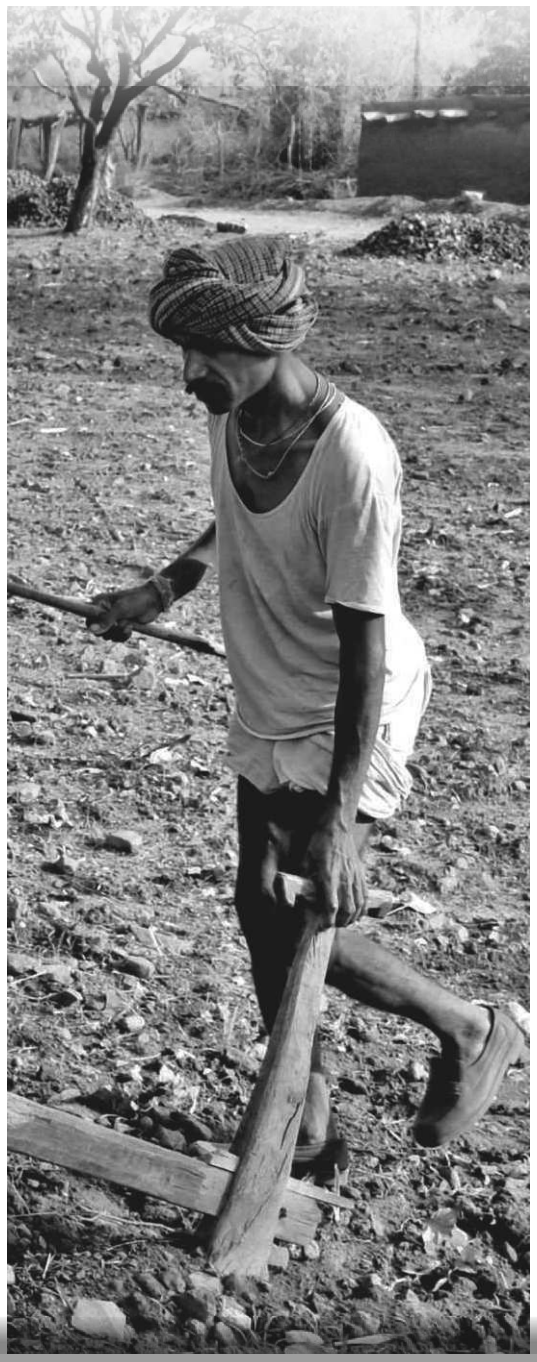
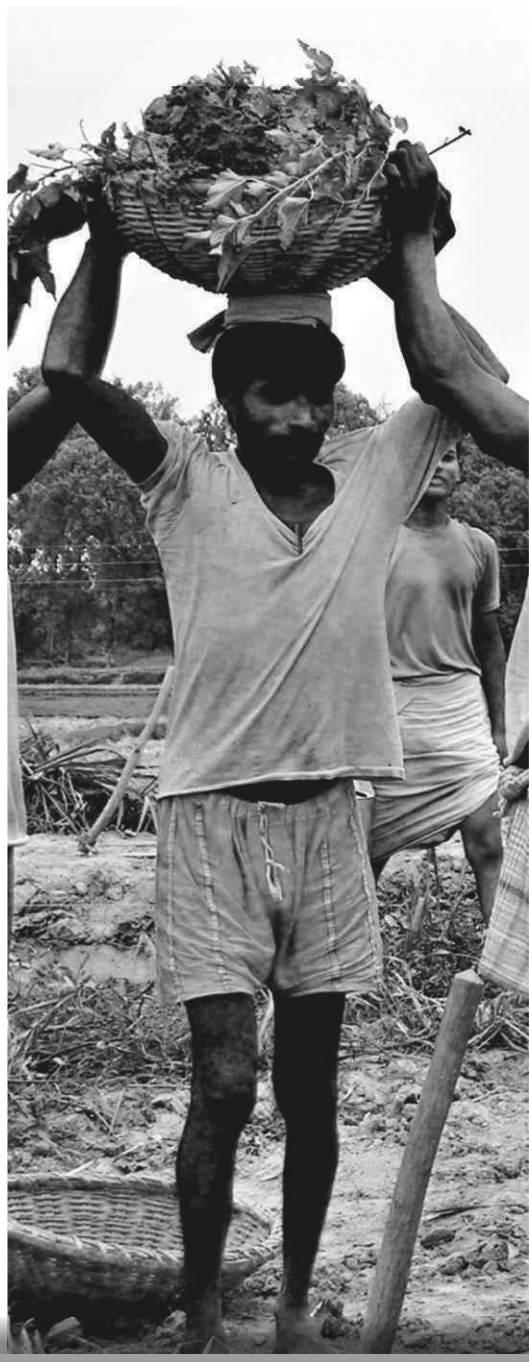
Nature of Income Diversification in Village India With a Special Focus on Dalit Households

PROJECT REPORT SUBMITTED TO
INDIAN COUNCIL FOR SOCIAL SCIENCE RESEARCH

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CHAPTER 1

INTRODUCTION

1.1 Introduction to the Project

This study attempts to describe and analyse the patterns of rural income generation and livelihoods in India and its variations across caste groups. The specific focus of the study is to understand the nature and process of income diversification and the role of the non-farm sector in the rural economy. The study also attempts to understand the implications of these on rural poverty and inequality, from a series of village studies.

The motivation for this study is the increase in rural non-farm employment and associated changes of rural livelihoods and incomes in contemporary India. In the absence of household-level data on incomes in India, much of the literature on rural livelihood diversification is based on changes in employment trends. The explanations for the rise in rural non-farm employment and its implications on the rural economy are sought within the macro-economic framework.

It is assumed that rural nonfarm incomes have grown given the fact that rural non-agricultural employment grew faster than agricultural employment (Abraham 2009). Structural change in the rural sector is not captured by estimates of national income, since such estimates are not disaggregated by rural and urban regions in India. There has been some attempt to estimate rural net domestic product (NDP) by economists in recent years (Papola and Sahu 2012). The expansion of rural non-farm incomes and the levels and sources of non-farm income at the household level have not been examined in detail in India. Specifically, the impact of non-farm income growth on households from different caste groups is understudied, as is the impact of the expansion of the rural non-farm sector on income distribution. The present project tries to address some of these lacunae in social science research in India.

1.2 Review of literature

In India, social discrimination is, of course, an important cause of inequality. There is empirical evidence that Dalit and Adivasi households earn lower incomes than do non-Dalit/non-Adivasi households, and there is high incidence of poverty among the Dalit population (Thorat 2002, Sundaram and Tendulkar 2003, Borooah 2005, Das 2010).

However, in India, there are not many studies on income inequality or on how social discrimination contributes to household income inequality. Swaminathan and Rawal (2012) used data from eight villages in different agro-climatic regions in India to show that the contribution of between-group inequality to household income inequality was substantial.[1] Their analysis revealed that Dalit households were underrepresented in the top income quintiles, and overrepresented in low-income quintiles. They also observed that income inequality between caste and religious groups was higher in agriculturally prosperous villages. The current study will use data from the same database to understand the interplay between social discrimination, access to non-farm employment, and their impact on levels of income and income inequality.

According to Thorat (2002), the higher poverty levels among Dalits are associated with the concentration of Dalit workers in manual wage labour employment and the high rate of unemployment and underemployment among Dalits. Dalits face caste-based discrimination in the labour market, a fact that is reflected in higher unemployment rates (*ibid.*). Inadequate access to land and capital has limited Dalit households' access to gainful self-employment activities, agricultural and non-agricultural, in rural and urban areas (Thorat 2002).[2] In a study of three villages in Gujarat, Maharashtra and Orissa, Thorat, Mahamallik, and Sadana (2010) found that the average number of days of employment and average wages were lower for Dalit workers than for Other Caste workers. The access of Dalit workers to certain forms of non-farm activities was also restricted. NSS data showed that a relatively larger proportion of rural Dalit workers than non-Dalit/non-Adivasi workers were engaged in non-farm casual wage employment and self-employment, and relatively fewer in regular salaried employment (Thorat and Sabharwal 2005). The educational levels of Dalit rural non-farm workers were lower than the educational levels of non-Dalit/non-Adivasi workers (*ibid.*).

The literature on livelihoods and income diversification in India is limited because of a dearth of data on household incomes. Much of the discussion revolves around changes in occupational structures and employment diversification. The literature on income and employment diversification emerged in India in the 1980s, when an increasing trend in rural non-farm employment was first observed. The NSS

1 The study used decomposition techniques to decompose income inequality measures such as GE(2) in within group and between group components. The between group component measured the proportion of total inequality that was explained by differences in aggregate levels of incomes between social groups.

2 Thorat, Kundu and Sadana (2010) observed that ownership of private enterprises (rural and urban) was significantly lower among Dalits and Adivasis than among OBCs and Other Castes.

employment and unemployment survey data showed an increase in the share of rural non-farm employment in the 1980s for the country as a whole, as well as at the regional and State levels. The finding led to a substantial body of research on employment and occupational diversification in India. The literature on diversification in India is, thus, vast. An extensive review of the literature can be found in Unni (1998). The literature explains employment diversification in two ways. One view, following Mellor (1976), attributed diversification to a process of rural transformation stimulated by the green revolution (Unni 1991). The other view attributed the high share of non-farm employment to agrarian distress (Vaidyanathan 1986, Bhaumik 2002, for more recent discussions see Abraham 2009, Himanshu 2011). However, this literature on structural change and occupational structure in India does not probe the impact of complex caste relations on the structure of employment and employment diversification.

The impact of the growth of the rural non-farm sector on rural poverty is an issue of concern in contemporary literature. There are theoretical arguments and there is empirical evidence that lend support to associations in both directions. Barrett, Reardon and Webb (2001) review empirical studies from Africa and conclude that there is a positive relationship between non-farm income and welfare indicators.[3] They add that, evidence from panel data suggests that greater non-farm income diversification causes more rapid growth in earnings and consumption (*ibid*). On the other hand, there are studies that do not support such a positive association. According to Lanjouw (2007), there are variations in returns from different non-farm activities, and household endowments of financial and human capital determine the non-agricultural opportunities available to low-income groups.[4]

In India too, empirical studies find diverse and complex associations between non-farm incomes and rural poverty. There is neither any agreement among authors on the direction of the association between poverty and diversification, nor on the question of whether diversification enables households to come out of poverty. Ravallion and Dutt's (1999) analysis of consumer expenditure data from 20 rounds of NSS surveys between 1960-61 and 1993-94 found wide differences between Indian States in terms of the effects of non-farm output growth in the reduction of poverty. Ravallion and Dutt (1999) attributed the differences in the elasticity of poverty with respect to non-farm output of the Indian States to systematic differences in the initial conditions of rural development and human resources. Non-farm output elasticity of poverty was

3 de Janvry and Sadoulet (2001) reach similar conclusion on Mexico.
4 See also Jayaraman, Kijima and Lanjouw (2003), Lanjouw (2001).

higher in States with high female literacy, high farm yields, high rate of urbanisation and lower rural-urban disparities in levels of consumption (*ibid.*).

According to a recent study sponsored by the UK Department for International Development (DFID) in twelve villages in six agro-economic regions in Andhra Pradesh and Madhya Pradesh, occupational diversification, measured by the Herfindahl-Hirschman index, showed low diversification among the poorest and richest income quintiles (Farrington, Deshingkar, Johnson, Start 2006). The study emphasised the importance of non-farm options in bringing households out of poverty and creating an accumulative trajectory. On the other hand, in a resurvey of two ICRISAT villages in Andhra Pradesh Deb, Rao, Rao and Slater (2002) found that agriculture remained the main source of income in 1975 and 2001. Diversification was merely a coping mechanism for all sections of the population and "there was only limited evidence of diversification enabling households in Aurepalle and Dokur to accumulate wealth and assets in significant measures" (*ibid*, p. 33). Dev and Mahajan (2005) noted that, in the context of rural Andhra Pradesh, although 90 per cent of the poor were concentrated in agricultural activities in 1993-94 and the highest incidence of poverty was among agricultural workers, rural workers in the manufacturing and construction sectors were poorer than cultivators.

Household level studies have attributed the complexity of the inter-relationship between poverty and income diversification to the heterogeneous nature of the non-farm sector and the entry barriers to high-income non-farm employment. Education (or the lack of it) has a particularly salient role in this regard. Lanjouw and Shariff (2004) analysed NCAER 1993 survey data and concluded that the impact of non-farm incomes on poverty is difficult to assess because of the "heterogeneous nature of non-farm activities as both residual sources of income and sources of genuine upward mobility". The study found that low levels of education, wealth and social status restrict access of the poor to relatively more attractive non-farm occupations, thus weakening the direct benefits of non-farm employment in poverty alleviation. Micevska and Rahut (2008) in their study of the Himalayan regions of Sikkim and Darjeeling found that higher education levels of both male and female workers enabled participation in high-return non-farm employment while participation in low return non-farm employment was negatively associated with the level of education for both males and females. The authors thus conclude that though empirical studies have found non-farm sector growth in India to be "pro-poor", the challenge facing India is to "increase the access of the poor to non-farm activities that yield high and stable incomes, and thus present a potential basis for upward income mobility" (*ibid.*). Jayaraj (2004) in a study in North Arcot district in Tamil Nadu

found that access to non-farm employment was affected by land ownership, caste, gender and education. Households from land-owning classes and upper castes thus had better access to rural non-farm employment. Bhaumik (2007a, 2007b) also showed, in the context of two districts in West Bengal, that though households with small land holdings were more diversified than those with larger land holdings, the socio-economically better off (in terms of caste and education) had better chances of being absorbed in more productive non-farm activities.

The impact of non-farm growth on income inequality is as inconclusive as the literature on non-farm income and poverty. Haggblade and Hazell (1989a, 1989b, 1993) argue that income diversification plays an equity-enhancing role. On the other hand, Estudillo, Quisumbing and Otsuka (2001) analysed panel data from five rice-growing villages in Philippines for the years 1985 and 1998 and found that an increase in the non-farm income was accompanied by a remarkable increase in income inequality. Ellis (2000) also pointed out that the effect of income diversification on income inequality could work in both directions. To the extent that better off families are able to diversify in more favourable labour markets compared to the poor, diversification will have an unequalising effect on rural incomes and wealth (*ibid.*).

In India there are few studies on the relation between non-farm incomes and income inequality. Lanjouw and Stern (1998) analysed the components of income inequality in Palanpur for the period between 1957-58 and 1983-84 and found that although agricultural incomes was the major contributor to income inequality throughout the period, its share in total inequality declined from 32 per cent in 1974-75 to 29 per cent in 1983-84. In the same period, the share of outside incomes increased.[5] Azam and Shariff (2009) analysed NCAER rural income data for 1993 and 2005 and found that farm income was the major source of income inequality in rural India in both the years, but that its contribution to income inequality declined between 1993 and 2005. On the other hand, the contribution of salaries and wage incomes to total inequality increased between 1993 and 2005.

The relationship between non-farm income and income inequality is mediated by certain features of the economy such as the access and distribution of land and the nature of the non-farm sector. According to Haggblade and Hazell (1989a, 1989b, 1993), rural non-farm incomes bring down income inequality because farm size and the share of non-farm incomes are negatively correlated. Adams (2002) argued that the direction of association between non-farm incomes and income inequality may be partly explained by the

5 Outside income referred to non-agricultural income from jobs outside the village.

distribution of land. According to Adams (2002), in land-scarce labour-rich countries inadequate access to land may push poorer households to the non-farm sector. Thus, in such countries, non-farm incomes may reduce poverty and inequality. In land-rich labour-scarce countries only richer households are pulled into the non-farm sector. In such countries, non-farm incomes may increase inequality. He supports this hypothesis with empirical evidence from nationally representative household survey data in rural Egypt and Pakistan (Adams 2002, 1994).[6]

Foster and Rosenweig (2004) explain the association between non-farm incomes and income inequality by the type of commodities produced by the non-farm sector. According to their model the rural non-farm sector produces two kinds of commodities: commodities that can be traded in larger markets and "non-tradable" goods and services that are only traded within the village. Their analysis revealed that the latter sector is driven by local demand and is positively influenced by growth in agricultural productivity. Factories producing tradable goods are established in areas where wages are low, that is in areas of low agricultural productivity. Thus, the growth of the tradable non-farm sector reduces inter-village income inequality. Foster and Rosenweig (2004) also emphasised that since factories employ low skilled labour, the growth of the tradable non-farm sector increases the incomes of the rural poor and reduces intra-village income inequality. They use NCAER income data over the period 1982-1999 to support their argument.

The review of literature reveals that the relationship between social discrimination, its implications on access to non-farm incomes, poverty and income inequality is an area that is not researched in much detail in India. This is precisely the work that this project seeks to undertake.

1.3 Conceptual framework

The study will try to understand household income diversification and patterns of diversification across social groups, income deciles, land and asset holdings, and different local and regional factors. Though the emphasis is on household-level analysis, attempts will be made to relate micro-level understandings with broader changes in the Indian economy.

The empirical basis for the study will be household level data from village studies. It will also use data from local and other official data sources to understand local and regional economic impulses that have an impact

6 See also Saith (1992). The author explores the relationship between land ownership and non-farm income and presents a stylised scheme describing the participation of farming households in different types of non-farm activities, in different stages of agricultural development.

on household income diversification. The study is empirical in nature and it will contribute to the understanding of agrarian transformation in rural India.

1.4 Research questions

The specific research questions for this study are follows:

- What are the main sources of incomes of households in rural India? How important is non-farm income in aggregate household incomes?
- How the different sources of incomes are distributed between households across social groups, income, land and asset holding classes?
- What determines the household's access to non-farm incomes? Do Dalit households face specific disadvantages in accessing certain types of non-farm incomes?
- Does access to non-farm income lead to higher household incomes? Is the effect similar for Dalit and non-Dalit households?
- How do different income sources contribute to household income inequality?

1.5 Methodology and Datasource

As mentioned earlier, there is no large-scale official data source on household incomes in India. Hence, the major empirical analysis for this study is based on detailed household income data from village studies conducted in different parts of India. Along with standard statistical methods of data analysis, the study also uses case studies to understand the dynamics of agrarian change and livelihood choices made by households.

The study used detailed data collected from villages in different parts of India by the Foundation for Agrarian Studies as part of the Project on Agrarian Relations in India (PARI), between 2006 and 2010.

The Project on Agrarian Relations in India was initiated by the Foundation for Agrarian Studies in December 2005. The objectives of the project were,

- to analyse village-level production, production systems and livelihoods and the socio-economic characteristics of different strata of the rural population;
- to conduct specific studies of sectional deprivation in rural India, particularly with regard to the Dalit and Scheduled Tribe populations, women, specific minorities and the income-poor; and

- to report on the state of basic village amenities and the access of the rural people to the facilities of modern life.

Every year from 2006 to 2012 the Foundation selected one or two States and two to three villages from different agro-ecological regions in the identified States to conduct detailed census-type surveys. The surveys collected detailed data on demography, land ownership and tenancies, household income, employment, debt, access to PDS, housing, sanitation and household assets.

The villages included in this particular study are: two villages in Uttar Pradesh (surveyed in 2006), two villages in Maharashtra (surveyed in 2007), one village in Madhya Pradesh (2008) and two villages in Rajasthan (surveyed in 2007 and 2010).

1.6 Organisation of the Report

The report is organized in eight chapters. The *first chapter* introduces the project. *Chapter 2* describes the study villages and the methodology of household income calculation used in the study. *Chapter 3* is a descriptive chapter describing the aggregate levels of incomes and the sources of incomes and occupations in the seven villages. *Chapter 4* describes the variations in occupations, aggregate incomes, and composition of incomes across major caste groups in the villages. Income and occupations of Dalit households are discussed. *Chapter 5* analyses some of the factors that influence the differences in occupational choices and composition of household incomes between the different caste groups in the villages. In particular, the chapter looks at land ownership, ownership of assets and education and the impact of these variables on income composition of households. *Chapter 6* constructs indices to measure household income diversification and analyses the patterns of diversification across caste groups, income deciles and land ownership classes. *Chapter 7* is on the role of non-agricultural incomes on poverty and inter-household income inequality. *Chapter 8* summarises the major findings of the project.

Implications

The study will enrich the discourse on rural occupational structures and income diversification in India with deeper understanding of sources of household incomes and the social and economic factors that impact households' participation in different economic activities. It can also help us understand the implications of social discrimination on household income diversification and its consequent impact on poverty and income distribution.

CHAPTER 2

METHODOLOGY AND DESCRIPTION OF THE STUDY VILLAGES

2.1 Village Surveys

Data used in this report are from seven villages in four states of India where surveys were conducted by the Foundation for Agrarian Studies (FAS) as part of the Project on Agrarian Relations in India (PARI). These villages were surveyed between 2006 and 2010 (Table 1).[7]

In June 2006 census-type surveys were conducted in two villages of Uttar Pradesh, Harevli in Bijnor district and Mahatwar in Ballia district. In 2007, surveys were conducted in two villages of Maharashtra: a census survey was done in Warwat Khanderao village, Buldhana district, and a sample survey in Nimshirgaon village, Kolhapur district. In Rajasthan, a census survey of 25 F Gulabewala village in Sri Ganganagar district was completed in 2007 and in Rewasi village of Sikar district in 2010. In 2008, Gharsondi village in Gwalior district of Madhya Pradesh was surveyed. Table 1 describes the location and agro-ecological specificities of the study villages.

7 See <http://www.fas.org.in/pages.asp?menuid=16> for a description of the Project on Agrarian Relations in India and further details of the sureys and villages.

Table 2.1 Location and agro-ecology of survey villages, 2005 to 2007

Village	Block	District	State	Agro-ecological type
Harevli	Najibabad	Bijnor	Uttar Pradesh	100% canal-irrigated with supplementary groundwater, wheat–sugarcane
Mahatwar	Rasra	Ballia	Uttar Pradesh	Groundwater-irrigated, wheat–paddy rotation
Warwat Khanderao	Sangrampur	Buldhana	Maharashtra	Rainfed cotton region
Nimshirgaon	Shirol	Kolhapur	Maharashtra	Irrigated sugarcane and multi-crop system
25 F Gulabewala	Karanpur	Sri Ganganagar	Rajasthan	Canal and groundwater irrigation, with cotton, wheat, and mustard cultivation
Rewasi	Sikar	Sikar	Rajasthan	Tubewell and sprinkler irrigation. Pearl millet in kharif, wheat, mustard, fenugreek, onion in rabi. High remittance incomes
Gharsondi	Bhitarwar	Gwalior	Madhya Pradesh	Canal and groundwater irrigation, soybean, wheat, pulses, oilseeds and fodder cultivation

2.2 Estimation of Incomes

An important feature of the survey data is detailed information on household incomes. As is known, there are no official sources of serial data on household incomes in rural India.

It is important to understand that the majority of rural households in India are self-employed in crop production or other non-agricultural occupations and are unable to report their total household income as such. Thus, income has to be treated as a derived variable, in other words, derived on the basis of a detailed accounting of output and costs of all economic activities.[8] The derivation is complex given that markets are thin or even absent for many outputs and inputs. A second factor is the relevant time period. Given that income is a flow variable, it has to be estimated for a uniformly specified period. In contrast, stock variables – like assets or debt – are valued at a specified instant (for example, at the time of the survey). For the most important rural economic activities, there tends to be an annual production cycle. It would, therefore, be reasonable to estimate income for a period of one year. Since agriculture is the most important economic activity in rural areas, crop production can be treated on an annual cycle and used to estimate annual income

8 For elaboration of this approach, see Bakshi 2010.

(for the crop year, that is, July to June in India). However, there are some crops with a longer production cycle (perennial tree crops, ratoon crops, etc) for which an annual income will need to be derived. Thirdly, a household has to be considered as the basic unit for estimation of incomes.

In the official statistics in India (for example, the Census of India and the NSSO surveys), a household is defined as persons normally residing together (under the same roof) and normally taking food from the same kitchen. The FAS-PARI surveys used the same definition of household for the sake of comparability with official statistics. However, this poses challenges such as accurate estimation of remittances of household members that are not regularly resident, or apportioning of incomes in the presence of joint cultivation (say, by brothers residing in two separate households).

The estimates of income in PARI include all cash and kind incomes; they account for all cash and kind receipts other than from borrowing and from sale of assets (including cash transfers).[9] All incomes are net of costs incurred by the households in the process of production and income generation.

Incomes of households in the FAS-PARI villages are estimated separately for following sources.[10] The surveys used detailed modules on incomes from each of the sources.

1. Crop production
2. Animal resources (including rental income from animals)
3. Wage labour

(a) Agricultural labour (casual)
(b) Agricultural labour (long-term)
(c) Non-agricultural labour (casual)
(d) Non-agricultural labour (monthly/long-term)

4. Salaried jobs

(a) Government salaried jobs
(b) Other salaried jobs

5. Business and trade
6. Money-lending
7. Income from savings in financial institutions and equity
8. Pensions and scholarships

9 Transfers in kind such as food subsidies are not included.
10 The following section is drawn from the manual of income calculation, Foundation for Agrarian Studies (forthcoming).

9. Remittances and gifts
10. Rental income
(a) Rental income from agricultural land
(b) Rental income from machinery
(c) Rental income from other assets
11. Artisanal work and work at traditional caste calling
12. Any other sources

Data on variables that go into calculation of income are based on recall by the respondent. However, to minimise errors and facilitate better recall by the respondents, specific and appropriately disaggregated information is collected in the FAS-PARI survey.

Gross incomes net of paid-out costs from crop production were calculated for each individual crop or crop-mix. The definition here of "costs of cultivation" closely resembles the definition of the "Cost A2" category used under the Comprehensive Scheme for Studying Cost of Cultivation/Production of Principal Crops (CCPC) of the Commission of Agricultural Costs and Prices, India. It includes, broadly speaking, the cost of all material inputs (purchased and home-produced), the cost of hired labour, rental payments, the imputed value of interest on working capital, and depreciation of owned fixed capital other than land. No cost is imputed for family labour and no rent is imputed for owned land. Conceptual and methodological problems in imputing the costs of family labour and owned land have been discussed at length in the writings on CCPC data (see Sen and Bhatia 2004, for a summary). We shall note, however, the consequences of exclusion of these items of costs from our calculations. As a result of exclusion of the cost of family labour, other factors being constant, a household using a greater share than others of family labour incurs a lower cost of cultivation than other households. Similarly, the cost of cultivation is higher for a tenant than for a landowner because rental payments of a tenant are included in the costs while no cost is imputed for owned land.

For wage labour in agriculture, each worker was asked questions on the number of days of employment and on earnings (in cash, kind, or both) for each season, crop, and crop operation. Agricultural workers are not asked how many days of agriculture labour did they do over the last year. They are, instead, asked how many days they worked in each single crop operation. The investigators go through the entire list of crops

cultivated in the village and ask, for each crop, details on work done on every single crop operation. It has been our experience that such a disaggregation aids recall by the respondents and usually gets better answers.

On account of the detailed questionnaire, careful investigation and processing, we argue that the FAS data on household incomes are reliable. Nevertheless, we know that incomes fluctuate substantially across households and over time. It is important to remember that the reported data on incomes pertain to a particular year and therefore give a cross-sectional picture of income generation.

2.3 Description of Study Villages

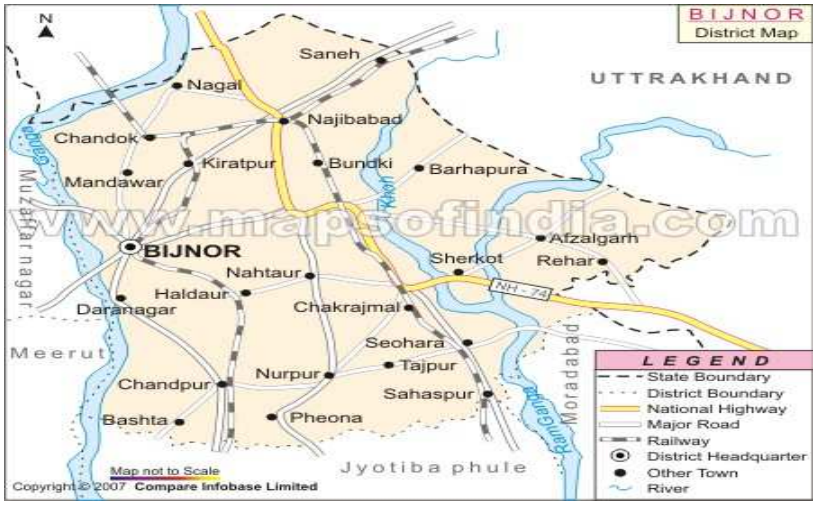
2.3.1 *Harevli, Uttar Pradesh*

Harevli village is located in Najibabad block of Bijnor district in western Uttar Pradesh. The block headquarters is at Najibabad, 16 kilometres from the village. The town nearest to Harevli is Mandavli, four kilometres away. Maujampur is the nearest railway station, also four kilometres away. The village did not have an all-weather pucca road at the time of the survey in 2006. The nearest primary health centre was at a distance of four kilometres from the village. There was neither a bank nor a post office in Harevli. The village had a primary and middle school. Paddy was cultivated in kharif season while wheat and rapeseed were grown as winter (rabi) crops. Sugarcane is grown as an annual crop. The village is irrigated by canal and tubewells with electric connections.

Table 2.2 *Location and infrastructure, Harevli, Bijnor district, Uttar Pradesh*

Village	Harevli
District	Bijnor
Block/Tehsil	Najibabad
Nearest town	Mandavli
Distance from nearest town	4 Km.
Nearest railway station	Maujampur
Distance from nearest railway station	4 Km.
Bus stop within the village	No
Metalled approach road	No

Map 2.1 *Location of Harevli, Bijnor district, Uttar Pradesh*



There were 110 households in Harevli village at the time of the survey. There were 40 Dalit (Scheduled Caste) households and they were the single largest social group in the village. Upper-caste Tyagi households were the second largest social group in the village (31 households). They were also the major land owning group in the village. Twenty-five Dheemar households (Other Backward Classes) and 13 Idrisi (Muslim) households also lived in the village. There was one Brahman and one carpenter household in Harevli.

2.3.2 *Mahatwar, Uttar Pradesh*

Mahatwar village is located in Rasra tehsil of Ballia district in eastern Uttar Pradesh. Mahatwar is located on the side of the highway linking Rasra and Mau and well connected with nearby towns as well as larger cities such as Varanasi. Mahatwar village has a separate settlement for Dalit households. At the time of the survey upper-caste and OBC settlements had an all-weather pucca road from the main road. The town nearest to Mahatwar, located at a distance of 2 kilometres, is Pakwainar. It is also the nearest railway station. The village has a primary school and an anganwadi centre. The nearest health sub centre was 6 kilometres away. There is neither a bank branch nor a post office within the village. The major crops grown in Mahatwar were paddy during the kharif season and wheat (sometimes inter-cropped with mustard) during the rabi season. The village had relatively poor irrigation.

Mahatwar is a multi-caste village with 10 different castes. Out of total 159 households, there were 95 Dalit households, accounting for 60 per cent of all households. There were 52 OBC households which comprised Yadav, Koiri, Nai, Baniya and Teli castes (with Yadavs in majority). Twelve upper-caste households comprising Rajputs, Brahmins and Mauryas also resided in the village.

Table 2.3 *Location and infrastructure, Mahatwar, Ballia district, Uttar Pradesh*

Village	Mahatwar
District	Ballia
Block/Tehsil	Rasra
Nearest town	Pakwainar
Distance from nearest town	2 Km.
Nearest railway station	Rajimalpur/Pakwainar
Distance from nearest railway station	2 Km.
Bus stop within the village	Yes
Metalled approach road	Yes (Only 1 Km.)

Map 2.2 *Location of Mahatwar, Ballia district, Uttar Pradesh*

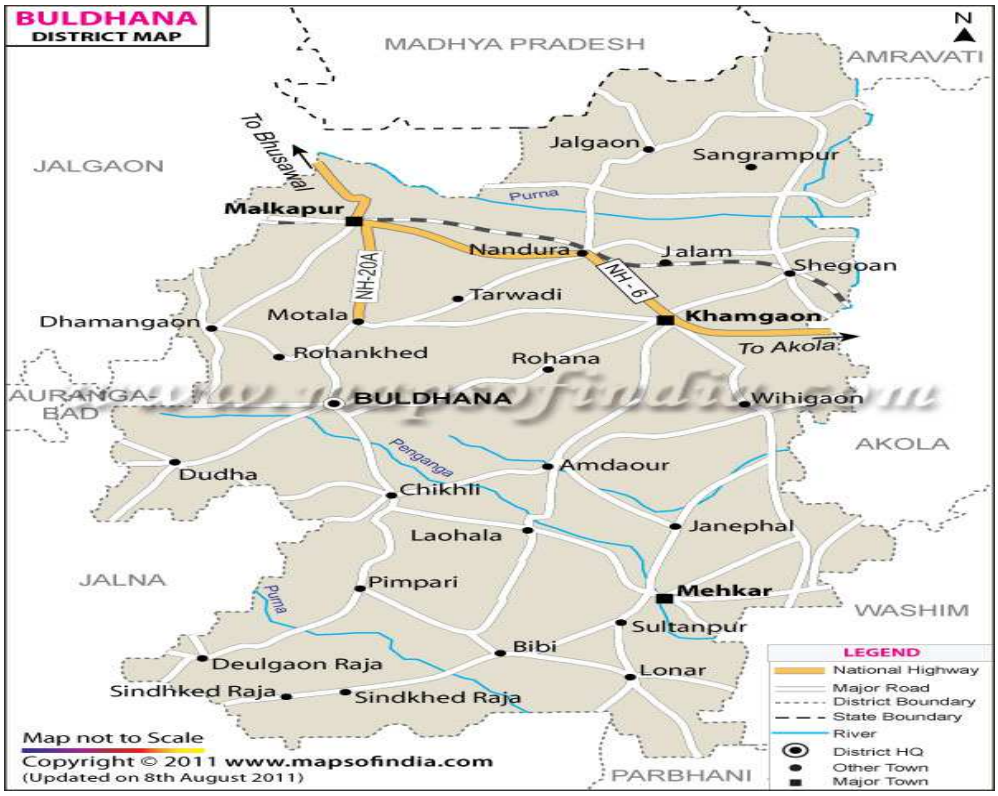
2.3.3 *Warwat Khanderao, Maharashtra*

Warwat Khanderao is in Sangrampur tehsil of Buldhana district in the Vidarbha region of Maharashtra. The nearest town, Shegaon, is 20 kilometres away which is also the railway station nearest to the village. At the time of the survey in 2007, the village did not have a metalled approach road, but there was a bus stop within the village. The village had a primary school. The nearest primary health centre was at a distance of four kilometres from the village. A post office was located in the village, and there was a branch of a Cooperative Bank on the outskirts of the village. Cotton, frequently intercropped with, green gram and red gram were the main kharif crops. Wheat, groundnut and sunflower were grown in the rabi season.

Table 2.4 *Location and infrastructure, Warwat Khanderao, Buldhana district, Maharashtra*

Village	Warwat Khanderao
District	Buldhana
Block/Tehsil	Sangrampur
Nearest town	Shegaon
Distance from nearest town	18 Km.
Nearest railway station	Shegaon
Distance from nearest railway station	18 Km.
Bus stop within the village	Yes
Metalled approach road	No

Map 2.3 *Location of Warwat Khanderao, Buldhana district, Maharashtra*



Of 250 households in Warwat Khanderao at the time of survey, there were 107 Kunbi (OBC) caste households. Muslims were the second largest group in the village with 53 households. Beldar and Dhangar, both Nomadic Tribe (NT), formed one fifth of the all village households. There were 25 Dalit households comprising Mahar (Buddhist) and Matang castes in the village.

2.3.4 *Nimshirgaon, Maharashtra*

Nimshirgaon village is located in Shirol taluk of Kolhapur district in the sugarcane-growing region of western Maharashtra. There were 768 households in the village at the time of house-listing survey, and 137 households were selected, based on a stratified random sampling method. Nimshirgaon is connected by an all-weather road to the highway. The railway station bearing the same name as the village is 1 km away and the nearest town is 10 kilometres away. The village has good social infrastructure including a post office, ration shop, public telephones, two pharmacies, an office of the Kolhapur District Central Cooperative bank, and two cooperative societies. The nearest Primary Health Centre is at a distance of 4 km at Danoli. There is a registered medical practitioner in the village. The village has two primary schools, a middle school and one secondary school. There is a bus stop within the village. Agriculture in Kolhapur is relatively modern and dynamic. Sugarcane is the major crop. Soybean, pulses and millets are also cultivated, as are a variety of vegetables and fruits (including grape and mango).

Table 2.5 *Location and infrastructure, Nimshirgaon, Kolhapur district, Maharashtra*

Village	Nimshirgaon
District	Kolhapur
Block/Tehsil	Shirol
Nearest town	Jaisinghpur
Distance from nearest town	10 Km.
Nearest railway station	Nimshirgaon
Distance from nearest railway station	1 Km.
Bus stop within the village	Yes
Metalled approach road	Yes

Map 2.4 *Location of Nimshirgaon, Kolhapur district, Maharashtra*

Amongst the survey households, almost one half of the total households belonged to Jain, Maratha and Lingayat communities with Jains being the majority. There were 48 Dalit households in the village comprising Mahar, Matang and Chamar castes. There were 10 OBC households belonging to Koli, Kurvi, Lohar, Sunar and Sutar castes. Among the surveyed households there were seven Muslim households.

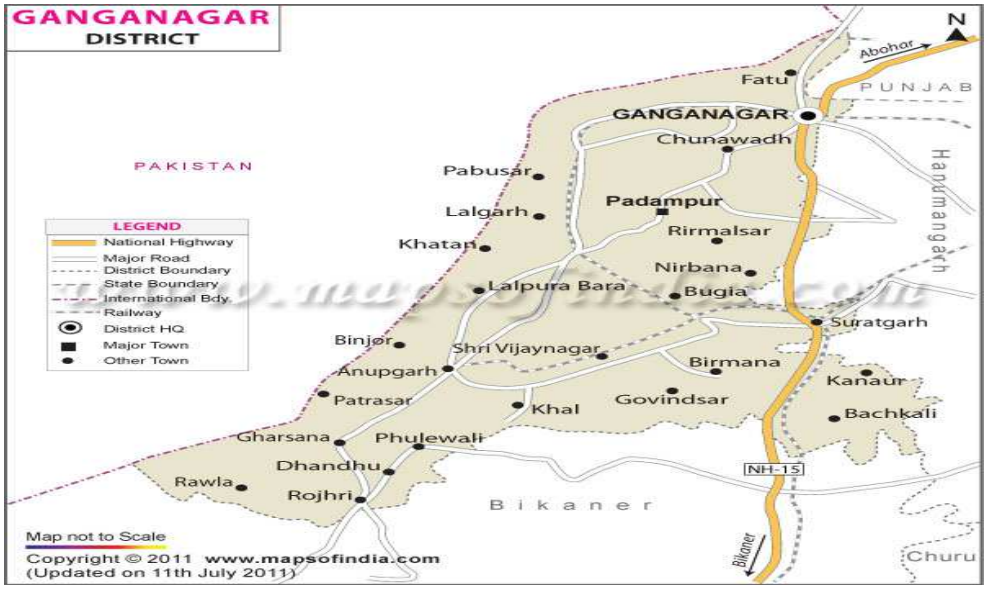
2.3.5 *25 F Gulabewala, Rajasthan*

25 F Gulabewala village is located in Karanpur tehsil, Sri Ganganagar district, Rajasthan. The village is about 25 kilometres from Sri Ganganagar town and is connected by an all-weather road. The nearest town and railhead is at Kesarisinghpur, 9 kilometres away. The village had relatively better social infrastructure including two primary schools and one secondary school, an anganwadi centre, a PHC, and also a branch of the State Bank of Bikaner and Jaipur (SBBJ) bank. The village is irrigated by Gang Canal project. Wheat, cotton, rapeseed, cluster beans were the main crops in the village.

Table 2.6 *Location and infrastructure, 25 F Gulabewala, Sri Ganganagar district, Rajasthan*

Village	25 F Gulabewala
District	Sri Ganganagar
Block/Tehsil	Karanpur
Nearest town	Kesarisinghpur
Distance from nearest town	9 Km.
Nearest railway station	Kesarisinghpur
Distance from nearest railway station	9 Km.
Bus stop within the village	No
Metalled approach road	Yes

Map 2.5 *Location and infrastructure, 25 F Gulabewala, Sri Ganganagar district, Rajasthan*



At the time of the survey there were 204 households in 25 F Gulabewala. Gulabewala is a Dalit majority village, comprising both Hindu and Sikh Dalit groups in almost equal numbers. Of total households there were 123 Dalit households. There were 78 OBC households, among whom Jat Sikh households were the majority.

2.3.6 *Rewasi, Rajasthan*

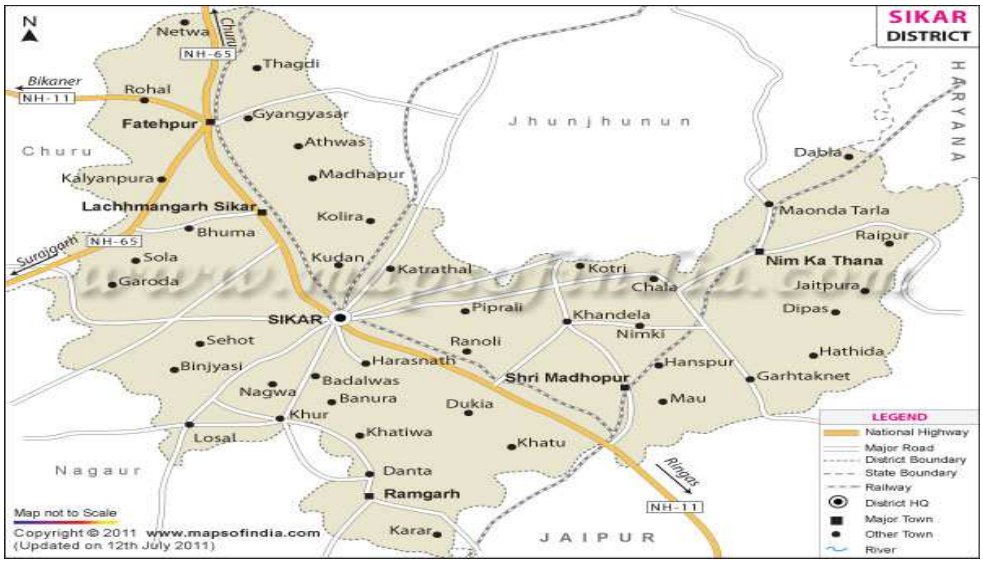
Rewasi village belongs to Sikar block in Sikar district. The village is 31 km from Sikar town, about 6 km from Sewad Badi village on the Sikar-Salasar road. Buses from Sikar to Didwana pass through Rewasi. There

is a bus almost every hour between 7 am and 7 pm. The nearest railway station is at Sikar. A pucca road connects the main habitation of the village with the Sikar-Salasar road. The nearest market is in Sewad Badi. The health sub-centre in the village provides only first-aid facilities; people need to travel to the Primary Health Centre in Phagalwa (9 km) or to the Block/District hospital in Sikar (31 km) for other medical services. There is one primary school, one upper primary school and a high school (privately owned) in the village.

Table 2.7 *Location and infrastructure, Rewasi, Sikar district, Rajasthan*

Village	Rewasi
District	Sikar
Block/Tehsil	Sikar
Nearest town	Sewad Badi
Distance from nearest town	3 Km.
Nearest railway station	Sikar
Distance from nearest railway station	31 Km.
Bus stop within the village	Yes
Metalled approach road	Yes

Map 2.6 *Location of Rewasi, Sikar district, Rajasthan*



Pearl millet is the most important crop of the kharif season. In the rabi season, land irrigated by tubewells is sown with wheat, mustard, onions and fenugreek. In a village characterised by sandy soils and low rainfall,

access to irrigation is critical, though limited. Tubewells are used mainly in the rabi season. Rainfall was poor during the survey year.

Rewasi is a multi-caste village. At the time of our survey, there were 219 households resident in the village. There were 87 Rajput households, 65 Jat households, 22 Meena (Scheduled Tribe) households, 21 Dalit households and 19 OBC households in the village. There were also four Brahmin households in Rewasi. Jats were economically and politically the dominant caste.

2.3.7 *Gharsondi, Madhya Pradesh*

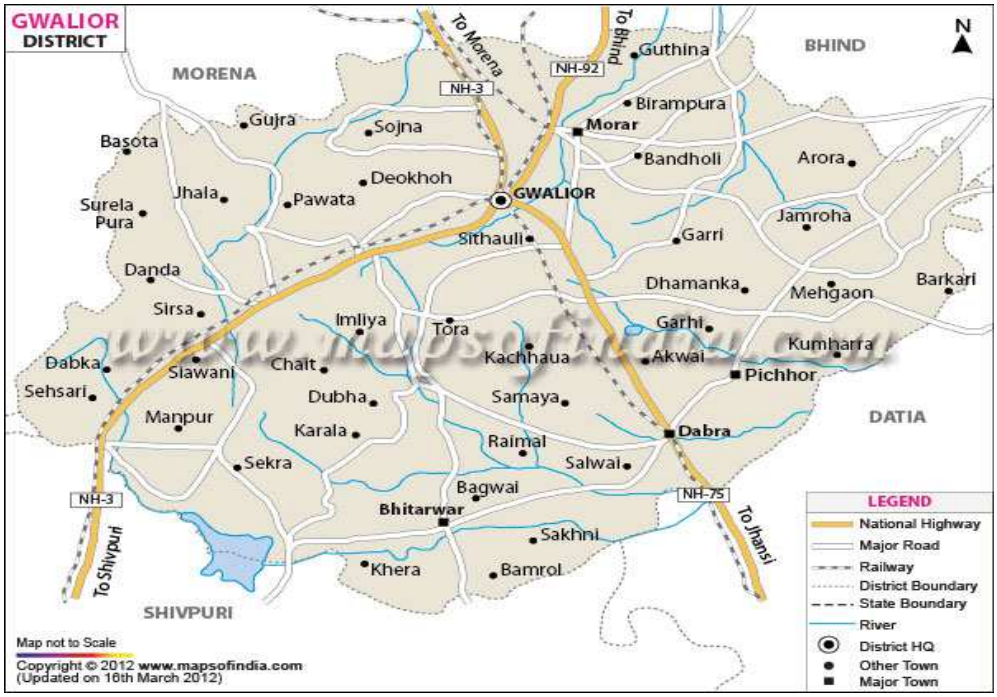
Gharsondi is situated in Bhitarwar tehsil of Gwalior district, Madhya Pradesh. The village is about 25 kilometres from Dabra town. Dabra is also the nearest railway station for Gharsondi. There is a bus stop within the village, but no metalled approach road. The nearest primary health centre is 5 kilometres away. The village had four primary schools, one middle school and two high schools, though not all of them were functioning at the time of the survey. The village had a post-office as well. The major kharif crops were soya bean, sesame and black gram. The main rabi crops in the village were wheat, rapeseed, chickpea and lucerne grass. The village is irrigated by canal and tubewells.

Gharsondi is a multi-caste village. There were 263 households distributed across seventeen different castes and tribes. OBC households were in overwhelming majority, 58 per cent, comprising Kushwaha, Shivhare, Nai, Chauhan, Jat Thakur and Gaur. Among Other castes, there were 33 Jat Sikh and 4 Brahmin households. The Adivasi households, 33, belonged to the Sahariya tribe. Dalits formed 10 per cent of all households and included Jatav, Dhanuk, Mahtar, and Mirdha castes. There were 13 Khan Muslim households in Gharsondi.

Table 2.8 *Location and infrastructure, Gharsondi, Gwalior district, Madhya Pradesh*

Village	Gharsondi
District	Gwalior
Block/Tehsil	Bhitarwar
Nearest town	Dabra
Distance from nearest town	25 Km.
Nearest railway station	Dabra
Distance from nearest railway station	25 Km.
Bus stop within the village	Yes
Metalled approach road	No

Map 2.7 *Location of Gharsondi, Gwalior district, Madhya Pradesh*



CHAPTER 3

INCOMES AND OCCUPATIONS

3.1 Introduction

This chapter describes the aggregate levels of incomes, and the sources of income and occupations in each of the study villages. It also describes households' participation in different economic activities, and incomes received from these sources. Hence, this descriptive chapter sets the stage for our more detailed analysis and understanding of income inequality and diversification in the study villages.

The seven villages that we describe were surveyed at different points of time and represent different agro-ecological typologies. The purpose of this chapter is not to make comparisons across villages, nor arrive at generalized results on levels of incomes and income composition in rural India. Rather, we describe the specificities of each village here, so that we are able to make better sense of the results of the statistical analyses that we carry out in the proceeding chapters.

3.2 Levels of incomes

Tables 3.1 and 3.2 report mean and median per capita household incomes in the study villages at current and constant prices respectively. The villages were surveyed over a period of five years, from 2006 to 2010. Incomes at current prices cannot be compared across villages, since income levels are affected not only by price rise or inflation but also by the general growth of the economy. The purpose of this chapter is not to compare across villages but to examine the level and composition of incomes in selected villages. Nevertheless, for ease of reading and presentation, we have deflated all incomes to 2009-10 prices in Table 3.2.[11]

The per capita annual mean income in the study villages ranged from Rs.6,296 in Mahatwar to Rs.33,764 in Gulabewala (at 2009-10 prices). The general level of incomes in each of the villages is low, and there is wide variation in the levels of income across villages. The villages are diverse in agro-ecological and socio-

11 We have used Consumer Price Index for Agricultural Labourers (CPIAL) to deflate household incomes, since the largest section of population in the villages are agricultural labourers. The Consumer Price Index for Industrial Workers (CPI IW) remained below CPIAL in our period of analysis (see GOI, 2012), indicating that real incomes of industrial workers in the villages may be underestimated in our analysis.

economic characterisation. Hence it is expected that levels of income and material wellbeing in the villages will also vary.

The two villages with lowest incomes, Mahatwar in Uttar Pradesh and Warwat Khanderao in Maharashtra, have low irrigation intensity and largely rainfed agriculture. However, low incomes are not entirely explained by the presence or absence of irrigation. For example, irrigation intensity in Rewasi in Rajasthan is also low, but incomes are fairly high due to access to other sources of income. Gulabewala, which has the highest levels of income, is entirely irrigated by canal. The productive forces in agriculture in this village are highly developed, with high levels of mechanisation and irrigation.

In every village, the average mean income per household and per person was higher than the corresponding median income, indicating the presence of some households with high incomes (or outliers in the income distribution). The gap between mean income and median income is particularly marked in Gharsondi (Gwalior district) and Gulabewala (Ganganagar district) villages, on account of a few very rich households in each village (see Figures in Annexure).

Table 3.1 *Mean and median per capita annual household incomes, in current prices* (in rupees)

Village	Year of survey	Mean	Median
Harevli (UP)	2006	12,372	5,410
Mahatwar (UP)	2006	4,939	3,416
Warwat (MH)	2007	10,436	7,207
Nimshirgaon (MH)	2007	13,410	8,792
25F Gulabewala (RJ)	2007	28,512	7,759
Gharsondi (MP)	2008	16,460	5,337
Rewasi (RJ)	2010	23,705	15,951

Table 3.2 *Mean and median per capita annual household incomes, in constant 2009-10 prices* (in rupees)

Village	Mean	Median
Harevli (UP)	15,772	6,897
Mahatwar (UP)	6,296	4,355
Warwat (MH)	12,358	8,535
Nimshirgaon (MH)	15,880	10,411
25F Gulabewala (RJ)	33,764	9,188
Gharsondi (MP)	18,110	5,872
Rewasi (RJ)	23,705	15,951

In 2010, the National Floor Minimum Wage (NFLMW) in India was Rs.80 per day (GoI 2013). The minimum wage in India is calculated such that an earning member can support three consumption units. Thus we can say that a floor level of income of Rs 9,733 per capita per annum was the minimum requirement for a single person in India at 2009-10 prices. Only in two villages, Nimshirgaon and Rewasi, the median incomes are higher than this amount. In the remaining villages, more than 50 per cent of the households have incomes below the National Floor Minimum Wage.

It is obvious that income deprivation in the villages is both extensive and deep. For methodological reasons, it is difficult to select and appropriate benchmark income, or a poverty line income to apply to the village data and estimate the incidence of poverty. Neither is it appropriate to use the official Indian poverty line in this analysis, since the official poverty line is based on consumption expenditure. Our data is a single period data on household incomes, and unlike consumption expenditure which is a more stable variable, household incomes may show high year to year variations.

Internationally, the cut-off of two dollars (at purchasing power parity or PPP) per capita per day is used to identify the 'vulnerable' population. Table 3.3 shows the percentage of population living below the income poverty line in the seven villages. In Rewasi, 49.3 per cent of the population are income vulnerable. In the remaining villages more than 60 per cent of the population are vulnerable. The highest incidence of vulnerable population is in Mahatwar, Uttar Pradesh – 95 per cent.

Table 3.3 *Proportion of population below $2 PPP poverty line*

Village	Proportion of population below 2 dollars PPP poverty line	2 dollars PPP in Rupees (in survey year)
Rewasi	49.3	42.4
25F Gulabewala	60.8	33.2
Nimshirgaon	62.7	33.2
Warwat	71.6	33.2
Harevli	76.1	32.0
Gharsondi	78.3	34.6
Mahatwar	94.9	32.0

3.3 Sources of household income

In this section, we will first describe the sources of household incomes and occupations in each village separately and then draw some broad conclusions.

PARI data enable us to analyse different activities in which households and workers are engaged in during the reference year, as well as the incomes received from each activity. We have classified sources of income as follows (3.4). We have also tried to classify the sources of incomes by the main sectors of the economy, as classified in National Accounts Statistics. Though distinguishing between secondary and tertiary sectors may sometimes prove difficult, the distinction between primary and non-primary sectors is fairly clear.[12] In some cases, we have used more detailed classifications in order to emphasise some specific and important sources of incomes and occupations in the village.

Table 3.4 *Description and classification of sources of household income, PARI villages*

Sector	Description of income source
Primary	Crop production
	Animal husbandry
	Agricultural wage labour
	Income from trees, orchards and plantations
	Rental income from agricultural land
Secondary and Tertiary	Non-agricultural wage labour
	Business and trade
	Salaries in government and private sector
	Artisanal earnings
	Rental income from machinery
	Rental income from non-agricultural land and buildings
Transfers and other sources	Scholarships, pensions, and other transfers
	Remittances
	Interest income

12 Our classification is based on the nature of occupation, rather than the sector in which the worker is employed. Hence, a non-agricultural casual wage worker may be employed in the construction sector (tertiary) or in a factory (secondary), or both in the course of the year. Thus the difficulty in classifying wage incomes into primary and secondary sector incomes. However, with the detailed data available in the PARI database, such classification is indeed possible.

Harevli, Uttar Pradesh

Tables 3.5 present the participation of households in different economic activities. Almost all households are engaged in primary sector activities. Crop production and animal resources are the two most common economic activities and more than 70 per cent of the households engage in these activities. Agricultural tenancy contracts are quite widespread in Harevli, with 35 per cent of the households earning incomes from agricultural rents. Agricultural incomes are not limited to crop production alone; silviculture and horticulture are also practiced. About 10 per cent of households received incomes from mango orchards and 5.5 per cent from trees.

Agricultural wage labour takes two forms – casual daily wage contracts and long-term contracts. Orchard owners often hired families to guard and harvest mango orchards on seasonal contracts. The families received a share of the harvest for their services. About 3.7 per cent of the households received incomes from such seasonal contracts.

Non-agricultural wage workers worked in a wide variety of activities in Harevli, Najibabad, Mandawali and nearby areas. Few even migrated for short durations to Delhi, Chandigarh and Dehradun.

Table 3.5 *Proportion of households engaged in different economic activities, Harevli, 2005-06* (in per cent)

Sl	Income source	Proportion of households
1	Crop Production	73.4
2	Rental income from agricultural land	34.9
3	Animal resources	78.9
4	Agricultural labour (casual) earnings	47.7
5	Earnings from long term labour in agriculture and allied activities	7.3
6	Earnings from mango orchards	10.1
7	Earning from contracts for guarding and harvesting mangoes	3.7
8	Income from trees	5.5
	Primary sector (1-8)	**97.2**
9	Non-agricultural casual labour earnings	28.4
11	Government salaried jobs	4.6
12	Private salaried jobs	4.6
13	Business and trade earnings	11
14	Rental income from machinery	6.4
15	Rental income from other assets	1.8
16	Artisanal work and work at traditional caste calling	4.6
	Secondary and tertiary sectors (9-16)	**55**
17	Pensions scholarships and insurance claims	25.7
18	Remittances	5.5
19	Other sources	4.6
	All other sources (17-19)	**32.1**
	All sources (1-19)	100

Mahatwar, Uttar Pradesh

A very high proportion of households (95.5 per cent) in Mahatwar are engaged in primary sector activities, specifically crop production and animal husbandry. While 82 per cent of the households are engaged in own account agriculture, only three per cent earn rental incomes from agriculture. Thus tenancies are not very prevalent in Mahatwar. There is no long-term labour in agriculture in the village.

A large proportion of the households, 83 per cent, are involved in secondary and tertiary sector activities. Hence, non-agricultural activities are important in Mahatwar. Sinking borewells is a specialised non-agricultural activity in this village and 35 per cent of the households were involved in this activity in 2005-06. Workers from the village were also employed as Bidi workers, construction labour, motor mechanics,

welding workers, plumbers in the village and neighbouring semi-urban and urban areas such as Azamgarh, Balia, Mau, Gazipur, Rasra. Few workers also migrated to Mumbai, Surat, Delhi and Haryana. A high proportion of households (74.4 per cent) also received transfer incomes, that is, incomes from pensions, remittances.

Table 3.6 *Proportion of households engaged in different economic activities, Mahatwar, 2005-06* (in per cent)

Income source	Proportion of households
Crop Production	82.1
Rental income from agricultural land	3.2
Animal resources	82.1
Agricultural labour (casual) earnings	30.1
Income from trees	1.9
Primary sector	**95.5**
Non-agricultural casual labour earnings	27.6
Non-agricultural monthly labour earnings	1.9
Government salaried jobs	3.2
Private salaried jobs	6.4
Business and trade earnings	23.1
Rental income from machinery	7.1
Artisanal work and work at traditional caste calling	2.6
Sinking borewells	35.3
Secondary and tertiary sectors	**83.3**
Pensions scholarships and insurance claims	63.5
Remittances	21.2
Other sources	3.2
All other sources	**74.4**
All sources	100

Warwat Khanderao

In Warwat Khanderao, 94.8 per cent of the households were engaged in agriculture, animal husbandry and related activities. Crop production was the single largest economic activity, in terms of employment generation. 73.2 per cent households were engaged in own account farming and another 71 per cent in agricultural wage labour (casual and long term).

Within the non-farm sector, 32.4 per cent of the households were engaged in non-agricultural labour. Non-agricultural wage labourers were primarily construction workers, transport workers and miscellaneous

workers such as motor mechanics, plumbers, cooks, tailors etc. Most wage workers were employed in Warwat Khanderao and neighbouring villages and in Shagaon. Few workers migrated to Pune.

The largest component of non-farm income was business and trade earnings. In Warwat Khanderao, 26.8 per cent of households received incomes from business and trade. Most of the self employed in non-agriculture were petty vendors, hawkers, small shop owners, though there were few households with large shops employing other workers as well. Thus, business and trade constituted the second most important sector in the village.

The contribution of the formal public sector to employment was low. Only 6.4 per cent households in the village had workers with government jobs, and another 2.4 per cent in private salaried employment.

Table 3.7 *Proportion of households receiving incomes from source, Warwat Khanderao, 2006-07* (in per cent)

Income source	As percentage of all households*
Crop production	73.2
Animal resources	58.8
Agricultural labour earnings	67.6
Earnings from long term labour	4.4
Rental income from agricultural land	4
Primary sector	**94.8**
Non-agricultural casual labour earnings	28
Non-agricultural monthly labour earnings	4.4
Government salaried jobs	6.4
Private salaried jobs	2.4
Business and trade earnings	26.8
Rental income from machinery	5.2
Rental income from other assets	1.2
Artisanal work and work at traditional caste calling	0.8
Secondary and tertiary sectors	**61.6**
Pensions scholarships and insurance claims	10.4
Remittances	5.6
Other sources	4.4
All other sources	**16.8**
All households	100

* The proportion does not add up to 100 as households receive incomes from multiple sources.

Nimshirgaon

Nimshirgaon village is situated in an industrially developed region of Maharashtra. There are a number of factories, particularly cotton mills and sugar mills in the region. Ichalkaranji town and the surrounding region were known for textile production during the later part of British rule in India. The industrial development of the region has made a significant impact on incomes and the employment structure in Nimshirgaon. A large proportion of households in the village (65.3) were engaged in secondary and tertiary sector activities. It is interesting to note that 26.2 per cent households were engaged in non-agriculture work at monthly wages. These included contract workers in factories, commercial establishments, and transport agencies in nearby towns such as Jaisinghpur, Ichalkaranji, Kolhapur and Shirol. Another 17.4 per cent of households had persons with government or private salaried jobs. Thus, the urbanisation and industrialisation of the region contributed in the form of greater opportunities for wage and salaried employment for the workforce of Nimshirgaon. Nonetheless, crop production formed the single largest source of income in the village. As mentioned earlier, agriculture in Nimshirgaon is diversified and includes high value crops like sugarcane and grapes and other fruit and vegetables.

Table 3.8 *Proportion of households receiving incomes from source and distribution of total household income by income source, Nimshirgaon, 2006-07* (in per cent)

Income source	As percentage of all households
Crop production	62.1
Animal resources	77.1
Agricultural labour earnings	43.3
Earnings from long term labour	8.1
Rental income from agricultural land	7.3
Primary Sector	**96.8**
Non agricultural casual labour earnings	16.2
Non agricultural monthly labour earnings	26.2
Government salaried jobs	10.3
Private salaried jobs	7.1
Business and trade earnings	18.2
Rental income from machinery	6.3
Secondary and tertiary sectors	**65.3**
Pensions scholarships and insurance claims	11.4
Remittances	3.3
Other sources	2.0
All other sources	**16.6**

* The proportion does not add up to 100 as households receive incomes from multiple sources.

Gulabewala

Agriculture was the primary activity in Gulabewala. 30 per cent of the households were engaged in crop production and 68 per cent in agricultural wage labour. In this village, land ownership was highly unequal, and Jat Sikh households owned most of the lands in the village. Land was irrigated by the Gang canal and groundwater irrigation, and agriculture was mechanised and intensive. Large land owning households often employed workers on annual contracts and these workers operated the machines, tended to animals and also engaged in agricultural operations and household chores. 18 per cent of the households were engaged in long-term agricultural labour. Siri labour, a form of tenancy cum labour contract existed in the village. Siri were workers who received a share of the agricultural output as wage payments. All labour input was provided by the Siri, while other inputs were provided by land owners. Short term land leases were also common.

About half of the total households also received incomes from non-agricultural sources. Construction and transport were the main sectors of non-agricultural wage employment. Workers were also employed as shop

attendants and other services in monthly wages. About 10 per cent of the households received incomes from business and trade activities. Most of the workers were employed in Gulabewala, Ganganagar and Karanpur.

Table 3.9 *Proportion of households receiving incomes from source and distribution of total household income by income source, Gulabewala, 2006-07* (in per cent)

Income source	As percentage of all households
Crop production	30
Animal resources	80
Agricultural labour earnings	50
Earnings from long term labour	18
Rental income from agricultural land	11
Siri labour	2
Primary Sector	**93**
Non agricultural casual labour earnings	17
Non agricultural monthly labour earnings	17
Government salaried jobs	8
Private salaried jobs	3
Business and trade earnings	10
Rental income from machinery	6
Rental income from other assets	1
Secondary and tertiary sector	**52**
Pensions scholarships and insurance claims	18
Remittances	5
Other sources	6
Transfers and other sources	**27**
All households	100

Gharsondi

Income from crop production is uncertain in Gharsondi. Of the 196 households (74.5 per cent) that participated in own account agriculture in the survey year, 39 had incurred losses. Nevertheless, crop production and animal rearing were the most common occupations. Tenancies were also quite widespread and 10.6 per cent of the households received rental incomes from agricultural land. Agricultural labour (daily wage and long-term) was also an important source of income, and 58.5 per cent households received agricultural wage incomes.

Non-agricultural wage earnings and business and trade incomes were the most important sources of non-agricultural incomes. Construction work, loading and unloading work around Gharsondi and Gwalior were common forms of non-agricultural wage employment.

Table 3.10 *Proportion of households receiving incomes from source and distribution of total household income by income source, Gharsondi, 2007-08* (in per cent)

Income source	Proportion of households
Crop production	74.5
Animal resources	75.3
Rental income from agricultural land	10.6
Agricultural labour earnings	46.0
Earnings from long term labour	12.5
Primary sector	**94.7**
Non agricultural casual labour earnings	31.2
Non agricultural monthly labour earnings	7.6
Government salaried jobs	7.6
Private salaried jobs	9.9
Business and trade earnings	19.4
Rental income from machinery	9.5
Rental income from other assets	4.6
Artisanal work and work at traditional caste calling	1.1
Secondary and tertiary sectors	**70.3**
Moneylending	3.0
Pensions scholarships and insurance claims	41.8
Remittances	4.2
Other sources	1.9
Transfers and other sources	**48.7**
All households	100
Total no. of households	263

Rewasi

Rewasi village in the Shekhawati region in Rajasthan has a long history of migration. The arid agro-climatic condition in the region, sandy soil and scant rainfall, are not conducive to agriculture. Hence men from the region migrate to other parts of India and the world in various occupations – particularly in defence services, as specialised construction workers in marble work, other forms of non-agricultural manual labour work, and business and trade. Many households have migrant members, and 42.9 per cent of the households receive remittance incomes.

There are few landless households in the village, and 92.2 per cent of households have incomes from crop production. Animal husbandry is also a very important source of income and employment. Though the village do not specialise in tree crops, a desert tree called Khejri (*Prosopis cineraria*) is grown and used as fodder and fuel.

A large proportion of households (51 per cent) are also engaged in non-agricultural wage labour transport and other sectors.

Table 3.11 *Proportion of households receiving incomes from source, Gulabewala, 2006-07* (in per cent)

Source of income	Proportion of households
Crop production	92.2
Animal resources	98.6
Agricultural labour	22.4
Long term agricultural labour	0.9
Rental income from agricultural land	11.0
Income from Khejri trees	94.5
Primary Sector	**99.5**
Non-agricultural labour	48.4
Non-agricultural monthly labour	2.7
Government salaried jobs	4.6
Private salaried jobs	11.0
Business and trade earnings	18.3
Rental income from machinery	4.1
Rental income from other assets	1.4
Artisanal work and work at traditional caste calling	1.8
Moneylending	0.9
Secondary and Tertiary sectors	**69.4**
Scholarships and insurance claims	5.9
Pensions	10.5
Remittances	42.9
Other sources	5.9
Transfers and other sources	**58.4**
All households	100

Table 3.12 summarises the results for the seven villages. A very interesting feature of rural household incomes in our villages is that in spite of the falling share of primary sector in GDP, more than 90 per cent of households in the villages were engaged in primary sector activities. In addition, more than 50 per cent

of households were engaged in secondary and tertiary sector activities. This clearly indicates that households are diversified and receive incomes from multiple sources. On an average, a rural household obtained income from three to four sources.

Table 3.12 *Proportion of households receiving incomes from source and average number of income sources per household, PARI villages* (in per cent)

Village	Primary Sector	Secondary and Tertiary sectors	Transfers and other sources	Average number of sources per household
Harevli	97.2	55	32.1	3.4
Mahatwar	95.5	83.3	74.4	3.7
Warwat	94.8	61.6	16.8	3.0
Nimshirgaon	96.8	65.3	16.6	3.0
25F Gulabewala	93	52	27	2.8
Gharsondi	97	70	49	3.6
Rewasi	99.5	69.4	58.4	4.8

3.4 Composition of household incomes

The literature on structural change in rural India is constrained by availability of data on rural income and is mainly based on data on employment. The process of structural change in India is complicated by the presence of a significant and expanding rural non-agricultural sector and an expanding number of households and individuals receiving incomes from multiple sources. Thus the process of agrarian transition in India, as in many developing countries and land scarce developed countries such as Japan, is not a straightforward process of de-peasantisation in the countryside and concomitant migration of workers from rural agriculture to urban industries. Rather, the agrarian transition is characterized by the emergence of a class of part-time cultivators who are also part of the rural and urban industrial proletariat.

This dynamism of structural change in the *rural* sector is not captured by our estimates of national income, since such estimates are not disaggregated by rural and urban regions. There has been some attempt to estimate rural net domestic product (NDP) by economists in recent years (Papola and Sahoo 2012). NSSO data on employment only partially capture features of diversification within households. NSS employment surveys record only 'usual' principal and subsidiary status of employment of household members, that is, each household member can report only two occupations in which they are usually employed in during the year. Thus, occupational diversification within the household, as well as of individual workers, is partially captured by usual status employment data. The current daily employment status of each worker is only

reported for the previous week. Due to seasonality in employment, current daily status of employment does not change for individual workers within a week. Thus, by both measures, usual status and current weekly status, the number of sectors in which a worker is engaged in a year is underestimated. Moreover, NSSO employment surveys do not collect information on incomes from agricultural and non-agricultural self employment. Data on wage incomes (including regular wage incomes) are collected. Thus there is no information on the income portfolio of households, and incomplete information on the employment portfolio of households in NSS employment unemployment survey data.

Table 3.13 reports the composition of household incomes in the study villages. The share of primary sector in total household incomes ranged from 81 per cent in Harevli to 24 per cent in Mahatwar. The relationship between agricultural growth and non-agricultural employment and rural transformation is a much studied research area in India (see Unni 1991, 1998, Chandrasekhar 1993, Vaidyanathan 1986). There have also been attempts to theoretical stylization of the relationship (Mellor, Start). However, our village data shows that the diversification of village incomes and growth of the non-farm sector depend on complex interactions of various factors.

The villages with a high share of primary sector incomes were irrigated villages. However, availability of irrigation alone does not determine the share of primary sector incomes. The presence or absence of non-agricultural employment opportunities also determines the sectoral composition of incomes. For example, Nimshirgaon is an irrigated village with fairly high levels of agricultural incomes. However, the primary sector contributed to less than 50 per cent of household incomes in this village since it is located in an industrialised region and workers/households had access to non-agricultural employment opportunities. Conversely, primary sector contributed to nearly 60 per cent of household incomes in Warwat Khanderao, in spite of the fact that it is in unirrigated villages. In the absence of non-agricultural employment opportunities, the workers are restricted to primary sector. In Rewasi, 28 per cent of incomes came from remittances. As discussed earlier, large numbers of persons from this region (Sikar) have sought employment in Indian defence services, trade and business activities, marble and stone works, in other parts of the country and abroad.

Table 3.13 *Distribution of total household income, by sector, PARI villages* (in per cent)

Village	Primary	Secondary and tertiary	Transfers, remittances and other	All
Mahatwar, UP	24	61	15	100
Rewasi, Rajasthan	35	37	28	100
Nimshirgaon, Maharashtra	47	47	7	100
Gharsondi, MP	55	41	5	100
Warwat, Maharashtra	60	37	3	100
Gulabewala, Rajasthan	70	12	18	100
Harevli, UP	81	15	4	100

The distribution of household incomes from various primary sector activities (Table 3.13) indicates considerable diversification within the primary sector. Though crop production is the largest component of primary sector incomes, income from animal resources were also significant in most villages. Agricultural wages constituted 10 per cent or less of total household incomes in all villages. This reflects the low levels of wages in rural India.

Business and trade or incomes from non-agricultural self employment was the most important source of non-primary sector incomes in the villages (Table 3.15). Non-agricultural wage incomes did not exceed 10 per cent of total household incomes in the villages, except in Nimshirgaon. Nimshirgaon has a higher share of non-agricultural wage incomes because of easy availability of unskilled and semi-skilled non-agricultural work. As we had discussed in the previous section, many non-agricultural workers are also employed in monthly and longer term contracts. The low share of non-agricultural wage incomes in other villages, once again indicates the low wage rates in rural India.

Table 3.14 *Distribution of household incomes from primary sector, by type of activity, PARI villages* (in per cent)

Village	Crop production	Rental income from agricultural land	Animal resources	Agricultural wages	Other incomes from self-employment	Total primary
Mahatwar	11	0	11	2	0	24
	(46)	(0)	(46)	(8)	(0)	(100)
Rewasi	11	1	16	2	4	35
	(31)	(3)	(46)	(6)	(11)	(100)
Nimshirgaon	27	1	12	7		47
	(57)	(2)	(26)	(15)	(0)	(100)
Gharsondi	40	1	9	4		55
	(73)	(2)	(16)	(7)	(0)	(100)
Warwat	42	1	7	10		60
	(70)	(2)	(12)	(17)	(0)	(100)
Gulabewala	54	3	6	7		70
	(77)	(4)	(9)	(10)	(0)	(100)
Harevli	43	6	10	7	14	81
	(53)	(7)	(12)	(9)	(17)	(100)

Note: Figures in parenthesis show the share of income from each activity as percentage of total income from primary sector

Table 3.15 *Distribution of household incomes from secondary and tertiary sectors, by type of activity, PARI villages* (in per cent)

Village	Wages	Salaries	Business and trade incomes	Rental income from machinery and other assets	Artisanal work and work at traditional caste calling	Total
25F Gulabewala	1	5	3	3		12
	(8)	(42)	(25)	(25)	(0)	(100)
Harevli	3	7	4	1		15
	(20)	(47)	(27)	(7)	(0)	(100)
Warwat	4	7	24	2		37
	(11)	(19)	(65)	(5)	(0)	(100)
Rewasi	5	6	25	1		37
	(14)	(16)	(68)	(3)	(0)	(100)
Gharsondi	3	3	31	4		41
	(7)	(7)	(76)	(10)	(0)	(100)
Nimshirgaon	13	16	16	3		47
	(28)	(34)	(34)	(6)	(0)	(100)
Mahatwar	21	9	25	2	5	61
	(34)	(15)	(41)	(3)	(8)	(100)

Note: 1. Figures in parenthesis show the share of income from each activity as percentage of total income from secondary and tertiary sectors.
2. In each village there are households receiving incomes from artisanal work. But total incomes from this source are negligible and hence the share is almost zero.

3.6 Conclusions

In this chapter, we have described the levels of income and sources of income in the seven villages. Since each of the villages represented different typologies in production conditions and levels of development, there are large variations across the seven villages in terms of levels and composition of incomes.

Nevertheless, our data show that aggregate levels of income are low in most of the villages, by any standard of comparison – national or international. The proportion of households receiving incomes less the $2 PPP varied from 50 per cent to 90 per cent in the seven villages.

Our data showed that it is important to recognize the very dynamic nature of agrarian transition and structural change in rural India. Households received incomes from multiple sources, and more importantly, more than 50 per cent of households in the villages received incomes from secondary and tertiary sectors.

Participation in the non-farm sector was only partly driven by low agricultural incomes or push factors alone. The availability of non-agricultural employment opportunities nearby, and access to such opportunities (say through kinship networks that facilitate migration) are also important factors in determining employment in secondary and tertiary sectors.

Annexure to Chapter 3

Figure A1 *Box plots of Per capita household income, Harevli and Mahatwar, 2006*

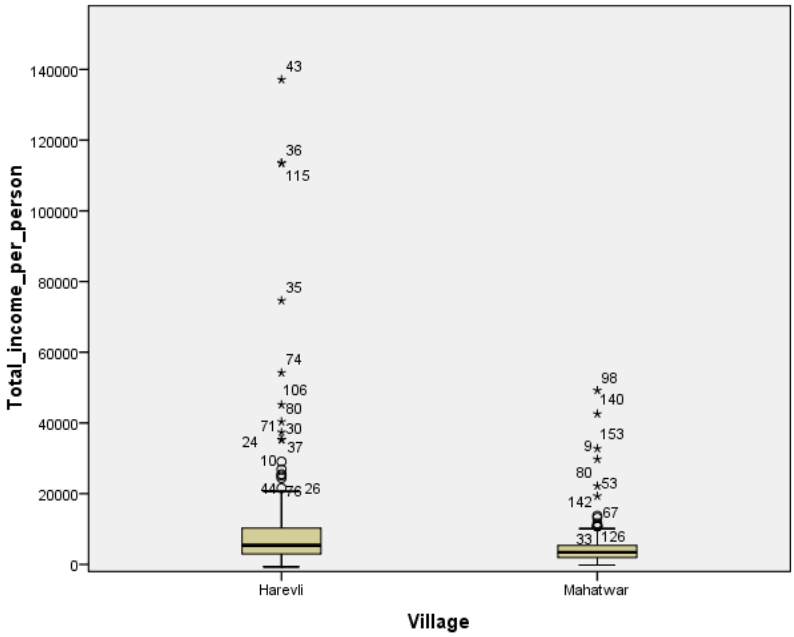


Figure A2 *Box plots of Per capita household income, Nimshirgaon and Warwat Khanderao, 2007*

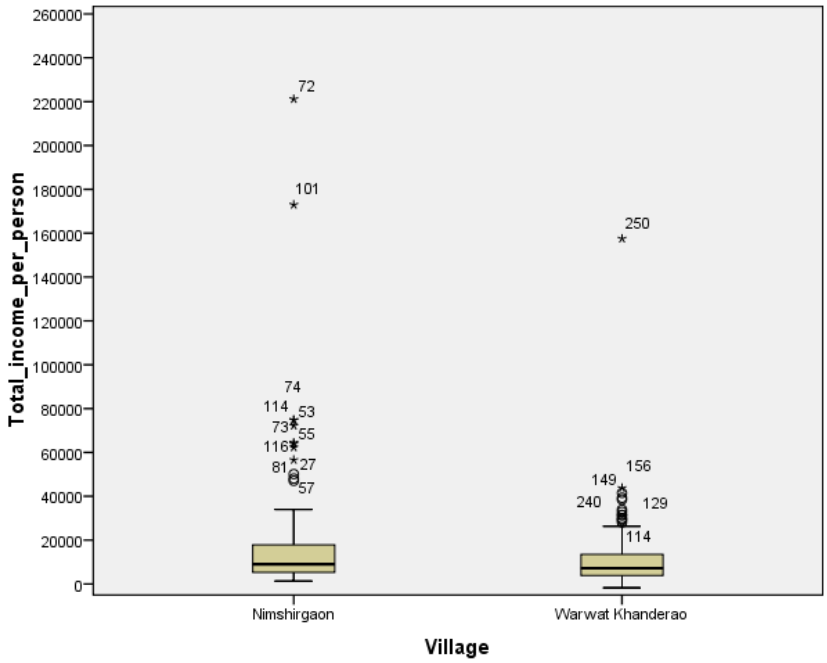


Figure A3 *Box plots of Per capita household income, Gulabewala, 2007*

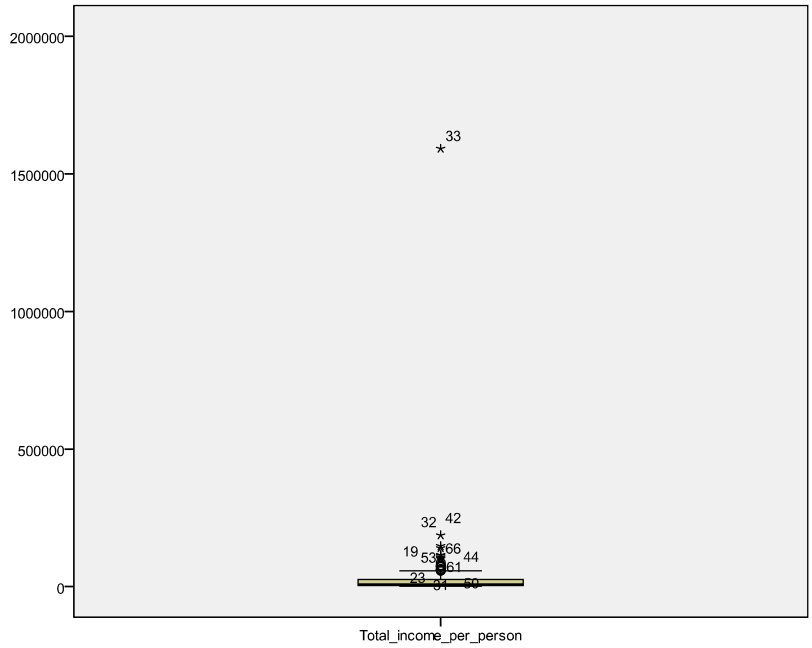
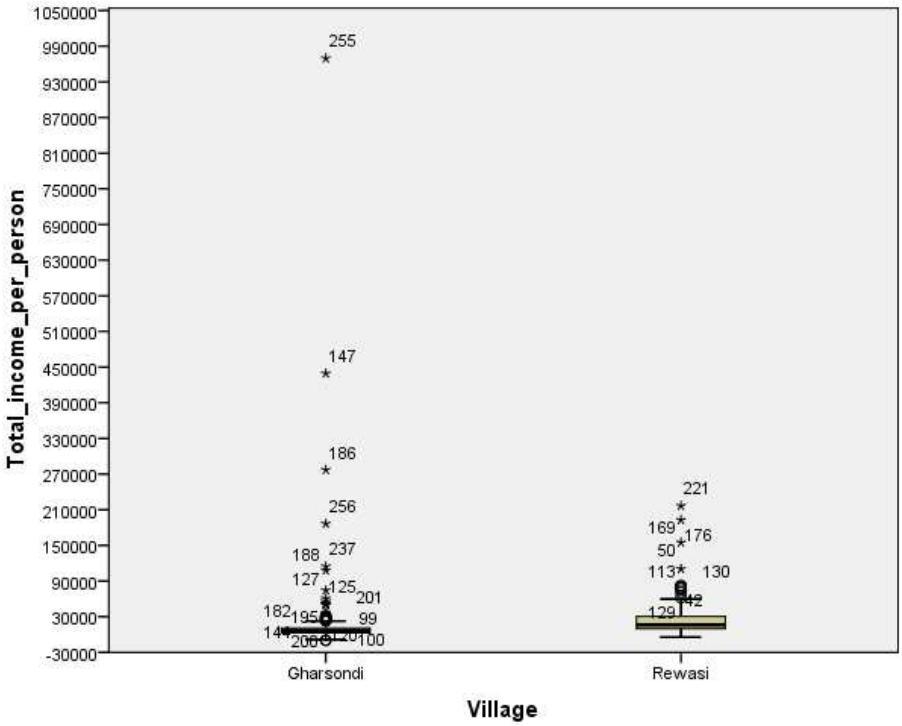


Figure A4 *Box plots of Per capita household income, Gharsondi (2009) and Rewasi (2010)*



CHAPTER 4

INCOMES, OCCUPATIONS AND SOCIAL INEQUALITY

4.1 Introduction

This chapter describes the variations in occupations, aggregate incomes, and composition of incomes across various caste and religious groups in the villages. Lives and livelihoods in rural India are intricately related to social inequality. The caste system and its impact on the social ownership of means of production, occupational choice and occupational mobility, and social and political power has placed a large section of the population – the Dalits and the Adivasis – at a disadvantage with respect to the process of income generation. Thus, the incidence of poverty among Dalits and Adivasis is higher than poverty among other social groups.

In this chapter we explore the following questions:

i. What is the extent of inequality in the levels of income between the different caste and religious groups in the villages?
ii. What is the contribution of social inequality in total income inequality in the villages?
iii. Does the different caste and religious groups experience differential access to the sources of income?

4.2 Social composition

Inequality in the incomes and occupations across households in a village is closely linked to inequality across caste or social groups. Most of the villages surveyed in PARI were multi-caste villages with substantial Dalit population (Table 4.1). The proportion of Dalits in total population ranged from 60 per cent in Gulabewala and Mahatwar to about 10 per cent in Rewasi, Warwat Khanderao and Gharsondi. In two villages, Gharsondi and Rewasi, there was some Adivasi population. Other Backward Classes (OBC or BC) households were present in most villages. In four villages, Harevli, Nimshirgaon, Gharsondi and Warwat Khanderao, there were Muslim households. The other major religious groups in our villages were Jat Sikhs in Gharsondi and Gulabewala, and Jains in Nimshirgaon. For our analysis, we have divided the population of each village in to four categories: Dalit, Adivasi, Muslim and all other. Table 4.2 lists the major castes in each village.

Table 4.1 *Distribution of population, by caste and religious groups, PARI villages*

Village	Dalit	Adivasi	Muslim	All others	All	Total population
	(as percentage of total population)					
25F Gulabewala	60.3	-	-	39.7	100	204
Mahatwar	60.3	-	-	39.7	100	156
Harevli	36.7	-	11.9	51.4	100	109
Nimshirgaon	32.6	-	6.2	61.2	100	757
Gharsondi	10.3	12.5	4.9	72.2	100	263
Warwat Khanderao	10.0	-	21.2	68.8	100	250
Rewasi	9.6	9.6	-	80.8	100	219

Table 4.2 *List of major castes in PARI villages*

Village	Caste group	Castes (in decending order of population share in village)
Harevli	Other	Tyagi, Dheema (OBC), Brahmin
	Muslim	Muslim
	Scheduled caste	Chamar, Balmiki
Mahatwar	Other	Yadav (OBC), Koiri (OBC), Nai, Baniya, Brahmin
	Scheduled caste	Chamar, Dusad
Warwat Khanderao	Other	Kunbi (OBC), Beldar (Nomadic tribe), Dhangar (Nomadic tribe)
	Muslim	Muslim
	Scheduled caste	Mahar, Matang
Nimshirgaon	Other	Jain, Maratha, Lingayat, Dhagar (Nomadic tribe)
	Scheduled caste	Mahar, Matang
25F Gulabewala	Other	Jat Sikh (OBC), Kumhar (OBC), Kashyap, Aggarwal, Rajpurahit, Arora
	Scheduled caste	Majhabi Sikh, Meghwal, Bawri, Nayak
Gharsondi	Other	Kachhi/Kushwaha (OBC),Jat Sikh,Chouhan (OBC), Jat Thakur (OBC), Kalar/Shivhare (OBC), Pal/Baghel/Gadaria (OBC), Vishwakarma/Gaur (OBC), Vishwakarma/Gaur (OBC), Modi/Baniya (OBC), Brahman, Hajjam/Barber (OBC)
	Muslim	Muslim (OBC)
	Scheduled caste	Jatav, Barar, Mahtar, Mirdha
	Scheduled tribe	Sahariyaa, Oraon
Rewasi	Other	Rajput, Jat (OBC), Kumawat (OBC), Jangid/Khati (OBC), Brahmin, Lohar (OBC)
	Scheduled caste	Meghwal, Mochi
	Scheduled tribe	Meena

4.3 Social Inequality in Incomes

In almost every village, on average, a Dalit, Adivasi, and Muslim household had substantially lower income than a household belonging to other caste groups (Table 4.3). Rewasi, was an exception, and Adivasi households in this village received incomes slightly higher than non-Dalit/Adivasi households. Adivasi households in Rewasi belonged to the Meena tribe, who were fairly well-off in terms of land ownership, non-farm sector employment and incomes.

Table 4.3 *Mean per capita household income, by caste/religious groups, PARI villages* (in rupees at current prices)

Village	Dalit	Adivasi	Muslim	All others	Total
Harevli	4172	-	8137	19212	12372
Mahatwar	4174	-	-	6100	4939
Warwat Khanderao	7025	-	7117	11954	10436
Nimshirgaon	8315	-	8680	16605	13410
25F Gulabewala	5531	-	-	63408	28512
Gharsondi	6230	4246	4295	20867	16460
Rewasi	21148	24836	-	23948	23705

In Table 4.4 we have calculated the ratio of per capita mean income of Non Dalit/Adivasi/Muslim households to that of a Dalit household. This ratio was above one in every village. The ratio was lowest in Rewasi (Sikar district) and highest in Gulabewala (Ganganagar district) – both in Rajasthan. All the villages with a ratio above 2 were irrigated, high-agricultural-productivity villages.

Table 4.4 *Ratio of per capita mean incomes of Non-Dalit/Adivasi/Muslim households to Dalit households, PARI villages*

Village (State)	Ratio of mean per capita income of Others* to Dalit households
Rewasi	1.1
Mahatwar	1.5
Warwat	1.7
Nimshirgaon	2
Gharsondi	3.2
Harevli	4.6
25F Gulabewala	11.7

*Others include all social groups excluding Dalits, Adivasis and Muslims

Table 4.5 shows the proportion of Muslim, Dalit, Adivasi and Other households in the richest and poorest income deciles. In all villages except Rewasi, we find a disproportionately high number of Dalit and Adivasi households among the poorest 40 per cent of households in the village. In Warwat Khanderao and Gharsondi, Muslim households are also over-represented in the bottom 40 per cent. The difference is stark at the upper end of the distribution. Not a single Adivasi household was among the richest 10 per cent of households in Rewasi or Gharsondi village. In the three irrigated villages Harevli, Gulabewala, and Gharsondi, there was no single Dalit household in the richest income decile. Non-Dalit/Non-Adivasi/Non-Muslim households were over-represented in the top income decile of every village. Only in Rewasi do we find more than 10 per cent of the Dalit households among the richest income decile.

Table 4.5 *Proportion of Dalit, Adivasi and Non Dalit/Adivasi/Muslim households in richest income decile and poorest four income deciles in PARI villages* (as percentage of total population within group)

	Top 10 per cent				Bottom 40 per cent			
Village	Others*	Muslim	Dalit	Adivasi	Others*	Muslim	Dalit	Adivasi
Harevli	16.1	7.7	0.0	-	26.8	38.5	60.0	-
Mahatwar	14.5	-	6.4	-	33.9	-	47.8	-
Warwat	12.8	3.8	4.0	-	33.8	49.1	64.0	-
Nimshirgaon	12.3	0.0	7.3	-	31.7	31.9	57.3	-
Gulabewala	24.4	-	0.0	-	3.8	-	63.9	-
Gharsondi	13.2	7.7	0.0	0.0	32.1	69.2	44.4	72.7
Rewasi	10.2	-	14.3	0.0	39.7	-	38.1	42.9

* Others include all social groups excluding Dalits, Adivasis and Muslims

The results in the descriptive tables above clearly indicate that Dalit, Adivasi and Muslim households receive significantly lower incomes than households in other caste and religious groups, in all villages except Rewasi. The distribution of incomes in each village show that there are few or no Dalit, Adivasi, Muslim households among the richest 10 per cent in the villages, while Dalit and Adivasi households mostly located in the bottom end of the income distribution. This is shown graphically in the Kernel density functions in Annexure

4.4 Contribution of social inequality in total income inequality of households

In order to understand if the differences in mean income levels between the major social groups in the village are statistically significant, we have used an F-test (one way ANOVA). The F-test also decomposes the total variance (sum of squares) to between group variance and within group variance. Variance is a measure of inequality. Between group variance shows inequality between the social groups, while within group variance captures the inequality within the social groups.

Table 4.6a shows the results of the F test. In four villages, Harevli, Warwat Khanderao, Nimshirgaon, and 25F Gulabewala the differences in mean incomes between social groups are statistically significant (at 5% level of significance). In the remaining Mahatwar, the results are significant at 10 per cent level. In Gharsondi and Rewasi, the differences are not statistically significant.

Table 4.6a *Results of F test to test differences in mean household incomes of different caste/religious groups*

Village	F	Sig.
Harevli	6.317**	.003
Mahatwar	3.315*	.071
Warwat Khanderao	4.148**	.017
Nimshirgaon	26.107**	.000
25F Gulabewala	13.419**	.000
Gharsondi	.935	.425
Rewasi	.119	.888

* Significant at 10 per cent level of significance
** Significant at 5 per cent level of significance

Table 4.6b *Results of F test – Decomposition of total variance*

Village		Sum of Squares	Share in total variance
Harevli	Between Groups	5542668344	10.7
	Within Groups	46500836375	89.3
	Total	52043504719	
Mahatwar	Between Groups	138640351	2.1
	Within Groups	6440186307	97.9
	Total	6578826658	
Warwat Khanderao	Between Groups	1271232021	3.2
	Within Groups	37849484087	96.8
	Total	39120716108	
Nimshirgaon	Between Groups	12195412340	6.5
	Within Groups	176111991696	93.5
	Total	188307404037	
25F Gulabewala	Between Groups	163595013298	6.2
	Within Groups	2462727810853	93.8
	Total	2626322824151	
Gharsondi	Between Groups	13363262652	1.1
	Within Groups	1234520613739	98.9
	Total	1247883876391	
Rewasi	Between Groups	169300881	0.1
	Within Groups	153538259141	99.9
	Total	153707560022	

Table 4.6b shows the decomposition of total variance of per capita household incomes to between group variance and within group variance. Between group inequality accounts for 10.7 per cent of total inequality in Harevli, 6.5 and 6.2 per cent in Nimshirgaon and Gulabewala respectively and 3.2 per cent in Harevli. In other villages the contribution is lower.

It would be erroneous to conclude that, because more that 90 per cent of the total inequality in the study villages is within-group inequality, caste does not play an important role in total inequality. Kanbur (2006) found that "empirically the contribution of the between group component is rarely over 15 per cent, and often less than this amount". However, as Kanbur argues, the social weight attached to group differences may be much higher than the numerical share in total inequality. "Any income differences attributed only to race, or to gender, might be held to be abominable and receive the highest priority, no matter what their contribution to overall interpersonal inequality" *(ibid)*.

4.5 Occupations and household income composition

In the previous chapter we discussed the household income composition in each village and concluded that though agriculture remains the most important and prevalent source of income and occupation for households, non-agricultural sources also contribute a significant share of household incomes. In this section, we try to understand if there are differences in composition of household incomes between the different caste groups in the village. Historically, caste-based economic discrimination in India took the form of exclusion and segregation of the particular castes from particular occupations and ownership and access to productive assets. Do such occupational segregation or discrimination still persist in India? That is the question we are trying to fathom.

The village data throws up some interesting results in terms of participation of households in specific occupations. In every village, more than 75 per cent of the 'Other' households (that is, households that are not Dalit, Adivasi or Muslimss) receive incomes from crop production (including tree crops). In contrast, a much lower percentage of Dalit and Muslim households are involved in crop production. In Gulabewala, the village with the highest level of inequality, there is almost absolute exclusion of Dalit households from crop production, and only 0.8 per cent Dalit households receive incomes crop production. The lower participation of Dalit households in crop production is probably the result of lack of access to land, the essential input for crop production. We will discuss more on this in the next chapter.

The most important occupation for Dalit and Muslim households are wage employment in agriculture and non-agriculture. In each village more than 70 per cent of the households receive incomes from agricultural or non-agricultural wages. The participation of other households in manual wage work is substantially lower.

When we look at the participation of households in salaried occupations and in business and trade activities, we get a mixed picture. In villages such as Gharsondi, Nimshirgaon and Warwat Khanderao, there is not much difference in participation rates of Dalit, Muslim and other households in salary and business and trade activities. In Gulabewala, Mahatwar and Rewasi, Dalit households do not have equal access to these income sources. Whereas in Harevli, though Dalit households do not have access to salary and business opportunities, Muslim households have access to these sources.

Thus in terms of occupations, we find distinct caste-based occupational patterns in crop production and manual wage employment. In other forms of non-agricultural employment such as salaries, business and trade activities, there are no clear patterns. In some villages, Dalit and Muslim households have low access to these occupations, while in other villages all groups have equal access to these occupations.

Similar patterns are observed when we analyse the composition of household incomes (Table 4.8, 4.9 and 4.10). Households belonging to 'other' caste groups have a higher share of incomes from crop production and livestock in comparison with Dalit, Muslim and Adivasi households. On the other hand, the share of wage incomes in the income portfolio of Dalit and Muslim households is significantly higher than that of other households. No clear pattern emerges when we look at the incomes from business and trade activities and salaries. The share of salary incomes for Dalit households in most villages is higher than that of other households. However, this is not because Dalit households receive higher salary incomes, but rather, the average incomes received from other sources (crop production, wages and business and trade) by Dalit households is much lower than the average incomes received from salaries. For other households, other sources of incomes are as remunerative as salaried incomes.

Table 4.7 *Proportion of households receiving income from source, as percentage of all households, by caste groups*

Village	Caste groups	Crop Production	Agricultural wages	Nonagricultural wages	Salary	Business & Trade
25F Gulabewala	Others	74.1	3.7	6.2	19.8	14.8
	Dalit	0.8	91.1	45.5	4.9	7.3
	Total	29.9	56.4	29.9	10.8	10.3
Gharsondi	Others	81.1	36.3	28.4	18.4	20.5
	Muslim	38.5	76.9	30.8	0.0	38.5
	Dalit	59.3	66.7	51.9	18.5	18.5
	Adivasi	63.6	93.9	90.9	3.0	6.1
	Total	74.5	48.7	38.8	15.6	19.4
Harevli	Others	87.5	32.1	17.9	10.7	12.5
	Muslim	61.5	38.5	53.8	15.4	23.1
	Dalit	57.5	77.5	35.0	5.0	5.0
	Total	73.4	49.5	28.4	9.2	11.0
Mahatwar	Others	91.9	4.8	29.0	12.9	30.6
	Dalit	75.5	46.8	73.4	7.4	18.1
	Total	82.1	30.1	55.8	9.6	23.1
Nimshirgaon	Others	76.0	27.9	30.7	18.1	26.3
	Muslim	23.4	100.0	55.3	0.0	4.3
	Dalit	43.3	72.1	46.6	15.0	6.1
	Total	62.1	46.8	37.3	15.9	18.2
Rewasi	Others	96.6	21.5	44.6	14.7	20.9
	Dalit	85.7	33.3	66.7	9.5	4.8
	Adivasi	100.0	23.8	76.2	14.3	9.5
	Total	95.9	22.8	49.8	14.2	18.3
Warwat Khanderao	Others	76.7	65.7	28.5	8.7	25.6
	Muslim	71.7	66.0	41.5	9.4	34.0
	Dalit	52.0	88.0	40.0	8.0	20.0
	Total	73.2	68.0	32.4	8.8	26.8
All villages	Others	81.2	31.1	29.7	15.8	23.3
	Muslim	49.2	77.0	46.8	5.6	22.2
	Dalit	43.2	71.4	50.6	10.6	9.4
	Adivasi	77.8	66.7	85.2	7.4	7.4
	Total	67.8	46.9	38.5	13.3	18.6

Table 4.8 *Income from crop production and livestock, by caste groups* (as percentage of household income)

Village	Income from crop production and livestock (as % of total household income)				
	Adivasi	Dalit	Muslim	Others	Total
Harevli		39.2	34.0	74.2	67.4
Mahatwar		11.6		29.7	22.2
25F Gulabewala		10.8		66.3	60.7
Warwat Khanderao		23.9	25.2	54.5	48.8
Nimshirgaon		17.1	5.5	45.8	39.0
Gharsondi	6.9	39.8	48.0	51.0	49.6
Rewasi	28.8	20.2		32.6	31.3
Total	22.2	18.4	21.1	50.2	45.2

Table 4.9 *Income from agricultural and non-agricultural wages, by caste groups,* (as percentage of total household income)

Village	Agricultural wages					Non-agricultural wage				
	Adivasi	Dalit	Muslim	Others	Total	Adivasi	Dalit	Muslim	Others	Total
Harevli		32.8	8.0	3.0	7.3		6.4	29.3	0.7	3.0
Mahatwar		3.5		0.1	1.5		43.3		5.8	21.4
25F Gulabewala		57.9		0.1	5.9		13.8		0.3	1.7
Warwat Khanderao		29.1	12.5	8.6	10.0		3.3	10.4	2.2	3.5
Nimshirgaon		15.9	62.6	2.1	6.6		27.6	23.0	8.7	12.8
Gharsondi	55.2	18.0	16.8	1.6	3.5	19.7	3.8	3.2	2.2	2.7
Rewasi	1.9	5.0		2.0	2.3	9.6	7.9		4.7	5.3
Total	18.1	20.9	29.6	2.1	5.3	12.6	21.8	15.9	4.1	6.6

Table 4.10 *Income from business and trade and salaries, by caste groups,* (as percentage of total household income)

Village	Business and trade earnings					Salaries				
	Adivasi	Dalit	Muslim	Others	Total	Adivasi	Dalit	Muslim	Others	Total
Harevli		2.9	4.8	4.1	4.0		10.3	8.3	6.2	6.9
Mahatwar		11.9		34.3	25.0		15.0		4.0	8.5
25F Gulabewala		6.3		2.2	2.6		3.1		6.1	5.8
Warwat Khanderao		30.0	23.8	23.9	24.2		3.5	16.7	5.6	7.2
Nimshirgaon		3.2	7.7	19.2	15.7		23.0	0.0	14.3	15.6
Gharsondi	1.9	15.3	5.9	32.3	30.8	14.7	5.9	0.0	3.0	3.3
Rewasi	6.8	2.2		29.2	25.5	11.0	14.8		3.9	5.2
Total	5.3	5.8	15.1	20.4	18.3	12.1	16.1	8.9	7.3	8.4

4.6 Conclusions

In this chapter we analysed caste inequalities in incomes and occupations. In each village mean incomes received by Dalit, Adivasi and Muslim households are lower than that of other households. Dalit, Muslim and Adivasi households are over-represented in the bottom deciles of the income distribution, while other households are over-represented in the top decile of the income distribution. More strikingly, in three of the seven villages, there were no single Dalit household in the top income decile. An F-test showed that in five of the seven villages, the differences in mean incomes were statistically significant.

There are considerable differences in occupational patterns and income composition of Dalit and non-Dalit households. A higher proportion of non-Dalit households receive incomes from crop production compared to Dalit and Muslim households, while a higher proportion of Dalit and Muslim households receive incomes from manual wages. The same differences are observed in the composition of household income between Dalit and non-Dalit households. However, in salary incomes and incomes from business and trade, we do not see clear patterns of discrimination against Dalit households in all villages.

Annexure to Chapter 4

Figure B 1 *Kernel Density plots of per capita annual household incomes, Dalit and Other households, Harevli*

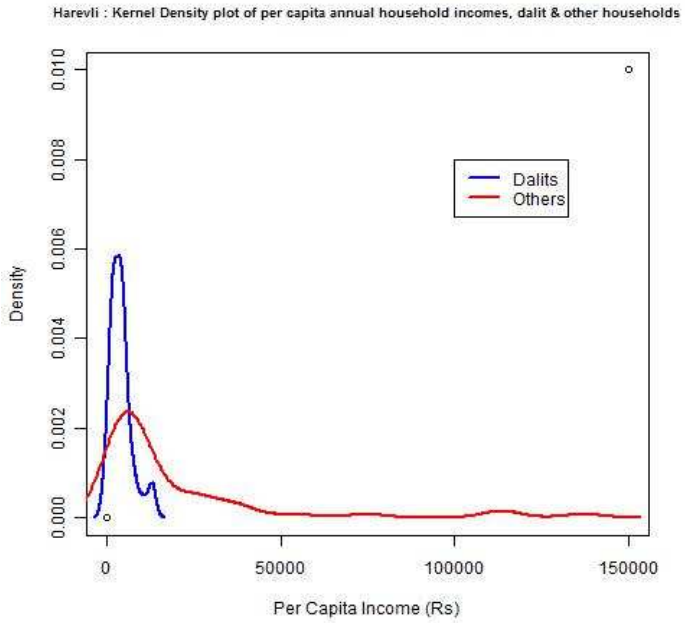


Figure B 2 *Kernel Density plots of per capita annual household incomes, Dalit and Other households, Mahatwar*

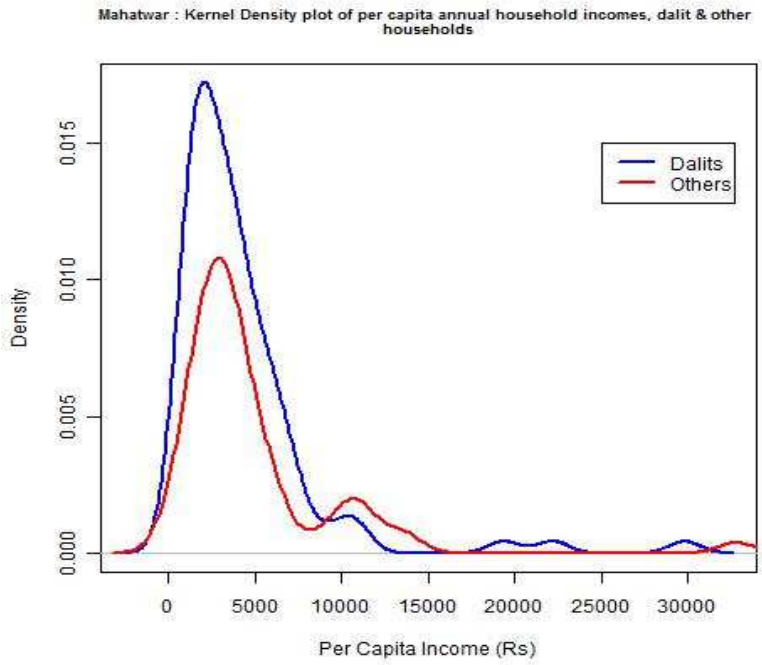


Figure B 3 *Kernel Density plots of per capita annual household incomes, Dalit and Other households, Warwat Khanderao*

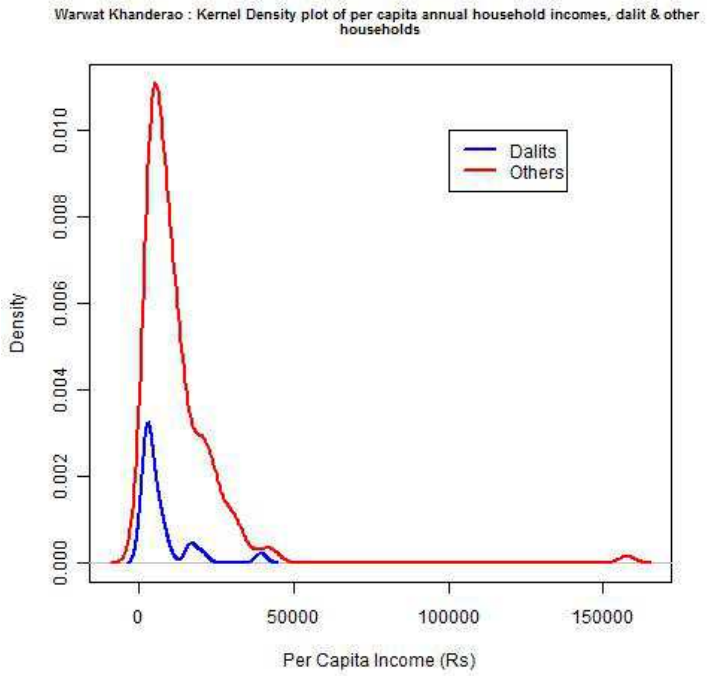


Figure B 4 *Kernel Density plots of per capita annual household incomes, Dalit and Other households, Nimshirgaon*

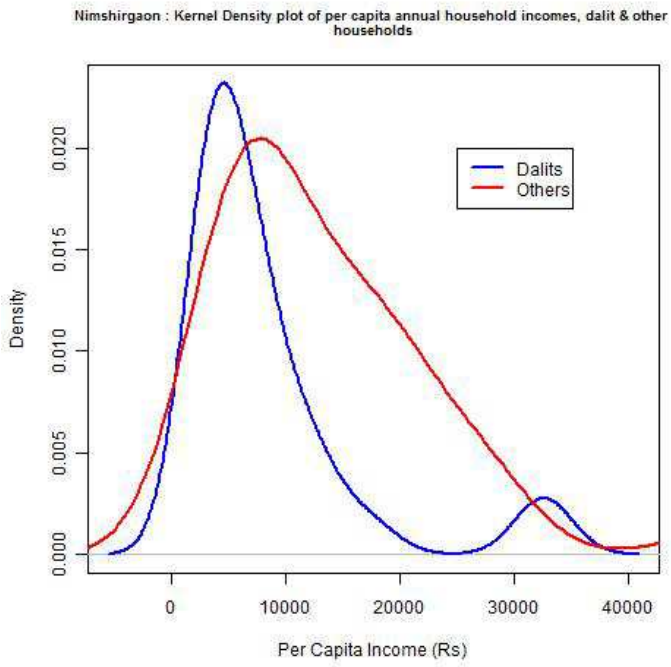


Figure B 5 *Kernel Density plots of per capita annual household incomes, Dalit and Other households, 25 F Gulabewala*

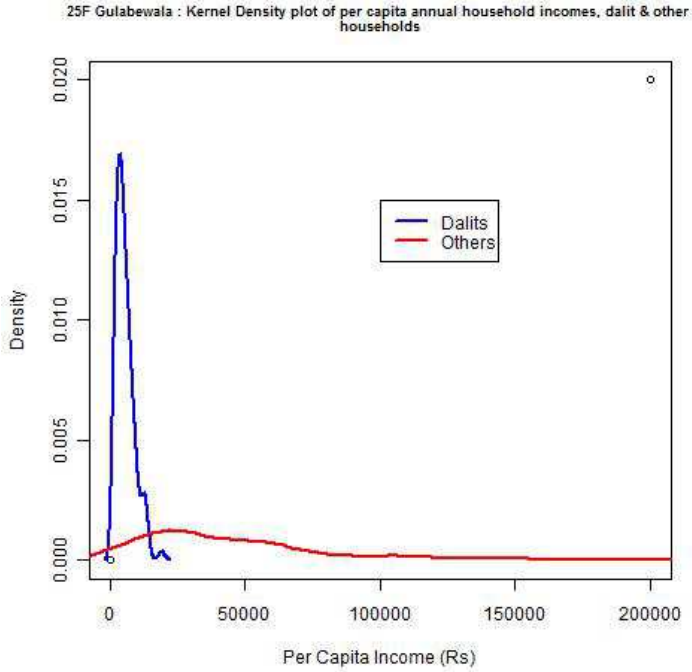


Figure B 6 *Kernel Density plots of per capita annual household incomes, Dalit and Other households, Gharsondi*

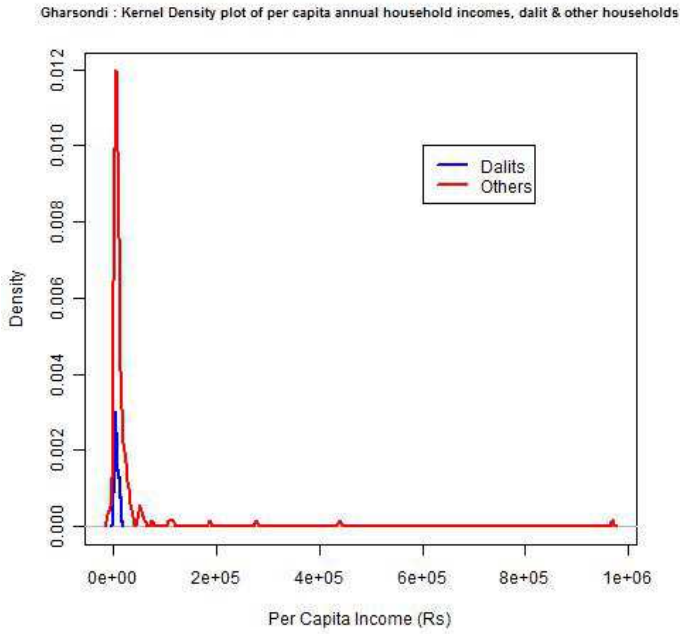
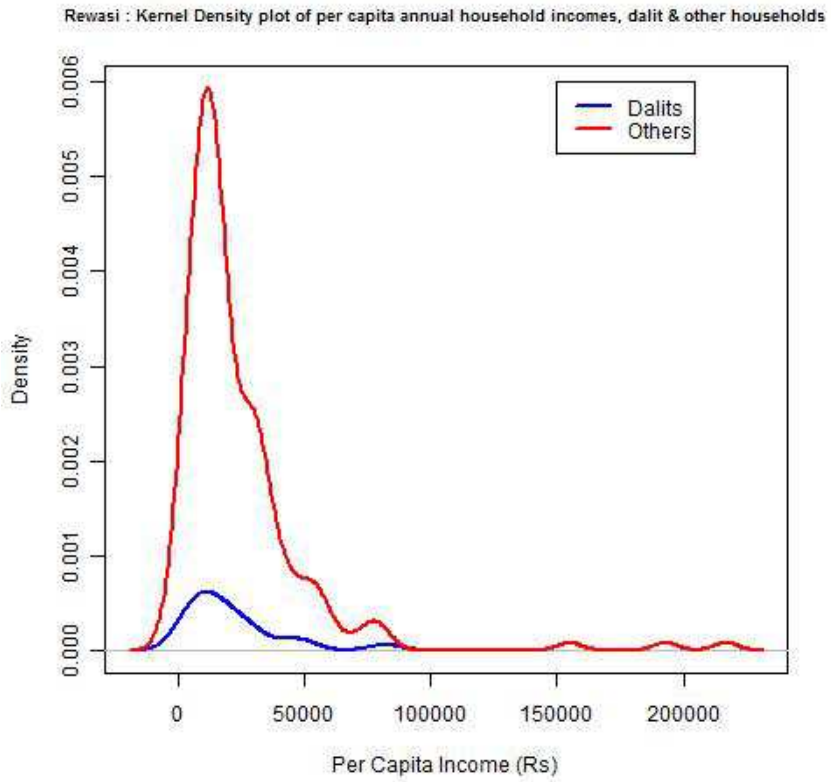


Figure B 7 *Kernel Density plots of per capita annual household incomes, Dalit and Other households, Rewasi*



CHAPTER 5

ACCESS TO LAND AND ASSETS: IMPLICATIONS ON INCOMES, INCOME INEQUALITY AND DIVERSIFICATION

5.1 Introduction

Access to different sources of income depends on the household's endowment of capital, both human and material. Access to farm incomes largely depends on access to land. Similarly, studies have shown that access to non-farm incomes depend on education and household wealth (Lanjouw and Shariff 2004). Thus income inequality may be a result of two processes: unequal returns from different sources of income and unequal access to different sources of income due to differences in household endowments of human and material capital. At the same time, the levels of household incomes at a particular point of time also determine the asset holdings of households, as it determines the household's capacity to save and accumulate assets. Thus, asset holdings of a household is both a cause and effect of household incomes. In this chapter we are not concerned with the question of causality, rather we intend to describe and analyse different associational patterns between household incomes, sources of income and ownership of land and other assets.

In particular we examine the following questions:

i. What is the correlation between ownership of assets and household incomes, particularly non-agricultural incomes?
ii. Are there specific patterns of deprivation of asset ownership across the caste groups, which are associated with inequalities in income and income diversification across caste and religious groups?

5.2 Land, asset, and income

In an economy completely dependent on agriculture, household incomes largely depend on the economic size of land holdings. However, our previous analysis indicated that rural households in contemporary India also derive significant incomes from non-agricultural sources. The relationship between land ownership and income has become complex with the breaking up of feudal relations of production, commercialisation of agriculture and increasing access to new sources of incomes outside agriculture. However, land ownership remains an important correlate of rural household incomes. In each village, the pearson correlation coefficient between total household income and extent of land ownership as well as the value of agricultural land owned is significant, and takes the value between 0.345 in Rewasi and 0.869 in Harevli. The correlation

is weak in villages with large non-agricultural incomes such as Rewasi and Mahatwar, and the correlation coefficient is high where the share of crop incomes is high. The correlation between total household income and value of assets is also significant in all villages.

To the extent that household income is determined by a household's access to land and other productive assets, the unequal distribution of land and other assets will be the major cause of income inequality. In India, caste-based social hierarchies have historically determined household's access to land and other assets. Post independence redistributive policies have largely failed to address the inequality in property structures in India. The strong and significant correlation between land and incomes in most villages are indicative of the fact that economic inequality in India even today is determined by unequal property relations. However, new income sources outside agriculture often weaken the dependence on land.

Table 5.1 *Pearson correlation coefficient of total household income and ownership holding, value of agricultural land and total asset value, PARI villages*

Village	Ownership holding	Value of agricultural land	Total asset value
Rewasi	.345**	.424**	.837**
Mahatwar	.542**	.427**	.486**
Gulabewala	.597**	.648**	.667**
Nimshirgaon	.718**	.764**	.786**
Warwat Khanderao	.799**	.859**	.924**
Gharsondi	.849**	.870**	.946**
Harevli	.869**	.826**	.927**
All villages	.632**	.722**	.832**

** Significant at 5% level of significance

We find some support of our argument that income sources outside agriculture weaken the traditional and in some sense feudal relationship between land ownership and household income from our data. The correlation matrix 5.2 reports the correlation coefficient between land and the three major sources of non-agricultural incomes, that is, salaries, business and trade and non-agricultural wage earnings.

The correlation between non-agricultural wage incomes and land holdings is negligible in all villages, the correlation coefficient takes low negative values. The correlation between salaries and land ownership is also weak in all villages, except Harevli. This result is particularly of importance in our analysis. It implies two processes. Firstly, members from small and medium peasant and landless households also gain access to regular salaried employment. We had seen in our previous analysis that in relative terms, in most villages the

proportion of Dalit households receiving salary incomes is similar to households in other caste groups. Thus, there is no strong bias against Dalit households in salaried employment, though the types of salaried employment and incomes they receive from such employment may differ significantly from that of other households. We have to also understand that policies of reservation and affirmative action have had a role to play in this. Secondly, households who have access to salaried employment may often find it difficult to manage agricultural operations on their land and thus lease out or sell off part of their land. Hence salaried households have smaller land holdings.

The relationship between business and trade and land ownership is not as weak as in the case of the other two sources of non-agricultural incomes. In four of the seven villages, we find moderate to strong correlation between land ownership and business and trade incomes. Business and trade incomes require investments and are subject to market risks. Under conditions of imperfect and under developed credit and insurance markets, land is the primary source of surplus and investment for such income ventures. The extent of land ownership also influences the levels of investment, and the risk bearing capacity of households, which in turn determine the levels of income received from business and trade activities.

Table 5.2 *Pearson correlation coefficient of size of ownership holding and income from non-agricultural sources, PARI villages*

Village	Salaries	Business and trade	Non-agricultural wage
Harevli	.454**	.374**	-0.132
Mahatwar	-0.001	0.092	-.182*
Warwat Khanderao	0.08	.665**	-0.116
Nimshirgaon	.182**	.332**	-.179**
25F Gulabewala	0.085	0.105	-.168*
Gharsondi	-0.011	.786**	-0.077
Rewasi	-0.021	.171*	-0.129

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

5.3 Social inequality in ownership of land and other assets

In the previous section, we discussed the associational patterns of household incomes and ownership of assets, particularly land and inferred that ownership of land and assets are significantly correlated with total household incomes. In India, to the extent that access to land and other assets vary across castes and social groups, there will be considerable differences in incomes received by the different caste and social groups. In this section, we analyse the distribution of assets across caste and social groups in the villages.

Table 5.3 shows the proportion of landless households within each caste group. The incidence of landlessness varies across villages. In Rewasi, only 0.9 per cent of the households were landless. In Gharsondi and Mahatwar 18.6 and 20.5 per cent of the households were landless. The degree of landlessness was extremely high in Gulabewala and 64.2 per cent of the households did not own any land.

It is evident that proportion of landless households among Dalit and Muslim households in all villages was much higher than that among other households. Thus Dalit households have lower access to land compared to other households. Even when Dalit households own land, the size of the holdings is much smaller compared to the size of holdings of other households. Table 5.4 shows that the average size of holdings for other households in all villages taken together was 7.78 acres, while that of Dalit households was only 1.73 acres. Thus lack of access to land is one of the major factors for low incomes of Dalit households, and the large differences in incomes between Dalit and other households in the villages. This also explains the high dependence of Dalit households on earnings from wage labour.

Table 5.3 *Proportion of landless households, by caste, PARI villages* (as percentage of households within each caste)

Village	Others	Muslim	Dalit	Adivasi	Total
Harevli	17.90%	53.80%	47.50%		33.00%
Mahatwar	6.50%		29.80%		20.50%
Warwat Khanderao	20.90%	32.10%	44.00%		25.60%
Nimshirgaon	17.20%	27.70%	50.20%		28.60%
25F Gulabewala	14.80%		96.70%		64.20%
Gharsondi	15.30%	53.80%	22.20%	21.20%	18.60%
Rewasi	1.10%		0%	0%	0.90%

Table 5.4 *Average size of ownership land holding, by caste groups, PARI villages* (in acres)

Village	Others	Muslim	Dalit	Adivasi
Harevli	7.5	2.4	0.9	.
Mahatwar	2.9	.	0.4	.
Nimshirgaon	3.3	2.2	1.7	.
Warwat Khanderao	6.8	3.8	2.1	.
Gulabewala	36.7	.	7.9	.
Gharsondi	9.8	3.8	2.6	0.7
Rewasi	6.8	.	4.4	3.9

Very similar patterns are observed when we compare the average asset value of the different social groups in the villages. Agricultural land is the most important asset for all households and value of agricultural land constitute more than 50 per cent of total value of assets owned by households. There are large disparities in average value of assets owned by Other households and Dalit, Adivasi and Muslim household (Table 5.5). The last column of Table 5.4 calculates the ratio of the value of assets owned by other households to that of Dalit households. Even in the village with lowest inequality, that is Rewasi, the asset value of other households is almost double than that of Dalits. The ratio is higher in other villages.

Table 5.5 *Average value of assets owned, by caste groups, PARI villages* (in Rupees, in current prices)

Village	Others	Muslim	Dalit	Adivasi	Others:Dalit
Harevli 2006	17,19,603	3,19,122	1,25,612	.	13.7
Mahatwar 2006	12,65,151	.	1,54,157	.	8.2
Warwat Khanderao 2007	6,57,264	2,46,039	1,29,605	.	5.1
Nimshirgaon 2007	14,14,438	1,98,369	3,36,481	.	4.2
Gulabewala 2007	71,97,459	.	51,940	.	138.6
Gharsondi 2008	28,65,830	6,03,883	6,07,875	1,37,016	4.7
Rewasi 2010	14,48,685	.	7,80,930	6,14,822	1.9

The impact of education – and different levels of education – on agricultural innovation, high-yielding-variety adoption, yields and labour productivity, and consequently on self-employment and non-farm incomes (and on incomes and livelihoods more generally), is a rich field for research. Quantitative evaluation of the impact of education on these variables is, however, beset with methodological problems, not least because of the interconnectedness of the variables: education is often both the cause and consequence of higher incomes.[13] Despite these, the general international scholarly consensus is that income returns to education are substantial, and are highest for "primary education, general curricula, the education of women, and countries with the lowest per capita incomes".[14]

Empirical support for the positive association between education and household incomes can be found in the Indian literature as well. Lanjouw and Shariff (2004) found a strong association between education and non-farm earnings as well as non-farm employment probabilities in all the regions in India. Their study was based on NCAER data on household incomes for 1993.

13 See, for instance, Chaudhri (1979), Colclough and Lewin (1993), pp. 27 ff., Reardon (2005).
14 Psacharopoulos (1985).

It is difficult for us to evaluate the impact of education from our field data, as we measure income for the household as a whole, while educational attainment is recorded for individual members. Nevertheless, we do agree literacy and education certainly plays an important role in accessing high income employment opportunities, particularly employment in the non-farm sector. Differential attainments in education may result in income inequality. In this respect, Dalit and Muslim households are at a particular disadvantage as in each village the literacy rates of Dalit households are substantially lower than other households. This difference in literacy rates may also have implications for the type of social inequalities in household incomes that we observe in the villages.

Table 5.6 *Literacy rates of head of households, by caste groups, PARI villages*

Village	Others	Muslim	Dalit	Adivasi	Total
25F Gulabewala	74.10%		15.40%		38.70%
Rewasi	44.60%		38.10%	61.90%	45.70%
Harevli	67.90%	23.10%	30.00%		48.60%
Gharsondi	59.50%	23.10%	63.00%	3.00%	51.00%
Mahatwar	59.70%		46.80%		51.90%
Nimshirgaon	76.20%	56.50%	61.10%		70.10%
Warwat Khanderao	76.70%	60.40%	68.00%		72.40%

5.4 Conclusions

In this chapter we examined the relationship between incomes and ownership of land and other assets. There is strong and positive correlation between ownership of land and levels of income in every village. However, in villages such as Rewasi and Mahatwar where participation and incomes from non-agricultural sources are high, the relation between land and household incomes is weakened. Thus we conclude that access to land and the property structure in villages continue to determine the levels of income, however, growth of the non-farm sector is gradually breaking this traditional relationship. Non-agricultural wage and salary incomes are not strongly associated with land ownership in most of the villages. But income from business and trade activities, that might require initial investments, is positively correlated with land ownership in four of the seven villages. Ownership of land and assets may not be a precondition for obtaining access to all forms of non-agricultural incomes. When landless and land poor households gain access to remunerative sources of non-farm incomes, income inequality in villages may decline. While understanding this potentially equalizing nature of non-farm incomes, one should nevertheless be cautious in drawing conclusions, since it is the asset rich who have access to the most remunerative sources of non-farm incomes.

There are significant differences in the ownership of assets between the caste and social groups in the villages. Dalit (Adivasi and Muslim) households have lower land and asset holdings than non-Dalit/Adivasi households. The literacy rates of Dalit households are also lower than non-Dalit/Adivasi households. Thus the patterns of social inequality observed in the distribution of household incomes mirrors the inequality in distribution of land, assets and education.

CHAPTER 6

MEASURING INCOME DIVERSIFICATION

6.1 Introduction

In contemporary literature the phenomenon of rural households being engaged in a number of farm and non-farm activities is commonly known as 'diversification'. According to Ellis (2000) "Rural livelihood diversification is defined as the process by which rural households construct an increasingly diverse portfolio of activities and assets in order to survive and to improve their standard of living." Thus, diversification is notionally different from the process of structural change where the secondary and tertiary sectors of the economy expand and households move out of agriculture to non-agricultural occupations. Rather, diversification is concerned with households' choice of income and employment in order to minimize livelihood risks, cope with poverty and income stress, and accumulate. Household's livelihood choices depend on the macro, meso, and micro-level incentives to diversify and the capacities to diversify (such as access to credit, assets, education) (Reardon et.al. 2007).

The Indian literature on income diversification is primarily concerned with the process of structural change. The study of household livelihood diversification in India is constrained by non-availability of data on household incomes.

So far, our discussion was limited to levels of household incomes and composition of household incomes on the aggregate. In this chapter we try measure household income diversification and analyse the patterns of income diversification across income deciles, social groups and land ownership classes in the villages.

6.2 Measures of income diversification

To construct suitable indices to measure income diversification, we would first require using a standard classification of household income sources. In my analysis, I have used a ten-fold classification of sources of income. The sources of income are:

1. Crop production (including tree crops)
2. Animal husbandry
3. Agricultural wages
4. Non-agricultural wages

5. Salaries
6. Non-agricultural self-employment
7. Rent from agricultural land
8. Rent from machinery and other assets
9. Pensions, remittances and transfers
10. Other sources

The simplest measure of diversification would be the number of sources of income per household. This indicator can take any value between 1 and 10. The weakness of this measure is that it does not account for the share that a household receives from each source of income. For example, two households may be receiving incomes from two sources each. Hence they are equally diversified. It may so happen that one household receives 50 per cent of its income from each of the two sources, while the second household may be receiving 90 per cent of its income from one source and only 10 per cent from the other source. Thus, it would be valid to say that the first household has a more diversified income portfolio. However, such differences would not be captured if we only consider the number of sources of income as the index for income diversification.

A commonly used index that combines diversity in terms of number of sources of income and the income share of different sources, is the inverse Herfindahl-Hirschman index of market concentration (HHI).[15] The index is defined as:

$$I = \frac{1}{\text{sum of squares of proportional contributions to total income}}$$

where $1 \leq I \leq n$, n is the number of available sources of income. An index value of 1 represents a case where the household specialises in any one source of income and a higher index value indicates more diversified income portfolios. This index is calculated for each household, and then averaged for the group. The inverse HHI value in our analysis will range between 1 and 10.

Since the inverse HHI is calculated from shares of incomes from component sources, I have used the *gross incomes* from sources, instead of *net incomes*. Gross income is the gross value of output, without deducting the

15 See Ellis (2000); Farrington, Deshingkar, Johnson and Start (2006).

cost of production. This is done to deal with the problem of negative net incomes (especially in incomes from crop production and animal husbandry). Using gross incomes will overstate the share of incomes from self employment where households run the risk of making losses, and understate the share of wage, salaries and transfers. However, gross income reflects the importance of the source of income for the household, in terms of labour and other resources that the household expends.

A low value of the inverse HHI indicates specialisation of households in a specific source of income. However, the HHI does not indicate which specific sectors or occupations the household may have specialised or diversified in. We will deal with such issues in chapter 7.

6.3 Patterns of income diversification in the study villages

In this section we will analyse some overall patterns of income diversification in the villages using the two summary measures of diversification discussed above. Table 6.1 shows the average and maximum number of sources of income per household in the villages. On the average, each household received incomes from about three sources.

Table 6.1 *Mean and maximum number of sources of income per household, PARI villages*

Village	Mean	Maximum
Rewasi	3.8	8
Mahatwar	3.7	7
Gharsondi	3.5	7
Harevli	3.3	6
Warwat Khanderao	3.0	6
Nimshirgaon	2.9	5
25F Gulabewala	2.7	5
Total	3.1	8

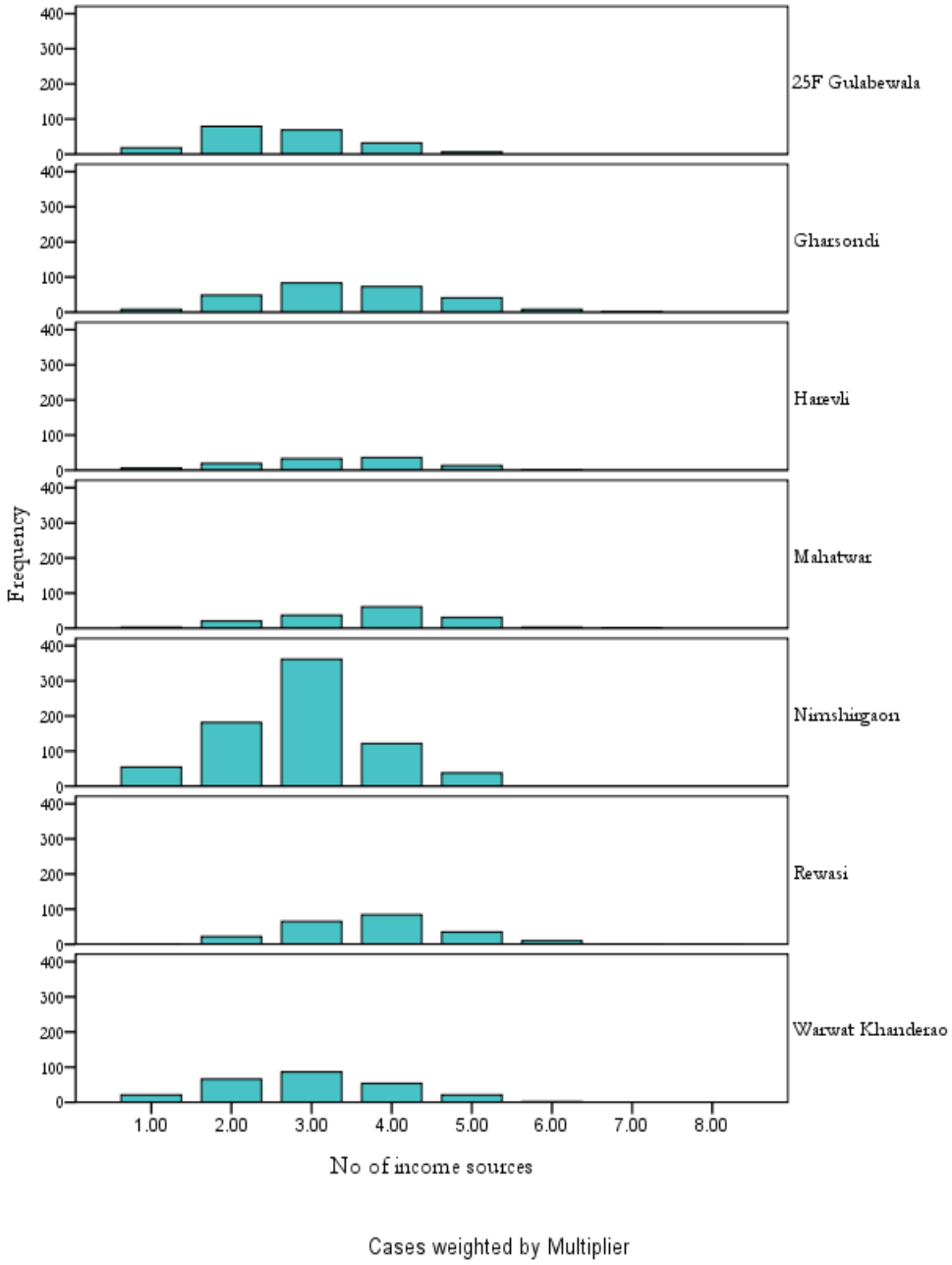
* Table is sorted in descending order of mean number of sources of income per household

Table 6.2 *Distribution of households, by number of sources of income, PARI villages* (in per cent)

Village	Number of sources of income								
	1	2	3	4	5	6	7	8	Total
Harevli	5.5	17.4	30.3	33	11.9	1.8	0	0	100
Mahatwar	1.9	12.8	23.7	39.1	19.9	1.9	0.6	0	100
Warwat	8.4	26.4	34.4	21.6	8.4	0.8	0	0	100
Khanderao Nimshirgaon	7.3	24	47.8	16	5	0	0	0	100
25F Gulabewala	8.8	38.7	33.8	15.7	2.9	0	0	0	100
Gharsondi	3	18.3	31.6	27.8	15.6	3	0.8	0	100
Rewasi	0.5	10	29.7	38.4	16	4.6	0.5	0.5	100
All	5.7	22.3	37.5	23.5	9.4	1.3	0.2	0.1	100

Very few households in the villages (less than 10 per cent) specialised in only one income source (Table 6.2 and Figure 6.1). Around 80 per cent of the households received incomes from 2 to 4 sources, the mode being 3 sources in all villages except Gulabewala. The mode in Gulabewala was 2 sources. Engaging in multiple activities is termed "pluriactivity" in the literature on income diversification (Reardon, Berdegue, Barrett and Stamoulis, 2007), though the term is generally used to denote multiple activities of a worker. In our analysis we have not analysed income and employment diversification of individual workers. However, 94.3 per cent of the households in all villages receive incomes from more than one source.

Figure 6.1 *Distribution of households by number of sources of incomes, PARI villages*



The inverse HHI ranges from 1.67 in Gulabewala to 2.38 in Rewasi. The ranks of the villages remain similar as in Table 6.1. However, the HHI value indicates that though households earn incomes from multiple sources, the income portfolios are not very diversified. Households tend to specialize in specific sources of income, while they receive smaller amounts from different subsidiary sources.

Table 6.3 *Inverse Herfindahl Hirschman index (HHI) of income diversification, PARI villages*

Village	Mean HHI
Rewasi	2.38
Mahatwar	2.16
Gharsondi	2.05
Harevli	1.96
Nimshirgaon	1.94
Warwat Khanderao	1.83
25F Gulabewala	1.67
Total	1.98

* Table is sorted in descending order of mean HHI

Let us now see if any generalized patterns of income diversification emerge from the village typologies. In general, households in the unirrigated villages (Rewasi, Mahatwar) are more diversified that the irrigated villages (Gulabewala, Nimshirgaon). However, the patterns of diversification are also very specific to each village and the local conditions. For example, the relatively higher diversification in Rewasi is due to its dependence on remittances and other non-agricultural incomes. Similarly, the high diversification in Mahatwar can be attributed to the households' greater dependence on wage incomes, particularly non-agricultural wage incomes. Warwat Khanderao is also a dry village, but households are not diversified in the village. This may be due to the lack of diversification opportunities. Households in Nimshirgaon have access to irrigated agriculture as well as relatively stable wage employment outside agriculture in neighbouring industries. Thus households in Nimshirgaon tend to specialise in either of the sectors.

6.4 Are the poor more diversified?

The relationship between poverty and income diversification have been of particular interest to researchers. In the study of six districts in Madhya Pradesh and Andhra Pradesh in 2001-03, Farrington, Deshingkar, Johnson and Start (2006) using the inverse Herfindahl-Hirschman index found that the highest and lowest income quintiles were the least diversified. The mean value of the index was 1.7 for Madhya Pradesh and 1.6 for Andhra Pradesh.[16]. Bakshi (2010) also arrived at similar conclusions in an analysis of household incomes in three villages in West Bengal.

The literature also makes a difference between household level and individual level diversification and how diversification strategies of the rich differ from that of the poor. In poor households, each worker earns

16 The value of the inverse Herfindahl-Hirschman index in this study is not strictly comparable with my study due to differences in classification of the sources of income. Farrington et. al. (2006) use a six-fold classification of income sources.

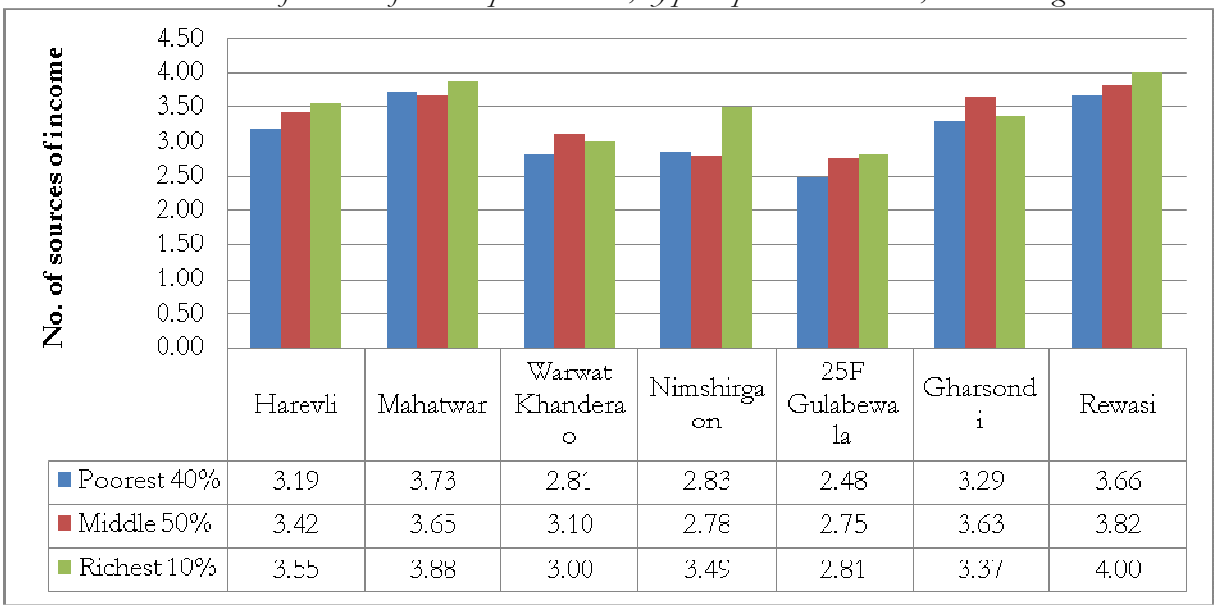
incomes from multiple activities. This reflects – compulsion where no single source of income provides adequate days of employment to the worker.[17] On the other hand, though asset-rich households also had diversified income portfolios, each worker was specialised in a selected activity. According to Reardon, Berdegué, Barrett and Stamoulis (2007), relative specialisation by individuals makes economic sense, while diversification by households is a risk management strategy. This also accords with Ellis' (2000) observation that "a frequent finding of livelihoods research is that individual-level diversity tends to characterise the diversification strategy of poorer households, while household-level diversity combined with occupational specialisation tends to characterise the diversification strategy of better-off households."

In our analysis we limit ourselves to household level diversification. Tables 6.4 and 6.5 show the mean number of sources of income per household and the mean inverse HHI for the richest 10 per cent, poorest 40 per cent and middle 50 per cent of the households. The patterns are very interesting. The number of sources of income per household is higher for the richest 10 per cent of the households than the poorest 40 per cent in all villages. But the pattern is reversed if we consider the inverse HHI. In terms of incomes, the richest 10 per cent are the least diversified in all villages except Nimshirgaon.

The seemingly contradictory results perhaps signify the differences in diversification strategies of the rich and poor. The rich tend to specialize in the most remunerative sources of income, though they also engage in subsidiary economic activities, to 'manage risks' or to maximize incomes. Large landowning households may also invest their agricultural surplus in various non-agricultural opportunities. They often continue to remain in agriculture even when the major share of the household income comes from non-agriculture. The poor, by contrast, have more diversified income portfolios. They are not able to specialize in specific occupations as no single occupation provides them adequate number of days of employment or incomes. The more remunerative and stable sources of incomes and employment are not available to the poor households.

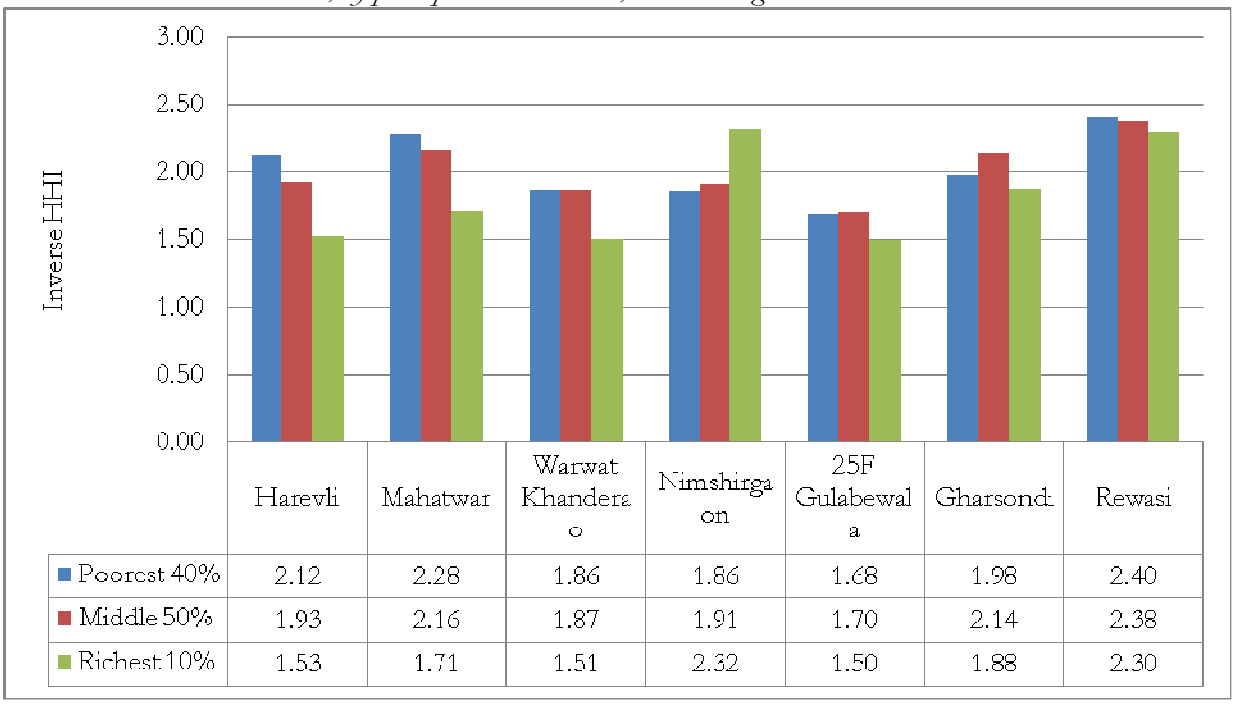
17 See Breman (1996), Bhalla (2000).

Table 6.4 *Mean number of sources of income per household, by per capita income deciles, PARI villages*



	Harevli	Mahatwar	Warwat Khandera o	Nimshirga on	25F Gulabewa la	Gharsond i	Rewasi
Poorest 40%	3.19	3.73	2.81	2.83	2.48	3.29	3.66
Middle 50%	3.42	3.65	3.10	2.78	2.75	3.63	3.82
Richest 10%	3.55	3.88	3.00	3.49	2.81	3.37	4.00

Table 6.5 *Mean inverse HHI, by per capita income deciles, PARI villages*



	Harevli	Mahatwar	Warwat Khandera o	Nimshirga on	25F Gulabewal a	Gharsondi	Rewasi
Poorest 40%	2.12	2.28	1.86	1.86	1.68	1.98	2.40
Middle 50%	1.93	2.16	1.87	1.91	1.70	2.14	2.38
Richest 10%	1.53	1.71	1.51	2.32	1.50	1.88	2.30

6.5 Diversification by social group

There are no significant differences in the levels of diversification between social groups. Households in all social groups receive incomes from about three sources on the average, with minor differences between villages. The inverse HHI varies between 1.8 and 2.4. Thus, it is not the case that the Dalit households are more (or less) diversified than non-Dalit households. This is not to say that there are no systematic patterns of income and occupational differences between the two groups. There may be systematic differences in the specific occupations they choose (or access) and the specific sectors they specialise in.

Table 6.6 *Mean number of sources of income per household, by social group, PARI villages*

Village	Number of sources of income			
	Others	Muslim	Dalit	Adivasi
Harevli	3.34	3.31	3.35	
Mahatwar	3.58		3.79	
Warwat	2.92	3.15	2.96	
Khanderao Nimshirgaon	2.90	2.76	2.85	
25F Gulabewala	2.73		2.60	
Gharsondi	3.45	3.38	3.74	3.39
Rewasi	3.74		3.86	3.95

Table 6.7 *Mean inverse Herfindahl Hirschman index, by social group, PARI villages*

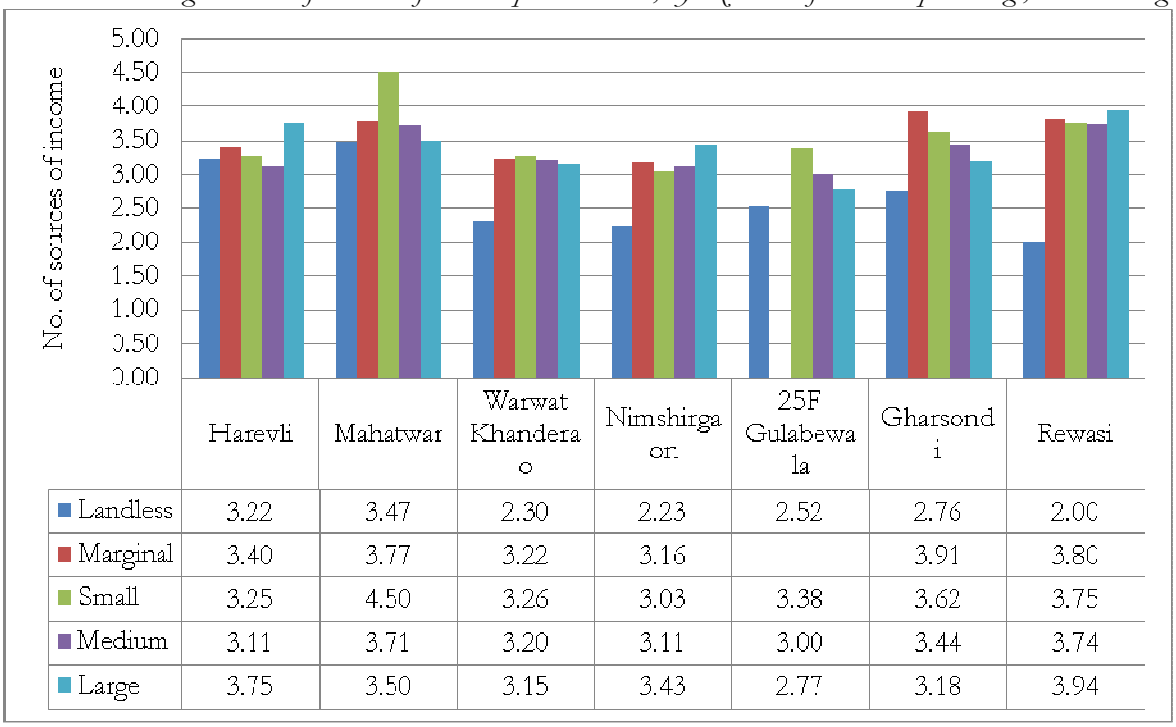
Village	Inverse HHI			
	Others	Muslim	Dalit	Adivasi
Harevli	1.89	2.10	2.02	
Mahatwar	2.19		2.14	
Warwat	1.75	2.06	1.89	
Khanderao Nimshirgaon	2.02	1.80	1.81	
25F Gulabewala	1.60		1.72	
Gharsondi	2.08	1.90	2.01	1.97
Rewasi	2.40		2.24	2.35

6.6 Income diversification and land ownership

In the previous chapter we have shown that ownership of land and other assets are positively correlated with total incomes and specific sources of incomes (particularly incomes from agricultural and non-agricultural self employment). Ownership of land and other assets often facilitates households' access to different sources of income and the diversification strategies they adopt. In this section we try to analyse if

there are any systematic patterns in diversification and land ownership. Tables 6.8 and 6.9 presents the mean number of sources of income and mean inverse HHI by size class of ownership holdings.

Table 6.8 *Average number of sources of income per household, by size class of ownership holdings, PARI villages*



	Harevli	Mahatwar	Warwat Khandera o	Nimshirga on	25F Gulabewa la	Gharsond i	Rewasi
Landless	3.22	3.47	2.30	2.23	2.52	2.76	2.00
Marginal	3.40	3.77	3.22	3.16		3.91	3.80
Small	3.25	4.50	3.26	3.03	3.38	3.62	3.75
Medium	3.11	3.71	3.20	3.11	3.00	3.44	3.74
Large	3.75	3.50	3.15	3.43	2.77	3.18	3.94

Table 6.9 *Mean inverse HHI, by size class of ownership holdings, PARI villages*

	Harevli	Mahatwar	Warwat Khandera o	Nimshirga on	25F Gulabewa la	Gharsond i	Rewasi
Landless	2.07	1.81	1.60	1.47	1.68	1.85	1.38
Marginal	2.09	2.27	2.06	2.14		2.24	2.23
Small	1.64	2.21	1.67	2.15	2.19	2.10	2.47
Medium	1.94	2.21	2.01	2.06	2.35	2.10	2.43
Large	1.56	2.05	1.53	1.69	1.50	1.70	2.44

Both the indices of diversification show that in most villages, the landless and households with large land holdings are less diversified than the marginal, small and medium land holding households. There are, of course, exceptions. Large land owners in Harevli, Nimshirgaon and Rewasi receive incomes from more number of sources than the remaining households. This is because large land owning households in these villages have more access to non-agricultural salary incomes, remittances and transfers and rental incomes. However, in terms of the HHI, the large farmer households are less diversified than marginal, small and medium farmers in all villages, except Rewasi. This indicates that large land owning households try to specialise in specific types of incomes, and in most instances they specialise in agricultural incomes (crop production, animal husbandry and rents from land).

At the other extreme, the landless households are also less diversified than marginal, small and medium farmer households in each of these villages. This is because the landless households have low capacities to diversify. Lack of access to land limits their access to agricultural self-employment opportunities and lack of access to capital limits their access to non-farm employment opportunities.

The middle groups, that is, the marginal, small and medium land holders, are the most diversified. They constitute the large majority of the households in the village. These households diversify to different occupations because crop production on small holdings does not provide them adequate incomes.

6.5 Conclusions

In this chapter we constructed indices to analyse household income diversification. The two indices we used for our purpose were the average (mean) number of sources of income per households and the average (mean) inverse Herfindahl-Hirschman index. Most households in the study villages are pluri-active, that is, they receive incomes from multiple sources. The average number of sources of incomes per households was 3. However, the inverse HHI showed that the household income portfolios were not very diversified. Thus, households primarily specialised in specific income source, while they received incomes from subsidiary activities to meet the deficits.

The rich (top 10 per cent in per capita household income terms) and the poor (bottom 40 per cent) have markedly different diversification patterns. The rich households receive incomes from a large number of sources, they are much less diversified in terms of income shares. Thus they specialise in specific remunerative sources of incomes, even though they also make investments and receive incomes from a large

number of other subsidiary activities. The poor, on the other hand, have access to a limited number of non-remunerative sources of incomes. No single income source provides them adequate incomes for subsistence and hence they have a diversified income portfolio.

There are no differences in the average number of incomes sources per household and average inverse HHI across the major social groups in the villages. This is probably because there is considerable heterogeneity in income levels and occupations within each social group.

Ownership of land (which is also high correlated with ownership of other assets) determines households' incentives and capacities to diversify. Our analysis showed that the landless and the large farmers are least diversified due to diametrically opposite reasons. Landless households are not diversified as lack of access to land restricts their access to many sources of income, particularly access to agricultural and non-agricultural self employment. The large land owners are less diversified as they tend to specialise in agricultural sector. The middle farmers have diversified income portfolios partly because small-scale agriculture does not provide them with adequate and stable incomes, and partly to reinvest their meagre surplus outside agriculture (in allied activities and non-agricultural employment) to be able to increase household incomes.

CHAPTER 7

POVERTY, INEQUALITY AND NON-FARM INCOMES

7.1 Introduction

Empirical evidence from India and other countries on the impact of diversification of rural household incomes to non-farm sources on rural poverty an income inequality is inconclusive. To the extent that participation in non-farm activities is restricted to poor landless and near landless households, non-farm incomes will reduce income inequality. However, when there are entry and mobility barriers to high-return non-farm employment, as a result of which access to such incomes is limited to well-endowed households, non-farm incomes will increase income inequality.[18]

This chapter tries to explore the relationship between income poverty, inequality and diversification of household incomes in the study villages. Section 7.2 deals with the implications of income diversification on income poverty. In the proceeding sections we try to analyse the relationship between income inequality and income diversification. We decompose the income inequality measure GE(2) to statistically measure the contribution of each source of income to overall income inequality in the villages and draw our conclusions for this statistical analysis. Section 7.3 describes the methodology and section 7.4 discusses the results.

For our analysis we have classified the sources of income in the following broad categories.

1. Self-employed in agriculture: This includes incomes from crop production, trees, and incomes from animal resources
2. Agricultural wage: All wage incomes from agricultural wage employment (casual and long term)
3. Non-agricultural wage: All wage incomes from manual wage employment in the non-agricultural sector
4. Salary: Incomes from skilled regular wage employment (in private and public sectors). Though wages and salaries are both labour earnings, we distinguish the two in our analysis for they have very different implications for inequality.
5. Self-employed in non-agriculture: Incomes from business and trade in non-agriculture
6. All other sources: This is a residual component which includes all rents, interests and transfers

18 See section 1.2 in chapter 1 for a review of literature on income inequality and non-farm incomes.

7.2 Poverty and Non-farm Incomes

To understand the relationship between poverty and income diversification, we would first have to define a benchmark to identify poor and non-poor households, that is, use a poverty line. It is not appropriate to use the official poverty line for our purpose, as the official poverty line is based on consumption expenditure, while our data relates to household incomes at a single period of time. Hence we use a relative poverty measure to classify poor households. We define the bottom forty per cent households in the distribution of per capita household incomes in each village as relatively poor.

The major questions we try to analyse in this section are as follows. First, what diversification options are available to the relatively poor households in the villages? Secondly, does diversification enable poor households to transcend income poverty?

Table 7.1 shows the shares of incomes received from agriculture and non-agricultural sources by the poorest 40 per cent and richest 10 per cent of the households in each village. The poor households have considerably diversified income portfolios, and 42.8 per cent of the households' incomes are sourced from non-agriculture on the average. There are of course variations across villages. The richest 10 per cent of the households are also diversified and the share of non-agricultural incomes in their income portfolio is higher, 54.4 per cent on the average. In all villages the households in the top income decile receive a larger share of incomes from non-agricultural sources, that is, these households are most diversified.

Table 7.1 *Income shares from agriculture and non-agriculture for poor and rich households, PARI villages*

Village	Poorest 40 %		Richest 10%	
	Agriculture	Non-agriculture	Agriculture	Non-agriculture
25F Gulabewala	68.5	31.5	61.9	38.1
Gharsondi	57.5	42.5	49.0	51.0
Harevli	77.7	22.3	80.8	19.2
Mahatwar	21.8	78.2	18.7	81.3
Nimshirgaon	61.8	38.2	38.4	61.6
Rewasi	43.0	57.0	16.2	83.8
Warwat Khanderao	70.0	30.0	52.0	48.0
Total	57.2	42.8	45.6	54.4

Table 7.2a *Composition of household incomes of relatively poor households, PARI villages*

Village	Self employed in agricultute	Agricultural wage	Non-agricultural wage	Salary	Self employed in non-agriculture	All other sources
25F Gulabewala	10.4	58.0	17.4	1.2	3.0	9.8
Gharsondi	27.6	29.8	15.9	3.4	3.4	19.8
Harevli	20.6	57.1	11.6	0.0	2.3	8.5
Mahatwar	16.8	4.9	46.9	3.6	9.1	18.5
Nimshirgaon	30.0	31.8	29.4	1.8	5.0	2.1
Rewasi	36.5	6.5	17.7	10.2	5.6	23.4
Warwat Khanderao	30.2	39.9	10.5	1.7	11.0	6.8

Note: Relatively poor households are defined as households in the bottom 40 per cent of the households in terms of per capita household income.

Table 7.2b *Composition of household incomes of relatively rich households, PARI villages*

Village	Self employed in agricultute	Agricultural wage	Non-agricultural wage	Salary	Self employed in non-agriculture	All other sources
25F Gulabewala	61.9	0.0	0.0	5.0	1.6	31.5
Gharsondi	49.0	0.0	0.6	1.4	39.2	9.7
Harevli	80.8	0.0	0.0	5.4	3.1	10.7
Mahatwar	18.6	0.0	4.2	9.9	43.7	23.5
Nimshirgaon	38.2	0.2	0.9	21.3	23.0	16.4
Rewasi	16.2	0.0	1.2	4.4	53.0	25.2
Warwat Khanderao	51.8	0.2	0.1	7.0	35.3	5.5

Note: Relatively poor households are defined as households in the top 10 per cent of the households in terms of per capita household income.

The major differences in the income composition between the rich and poor households are in terms of their access to and incomes received from different sources within the non-farm sector. The major share of non-agricultural incomes for the poor households originates from non-agricultural wage earnings (Table 7.2a). Their share in salary and income from non-agricultural self-employment remains small, less than 10 per cent in the irrigated villages Gulabewala, Gharsondi, Harevli and Nimshirgaon, and between 10 and 15 per cent in the remaining three dry villages. The rich, by contrast, receive the bulk of their non-farm incomes from non-agricultural self-employment (Table 7.2b). The share of regular salaried incomes received by rich households is also higher than that of poor households.

Thus, even though poor households are diversified, the diversification options available to poor households are limited to manual wage employment. This is because, they lack resources in terms of capital investments and education and skills to be able to diversify to other non-agricultural occupations.

The next question that we would explore with our data is can diversification to the non-farm sector enable households to transcend poverty? Table 7.3 helps us to throw some light on this question. In this table we have computed the mean incomes received by participating households from each source, and the number of households receiving incomes from the particular source. In our preceding analysis, we found that the major source of non-farm income for poor households was wage incomes. However, we do not find evidence that average incomes received by households from non-agricultural wages is significantly higher than average incomes received from agricultural wages. In four villages, Gulabewala, Gharsondi, Harevli and Warwat Khanderao, the non-agricultural wage earnings are substantially lower than agricultural wage earnings. Fewer households participate in non-agricultural labour activities. In these villages, availability of non-agricultural labour opportunities are low and non-agricultural wages are not substantially higher than agricultural wages.

In Mahatwar, Nimshirgaon and Rewasi, mean incomes from non-agricultural wages as well as number of households deriving incomes from the source are high. Each of these villages enjoy specific advantages with respect to non-agricultural wage employment opportunities. Many workers in Mahatwar are specialized in construction of borewells and they receive relatively high wages in this work. Nimshirgaon, as we discussed earlier is situated in an industrialized region in Maharashtra and workers find employment in factories located in nearby urban areas. Rewasi is also a very unique village, as workers find non-agricultural employment in the transport, construction (in specialized marble work) and other sectors in nearby towns and cities. They also migrate for short and long durations for such employment.

Thus non-agricultural wage work within the village, in general, may not have significant impact on incomes and livelihoods of rural households. Wages in such employment are not significantly higher than agricultural wages, and availability of such employment opportunities is also limited. Non-agricultural wages have significant impact on incomes and livelihoods when workers find employment in semi-skilled activities (such as well construction, stone and marble work, motor driving and repair, factory work) which accrue higher wages, and availability of such employment. Distance from nearest towns and cities in itself is not the determining factor. More important than distance from towns and urbanization is the general level of

industrialization in the region, the ways in which workers are able to network, collaborate, associate and specialize in specific skills and find markets for their skills.

Mean incomes from salary is higher than other income sources, but very few households receive salary incomes. The smallness of the formal sector and its inability to absorb labour is a general problem in Indian economic structure. The poor are further disadvantaged by lower achievements in education and skills. Participation of the poor households in non-agricultural self-employment is also limited, though higher than salaried employment.

Table 7.3 *Mean income from source of relatively poor households, PARI villages*

Village		Self employment in agricultute	Agricultural wage	Non-agricultural wage	Salary	Self employment in non-agriculture	All other sources	Total income
Gulabewala	Mean	2,880	12,218	7,139	9,420	11,375	4,806	18,711
	N	55	72	37	2	4	31	81
Gharsondi	Mean	4,972	6,177	4,726	12,863	5,091	5,080	14,397
	N	84	73	51	4	10	59	105
Harevli	Mean	3,387	10,510	4,139		3,429	2,458	14,136
	N	37	33	17		4	21	43
Mahatwar	Mean	2,425	1,734	9,219	9,800	6,683	3,112	13,000
	N	56	23	41	3	11	48	62
Nimshirgaon	Mean	7,614	8,989	14,476	12,000	11,323	1,990	21,246
	N	245	220	126	9	27	65	293
Rewasi	Mean	16,235	8,182	11,541	35,218	30,443	18,820	43,447
	N	85	30	58	11	7	47	87
Warwat Khanderao	Mean	7,688	8,506	4,683	15,200	12,617	6,591	18,345
	N	72	86	41	2	16	19	100
Total	Mean	7,312	8,700	9,812	20,106	11,447	6,174	21,116
	N	634	537	371	31	79	290	771

Note: Relatively poor households are defined as households in the top 10 per cent of the households in terms of per capita household income.

Case Studies of rich farmer households in some PARI villages

The PARI data show very clear differentiation in villages on the basis of class. The richest in each village, landlords and capitalist farmers, not only received high incomes from traditional occupations such as cultivation, animal husbandry, moneylending and rent extraction, but also took advantage of new opportunities thrown open by market forces, within and outside agriculture. Agricultural production for all these landlord/capitalist farmer households was largely for the market, and significantly biased towards high value commercial crops shaped by agro-climatic and technological possibilities in the region. These households also received high incomes from non-agricultural occupations, largely from business and trade, rental incomes from buildings such as shops and commercial complexes, and from financial assets. The case studies below describe the sources of income of selected landlord and capitalist farmer households in Gharsondi, Gulabewala and Nimshirgaon villages.

Gharsondi. In Gharsondi village, the largest landlord household was a Jat Thakur (OBC) household that owned 150 acres of land. The household obtained incomes from crop production, non-agricultural self-employment, and rent. The household cultivated paddy and soyabean in the Kharif season and wheat and chickpea in the rabi season. In Kharif, the household incurred a loss as the soyabean crop failed that year. The total income from cultivation in the survey year was Rs. 36,46,468 (38 per cent of total household income), which was lower than incomes received during a normal crop year. The household owned a flour mill and market complex in nearby Dabra. The income from these sources was Rs. 45,00,000 (46 per cent of total household income). Apart from this, the head of household's son was a medical doctor with an annual income of Rs. 10,50,000. The household also engaged in moneylending, receiving usurious income of at least Rs. 50,000 in the survey year. Thus, the landlord household obtained incomes from cultivation and usury, as also from lucrative non-agricultural sources – profits from the flour mill, rental income from the market complex, and professional incomes.

25F Gulabewala. In 25F Gulabewala, the richest household was a landlord household with 80 acres of land. The household derived income from crop production, moneylending, and financial investments. They cultivated cotton, wheat, barley and rapeseed during the survey year and received Rs. 906,273 from crop production, which constituted only 14 per cent of

total household income. The household hired 12 long-term workers for cultivation. The household owned agricultural machinery worth Rs. 750,000. The head of household was a traditional money lender and continued to receive high usurious incomes, Rs. 912,000 (14 per cent of total household income) in the survey year. The interest rate he charged was 2 per cent per month. He has also invested in stocks and mutual funds. The present value of his financial assets was approximately Rs. 4700,000, generating an annual income of Rs. 1200,000 (19 per cent of total household income). The household owned a Krishi Mandi from which they earned a substantial part (47 per cent) of their income. The remaining incomes came from a Hutch mobile phone franchisee and from animal resources. The household had invested approximately Rs. 20,00,000 in a private college in Sri Ganganagar. The college had obtained government affiliation for a B.Ed course.

The second richest household in Gulabewala was also a Jat Sikh landlord household. All their incomes were from agriculture and animal resources. The household owned 278 acres of land and cultivated American cotton, sugarcane, wheat and rapeseed. From cultivation, the family got Rs. 1636,873, which was 79 per cent of their total household income. The household employed 14 long term workers. The household received an additional income of Rs. 4,28,108 from a dairy. The dairy had 50 cows at the time of survey, used machines for milking the animals, and sold milk to Nestle. The household had plans for further expansion of the dairy. The household was also constructing a perfume and essential oil distillery and had planted rose, tube rose, and lemon grass on a part of their land. The future income prospects for this household were even higher.

Nimshigaon. In Nimshirgaon, the household with the largest land holding and second highest income during the reference year was a landlord/capitalist farmer household with 50 acres of land. The main source of income of this household was from capital-intensive commercial cultivation of grapes. The family had large mango orchards and also cultivated betel leaves. Income from agriculture was Rs. 8,85,034, or 64 per cent of total household income. The head of household planned to set up green house to produce export crops (exotic flowers and vegetables) and had applied for a bank loan of Rs.70,00,000 for the same. Profits from animal resources constituted 6 per cent of household incomes. The household also runs a borewell-sinking business and business income constituted 19 per cent

of total household income. The head of household's widowed sister was a senior clerk in a government office.

In Nimshirgaon, the richest household was a Jain landlord with 40 acres of agricultural land. The main source of their income was from cultivation from a variety of crops including grapes. Agriculture contributed to 84 per cent of total household income for the household, and 73 per cent of total crop income was from the cultivation of grapes. This household also had a borewell-sinking business (13 per cent of total household income). The remaining income was from animal resources.

7.3 Decomposition of inequality measures

In our analysis, we try to understand the contribution of each source of income on total income inequality. This can be done by natural decomposition of inequality measures such as Gini, Theil or General Entropy group of inequality indices.

An income inequality index is naturally decomposable, if the index can be written as a weighted sum of incomes. In such cases, total inequality can be expressed as the weighted sum of inequality from different components of income. Income is the sum of different components, that is, of income from different sources. The inequality index can be naturally decomposed to analyse how different sources of income contribute to income inequality. Thus, if the index is naturally decomposable, then

$$I = \sum_f S_f$$

Where, S_f depends on income from source f. Thus, the contribution of each source f to total income inequality is, $s_f = S_f/I$.

Natural decomposition of GE(2).[19]

We use the General Entropy measure of power 2, or GE(2) measure of inequality for our decomposition analysis. We have used this measure for a specific reason. Since we are dealing with single time point data, we have households that have made net losses in household incomes or in specific sources of income (particularly crop production and animal

19 See Morduch and Sicular (2002) on the decomposition of the Theil and Gini indices.

husbandry) during the survey year. Inequality measures such as Gini, which is based on cumulative income shares are difficult to calculate in the presence of negative incomes.[20]

The inequality measures belonging to the group of general entropy measures have the general formula

$$GE(\alpha) = \frac{1}{\alpha^2 - \alpha}\left[\frac{1}{n}\sum_{i=1}^{n}\left(\frac{y_i}{\mu}\right)^{\alpha} - 1\right]$$

The value of GE ranges from 0 to ∞. The value 0 represents a situation where the income levels of each individual are equal. The value of α range from -∞ to +∞. The parameter α is the weight given to distances between incomes at different parts of the distribution. At negative values of α, the GE index is more sensitive to changes in the lower part of the distribution and at higher values of α, the index is sensitive to changes in the higher end of the distribution (Cowell 2006). When α=0, GE(0) is the Theil L index. When α=1, GE(1) is the Theil T index. When α=2, the GE(2) becomes half the squared coefficient of variation.

Thus, $GE(2) = \frac{1}{2}.\left(\frac{sd(y)}{mean(y)}\right)^2$

The Theil L and Theil T indices are logarithmic expressions, and hence cannot be calculated in the presence of negative values in the distribution.[21] In the case of GE(2) we face no such computational problems when there are negative values. Thus we have used GE(2) in our analysis.

The decomposition rule for coefficient of variation and GE(2) is,

$$s_f = \frac{S_f}{I} = \frac{covariance(y_f, y)}{variance(y)}$$

where, s_f is the share of component f in total income inequality (Morduch and Sicular 2002). The value of s_f may be positive or negative since the covariance can be positive or negative. A negative value of s_f indicates that the specific component has an equalizing effect on decomposition, that is, the component decreases income inequality.

20 In our analysis of inequality in chapter 3, we have thus used an adjusted Gini index, formulated by Chen, Tsaur and Rhai (X)
21 See Litchfield (1999), Anand(1983)

7.4 Results from decomposition analysis of GE(2)

In Table 7.4, we have decomposed the GE(2) by the seven sources of income that we have described in the beginning of this chapter. First, we observe that incomes from manual wage employment in agriculture and in non-agriculture decreases income inequality in each of the villages. However, its contribution is small. All other sources of income increases income inequality. Secondly, the contribution of salary incomes in total income inequality in all villages, though positive, is low - less that 10 per cent. Thirdly, the major share of income inequality arises from incomes from self-employment either in agriculture and non-agriculture. The share of incomes from agricultural self employment in total income inequality ranged from 8.6 per cent in Rewasi to 81.7 per cent in Harevli. The share of incomes from self employment in non-agriculture ranged from 3.5 per cent in Gulabewala to 79.6 per cent in Rewasi. In Rewasi and Mahatwar, the contribution of agricultural self employment in total income inequality was only 8.6 per cent and 15.7 per cent respectively. However, the share of incomes from non-agricultural self employment in total inequality is very high in these villages. On the other hand, villages such as Harevli and Nimshirgaon where the share of agricultural self employment in total income inequality is high, the corresponding share for non-agricultural self employment is low. Hence we can safely conclude that in all villages, with the sole exception of Gulabewala, incomes from self employment activities are the major contributors to income inequality. Finally, we need to discuss the exceptional results we find in Gulabewala. In this village, the major contributor to income inequality was 'all other sources'. This is possibly because of the high incomes from rents (from agricultural land, non-agricultural buildings, machinery) and financial and other interest incomes that rich households derive in this village.

It is important to note that the major contributors to income inequality in the villages are income sources that are based on ownership and access to productive assets (land, buildings, machinery), and capital investments. Thus, basic inequality in the distribution of land and capital in rural India forms the foundational basis for income inequality in the villages.

Table 7.4 *Decomposition of GE(2) of annual household income, by sources of income, PARI villages* (in per cent)

Village	Self employment in agricultute	Agricultural wage	Non-agricultural wage	Salary	Self employment in non-agriculture	All other sources	Total	GE (2)
Harevli	81.7	-1.0	-0.3	8.9	2.8	7.8	100	0.74
Mahatwar	15.7	-0.2	-1.1	4.0	62.9	18.7	100	0.68
Warwat Khanderao	35.7	-0.4	-0.1	1.1	57.4	6.4	100	0.87
Nimshirgaon	60.0	-1.2	-0.7	10.0	25.6	6.2	100	0.68
Gulabewala	34.4	-0.5	-0.1	0.7	3.5	62.0	100	0.88
Gharsondi	36.6	-0.1	0.0	0.0	54.2	9.3	100	1.19
Rewasi	8.6	-0.2	-0.2	1.3	79.6	11.0	100	0.68

The literature on income diversification and income inequality often discuss the implications of diversification of rural incomes and employment to non-farm sectors on rural inequalities, particularly income inequalities. It is argued that access to non-farm incomes may reduce poverty and income inequality and it is accepted as a major poverty alleviation strategy.

Our study suggests that it is simplistic to draw such straightforward associations between non-farm sector employment and its implications on poverty and inequality. The non-farm sector is not homogeneous. The direction in which participation in the non-farm sector will impact existing patterns of income inequality, as well as the magnitude of the impact, depends on the nature of the specific type of non-farm employment. Our study suggests that only wage employment activities have an equalizing impact on the income distribution, however, the magnitude of the impact is small. The results possibly arise from the fact that there are no entry barriers in the form of capital investments or skill requirements for manual wage employment. However, such employment yields low incomes, vis-à-vis other sources of income, and hence the magnitude of the impact is small. This indicates specific policy interventions in increasing opportunities for wage employment and the need to raise wage rates as fundamental to policies of reducing income inequality.

On the other hand, non-farm employment that requires specific skills (regular skilled employment) or capital investments may increase income inequality since all households

cannot access such income opportunities equally. Thus it is important to address basic inequality in education, inequalities in access to credit and capacities for sustained productive investments to reduce income inequality.

7.5 Conclusions

This chapter analyses the relationship between diversification of household incomes to non-farm sources and household income poverty and inequality. Our data show some interesting results.

First, poor households receive substantial share of income from non-agricultural sources. The share of non-agricultural sources in the income portfolio of relatively rich households higher than that of poor households.

Secondly, though both rich and poor households are diversified, the diversification options for poor households are limited to wage employment activities. Few households have access to salary or self-employment activities.

Thirdly, given the existing wage structures and availability of wage employment opportunities, income received from wage employment by poor households are not significantly higher than agricultural wage earnings. Non-agricultural wage earnings are significantly high only in villages where there are opportunities for semi-skilled wage employment.

Fourthly, in five of the seven villages, incomes received by poor households in self-employment are similar to incomes earned in wage employment. Thus when poor households diversify to self employment activities, they engage in petty trade activities that do not generate very high revenues.

Fifthly, decomposing GE(2) by the sources of income we conclude that incomes from agricultural and non-agricultural wages have an equalizing impact on total income inequality, while the major contributors to income inequality were incomes from self-employment in agriculture and non-agriculture. Thus existing patterns of income inequality in the villages

are embedded in property structures and access to land and capital that determine access and level of incomes from self-employment ventures.

CHAPTER 8

SUMMARY OF MAJOR FINDINGS

The rise of the rural non-farm sector in India has received much attention in India since a significant increase in rural non-agricultural employment was noticed in the 1980s in employment data collected by the National Sample Surveys. This generated considerable debate on the economic triggers for such growth[22], and also led to a new understanding of structural change and rural development, which was a major departure from the urban industrialization based two sector models of development[23]. In more recent years, research in developing country contexts has been more concerned with household livelihood diversification within the 'sustainable livelihood framework' proposed by DFID. In India, the number of studies on household income diversification is limited due to unavailability of household level data on incomes.[24]

The present study used data from seven village studies to analyse and understand the processes of household income diversification in rural India, and its implications on poverty and income inequality. Since the question of poverty and inequality in India is intricately and historically related to the question of caste and social exclusion, the study laid specific emphasis on the implications of the process of income diversification on Dalit households in the villages. However, it must be understood that the study analyses the processes in purely quantitative terms. The strength of the study is perhaps bringing the question of social exclusion in contemporary mainstream economic discourses in the country and presenting statistical evidence in its analysis. There have been similar attempts by the Foundation for Agrarian Studies in recent times.[25]

The seven villages studied in this report represented different typologies in production conditions and levels of development, in terms of agro-climatic regions, irrigation and mechanization, rural infrastructure, access to and distance from urban centres. Hence, the villages also showed wide variations in levels of income, occupational patterns and

22 See Vaidyanathan (1986), Unni (1991), Bhaumik (2002) for instance.
23 See Mellor (1987). Also see Chandrasekhar (1993) for a critique of rural development led growth models.
24 See Deshingkar et. al. (2007), Lanjouw and Shariff (2004), Azam and Shariff(2009), Himanshu (2013).
25 See Ramachandran and Swaminathan (eds) 2014.

composition of income from various sources. The villages also presented a microcosm of India's great social diversity. There were significant proportions of Dalit households in all seven villages. In two villages, about 10 per cent of the households were Adivasi. There were also Muslim households in four villages, of which in two villages their share in total population exceeded 10 per cent. Villages in Maharashtra also had Jain and Buddhist households, while the major land owning households in a village in Gang canal region in Rajasthan were Jat Sikh.

In the following sections we try to summarize the major findings that emerge from the analyses in the preceding chapters.

On levels of household incomes and social inequality in incomes

In spite of the diversity, our data show that aggregate levels of income are low in most of the villages, by any standard of comparison – national or international. The proportion of households receiving incomes less the $2 PPP (which is the internationally accepted income benchmark to identify vulnerable households) varied from 50 per cent to 90 per cent in the seven villages.

In our analysis, we have used four categories for social stratification of households. These categories are, Dalit, Adivasi, Muslim and Other households. In each village mean incomes received by Dalit, Adivasi and Muslim households are lower than that of other households. An F-test showed that in five of the seven villages, the differences in mean incomes between the social groups were statistically significant. Most Dalit, Muslim and Adivasi households were concentrated in the bottom deciles of the income distribution, while other households are over-represented in the top decile of the income distribution. In three of the seven villages, there was no single Dalit household in the riches income decile. In the remaining villages, the numbers of Dalit households in the higher income deciles were few.

Size of the non-farm sector

Households in the villages received incomes from multiple sources, and more importantly, more than 50 per cent of households in the villages received incomes from secondary and

tertiary sectors. The share of the non-farm sources in total village incomes ranged from only 19 per cent in Harevli (UP) to 76 per cent in Mahatwar (also in UP).

In terms of contribution to household incomes, income from non-agricultural self employment was the most important source of non-primary sector incomes in the villages. Non-agricultural wage incomes did not exceed 10 per cent of total household incomes in the villages, even though a larger number of households earned non-agricultural wage incomes.

An important characteristic of rural households in contemporary India is their engagement in multiple occupations and income sources. Most households in the study villages received incomes from more than one source. The average number of sources of incomes per households was 3. However, the inverse Herfindahl Hirschman Index which measures diversification of income portfolios showed that the household income portfolios were not very diversified. Thus, households primarily specialised in specific income source, while they received incomes from subsidiary activities to meet the deficits or to re-invest surpluses. The multiplicity of income sources of households and workers complicates our understanding of the processes structural change and development.

The villages with a higher share of primary sector incomes were irrigated villages. However, availability of irrigation alone did not determine the share of primary sector incomes. Nor is it implied that participation in the non-farm sector was entirely driven by low agricultural incomes or push factors. The availability of non-agricultural employment opportunities nearby and access to such opportunities (say through kinship networks that facilitate access) were also important factors in determining employment in secondary and tertiary sectors. For example, Nimshirgaon is an irrigated village with fairly high levels of agricultural incomes. However, the primary sector contributed less than 50 per cent of household incomes in this village since it is located in an industrialised region and workers/households had access to non-agricultural employment opportunities. On the other hand, primary sector contributed to nearly 60 per cent of household incomes in unirrigated Warwat Khanderao, due to the absence of non-agricultural employment opportunities. In Rewasi, 28 per cent of incomes came from remittances since large numbers of persons from this region (Sikar)

have historically sought employment in Indian defence services, trade and business activities, marble and stone works, in other parts of the country and abroad.

Dalit and Muslim households face specific exclusion in agricultural self employment. A higher proportion of other households received incomes from crop production compared to Dalit and Muslim households. A higher proportion of Dalit and Muslim households receive incomes from manual wages compared to other households. The same differences are observed in the composition of household income between Dalit and other households. *However, in salary incomes and incomes from business and trade, we do not see clear patterns of discrimination against Dalit households in all villages. A sizeable share of household incomes of Dalit households sourced from these activities. This is a very important finding in this study. Affirmative action in salaried employment and in provision of credit for self-employment activities is crucial to strengthen this trend to break the historical processes of exclusion and income deprivation.*

Income inequality and sources of incomes

We carried out a decomposition exercise of the inequality measure GE(2) to understand the contribution of different sources of income on existing income inequality in the villages. The decomposition analysis showed that the major contributors to income inequality were incomes from self-employment in agriculture and non-agriculture. Thus the existing structures of inequality are embedded in the unequal property structures and unequal access to land and capital. On the other hand, incomes from agricultural and non-agricultural wages have an equalizing impact on total income inequality, though the magnitude of the impact is small. The results arise from the fact that poor households have access to wage employment as there are no entry barriers in the form of capital investments or skill requirements for manual wage employment. However the magnitude of the impact is small since average incomes from manual wage employment is low compared to other sources of income. *The results indicate that specific policy interventions for increasing wage employment opportunities and the need to raise wage rates as fundamental to policies of reducing income inequality.*

Non-farm Incomes and Access to Land and Assets

There is strong and positive correlation between ownership of land and levels of income in every village. However, in villages such as Rewasi and Mahatwar where participation and

incomes from non-agricultural sources are high, the association between land and household incomes is weakened. Thus, there is some evidence that the growth of the non-farm sector is gradually breaking the traditional relationship land ownership and incomes. This is not to say that the role of large landowners in the economic life of the village is diminishing. They continue to remain economically important as long as they continue to remain the major employers of agricultural labour in the village. Besides, income from business and trade activities, that might require initial investments, is positively correlated with land ownership in four of the seven villages. Thus, large landowners are also able to substantially diversify to non-farm incomes and prosper.

Non-agricultural wage and salary incomes are not strongly correlated with land ownership in most of the villages. Ownership of land and assets may not be a precondition for obtaining access to all forms of non-agricultural incomes. When landless and land poor households gain access to remunerative sources of non-farm incomes, income inequality in villages may decline. However, in spite of such potential, the decomposition of GE(2) clearly shows that non-agricultural incomes from self employment and also salaries increase income inequality in the villages since it is the asset rich who have access to the most remunerative sources of non-farm incomes. *The clear message from the data is that, it is difficult (if not impossible) to address the issue of income inequality without addressing the issue of unequal land and property relations.*

There are significant differences in the ownership of assets between the social groups in the villages. Dalit (Adivasi and Muslim) households have lower land and asset holdings than other households. The patterns of social inequality observed in the distribution of household incomes are also reflected in the inequality in distribution of land, assets and education.

Poverty and Non-Farm Incomes

In our analysis we have adopted a relative poverty approach to identify poor households. We define households in the bottom four deciles of per capita household income distribution as poor. Similarly, households in the top per capita income decile are defined as rich households.

Both poor and non-poor households received substantial share of income from non-agricultural sources, but the relatively rich receive a higher share of income from non-agricultural sources. Poor households largely receive incomes from wage employment. Very few households have access to salary or self-employment activities. It was also found that in five of the seven villages, incomes received by poor households in self-employment are similar to incomes earned in wage employment. Thus even when poor households diversify to self employment activities, they engage in petty trade activities that do not generate very high revenues.

Thus we do not find empirical support to the argument that non-agriculture incomes play a significant role in poverty reduction. The types of non-agricultural incomes accessed by poor households do not yield significantly high incomes than agricultural wage or self-employment activities.

We also constructed the inverse Hirschman Herfindahl index to analyse how households construct their household income portfolios. We found that the rich and the poor have markedly different diversification patterns. The rich households receive incomes from a large number of sources, they are much less diversified in terms of income shares. They tend to specialise in specific remunerative sources of incomes (farm or non-farm), though they also invest in subsidiary farm and non-farm activities. The poor also receive incomes from a large number of sources, but they have a diversified income portfolio as no single income source provides them adequate incomes for subsistence. The occupational choices of the poor households are limited to few low-income options.

Our analysis also showed that the landless and the large farmers are least diversified for completely opposite reasons. Landless households are not diversified as lack of access to land restricts their access to many sources of income, particularly access to agricultural and non-agricultural self employment. The large land owners are less diversified as they tend to specialise in the agricultural sector. However, as our case studies showed that though they may receive a major share of income from agriculture, they also receive incomes from multiple non-agricultural sources. The middle farmers have diversified income portfolios partly because small-scale agriculture does not provide them with adequate and stable

incomes, and partly to reinvest their meagre surplus outside agriculture (in allied activities and non-agricultural employment) to be able to increase household incomes.

There are no differences in the average number of incomes sources per household and average inverse HHI across the major social groups in the villages. This is probably because there is considerable heterogeneity in income levels and occupations within each social group.

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