	-0.004*	-0.012***
Construction	-0.003	0.002**	0.001	0.002**
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	0.0007	0.001**	0.002	0.001
Hotel & restaurant	0.004**	0.003***	0.001***	0.001***
Transport, storage and communication	-0.002*	-0.001*	-0.003*	-0.001***
Financial intermediation, real estate, renting and business activities, and others	0.027*	0.013*	0.002	0.011

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

2. Himachal Pradesh

Occupational sectors/ agro-ecological zones	Mild Hills Sub Humid Zone (Kullu, Mandi Bilaspur-hp)	Sub-Montane & Low Hills Sub-Tropical Zone (Una, Hamirpur-hp, Kangra, Chamba)	High Hill Temperate Dry Zone (Kinnaur, Lahaul Spiti)
Cultivators	-0.01	-0.017*	-0.0006
Agricultural labourers	0.002	0.002	0.001
Plantation, livestock, forestry, fishery and related	0.0004**	0.001	0.001
Mining & quarrying	0.006**	0.005**	0.002
Manufacturing, electricity, gas and water supply	-0.004**	-0.004*	0.001
Construction	0.002	0.004	0.002
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	0.001	0.001	0.00003
Hotel & restaurant	0.003**	0.001***	0.0004
Transport, storage and communication	-0.001*	-0.002**	0.0001
Financial intermediation, real estate, renting and business activities, and others	0.002	0.003	-0.007

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

3. Punjab

Occupational sectors/ agro-ecological zones	Central Plain Zone (Amritsar, Kapurthala Jalandhar, Ludhiana, Fatehgarh Sahib, Taran Tarn, Navanshahar, Mohali)	Western Plain Zone (Ferozepur, Faridkot)	Western Zone (Moga, Bhatinda, Mansa, Muktsa, Sangrur, Barnala)
Cultivators	-0.001	-0.003	0.0005
Agricultural labourers	0.0001	0.004	0.004
Plantation, livestock, forestry, fishery and related	-0.008**	-0.005**	-0.008***
Mining & quarrying	0.013***	0.005***	0.005***
Manufacturing, electricity, gas and water supply	-0.015***	-0.01***	-0.007***
Construction	0.004**	0.004	0.002**
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.0002	-0.001	-0.001*
Hotel & restaurant	0.005***	0.001***	0.001***
Transport, storage and communication	-0.003***	-0.003**	-0.002***
Financial intermediation, real estate, renting and business activities, and others	0.004*	0.002	0.002

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

4. Uttarakhand

Occupational sectors/agro-ecological zones	Hill Zone (Uttarkashi, Chamoli, Rudraprayag, Pithoragarh, Bageshwar Champawat, Almora, Tehri)	Bhabar and Tarai Zone (Udham Singh Nagar, Nainital)	Sub humid sub tropic (Dehradun, Pauri Haridwar)
Cultivators	-0.003	-0.01	-0.01
Agricultural labourers	0.002***	0.005	0.002
Plantation, livestock, forestry, fishery and related	-0.001**	-0.001***	-0.003**
Mining & quarrying	0.002***	0.005	0.005*
Manufacturing, electricity, gas and water supply	-0.004***	-0.007***	-0.008**
Construction	-0.001**	0.001	0.002
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	0.001	0.001	0.002
Hotel & restaurant	0.001***	0.001**	0.001***
Transport, storage and communication	-0.001*	-0.001**	-0.002**
Financial intermediation, real estate, renting and business activities, and others	0.004***	0.006	0.008

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

5. Haryana

Occupational sectors/agro-ecological zones	Eastern Zone (Panchkula, Ambala, Yamuna Nagar Kurukshetra, Kaithal, Karnal, Panipat, Sonipat, Faridabad, Rohtak, Mewat)	Western Zone (Sirsa, Fatehabad, Hissar, Bhiwani, Mahendragarh, Rewari, Jind, Jhajjar)
Cultivators	-0.005	-0.008**
Agricultural labourers	0.005	0.004
Plantation, livestock, forestry, fishery and related	-0.004***	-0.002*
Mining & quarrying	0.01***	0.005***
Manufacturing, electricity, gas and water supply	-0.012***	-0.008***
Construction	0.002	0.001**
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.001	0.0000019377
Hotel & restaurant	0.004***	0.001***
Transport, storage and communication	-0.003***	-0.002***
Financial intermediation, real estate, renting and business activities, and others	0.004*	0.005**

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

6. Rajasthan

Occupational sectors/agro-ecological zones	Arid Western Plain Zone (Jaisalmer, Bikaner)	Flood Prone Eastern Plain Zone (Bharatpur, Alwar, Dholpur, Sawai Madhopur, Karauli)	Irrigated North Western Plain Zone (Sriganga-nagar, Hanum-angarh)	Semi Arid Eastern Plain Zone (Jaipur, Ajmer, Tonk, Dausa)	South eastern Humid Plain Zone (Jhalawar, Bundi, Baran)	Sub Humid Southern Plain and Aravali Hill Zone (Udaipur, Sirohi, Bhilwara, Rajsamand, Chittaurgarh, Pratapgarh)	Transitional Plain Zone of Inland Drainage (Nagaur, Jhunjhunu, Sikar)
Cultivators	-0.008	-0.007**	-0.013	-0.007	-0.009	-0.004	-0.007**
Agricultural labourers	0.007*	0.006***	0.005	0.005*	0.008**	0.007**	0.004
Plantation, livestock, forestry, fishery & related	-0.002	-0.001	0.002	-0.002	-0.001	-0.002*	-0.001
Mining & quarrying	0.004***	0.001	0.006**	0.005***	0.005**	0.005***	0.005***
Manufacturing, electricity, gas and water supply	-0.006***	-0.005***	-0.005**	-0.007***	-0.004***	-0.008***	-0.007***
Construction	0.001	0.002**	0.001	0.002	0.001	-0.0001	0.002
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal & household goods	0.000256	-0.000238	-0.00000597	-0.0000316	-0.00004	-0.00039	-0.000105
Hotel & restaurant	0.002***	0.002***	0.001**	0.001**	0.001	0.001***	0.001***
Transport, storage and communication	-0.001***	-0.002***	-0.001**	-0.002***	-0.001	-0.002**	-0.002***
Financial intermediation real estate, renting and business activities, & others	0.002*	0.003***	0.003	0.003**	0.003*	0.002*	0.003

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

7. Uttar Pradesh

Occupational sectors/agro-ecological zones	Bundelkhand one (Jalaun, Jhansi, Lalitpur, Mahoba, Banda, Hamirpur)	Eastern Plain Zone (Barabanki, Raibareli Sultanpur, Faizabad Basti, Ambedkarnagar, Sant Kabir Nagar, Gorakhpur, Deoria, Ballia)	North Eastern Plain Zone (Bahraich, Shravastinagar, Balrampur, Gonda, Kushinagar, Sidharth Nagar, Maharajganj)	Western Plain Zone (Meerut, Pillibhit, Saharanpur, Muzaf-farnagar, Bagpat, Ghaziabad, Noida, Aligarh, Bulandshahar, Moradabad, Jyotiba-phulenagar, Bijnore, Badaun, Bareilly, Rampur, Shahja-hanpur,Firozabad)	Central Plain Zone (Kannauj, Hathras, Mathura, Agra, Etah, Mainpuri, Etawah, Auraiya, Kanpurdehat, Kanpurcity, Unnao, Lucknow, Sitapur, Hardoi, Lakhimpur, Farrukhabad)
Cultivators	-0.013**	-0.016***	-0.18***	-0.01***	-0.013***
Agricultural labourers	0.012***	0.008***	0.011***	0.006***	0.01***
Plantation, livestock, forestry, fishery and related	0.0003	0.0004*	0.0007**	-0.001**	-0.0003
Mining & quarrying	0.002***	0.007***	0.004***	0.005***	0.007***
Manufacturing, electricity, gas and water supply	-0.004***	-0.008***	-0.004***	-0.01***	-0.011***
Construction	0.002*	0.002**	0.001***	0.001*	0.001***
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.001**	-0.000229	0	-0.000023	-0.00035
Hotel & restaurant	0.001***	0.001***	0.001***	0.001***	0.002***
Transport, storage and communication	-0.001***	-0.001***	-0.0004***	-0.002***	-0.001***
Financial intermediation, real estate, renting and business activities, and others	0.002***	0.008***	0.006***	0.002***	0.006***

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

8. Bihar

Occupational sectors/agro-ecological zones	North East Alluvial Zone (Saharsa, Purnia, Katihar, Supaul, Khagaria, Madhepura, Kishanganj, Araria Bhagalpur)	South Bihar Alluvial Zone (Sheikhpura, Luckeesarai, Jamui, Munger, Banka, Bhabua, Rohtas, Aurangabad-bihar, Buxar, Bhojpur, Jahanabad, Gaya, Nalanda, Nawada, Patna, Arwal)	North West Alluvial Plain Zone (West Champaran, East Champaran, Gopal-ganj, Siwan, Saran, Sitamarhi, Muzzaffarpur, Madhubani, Darbhanga, Samastipur, Sheohar, Begusarai, Vaishali)
Cultivators	-0.004*	-0.01***	-0.005*
Agricultural labourers	0.001	0.005***	0.001
Plantation, livestock, forestry, fishery and related	-0.001***	-0.001***	-0.001***
Mining & quarrying	0.003***	0.005***	0.005***
Manufacturing, electricity, gas and water supply	-0.004***	-0.007***	-0.007***
Construction	0.001**	0.001***	0.001***
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.001	-0.001**	-0.001
Hotel & restaurant	0.001***	0.001***	0.001***
Transport, storage and communication	-0.001***	-0.001***	-0.001***
Financial intermediation, real estate renting and business activities, and others	0.005***	0.007***	0.007***

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

9. North Eastern States

Occupational sectors/ agro-ecological zones	Sikkim (East district, west district, north district, south district)	Nagaland: Mild Tropical Hill Zone (Dimapur, Mon, Wokha, Kohima, Phek, Zunheboto, Mokakchung, Tuensang)	Manipur: Sub Tropical Plain Zone (bishnupur, west Imphal, east Imphal, Tamenglong, Chandel, Thoubal, Churachandpur, Senapati, Ukhrul)	Mizoram: Mild Tropical Hill Zone (Aizwa,l Lawngtlai, Chimtuipui, Champhai, Lunglei, Serchip, Kolasib, Mamit)	Tripura: Mild Tropical Plain Zone (North Tripura, West Tripura, South Tripura, Dhalai)	Meghalaya: Temperate Sub Alpine Zone (Ri-bhoi, East Khasi hills, West Khasi hills, East Garo hills, West Garo hills, South Garo hills, Jaintia hills)
Cultivators	-0.004	-0.002	0.002	-0.003	-0.004	-0.006
Agricultural labourers	0.002*	0.002**	-0.001	0.003**	0.001	0.0004
Plantation, livestock, forestry, fishery and related	0.000000978	0.001	-0.001	0.0003	0.001	0.0002
Mining & quarrying	0.005***	0.002	0.005***	0.001***	0.005***	0.005**
Manufacturing, electricity, gas and water supply	-0.001*	-0.003***	-0.008***	-0.001***	-0.006***	-0.003***
Construction	0.001	0.0006	0.001	0.0001	0.004*	0.001**
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.000592	-0.00027	0.001	-0.0000588	-0.001	-0.0000235
Hotel & restaurant	0.001***	0.001**	0.001***	0.001***	0.002***	0.001**
Transport, storage and communication	-0.001***	-0.001**	-0.001**	-0.005***	-0.002**	0.0001
Financial intermediation, real estate, renting & business activities, and others	0.001	-0.001	-0.001	-0.001	-0.001	0.002

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

10. Assam

Occupational sectors/ agro-ecological zones (with district names)	Barak Valley Zone (Karimganj, Hailakandi, Cachar)	Central Brahmaputra Valley Zone (Nagaon, Marigaon)	Hill Zone (Karbi, Anglong, North Cachar Hills)	North Bank Plain Zone (Dhemaji, Lakhimpur, Sonitpur, Darrang)	Upper Brahmaputra Valley Zone (Golaghat, Jorhat, Sibasagar, Dibrugarh, Tinsukia)	Lower Brahmaputra Valley Zone (Goalpara, Kamrup (Rural), Nalbari,Barpeta, Bongaigaon, Kokrajhar, Dhubri)
Cultivators	-0.001	-0.001	0.003	-0.003	-0.002	-0.002
Agricultural labourers	0.001	0.0006	0.0004	0.002	0.003***	0.0003
Plantation, livestock, forestry, fishery and related	-0.003	-0.001	-0.0008	-0.001	-0.002	-0.001
Mining & quarrying	0.005***	0.004**	-0.0004	0.003***	0.005***	0.006***
Manufacturing, electricity, gas and water supply	-0.007***	-0.005**	-0.004***	-0.004***	-0.006***	-0.007***
Construction	0.005	0.002	0.0002	0.002*	0.002***	0.003***
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	0.001	-0.001	-0.001	-0.0002627	-0.0000464	-0.00031
Hotel & restaurant	0.003***	0.002**	0.001*	0.001***	0.001***	0.003***
Transport, storage and communication	-0.003***	-0.002*	-0.002	-0.001***	-0.001***	-0.003***
Financial intermediation, real estate, renting and business activities, and others	-0.0004	0.001	0.002	0.001	0.001	0.00006

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

11. West Bengal

Occupational sectors/agro-ecological zones (with district names)	Coastal Saline Zone (South 24 Parganas. West Midnapore)	New Alluvial Zone (Murshidabad, Burdwan, Nadia,Hooghly, North 24 Parganas, Howra)	Hill Zone (Darjeeling)	Old Alluvial Zone (South Dinajpur, Malda)	Laterite and Red Soil Zone (West Midnapore, Bankura, Puruliya, Birbhum)	Terai Zone (Jalpaiguri, Cooch bihar, North Dinajpur)
Cultivators	-0.001	-0.002	-0.005	-0.003	-0.007*	-0.004
Agricultural labourers	0.003	0.007	0.0002	0.006	0.007	0.006
Plantation, livestock, forestry, fishery and related	-0.001	-0.001***	0.008	-0.002	-0.001***	-0.0001
Mining & quarrying	0.018	0.016***	0.003	0.005	0.008***	0.005***
Manufacturing, electricity, gas and water supply	-0.018	-0.021***	-0.007	-0.014	-0.011***	-0.008***
Construction	0.002	0.002	0.003	0.002	0.002**	0.001
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.003	-0.002**	-0.00031	-0.002	-0.001**	-0.001
Hotel & restaurant	0.004	0.002***	0.004	0.001***	0.002***	0.001***
Transport, storage and communication	-0.005	-0.003***	-0.002	-0.002***	-0.002***	-0.003***
Financial intermediation, real estate, renting and business activities, and others	0.002	0.001	-0.007	0.002*	0.002**	0.001

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

12. Jharkhand

Occupational sectors/ agro-ecological zones (with district names)	Central & North Eastern Plateau Zone (Sahebganj, Godda, Pakaur, Dumka, Devghar, Jamtara, Giridih Dhanbad, Koderma)	South Eastern Plateau Zone (Saraikela, West Singhbhum, East Singhbhum)	Western Plateau Zone (Garhwa, Palamau, Latehar, Lohardaga, Gumla Simdega, Ranchi, Bokaro, Hazaribagh, Chatra)
Cultivators	-0.01**	-0.014	-0.019***
Agricultural labourers	0.005	-0.003	0.005
Plantation, livestock, forestry, fishery and related	-0.001***	-0.0003	-0.0006**
Mining & quarrying	0.004	0.005**	0.005***
Manufacturing, electricity, gas and water supply	-0.012***	-0.01***	-0.007***
Construction	0.004*	0.006**	0.005***
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.001	0.002	0.001**
Hotel & restaurant	0.004***	0.001***	0.001***
Transport, storage and communication	-0.003***	-0.002***	-0.002***
Financial intermediation, real estate, renting and business activities, and others	0.005***	0.005*	0.006***

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

13. Odisha

Occupational sectors/agro-ecological zones (with district names)	West Central Table land Zone (Bargarh, Bolangir, Bauda, Sonapur, Sambalpur, Jharsuguda)	North Central Plateau Zone (Mayurbhanj, Keonjhar)	East and South Eastern Coastal Plain Zone (Kendrapara, Khurda, Jagatsingh-pur, Puri, Nayagarh, Ganjam, Cuttack)	North Eastern Coastal Plain Zone (Balasore, Bhadrak, Jajpur)
Cultivators	-0.007*	-0.005	-0.004	-0.002
Agricultural labourers	0.003	0.002	0.001	0.002
Plantation, livestock, forestry, fishery and related	-0.001*	-0.001***	-0.002***	-0.001*
Mining & quarrying	0.005***	0.004***	0.008***	0.005**
Manufacturing, electricity, gas and water supply	-0.011***	-0.006***	-0.008***	-0.006***
Construction	0.002	0.002**	0.002*	0.001
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.0003086	-0.0004	-0.00014	-0.001
Hotel & restaurant	0.001***	0.002***	0.003***	0.002*
Transport, storage and communication	-0.001***	-0.001***	-0.001***	-0.001*
Financial intermediation, real estate, renting and business activities, and others	0.002**	0.002**	0.003**	0.001

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

14. Chhattisgarh

Occupational sectors/ agro-ecological zones (with district names)	Bastar Plateau Zone (Jagdalpur, Dantewara)	Chhattisgarh Plain Zone (Raipur, Korba, Raigarh, Bilaspur, Kabirdham Kawardha, Rajnandgaon Durg, Mahasamund, Dhamtari, Janjgir, Kanker)	North Hill Zone of Chhattisgarh (Surguja, Koriya, Jashpur, Ambikapur)
Cultivators	-0.024	-0.012***	-0.011***
Agricultural labourers	0.023**	0.012***	0.011*
Plantation, livestock, forestry, fishery and related	-0.001	-0.001***	-0.001
Mining & quarrying	0.002***	0.002***	-0.001
Manufacturing, electricity, gas and water supply	-0.002	-0.004***	-0.003***
Construction	0.0001	0.001***	0.001
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	0.000179	-0.001***	-0.001*
Hotel & restaurant	0.001**	0.001***	0.001**
Transport, storage and communication	-0.000165	-.000305***	-0.0002
Financial intermediation, real estate, renting and business activities, and others	0.002	0.001***	0.002*

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

15. Madhya Pradesh

Occupational sectors/ agro-ecological zones (with district names)	Bundelkhand Zone (Chhatarpur, Datia, Tikamgarh)	Malwa Plateau Zone (Mandsaur, Ratlam, Ujjain, Dewas, Indore, Shajapur, Rajgarh, Neemuch)	Kymore Plateau and Satpura Hill Zone (Rewa, Satna, Panna, Jabalpur, Seoni, Siddhi, Katni, Shahdol, Umaria, Mandla, Balaghat, Singrauli, Anuppur)	Gird Zone (Gwalior, Bhind, Morena, Shivpuri, Guna, Sheopur, Ashoknagar)	Jhabua Hills Zone (Jhabua)	Central Narmada Valley Zone (Narsingpur, Hoshangabad)	Nimar Valley Zone (Khandwa, Khargaon, Harda, Burhanpur, Badwani)	Satpura Plateau Zone (Betul, Chhindwara)	Vindhya Plateau Zone (Bhopal, Sagar, Damoh, Vidisha, Raisen, Sehore)
Cultivators	-0.014***	-0.01***	-0.014***	-0.014**	-0.03	-0.007	-0.011*	-0.011*	-0.009*
Agricultural labourers	0.016***	0.012***	0.014***	0.014***	0.027*	0.01	0.009*	0.013***	0.009***
Plantation, livestock, forestry, fishery and related	-0.001***	-0.001***	-0.001**	-0.002	-0.001	-0.001	-0.001*	-0.001**	-0.0001
Mining & quarrying	0.002**	0.002***	0.003***	0.001**	0.002*	0.003***	0.002***	0.005	0.005***
Manufacturing, electricity, gas and water supply	-0.004**	-0.004***	-0.006***	-0.003***	-0.002	-0.005***	-0.002***	-0.003***	-0.01**
Construction	0.001	0.0004	0.002***	0.001	0.001	0.0003	0.001*	-1.614	0.001**
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.0004593	-0.001**	-0.0002708	-0.0003237	-0.0000492	-0.001	-0.0002	-0.00036	-0.0001503
Hotel & restaurant	0.001***	0.001***	0.001***	0.001***	0.001**	0.001	0.001***	0.001***	0.001***
Transport, storage and communication	-.00049***	-0.001***	-0.001***	-0.001**	-0.0003	-0.001	-.0004***	-0.001***	-0.001***
Financial intermediation, real estate, renting and business activities, and others	0.001***	0.001	0.002***	0.002**	0.002	0.0003	0.002	0.001*	0.002**

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

16. Gujarat

Occupational sectors/agro-ecological zones (with district names)	Bhal and Coastal Zone (Ahmedabad, Bhavnagar)	Middle Gujarat Zone (Panchmahal, Dahod, Vadodara, Kheda, Anand)	North Gujarat Zone (Banaskantha, Sabarkantha, Gandhinagar, Patan, Mehsana)	North Sourashtra Zone (Jamnagar, Rajkot, Amreli, Surendranagar	North West Zone (Kutch)	South Gujarat Zone (South Gujarat)	South Sourashtra Zone (Junagadh, Porbandar)
Cultivators	-0.0005	-0.005	-0.001	-0.003	-0.006	-0.003	-0.005
Agricultural labourers	0.013	0.011	0.009**	0.007	0.004	0.006	0.007
Plantation, livestock, forestry, fishery and related	-0.001	-0.003	-0.004	0.0003	-0.002	-0.001	0.0004
Mining & quarrying	0.013*	0.004***	0.005***	0.007***	0.005	0.005**	0.005
Manufacturing, electricity, gas, and water supply	-0.02*	-0.005***	-0.006***	-0.011***	-0.005	-0.01***	-0.005*
Construction	-0.0009	0.0004	-0.0001	0.0005	-0.002	0.0001296	-0.00028
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.002	-0.002**	-0.003	-0.001**	-0.002	-0.002*	-0.001
Hotel & restaurant	0.002*	0.001***	0.002***	0.002***	0.001	0.001**	0.001
Transport, storage and communication	-0.002*	-0.002***	-0.002***	-0.002***	-0.005	-0.002***	-0.003*
Financial intermediation, real estate, renting and business activities, and others	0.0003	0.001	0.001	0.001	0.001	0.002*	0.001**

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

17. Maharashtra

Occupational sectors/ agro-ecological zones (with district names)	Central Maharashtra Plateau Zone (Dhule, Ahmednagar, Nandurbar)	Eastern Vidharba Zone (Bhandara, Gadchiroli, Chandrapur Nagpur, Gondia)	North Konkan Coastal Zone (Thane, Raigarhmh, Ratnagiri, Mumbai)	Central Vidharba Zone (Akola, Amaravati, Wardha, Buldana, Washim, Yawatmal)	Scarcity Zone (Beed, Osmanabad, Parbhani, Latur, Jalna, Hingoli, Aurangabad, Nanded)	Western Ghat Zone (Nasik)	Western Maharashtra Plain Zone (Solapur, Pune, Jalgaon)
Cultivators	-0.006	-0.005	-0.008	-0.004	-0.002	-0.003*	-0.004
Agricultural labours	0.009	0.01**	0.008*	0.007*	0.004	0.003	0.005
Plantation, livestock, forestry, fishery and related	-0.001*	-0.002***	-0.001**	-0.001**	-0.001***	-0.002*	-0.002**
Mining & quarrying	0.003**	0.004**	0.009**	0.002***	0.005***	0.005***	0.005*
Manufacturing, electricity, gas and water supply	-0.005***	-0.008***	-0.011***	-0.003***	-0.004***	-0.007***	-0.006***
Construction	-0.0001136	0.00025	-0.0000017	-0.00038	0.00009	-0.00013	0.00027
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.001	-0.001***	-0.001*	-0.001***	-0.001***	-0.0004116	-0.001
Hotel & restaurant	0.001**	0.001***	0.004***	0.001***	0.001***	0.001***	0.001*
Transport, storage and communication	-0.001**	-0.001***	-0.003***	-0.001***	-0.001***	-0.002***	-0.002**
Financial intermediation, real estate, renting and business activities, and others	0.001	0.001	0.003**	0.001	0.001**	0.003*	0.002

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

18. Andhra Pradesh

Occupational sectors/ agro-ecological zones (with district names)	High Altitude Tribal Zone (East Godavari, Khammam)	Krishna Godavari Zone (West-godavari, Krishna, Guntur, Prakasam)	North Coastal Zone (Srikakulam, Vizian-agaram, Visakha-patnam)	Northern Telangana Zone (Karimnagar, Nizamabad, Warangal, Medak, Adilabad)	Scarce Rainfall Zone of Rayala-seema (Anantpur, Kurnool)	Southern Telangana Zone (Hyderabad, Mahabub-nagar, Nalgonda, Rangareddy)	Southern Zone (Chittoor, Cuddepah, Nellore)
Cultivators	-0.007	-0.006	-0.016**	-0.005*	-0.01	-0.003	-0.007
Agricultural labourers	0.01*	0.009**	0.017**	0.011***	0.012	0.005	0.009*
Plantation, livestock, forestry, fishery and related	-0.001	-0.001*	-0.001	-0.002***	-0.001	-0.003***	-0.001
Mining & quarrying	0.004	0.004***	0.004***	0.01***	0.005	0.005***	0.005***
Manufacturing, electricity, gas and water supply	-0.006*	-0.006***	-0.007***	-0.014***	-0.007**	-0.007***	-0.007***
Construction	0.0004	0.001	0.001	0.0000653	0.0004902*	0.0002	0.001*
Wholesale and retail trade and repair of motor vehicles, motor cycles and personal and household goods	-0.001	-0.001**	-0.001***	-0.001***	-0.001*	-0.001*	-0.001***
Hotel & restaurant	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
Transport, storage and communication	-0.001**	-0.002**	-0.002***	-0.001***	-0.001**	-0.001**	-0.001***
Financial intermediation, real estate, renting and business activities, and others	0.001	0.001	0.002***	0.001***	0.002**	0.002	0.002

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

19. Karnataka

Occupational sectors/agro-ecological zones (with district names)	Central Dry Zone (Uttar Kannad, Chikm-angalur)	Southern Transition Zone (Shimoga, Hassan)	North Dry Zone (Bijapur, Bellary, Gadag, Bagalkot, Koppal)	Eastern Dry Zone (Bangalore rural, Bangalore urban, Kolar, Ramnagar, Chickbal-lapurar)	Hill Zone (Chitradurga, Kodagu, Tumkur, Davangere)	Coastal Zone (Udupi, Dakshin Kannad)	Southern Dry Zone (Mysore, Mandya, Chamraj nagar)
Cultivators	-0.006	-0.005*	-0.005***	-0.011	-0.004	-0.005	-0.007
Agricultural labourers	0.006	0.011***	0.005**	0.01	0.005	-0.002	0.007
Plantation, livestock, forestry, fishery and related	-0.003	-0.002***	-0.0004	-0.002	-0.002	0.001	-0.001
Mining & quarrying	0.004	0.01***	0.003***	0.013	0.004***	0.026**	0.005***
Manufacturing, electricity, gas and water supply	-0.005	-0.014***	-0.005***	-0.013	-0.005***	-0.03*	-0.004***
Construction	0.001	0.0003	0.001**	0.001	0.001*	0.002***	0.0006
Wholesale and retail trade and repair of motor vehicles, motor cycles and personal and household goods	-0.0002	-0.001***	-0.001*	-0.001	-0.001	0.001	-0.001*
Hotel & restaurant	0.002	0.001***	0.002***	0.003	0.002**	0.002*	0.001***
Transport, storage and communication	-0.001	-0.001***	-0.001***	-0.002	-0.001**	0.000217	-0.001***
Financial intermediation, real estate, renting and business activities, and others	0.001	0.001***	0.001	0.001	0.001	0.002	0.001***

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011

20. Kerala

Occupational sectors/ agro-ecological zones (with district names)	Central Zone (Palakkad, Thrissur, Ernakulam, Malappuram, (North Part)	High Altitude Zone (Wayanad, Idukki)	Problem Areas Zone (Alappuzha, Kottayam)	Northern Zone (Malappuram, Kozhikode, Kannur, Kasargod)	Southern Zone (Thiruvanan-thapuram, Kollam, Pattanam thitta)
Cultivators	0.0006	-0.002	-0.0002	0.001	-0.0003
Agricultural labourers	-0.002	0.002*	-0.002	-0.0003	-0.003
Plantation, livestock, forestry, fishery and related	-0.001	-0.008*	-0.001	-0.002	-0.0002
Mining & quarrying	0.012***	0.005***	0.005*	0.005***	0.005**
Manufacturing, electricity, gas and water supply	-0.016***	-0.005***	-0.018	-0.012***	-0.017**
Construction	0.005**	0.003	0.004	0.004*	0.004
Wholesale and retail trade, and repair of motor vehicles, motor cycles and personal and household goods	-0.002	-0.000173	-0.002*	-0.001	-0.002***
Hotel & restaurant	0.006***	0.004***	0.001**	0.001***	0.001***
Transport, storage and communication	-0.006***	-0.003*	-0.006***	-0.007***	-0.007***
Financial intermediation, real estate, renting and business activities, and others	0.003	0.003*	0.003	0.003	0.004

(Contd....)

Table A1: State-wise Change in the Share of Total Rural Main Workers in Different Sectors by Different Agro-ecological Zones of the States During 2001 and 2011 *(Concluded)*

21. Tamil Nadu

Occupational sectors/agro-ecological zones (with district names)	Cauvery Delta Zone (Thanjavur, Nagapattinam, Thiruvarur, Karur, Parambur, Trichy)	Southern Zone (Pudukottai, Madurai, Dindigul, Theni Ramanatha-puram, Sivaganga, Virudhunagar, Tirunelveli)	High Rainfall Zone (Kanya kumari)	High Altitude Hilly Zone (Nilgiris)	North Eastern Zone (Chennai, Kancheepu-ram,Tiruvallur, Vellore, Tiruvan-namalai, Cuddalore, Villupuram)	North Western Zone (Salem, Namakkal, Dharmapuri, Krishnagiri, Coimbatore, Erode)	Western Zone (Coim-batore, Erode, Thiruppur)
Cultivators	-0.006	-0.009	-0.001	0.002	-0.009*	-0.016*	-0.007
Agricultural labourers	0.003	0.007	-0.002	0.013	0.002	0.004	-0.002
Plantation, livestock, forestry, fishery and related	-0.0002	0.0002	0.005	-0.019	0.0002	0.002	0.004
Mining & quarrying	0.005***	0.005***	0.008	0.004	0.011***	0.005***	0.005**
Manufacturing, electricity, gas and water supply	-0.007***	-0.014***	-0.017	-0.002	-0.01***	-0.013**	-0.018**
Construction	0.002**	0.002***	0.003	0.002	0.003**	0.005*	0.006
Wholesale and retail trade, & repair of motor vehicles motor cycles and personal and household goods	-0.00005	0.00002	-0.001	0.000455	-0.00004	0.001	0.001
Hotel & restaurant	0.002***	0.001***	0.004	0.002	0.003***	0.001***	0.001
Transport, storage and communication	-0.001***	-0.001**	-0.003	-0.001	-0.001***	-0.001*	-0.001
Financial intermediation, real estate, renting and business activities, & others	0.003***	0.001**	0.001	-0.001	0.002	0.002	0.002

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

1. Jammu & Kashmir

Occupational sectors/ agro-ecological zones (with district names)	Mountainous (Kathua, Jammu)	Outer Hills (Doda, Udhampur, Rajouri, Poonch)	Jhelum Valley (Anantnag, Pulwama, Srinagar, Badgam, Baramula, Kupwara, Kargil)	Ladakh
Cultivators	4.48*	-0.5	0.55	-0.39
Agricultural labourers	-0.089**	0.041	0.055	0.094
Manufacturing	0.39	0.06	0.76	-0.252
Mining	-0.033	-0.092	0	omitted
Electricity, gas and water supply	-0.157	0.208	0.004	4.883
Construction	-1.83	0.416	0.14	-0.252
Trade	-0.095	-0.327	-0.7	-2.073
Hotel Services	-0.121	-0.088	-0.2	-1.281
Transport	-0.728	-0.81	-0.326	0.061
All Others	-1.81	1.09	-0.31	0.52

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

2. Andhra Pradesh

Occupational sectors/ agro-ecological zones (with district names)	Coastal Southern (Srikakulam, Vizianagaram, Vishakhapatnam, East Godavari,West Godawari, Krishna,Guntur, Prakasam,Nellore)	Coastal Northern (Mahbubnagar, Rangareddy, Hyderabad, Medak, Nizamabad, Adilabad, Karimnagar, Warangal, Khammam, Nalgonda, Chittoor, Cuddapah)	Inland Southern (Chittoor, Cuddapah)
Cultivators	-0.327	-0.865	-4.10**
Agricultural labors	-1.75**	1.605	4.197
Manufacturing	-0.22	-0.81	0.02**
Mining	0.039	0-.067	0.047
Electricity, gas and water supply	-0.096*	-0.08	-0.004
Construction	-0.51	-0.2	-0.42
Trade	0.518	1.582**	-0.818
Hotel Services	-0.462	-0.24	-0.24
Transport	-0.272	-0.513	-0.226
All Others	1.572	0.676	1.542

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

3. Assam

Occupational sectors/ agro-ecological zones (with district names)	Plains Western (Kokrajhar, Bongaigaon, Barpeta, Nalbari, Sonitpur, Morigaon, Dhubri, Goalpara, Kamrup, Darrang,)	Plains Eastern (Lakhimpur, Sibsagar, Dibrugarh, Tinsukia, Cachar, Dhemaji, Nowgong, Golaghat, Jorhat, Karimgang, Hailakandi,)	Cachar plain	Central Brahamputra
Cultivators	-0.07	-3.28	-9.02	1.43
Agricultural laborers	-2.157	-0.055	-0.064	-0.143
Manufacturing	0.4	-0.03	2.97***	-0.85
Mining	-0.073	0.212	0.288	-0.051
Electricity, gas and water supply	0.079	0.039	-0.162*	0.002
Construction	0.84	5.328**	-3.745	0.96
Trade	0.589	1.328	5.081	1.052*
Hotel Services	-0.352	0.256	0.412	0.485
Transport	0.31	-0.573	1.881	0.319
All Others	0.416	-3.216**	2.358**	-3.227**

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

4. Bihar

Occupational sectors/ agro-ecological zones (with district names)	Central (Patna, Nalanda, Bhojpur, Rohtas, Aurangabad, Jehanabad, Gaya, Nawada, Begusarai, Khagaria, Buxar, Munger, Bhagalpur,	Northern (Saran, Siwan, Gopalganj, West Champaran, East Champaran, Sitamari, Muzaffarpur, Vaishali, Samastipur, Darbhanga, Madhubani, Saharsa, Madhepura, Purnea, Katihar, Araria, Kishanganj, Supaul)
Cultivators	0.96	1.16
Agricultural labourers	0.46	-0.559
Manufacturing	0.287	-1.38
Mining	-0.047	0.005
Electricity, gas and water supply	0.145	-0.03
Construction	0.78	1.11
Trade	-1.703	0.453
Hotel Services	-0.215	0.097
Transport	0.93	0.079
All Others	-1.621	-0.943

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

5. Gujarat

Occupational sectors/ agro-ecological zones (with district names)	Dry Areas (Surendra-nagar, Kachchh, Bans Kantha, Mahesana)	Gujarat (Kachchh)	South Eastern	Plains Northern (Sabar Kantha, Mahesana, Gandhinagar, Ahmedabad, Kheda)	Saurashtra (Jamnagar, Rajkot, Bhavnagar, Amreli, Junagadh)
Cultivators	-7.83	-2.61	-0.01	0.45	4.53
Agricultural labourers	3.56	5.75	0.37	1.605	-1.214
Manufacturing	0.73	0.91	1.18	-0.33	-1.04
Mining	0.08	-0.45	-0.33	-0.008	0.09
Electricity, gas and water supply	-0.033	-1.591	0.193	-0.066	-0.254
Construction	0.52	0.61	-0.64	0.038	-0.281*
Trade	1.403	-0.4	-0.224	-0.153	-0.35
Hotel Services	0.174	1.191	0.395	-0.409	-0.135
Transport	-0.086	-2.424**	-0.68*	-0.715	-1.009
All Others	1.455	-0.945	-0.322	-0.413	-0.322

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

6. Haryana

Occupational sectors/ agro-ecological zones (with district names)	Eastern (Ambala, Yamuna Nagar, Kurukshetra, Kaithal, Karnal, Panipat, Sonipat, Rohtak, Faridabad, Gurgaon)	Western (Rewari, Mahendragarh, Bhilwani, Jind, Hisar, Sirsa)
Cultivators	1.25	1.2
Agricultural labourers	-0.005	-2.15
Manufacturing	1.37	0.33
Mining	-0.067	0.034
Electricity, gas and water supply	0.079	-0.078
Construction	0.27	0.34
Trade	-0.33	0.193
Hotel Services	0.439	0.128
Transport	-1.642	-0.35
All Others	-1.357	0.35

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

7. Himachal Pradesh

Occupational sectors/agro-ecological zones (with district names)	Central	Trans-Himalayan
Cultivators	-0.95	0.5
Agricultural labourers	0.319	-0.135
Manufacturing	0.14	1.2
Mining	-0.012	0.024
Electricity, gas and water supply	0.037	0.278
Construction	-0.49	-1.67***
Trade	0.169	0.061
Hotel Services	0.434	-0.76*
Transport	0.011	0.855
All Others	0.344	-0.343

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

8. Karnataka

Occupational sectors/ agro-ecological zones (with district names)	Coastal & Ghats (Dakshin, Kannad, Uttar Kannad)	Inland Eastern (Chikmagalur, Hassan, Kodagu, Shimoga)	Inland Northern (Belgaum, Bellary, Bidar, Bijapur, Chitradurga, Dharwad, Gulbarga, Raichur)	Inland Southern (Bangalore (Urban), Bangalore (Rural), Kolar, Mandhya, Mysore, Tumkur)
Cultivators	-3.89	3.63	0.739	-0.86
Agricultural labourers	3.343	-1.217	0.463	-0.623
Manufacturing	3.9	0.37	-0.38	-0.4
Mining	omitted	omitted	-0.044	-0.011
Electricity, gas and water supply	0.193	-0.01	0.053	-0.028
Construction	0.6	0.12	-0.66	1.2
Trade	-0.289	-0.98	0.244	1.633
Hotel Services	-1.354	-0.405	-0.227	-0.467
Transport	-1.121	-1.406	-0.27	0.517
All Others	-1.352	-0.084	0.11	-0.964

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

9. Kerala

Occupational sectors/ agro-ecological zones (with district names)	Northern (Kasargod, Kannur, Wayanad, Kozhikode, Malapuram, Palakkad)	Southern Trichur, Ernakulam, Idukki, Alappuzm, Pathanamthitta, Kollam, Kottayam, Thiruvananthapuram)
Cultivators	1.01*	1.861
Agricultural labourers	-0.343	-0.419
Manufacturing	0.072	0.84
Mining	-0.023	-0.008
Electricity, gas and water supply	0.083	-0.205
Construction	1.26	-1.17**
Trade	-0.608	0.072
Hotel Services	-0.433	-0.174
Transport	-0.877	-0.587
All Others	-0.14	-0.2

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

10. Maharashtra

Occupational sectors/ agro-ecological zones	Coastal (Greater Bombay, Thane, Raigarh (Kulaba), Ratnagiri, Sindhudurg)	Eastern (Bhandar, Chandrapur, Gadchiroli)	Inland Central (Aurangabad, Jalna, Parbhani, Bid, Nanded, Osmanabad, Latur)	Inland East (Buldana, Akola, Amravati, Yavatmal, Wardha, Nagpur)	Inland Northern (Nasik, Dhule, Jalgaon)	Inland Western (Ahmadnagar, Pune, Satara, Sangli, Solapur, Kolhapur)
Cultivators	0.05	4.11*	-0.63	-0.36	1.64	-1.45
Agricultural labourers	0.55	-6.33*	1.29	3.46	-2.29	0.47
Manufacturing	-0.62	0.18	0.32	-0.3	-0.1	0.25
Mining	-0.136	0.455	-0.003	0.018	omitted	0.024
Electricity, gas and water supply	0.169	0.06	-0.005	0.165	0.093	0.114
Construction	0.62	1.81	0.04	-0.64	0.36	-0.26
Trade	0.746	0.272	-0.139	-1.42	1.066	0.504
Hotel Services	-0.163	-0.283	-0.253	-0.115	0.083	0.219
Transport	0.12	-0.084	-0.356	-0.459	-0.393	0.279
All Others	-1.31	-0.19	-0.25	-0.35	-0.44	-0.16

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

11. Manipur

Occupational sectors/agro-ecological zones (with district names)	Hills (Senapati, Tamenglong, Churachandpur, Chandel, Ukhrul)	Plains (Thoubal, Bishnupur, Imphal)
Cultivators	-0.11	-2.63
Agricultural labourers	-1.023	-0.065
Manufacturing	-0.917	-0.146
Mining	0.206	0.54**
Electricity, gas and water supply	0.037	-0.005
Construction	1.21**	0.75
Trade	-0.753	1.052
Hotel Services	0.104	-0.038
Transport	-0.2	-0.779
All Others	1.45	1.29

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

12. Madhya Pradesh

Occupational sectors/ agro-ecological zones	Central (Senapati, Tamenglong, Churach-andpur, Chandel, Ukhrul)	Malwa (Mandsaur, Ratlam, Ujjain, Shajapur, Dewas, Jhabua, Dhar, Indore, Rajgarh)	Northern (Morena, Bhind, Gwalior, Datia, Shivpuri, Guna)	South (Jabalpur, Narsimhapur, Mandla, Chhindwara, Seoni, Balaghat)	South West (Khargone (W. Nimar), Khandwa (E. Nimar), Betul, Hoshan-gabad)	Vindhya (Tikamgarh, Chhatarpur, Panna, Satna, Rewa, Shadol, Sidhi)
Cultivators	-2	4.33	3.74	-3.86**	-6.61*	2.82
Agricultural labourers	-3.96*	-3.832	-1.085	0.416	5.168**	0.448
Manufacturing	1.797	0.13	-0.09	0.55	-0.28	1.03
Mining	0.039	omitted	0.003	0.2***	0.109**	-0.68
Electricity, gas and water supply	-0.017	0.044	0.035	0.089	-0.223	-0.218*
Construction	3.231*	-0.82	-3.35	1.77	0.77	-1.93
Trade	0.912	-0.026	0.837	0.17	0.246	-0.987
Hotel Services	-0.198	0.138	0.045	0.229	0.118	0.242
Transport	-0.302	0.297	-0.016	0.107	0.176	0.348
All Others	-1.223	-0.26	-0.144	0.311	0.524	-1.071

(Contd....

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

13. Odisha

Occupational sectors/ agro-ecological zones (with district names)	Coastal (Baleshwar, Cuttack, Ganjam, Puri, Bhadrak, Jagatsinghpura, Jajpur, Kendrapara, Nayagarh, Khurda, Gajipati)	Northern (Sambalpur, Sundargarh, Keonjhar, Mayurbhanj, Dhenkanal, Bolangir, Jharsuguda, Deogarh, Sonepur, Angul, Baragarh)	Southern (Phulbani, Kalahandi, Koraput, Boudh, Nuapara, Malkangiri, Nowarangpur, Rayagarh)
Cultivators	-1.7	-1.42	3.12
Agricultural labourers	-0.517	-1.113	-2.473
Manufacturing	0 .40	-1.098	0.32
Mining	-0.212	-0.745	-0.101
Electricity, gas and water supply	-0.012	0.192	0.065
Construction	2.037	2.73	-0.38
Trade	0.201	0.488	0.056
Hotel Services	0.11	0.249	-0.217**
Transport	-0.825	0.039	0.005
All Others	0.52	0.67	-0.393

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

14. Punjab

Occupational sectors/ agro-ecological zones (with district names)	Northern (Gurdaspur, Amritsar, Ludhiana, Jalandhar, Kapurthala, Hoshiarpur, Rupnagar (Ropar)	Southern (Firozpur, Patiala, Sangrur, Bhatinda, Faridkot, Fatehgarh Sahib, Mansa)
Cultivators	-2.927	-0.767
Agricultural labourers	0.33	-0.423
Manufacturing	1.18*	0.48
Mining	-0.12	-0.014
Electricity, gas and water supply	0.002	0.317
Construction	2.43	1.08**
Trade	-1.534	-0.24
Hotel Services	0.003	0.239
Transport	1.168	-0.292
All Others	-0.542	-0.39

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

15. Rajasthan

Occupational sectors/agro-ecological zones (with district names)	North East (Jhunjhuna, Alwar, Bharatpur, Dholpur, Sawai, Madhopur, Jaipur, Sikar, Ajmer, Tonk, Bhilwara, Dausa)	Northern	South East (Chittaurgarh, Bundi, Kota, Jhalawar, Baran)	Southern (Udaipur, Dungarpur, Banswara, Rajsamand)	Western (Ganga-nagar, Bikaner, Churu, Jaisalmer, Jodhpur, Nagaur, Pali, Barmer, Jalor, Sirohi)
Cultivators	3.53	2.64	4.37	1.7	-2.88
Agricultural labourers	-0.79**	-0.44	-0.77	2.16	0.66
Manufacturing	0.32	0.32	-0.41	-0.7	1.2
Mining	-0.005	-0.58	-1.065*	-0.697	0.099
Electricity, gas and water supply	-0.16	-0.005	-0.511	0.031	0.088
Construction	-0.608	-0.912	-0.713	-2.126**	-0.659
Trade	-0.834	1.803	0.423	0.455	0.42
Hotel Services	-0.304	-0.11	-0.113	0.052	0.137
Transport	-0.51	-0.199	-0.798	0.362	0.828
All Others	-0.63	-2.53*	-0.38	-1.24	0.08

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

16. Tamil Nadu

Occupational sectors/ agro-ecological zones (with district names)	Coastal (Tiruchirapalli, Thanjavur, Pudukkottai, Nagapat-tinam-Quaie)	Coastal Northern (Madras, Chengai Anna (Chen), North Arcot, Ambedhk, Thiruvannamalai Sa, South Arcot, Villupuram)	Inland (Dharampuri, Salem, Periyar, Nilgiri, Coimbatore)	Southern (Dindigul-Quide Millet, Pasupom-thevar Thiru, Madurai, Ramnathapuram, Kamarajar, V.O. Chiudambaram, Tirunelveli Kottabom, KannyaiKumari)
Cultivators	-0.98	2.38	1.12	1.88
Agricultural labourers	0.736	-0.263	-0.19	0.09
Manufacturing	0.32	-2.13	-1.19	0.43
Mining	-0.056	-0.21	0.239	0.015
Electricity, gas and water supply	-0.114	0.023	-0.207	-0.089
Construction	0.38	0.55	0.11	0.56
Trade	-0.167	0.502	0.242	-1.384
Hotel Services	0.068	0.077	-0.268	-0.271
Transport	-0.289	-0.669	0.048	-0.256
All Others	0.09	-0.242	0.095	-1.013

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

17. Uttar Pradesh

Occupational sectors/ agro-ecological zones (with district names)	Central (Kheri, Sitapur, Hardoi, Unnao, Lucknow, Rai Bareli, Kanpur Dehat, Kanpur Nagar, Fatepur, Bara Banki)	Southern Upper Ganga	Northern Upper Ganga	Eastern (Pratapgarh, Allahabad, Bahraich, Gonda, Faizabad, Sultanpur, Sidharthanagar, Maharajganj, Basti, Gorakhpur, Deeria, Maunath Bhanjan, Azamgarh, Jaunpur, Ballia, Ghazipur, Varanashi, Mirzapur, Balrampur, Chandauli)	Southern (Jalan, Jhansi, Lalitpur, Hamirpur, Banda, Chitrakut)
Cultivators	0.89	0.22	3.29*	1.80*	2.52
Agricultural labourers	-0.968	0.51	0.78	-0.639*	-1.248
Manufacturing	-0.61	0.04	-1.44	0.18	-0.9
Mining	-0.008	-0.021	-0.002	-0.036	0.043
Electricity, gas and water supply	-0.039	0.128*	-0.043	-0.022	0.011
Construction	0.3	-0.28	-0.97	-0.58	0.35
Trade	0.091	0.035	-0.088	-0.43	-0.61
Hotel Services	0.207	-0.317	-0.025	-0.187	-0.036
Transport	-0.477	0.091	-0.897	0.237	-0.381
All Others	0.597	-0.417	-0.575	-0.343	0.253*

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

18. West Bengal

Occupational sectors/ agro-ecological zones (with district names)	Central Plains (24-Parganas (North), 24-Parganas (South), Calcutta, Howrah, Hooghly, Burdwan)	Southern Plains	Eastern Plains (West Dinajpur, Maldah, Murshidabad, Nandia, Birbhum)	Himalayan (Jalpaiguri, Darjiling, Kochbihar	Western Plains (Midnapur, Bankura, Puruliya)
Cultivators	3.97**	1.04	1.55	2.5	-2.90*
Agricultural labourers	-2.214	-2.473	-0.429	1.308	-0.706
Manufacturing	-1.084	0.05	-2.09*	0.32	2.546
Mining	0.033	omitted	0.254	-0.728	0.162
Electricity, gas and water supply	0.064*	-0.035	0.259	0.04	-0.031
Construction	0.71	2.61*	-0.122	-1.415	-0.22
Trade	-0.819	-0.34	0.179	-2.075**	-0.148
Hotel Services	-0.082	0.318	-0.513	-0.809	-0.14
Transport	-0.02	-0.37	0.632	0.593	0.971
All Others	-0.62	-0.83	0.26	0.24	0.47

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

19. Chhattisgarh

Occupational sectors/ agro-ecological zones (with district names)	Mahanadi Basin	Northern Chhattisgarh	Southern Chhattisgarh
Cultivators	1.57	-2.60**	1.2
Agricultural labourers	-1.759	0.209	-1.337
Manufacturing	0.487	0.52**	0.073
Mining	0.146	0.105	0.044
Electricity, gas and water supply	0.153	omitted	-0.008
Construction	-0.46	1.87**	0.5
Trade	-0.1	-0.392	-1.209
Hotel Services	-0.128	0.045	0.168
Transport	0.083	0.201	0.279
All Others	0.023	0.031	0.261

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

20. Jharkhand

Occupational sectors/agro-ecological zones (with district names)	Hazaribagh Platea	Ranchi Plateau
Cultivators	4.92	0.23
Agricultural labourers	-1.081	0.206
Manufacturing	-0.03	0.604
Mining	-0.12	-0.36
Electricity, gas and water supply	-0.155	0.004
Construction	-2.502	1.1
Trade	-0.352	-0.196
Hotel Services	0.288	-0.146
Transport	0.072	-0.636
All Others	-1.04	-0.82

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

21. Telangana		
Occupational sectors/ agro-ecological zones (with district names)	Inland North East	Inland North West
Cultivators	3.75	0.30
Agricultural labours	-2.90	-0.253
Manufacturing	-0.99	-0.11
Mining	-0.049	-0.005
Electricity, gas and water supply	-0.24	0.108
Construction	-0.36	-0.884
Trade	0.386	0.351
Hotel Services	-0.047	0.447*
Transport	-0.082	-0.544
All Others	0.52	0.61

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020

a. North Eastern States with Single NSS Region (except Manipur)

Occupational sector	Arunachal Pradesh	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
Cultivators	2.86	-8.85***	-2.016**	2.4	-0.9	3.87
Agricultural labourers	0.078	4.104	-0.226*	-0.191	0.02	1.027
Manufacturing	0.06	0.187	0.289	-0.71	-0.36	-0.54
Mining	-0.018	0.2	-0.085	0.003	-0.09	0.026
Electricity, gas and water supply	0.314*	0.045	0.12	-0.478**	-0.287	0.092
Construction	0.75*	2.3	-0.38	1.61***	0.6	1.27
Trade	-2.303	0.493	0.601	-0.266	0.081	0.385
Hotel Services	-0.081	-0.056	0.251	0.216	-0.155	0.385
Transport	-1.229	1.272	0.859	-0.267	-0.415	-0.177
All Others	-0.45	0.29	0.6	-2.33	1.43	-3.1

(Contd....)

Table A2: Change in Share of Total Rural Main Workers in Different Sectors in Different Sample Regions of Periodic Labour Force Surveys (PLFS) of the States during 2017 and 2020 *(Concluded)*

b. Other States with Single NSS Region

Occupational sector	Uttara-khand	Chandi-garh	Delhi	Goa	Dadar & Nagar Haveli	Daman & Diu	Pondi-cherry	A & N Islands	Laksha-dweep
Cultivators	1.37	0.618	-6.31	4.761	8.06**	-0.5	6.73	4.6	13.88
Agricultural labours	-0.396	0.18	0.096	0.448	-1.48	0.053	-0.65	-0.373	-6.426
Manufacturing	0.33	-2.37	-0.13	-1.24	-5.12*	4.7	-1.15	-2.9	-0.667
Mining	0.108	Omitted	omitted	0.13	omitted	omitted	-0.011	-0.033	omitted
Electricity, gas and water supply	-0.104	0.101	0.034	0.167	-0.73	-0.624	-0.226	0.814	0.088
Construction	0.821	-1.72	-0.12	-0.49	-0.003	0.05	0.87	-0.96	-2.62
Trade	-0.79	-1.022	4.939	-2.325	-1.608	-2.586	0.75	-0.27	-1.242
Hotel Services	0.238	-2.165	-0.326	-0.695	-1.19	-0.29	0.48	0.137	-3.184
Transport	-0.292	-3.36	0.49	0.987	1.283	-1.317	-2.571*	-0.073	-0.92
All Others	-1.3	9.77	1.32	-1.73	0.78	0.515	-4.21*	-3.57	1.138

Table A3: Change in Rural Main Occupation and Per Capita Net State Domestic Product

Name of the states	Main rural occupation category (As per PLFS 2020-21)	Whether rural main occupation was changed between 2004 and 2020	Change in percentage of workers between 2004 and 2020	Growth rate of per capita net state domestic product (at 2011-12 prices) during 2011-12 to 2019-20	Per capita net state domestic product for year 2019-20 (Rs. in 0000.)	Total income of agricultural households in 2015-16$	Total farm income of agricultural households in 2015-16$
Andaman & Nicobar Islands	Cultivators	Yes	-21.49	8.4	15.9884	NA	NA
Andhra Pradesh	Agricultural labour	No	-8.88	7.3	11.3927	12.4839	18.4694
Arunachal Pradesh	Cultivators	No	-18.36	4.6	10.5451	6.498	13.4554
Assam	Cultivators	No	-10.54	5.9	6.066	3.8233	13.8708
Bihar	Cultivators	No	-0.39	4.4	3.0621	1.349	9.0362
Chandigarh	All others	Yes	31.09	4.9	23.3658	NA	NA
Chhattisgarh	Cultivators	No	2.71	3.9	7.5278	12.8083	19.5328
Delhi	All others	Yes	-5.58	5.3	27.4671	NA	NA
Goa	All others	Yes	6.37	5.4	30.3687	9.2559	19.9321
Gujarat	Cultivators	No	7.88	8.3	16.431	12.3242	19.6601
Haryana	Cultivators	No	-12.64	6.8	17.6199	9.625	22.5736
Himachal Pradesh	Cultivators	No	-8.62	6.5	14.2155	6.8005	18.4406
Jammu and Kashmir	Cultivators	No	-34.68	4	7.0176	3.4171	16.0118
Jharkhand	Cultivators	No	1.1	4.1	5.7246	2.9156	8.1933
Karnataka	Cultivators	No	0.64	7.8	15.4861	8.401	14.8818
Kerala	Construction	Yes	-3.29	5.7	14.9563	16.1146	28.2917
Madhya Pradesh	Cultivators	No	6.24	6.2	6.2236	5.6673	10.3737

(Contd....)

Table A3: Change in Rural Main Occupation and Per Capita Net State Domestic Product *(Concluded)*

Name of the states	Main rural occupation category (As per PLFS 2020-21)	Whether rural main occupation was changed between 2004 and 2020	Change in percentage of workers between 2004 and 2020	Growth rate of per capita net state domestic product (at 2011-12 prices) during 2011-12 to 2019-20	Per capita net state domestic product for year 2019-20 (Rs. in 0000.)	Total income of agricultural households in 2015-16$	Total farm income of agricultural households in 2015-16$
Maharashtra	Cultivators	No	1.69	5.8	15.2566	9.4092	16.6135
Manipur	Cultivators	No	-30.84	4.3	5.393	3.2652	11.7703
Meghalaya	Cultivators	No	-38.14	0.3	6.2435	7.8944	15.3633
Mizoram	Cultivators	No	-22.46	11.6	13.1781	8.9602	18.3293
Nagaland	Cultivators	No	-23.09	3.8	7.1247	13.4142	23.1142
Odisha	Cultivators	No	0.68	7.2	8.2257	9.2423	16.5706
Puducherry	Cultivators	Yes	-21.44	2	14.1918	NA	NA
Punjab	Cultivators	No	-16.77	4.4	11.9162	30.6174	44.1188
Rajasthan	Cultivators	No	-6.23	4.2	7.839	4.0516	12.605
Sikkim	Cultivators	No	-1.87	6.6	25.1494	7.9126	16.2096
Tamil Nadu	Cultivators	Yes	-19.71	6.3	14.9329	19.1674	28.4606
Telangana	Cultivators	No	5.62	7.5	15.5221	9.0197	16.5225
Tripura	Cultivators	No	3.32	8.2	8.9234	2.3819	11.5715
Uttar Pradesh	Cultivators	No	8.09	4.7	4.4618	2.605	9.6011
Uttarakhand	Cultivators	No	0.07	6.3	15.8919	2.115	14.2232
West Bengal	Cultivators	Yes	-2.64	4.3	7.1719	9.2861	17.3862

Notes: 1. $ Based on data extracted from NABARD's All India Financial Inclusion Survey (NABARD, 2016). Also data was available only for states, not union territories.
2. PLFS refers to Periodic Labour Force Survey.

Source: Author's estimates.

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