

**Labour Mobility, Health, and Rural Livelihoods in Southern India**

by

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## ABSTRACT

### LABOUR MOBILITY, HEALTH, AND RURAL LIVELIHOODS IN SOUTHERN INDIA

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Internal labour migration is an important and necessary livelihood strategy for millions of individuals and households throughout India. Participation in labour mobility can also influence health and development outcomes among migrant workers and their households. To understand the connections between internal labour migration, health, and rural livelihoods, a mixed methods (qualitative and quantitative) study including 66 semi-structured interviews and 300 household surveys (representing 1,693 individuals) was conducted in 26 rural villages in the Krishnagiri district of Tamil Nadu. Data were collected on the determinants, types, and outcomes of internal labour migration, the rate of participation in the Mahatma Gandhi Rural Employment Guarantee Act (MGNREGA), self-reported morbidity, and health seeking behaviour. Qualitative data were analyzed using thematic analysis and quantitative data were analyzed using multivariable logistic and linear models. Of the 300 households surveyed, 137 (45.7%) had at least one current migrant member, with 205 migrant workers (8.3% females and 91.7% males) included in total. Types of labour migration included daily labour commutes (12.2%), temporary labour migration (77.6%), and permanent migration (2.9%). Households from historically marginalized castes were 3.7 times more likely to engage in temporary labour migration than higher caste households. Participation in internal labour migration was financially advantageous, with the highest daily wages earned by high skilled workers and those in the construction industry. Despite public and political discourse on the subject, participation in MGNREGA did

not act as a substitute for internal labour migration. Conversely, there was evidence that MGNREGA and internal labour migration were used as complementary livelihood strategies. In terms of self-reported morbidity, 22.3% of individuals experienced a chronic health problem at the time of survey administration. This prevalence did not differ between migrant and non-migrant adults. The lack of confidence in the public healthcare system and the cost of private healthcare were barriers to seeking care. The overall findings underscore the significance of internal labour migration for these rural households and its role in shaping health and development outcomes.

## **DEDICATION**

*This thesis is dedicated to the memory of Mary Kathleen Dodd  
A woman of immense wisdom, joy, strength, and humility*

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Under this larger project, I was invited to conduct my research in Anchetty (one of eight project sites) in partnership with Development of Humane Action (DHAN) Foundation, who acted as the supervisory non-governmental organization for this research location. I designed the study and developed the qualitative and quantitative tools used for data collection, with the assistance and feedback of Dr. Cate Dewey, Dr. Sally Humphries, Dr. Kirit Patel, Dr. Shannon Majowicz, and Mr. Matthew Little (PhD candidate, Department of Population Medicine, University of Guelph at the time of writing). With local support from the DHAN field office in Anchetty, including V. Vedyappan, I was introduced to S. Shankara Gowda and T. Madhe Gowda who provided research and technical support for the project. In particular, S. Shankara Gowda assisted with translation for the semi-structured interviews, and both S. Shankara Gowda and T. Madhe Gowda assisted with household survey administration.

I transcribed each semi-structured interview and analyzed the interviews using NVIVO. For Chapter 4, additional insights originating from the qualitative data were provided by Nia

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## LIST OF ABBREVIATIONS

APL	Above Poverty Line
BPL	Below Poverty Line
CIFSRF	Canadian International Food Security Research Fund
DFATD	Department of Foreign Affairs, Trade, and Development
DFID	Department for International Development
DHAN	Development of Humane Action Foundation
GDI	Gender Development Index
GDDP	Gross District Domestic Product
GDP	Gross Domestic Product
HSB	Health Seeking Behaviour
ICD	International Classification of Diseases
IDRC	International Development Research Centre
INR	Indian Rupees
MBC	Most Backwards Caste
MDGs	Millennium Development Goals
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NGO	Non-Governmental Organization
NSS	National Sample Survey
OBC	Other Backwards Caste
OR	Odds Ratio
PDS	Public Distribution System
RESMISA	Revalorizing Small Millets in Rainfed Regions of South Asia
SC	Scheduled Caste
SD	Standard Deviation
ST	Scheduled Tribe
UP	Ultra Poor
USD	U.S. Dollars

## CHAPTER 1 - INTRODUCTION

The connections between human migration and development represent a growing and debated area of research among scholars and policymakers. In particular, there is interest in the degree to which labour migration, and the financial returns from this work, can be used to promote economic growth and reduce poverty in households and communities of origin (Faist, 2008; Nyberg-Sørensen, Hear, & Engberg-Pedersen, 2002; Piper, 2009; Skeldon, 2008). Despite the attention that the international migration of labour receives, there is recognition that a higher proportion of people in a more marginal position within low- and middle-income countries often engage in internal labour migration (Deshingkar, 2005, 2006; Keshri & Bhagat, 2013). As a result, there is optimism surrounding the potential of internal labour migration to contribute to improved development outcomes in low resource settings.

In India, internal labour migration is a necessary and important livelihood strategy for millions of individuals and households in rural areas. In this context, labour mobility is shaped by a host of demographic, socioeconomic, and political factors that operate at and across different scales. For some individual and households, these movements for work are used to cope with serious deprivation. In other cases, labour mobility is used as a tool to enhance individual and household wellbeing. Thus, participation in internal labour migration also has implications for the health and development of migrant workers and their households.

As a result of the magnitude and complexity of internal labour migration in India, there is a need for intersectional and contextualized studies that incorporate both qualitative and quantitative methods (Deshingkar, 2005, 2006, forthcoming). This body of research addresses this gap by investigating the broad determinants and outcomes internal labour migration

originating from one setting in southern India, in addition to the connections among internal labour migration, health, and rural livelihoods.

### **Measuring internal labour migration in India**

Internal labour migration encompasses permanent and circular or temporary movements for work within and between rural, urban, and peri-urban settings. Temporary labour migration can be further separated to include seasonal migration, temporary migration that is not tied to season, and daily labour commutes. Regardless of the type of migration, these movements can involve individuals, groups, or family units moving from their household and village of usual residence to seek out employment either within or outside their state (Deshingkar, 2006).

#### *National data on internal migration in India*

There are two main sources of national data on internal migration that form the basis for the majority of quantitative studies on internal migration in India: the census and the National Sample Survey (NSS) (Deshingkar, 2005). Both of these data sources collect information on individuals who engage in migration for employment and non-employment purposes. The Indian census defines an internal migrant as an individual who currently resides somewhere other than their place of birth or last residence. According to the 2001 Census of India, approximately 30 per cent of the population, or 307 million individuals, were considered internal migrants, and 191 million of these migrants moved to other districts or states within India (Census of India, 2001). The total number of internal migrants in India has doubled since 1971; however, the proportion of migrants as a percentage of the country's total population has remained relatively stable over this 30 year period (Bhagat, 2010). Based on these trends and recent projections, it is believed that there are currently 400 million internal migrants in India (Rajan, 2013; UNESCO/UNICEF, 2013). Conversely, the NSS uses an individual's 'usual place of residence,' defined as where the

individual had resided continuously for a period of six months or more, to examine migration (Keshri & Bhagat, 2013). An individual was counted as a migrant if their usual place of residence differed from their previous usual place of residence at the time of the survey. This approach is arguably better at capturing temporary and seasonal labour migration and differentiating between permanent and short-term movements than the census definition (Keshri & Bhagat, 2013). Thus, the most recent round of the NSS (2007-08) that had an explicit focus on migration found that there were 326 million internal migrants in India at the time of the survey (National Sample Survey Organization, 2010).

Both census and NSS data allow for disaggregation based on a number of factors including sex, primary reason for migrating, and migration stream (i.e., intrastate or interstate in addition to urban or rural destination). According to both sets of national data, females were more likely to engage in internal migration than males. Census data indicated that 70.7 per cent of internal migrants are female, whereas NSS data indicated that 80 per cent of internal migrants are female. Among female migrants, marriage was most frequently given as the reason for migration, especially among individuals who moved to rural areas (National Sample Survey Organization, 2010). Conversely, male migrants were most likely to move for employment according to both data sets. In addition, census data show that the majority of intrastate movements were rural to rural (68.6%), whereas rural to urban movements made up the largest category of interstate movements (39.3%) (Bhagat, 2011). Intrastate rural to rural migration is heavily weighted towards females who indicated their primary reason for migration was marriage (Bhagat & Mohanty, 2009; R. Srivastava & Sasikumar, 2003). Moreover, the growth of migration into urban areas since 1993 is attributed almost entirely to female migrants, as the proportion of male migrants to urban areas has remained relatively stable over this period (de

Haan, 2011; UNESCO/UNICEF, 2013). At the same time, there has been growth in actual numbers of male migrants to urban areas specifically for employment, with NSS data indicating that 56 per cent of male migrants to urban areas did so for employment (National Sample Survey Organization, 2010; UNESCO/UNICEF, 2013). Consequently, internal migrants, and particularly internal labour migrants, are key contributors to India's ongoing urbanization (Bhagat, 2011; Bhagat & Mohanty, 2009; UNESCO/UNICEF, 2013).

Census data also allow for a broad understanding of regional internal migration flows. Bhagat and Mohanty (2009) identified net migration corridors that exist throughout the country, in part contributing to growing urbanization in some states. More specifically, the states of Uttar Pradesh and Bihar had the largest net outflow of migrants during 1991-2001, whereas more urbanized states such as Maharashtra, Gujarat, and Punjab had the largest net inflow of migrants during this period. In addition, and of particular relevance to this thesis, a migration corridor exists between the states of Tamil Nadu and Karnataka, with Karnataka receiving a net inflow of migrants from Tamil Nadu. Using 2007-08 NSS data, Keshri and Bhagat (2013) examine the general socioeconomic determinants by state of temporary migration compared to permanent migration. They demonstrate that temporary migration flows are approximately seven times larger than permanent migration flows, and are primarily dominated by individuals of low educational and socioeconomic status who move from rural to urban settings.

Despite their broad contributions to understanding overall trends in internal migration in India, both sources of national data are criticized for underestimating labour migration flows and failing to account for the complexity of migration decisions and processes. An explicit employment related definition of migration is not used by either data source, and correspondingly, the census definition of internal migration is critiqued for underestimating the

number of temporary and seasonal migrant workers (Bird & Deshingkar, 2009; de Haan, 2011; Deshingkar & Akter, 2009). Some scholars argue that the use of a change in ‘usual place of residence,’ and the examination of movements that lasted between one to six months in the previous year by the NSS represents an improvement in capturing temporary and seasonal movements (Keshri & Bhagat, 2013). Using this definition, the 2007-08 NSS estimated that 15 million individuals were engaged in temporary migration. However, this approach fails to capture part time or very short term migration. Moreover, both the census and NSS only allow migrants to provide one reason for engaging in migration (Bhagat, 2010). Critics argue that national data fail to adequately characterize movements with multiple motivations or purposes, especially among female migrants, who may seek out employment after migrating for marriage (de Haan, 2011). Similarly, studies that rely exclusively on these data sources to examine different trends of internal labour migration in India share these limitations.

#### *Industry-based estimates of temporary labour migration in India*

In an attempt to more fully measure different streams of temporary migration including part time and very short term migration, Deshingkar and Akter (2009) used an industry-based approach to enumerate internal migrant workers in India and to estimate the contribution of migrant workers to India’s gross domestic product (GDP). By examining official employment statistics from industries that predominantly employ migrant workers, these scholars were able to circumvent the inability of national data sources to appropriately account for movements with multiple motivations or purposes. In particular, the authors examine the agriculture (including sugar cane cutting, crop harvesting, crop transplanting), manufacturing (including construction, brick kilns, quarries, factor work), and service sectors (including sex work, domestic work, street vending, rickshaw pulling). Integral to their analysis is the inclusion of and distinction between

migration, trafficking, child labour, and bonded labour. Although these labour categories are closely connected and can overlap (e.g., child bonded labour, trafficking of children), it is important to define each category in turn, especially as labour mobility that has questionable legal status is poorly recorded through national data sources (Deshingkar & Akter, 2009). Trafficking entails the movement of individuals through force, coercion, or deception for the purpose of exploitation, and often sexual exploitation (George & Sabarwal, 2013; Ghosh, 2009). The definition of child labour is contentious as a result of its common link to exploitation, but it is broadly considered to be the participation of children in any activity that is economically productive (Lieten, 2002). Bonded labour or debt bondage involves an individual receiving a loan payment prior to completing any form of work, and then working to pay off the loan (Brass, 1986; Breman, 1996). These employment arrangements can be highly exploitative and vulnerable segments of already marginalized populations (e.g., children of impoverished families) are particularly at risk of being forced into such arrangements especially in cases of multi-generational debt bondage (Bhukuth, 2005). Debt bondage can occur on a seasonal basis and seasonal bonded labour is often used in capital intensive sectors such as agriculture (Marius-Gnanou, 2008).

These distinctions are useful in the enumeration of migrant workers as different sectors and subsectors are primarily supported by a particular stream of labour migration. For example, Deshingkar and Akter (2009) detailed how brick kilns in the state of Andhra Pradesh that employ migrants predominantly from the western regions of the state of Orissa are notorious for bonded and child labour arrangements. With this background and the inclusion of additional data from government, non-governmental, and academic sources, Deshingkar and Akter (2009) estimated

that the number of temporary labour migrants in India is closer to 100 million individuals, who contribute to approximately 10 per cent of India's GDP.

Similar to the approach by Deshingkar and Akter (2009), other studies investigate the experiences of migrant workers within a particular industry or across several industries at a single location. These destination-oriented studies often aim to describe the conditions of migrant labour or other factors associated with living away from a place of usual residence from the perspective of migrant workers or accompanying family members. This approach is prominent among studies that examine health outcomes associated with hazardous workplace conditions that migrant workers experience in specific industries such as textile factories (Jaiswal, 2007; Padmini & Venmathi, 2012), manual labour (Ray, Mukherjee, Roychowdhury, & Lahiri, 2004; Srinivasan & Ilango, 2013), and construction (Akram, 2014; Bhattacharyya & Korinek, 2007; Jayakrishnan, Thomas, Rao, & George, 2013).

#### *Measuring internal labour migration at the district, village, and group level*

As a result of the shortcomings of national data sources to measure and characterize migration processes in India, other scholars have used in-depth village-based studies to explore and understand the contextual motivations and outcomes of internal migration for migrants and their households. The consistent underestimation of temporary and seasonal migration flows within India by sources of national data also means that a number of scholars aim to examine the unique nature of temporary movements for work (see Deshingkar & Start, 2003). These studies vary widely in terms of scope, data collection tools, theoretical orientation, and disciplinary background. Moreover, these studies often aim to position specific types and streams of internal labour migration within broader socio-cultural, political, economic, historical, and development processes (see de Haan, 2002; Mosse et al., 2002; Mosse, Gupta, & Shah, 2005; Rogaly, 2003;

Rogaly & Coppard, 2003). In contrast to the destination-oriented studies mentioned above, these studies tend to focus on how a place of origin can shape internal labour migration (e.g., Rogaly, 2003; Alpa Shah, 2006).

In addition to studies based in one village or district, a notable comparative study was undertaken by Deshingkar and Start (2003) who investigated the seasonal migration patterns within several villages in various districts throughout the states of Andhra Pradesh and Madhya Pradesh. This study compared various characteristics and outcomes of seasonal migration between villages in these two states including the type of work that migrants engage in and when seasonal migration typically takes place. In addition, they examined who specifically migrates, the sources and purposes of credit to facilitate seasonal migration, and the generalized impact of seasonal labour migration on migrant households and the village of origin. Contrary to other studies, they demonstrated that individuals from resource poor areas can be engaged in labour migration streams that contribute to broader human development outcomes, whereas individuals from areas that are relatively better resourced may be engaged in more distress-driven forms of labour migration. Distress-induced labour migration, also called coping migration, refers to movement for labour opportunities to ensure household survival when income and other resources are scarce. This form of mobility may be caused by political, economic, or environmental upheaval, or alternatively, be more seasonal in nature, corresponding to dry periods in between growing seasons (Deshingkar & Start, 2003).

In addition to village- and district-level research, several studies have examined temporary migration patterns among specific scheduled tribal groups or caste groups who do not reside within a defined district or state. For example, the comprehensive analysis by Breman (1996) on the persistence of the informal economy in southern Gujarat was primarily concerned

with the seasonal labour migration patterns among the Halpati caste. Breman (1996) detailed how caste and class contribute to exclusion from the agrarian sector for these individuals, and shape access to and experience with other migrant labour employment opportunities. Additionally, research with the Bhil tribal group in the regions of western Madhya Pradesh, southern Rajasthan, and eastern Gujarat formed the basis of the study by Mosse et al. (2002) concerning how seasonal labour migration is embedded in this group's culture. The authors showed how class and gender within this seemingly homogenous tribal group contribute to diverse motivations, experiences, and outcomes associated with migration.

#### *Measuring labour migration in Tamil Nadu*

In Tamil Nadu, most of the literature on internal labour migration is concerned with bonded labour arrangements, particularly in the brick kiln and sugar cane industries (see Bhukuth, 2005; Bhukuth & Ballet, 2006; Bhukuth, Ballet, & Guérin, 2007; Guérin, 2013; Isabelle, Augendra, Parthasarthy, & Venkatasubramanian, 2007; Marius-Gnanou, 2008). More specifically, Bhukuth (2005) examined seasonal household migration to brick kilns and demonstrates how parents may use their children to assist with the moulding of bricks to improve overall household output and to avoid debt bondage. Additionally, Marius-Gnanou (2008) explored debt bondage arrangements and seasonal migration patterns among individuals who cultivate sugar cane in the Villupuram district and investigates the political and social environment that allows these labour relations to exist.

Using an ethnographic approach, Carswell and De Neve (2013) explored bonded labour arrangements in the Tiruppur region of Tamil Nadu and compare historical agricultural bonded labour to contemporary industrial bonded labour. In particular, they noted how debt bondage was traditionally found in the agricultural sector, which transitioned to more contract-based labour

since the 1970s. However, due to the growth of the textile industry in this area, the authors argued that bonded labour arrangements reemerged within textile factories, effectively structuring labour relations between migrants and employers.

### **Theoretical understandings of internal labour migration in India**

It is important to consider how theoretical understandings of internal labour migration shape how we view migration processes and how research on internal labour migration is conducted. Critically, theoretical frameworks inform study design and what assumptions are made in terms of the relationships between different variables involved in migration decisions and outcomes. In the following section, three theoretical frameworks are examined that have been used to understand internal labour migration dynamics in India and inform research agendas pertaining to migrant labour throughout the country.

#### *Neoclassical economics and the cost-benefit calculation*

Historically, internal labour migration was framed using micro-level rational choice theory as a tool to conceptualize the motivations, patterns, and outcomes of mobility for individuals and households. Micro rational choice theory argues that individual decisions are based on cost-benefit calculations that differ depending on the situation presented to the individual. Based on the model by Todaro (1969) of rural to urban migration, rural actors undergo a cost-benefit calculation concerning the demand-supply function of the urban labour market, and the results of this calculation determine whether or not the individual will pursue migration. The model suggests that individuals will move to regions where there are the best prospects for employment and the highest wages. Furthermore, migration will continue as long as expected wage rates and employment opportunities are higher in the urban setting than in the rural area of current residence. This approach acknowledges how differences in wages and

labour demand between rural and urban areas can motivate, shape, and sustain migration trajectories.

Todaro's (1969) model of migration has undergone adaptations in order to account for different conditions that the original model failed to recognize. Katz and Stark (1986) argued with their altered micro rational choice model that rural to urban migration can occur when expected urban wage rates are lower than rural wage rates, and that migration under these circumstances is perfectly rational. Katz and Stark propose that individual decisions to migrate are not only motivated by the chance of a higher income, but also to improve one's rank or social standing. Katz and Stark's model also differs from Todaro's approach because Katz and Stark suggest that the highest rate of migration would come from rural areas with high levels of capital, because large wage differentials between rural and urban areas are no longer the most important consideration in the individual cost-benefit calculation (1986, p. 144). Another adaptation to Todaro's model by Skoufias (1993) differentiated between male and female labour inputs for agricultural production in rural areas during the planting and harvesting seasons in India. By altering the supply of female labour, Skoufias suggested that wage rates for females will change based on the female labour demand function with a similar relationship existing between the male wage rate and the male labour demand function. The resulting change in wage rates in rural areas will either encourage or discourage rural to urban seasonal migration for both women and men. Thus, Skoufias argued that in the Indian context, women and men face different conditions under which a rational cost-benefit calculation must be made.

Despite these modifications, the focus of micro-level rational choice theory on the strong influence of wage differentials in shaping mobility oversimplifies and individualizes the internal migration process. This approach also implicitly assumes, as argued by Gidwani and

Sivaramakrishnan, that “instrumental rationality, embodied in the migrant’s exquisite sense of utility-maximization or risk-minimization, rules the day” (2003, p. 189). At the same time, it is important to recognize how the legacy of this utilitarian perspective continues to influence contemporary theory, research, and policy on internal labour migration in India. This legacy is particularly evident in the crude enumeration of internal migrants and their motivations for migration through national data sources.

#### *A Marxist approach and pessimism for migration and development*

Marxist theory has been employed to demonstrate a different explanation for the motivations, patterns, and outcomes of seasonal migration for individuals and households than a neo-classical economic approach presents. A fundamental difference between neoclassical economics and Marxist approaches that investigate cases of internal labour migration according to Gidwani and Sivaramakrishnan is that “[neo-classical economic] approaches posit migrant agency (although a curiously deterministic version of it, governed by the imperatives of utility optimization) relatively unhindered by structure, while Marxist approaches posit structure relatively impervious to migrant agency” (2003, p. 189). Thus, a Marxist approach argues that in the capitalist mode of production, the dominant class utilizes cyclical patterns of migration as a tool to exploit the marginalized class and maintain their control over the means of production (Bhaduri, 1973; Breman, 1985).

Drawing on the ideas of Hart (1986) and World Systems Theory, Gidwani and Sivaramakrishnan (2003) explain how internal labour migration in the Indian context can be seen through the lens of the Marxist-influenced ‘divide and rule’ thesis. According to these authors,

The ‘divide and rule’ thesis argues that locally dominant classes in ‘core’ areas recruit...migrants from ‘peripheral,’ economically underdeveloped sites as a way of creating a surplus labour pool that exerts downward pressure on local wages and, in addition, makes the local demand for labour more elastic,

thereby weakening the likelihood of collective bargaining by resident workers (2003, p. 189).

The 'divide and rule' thesis argues that internal labour migration can be conceptualized as a process whereby cases of individual and household deprivation are exacerbated. Furthermore, an inability to organize with fellow workers or pursue any type of collective bargaining represents a form of social control that permits the dominant class to continually exert its power over the means of production and the subordinated class.

A Marxist approach provides two important contributions to our understanding of internal labour migration in the Indian context. First, there is recognition of the role of differential power relations between members of different classes and how these power relations influence the patterns and outcomes of migration. Second, a Marxist approach connects the ideas of the means of production, structural inequalities, economic and social exploitation, uneven development, and social control within the capitalist mode of production. The connection of these concepts to cases of migration and especially bonded labour is helpful in understanding some of the constraints that migrant workers face in their attempts to secure their livelihoods.

Although fundamentally different, a Marxist approach shares some of the same limitations that neoclassical economics faces in conceptualizing cases of seasonal migration in India. These limitations include a strong economic focus and an oversimplified ahistorical account of internal migration processes. In addition, Marxist theorists would argue that migrants are constrained by structural inequalities and should be framed as 'victims' of the capitalist system. This rigid perspective does not recognize the agency that migrants can exercise even within highly exploitative employment arrangements.

Marxist understandings and explanations of internal labour migration also continue to influence contemporary understandings and explanations of this process in the Indian context. In particular, the strongest legacy of a Marxist approach is its cynicism in connecting migration and development (de Haas, 2010). Taken to the extreme, this pessimistic view has arguably fed into a bias against internal labour migration in research and policy and a lack of consideration of mobility within Indian rural development and social policy (de Haan, 1999).

### *Sustainable livelihoods and rural development*

In contrast to utilitarian approaches within neoclassical economics, Amartya Sen conceptualized of the capabilities approach to challenge the tendency to conceive of poverty in terms of the income or possessions of an individual or household (Sen, 1989). The approach asked the questions: “What are people actually able to do and to be? [and] What real opportunities are available to them?” (Nussbaum, 2011, p. x). As a result, the capabilities approach “resituated human beings, and their wellbeing, as the end concerns of economic and social processes... founded on the intrinsic dignity of human freedom and people’s ability to be subjects of their own lives” (Deneulin & McGregor, 2010, p. 514).

In alignment with the capabilities approach, livelihood perspectives emerged as a counterbalance to the prevailing neoliberalism that dominated development thinking in the 1980s. Drawing on the ideas of Chambers and Conway (1992), Scoones (1998, p. 5) defined a livelihood as “the capabilities, assets (including both material and social resources) and activities required for a means of living.” Moreover, Scoones argued that, “a livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base” (Scoones, 1998, p. 5).

These concepts are the basis for the sustainable livelihoods framework, which connects livelihood resources and strategies, mediated through institutional processes, to explore and explain different livelihood outcomes within a particular context (Scoones, 1998, 2009). More specifically, livelihood resources or assets are termed ‘capitals’, and included access to human, financial, physical, natural, and social capital (Scoones, 2009). Livelihood strategies are utilized by individuals and households to acquire and sustain resources and include activities such as livelihood diversification and migration. In rural settings, rural livelihood diversification refers to the construction of “a diverse portfolio of activities and social support capabilities” that ensure the survival and well-being of rural people (Ellis, 1998, p. 4). Far from undermining rural development, migration is framed as one livelihood strategy to promote individual and household well-being and development (de Haan, 1999).

The notion of sustainable livelihoods and the sustainable livelihoods framework is lauded for its ability to incorporate macro-, intermediate-, and micro-level factors in its assessment of poverty and development, particularly in rural areas (Adato & Meinzen-Dick, 2002; Bebbington, 1999). Additionally, the framework is able to account for variability in livelihoods based on factors such as seasonality, and how this might shape both livelihood resources and strategies (Johnson, 2009). The framework is also viewed to promote interdisciplinary thinking and research on rural poverty and development, and was taken up selectively by different development organizations including the Department for International Development (DFID) in the United Kingdom (Adato & Meinzen-Dick, 2002; Johnson, 2009; Scoones, 2009). In practice, the sustainable livelihoods framework is closely allied with participatory and qualitative approaches that emphasize the lived experiences of rural people in knowledge generation (Johnson, 2009).

Notwithstanding the framework's attempt to investigate poverty and development more holistically, the terminology used within the framework was viewed by some as problematic (Scoones, 2009). In particular, the use of capitals, assets, and a livelihood portfolio to cope with market shocks is critiqued for its neo-classical economic framing (Johnson, 2009; Scoones, 2009). Moreover, rather than being utilized to address factors influencing poverty and development across scales, the concept of sustainable livelihoods is limited by its emphasis on the local, and its inadequate attention to politics, power, and history (Scoones, 2009). Thus, the framework is viewed as a beneficial tool to understand rural deprivation in a particular context at a point in time, but it often fails to consider how broader forces shape or constrain development outcomes and how fundamental shifts in rural economies may influence livelihoods going forward (Johnson, 2009; Scoones, 2009). With these critiques in mind, Scoones (2009) argues that carefully applied, the concept of sustainable livelihoods remains an important contribution and guiding framework to understanding poverty, development, and livelihood strategies in rural settings.

### **Factors associated with internal labour migration in India**

Scanning across studies on internal migration in India, there are a number of factors that are consistently analyzed regardless of the theoretical perspective employed or the approach taken in terms of study design and data collection. These factors operate at and across different scales and shape both the determinants and outcomes of internal labour migration. Additionally, historical, political, economic, and geographic context matters in the expression of these different factors in relation to labour migration in addition to the relationships between the factors themselves. Thus, while the following section attempts to isolate these factors and consider each factor's role in shaping patterns of labour mobility in India, there is also

recognition that each of these factors operate and interact within a much broader and dynamic system (see Figure 1.1).

### *Individual-level factors*

#### Gender

Historically, participation in internal labour migration was considered to be organized, in part, based on intrahousehold power and decision making dynamics, the gendered segregation of productive and reproductive activities within the household, and gendered divisions in the labour market (Chant, 1992). Although these organizing principles remain critical to understanding the association between gender and internal labour migration in India, it is important to not overlook the engagement of women with labour mobility. Largely considered to be a male dominated activity in the past, the connection between gender and temporary labour migration in the Indian context has become more complex as gender specific labour migration streams are studied and the differential gendered experiences of both migrant women and men are explored (Agnihotri & Mazumdar, 2009; Bhatt, 2009; de Haan, 2011; Deshingkar & Start, 2003; Raghuram, 2008).

As previously mentioned, there are more women migrating than men throughout India, with marriage cited as the primary reason for migration among female migrants (National Sample Survey Organization, 2010). Female migrants are also responsible for the growth of migration into urban areas since 1993, as the proportion of male migrants to urban areas has remained relatively stable over this period (de Haan, 2011; UNESCO/UNICEF, 2013). Critically, national data sources poorly account for movements with multiple motivations or purposes, especially among female migrants, who may seek out local employment after migrating for marriage, contributing to a gap in understanding regarding the unique experiences and contributions of female labour migrants in India (de Haan, 2011).

Gender shapes who participates in internal labour migration and to what extent. For example, in their comparative study of villages in the states of Andhra Pradesh and Madhya Pradesh, Deshingkar and Start (2003) found different gendered streams of migration between the two states. More specifically, tribal villages in Madhya Pradesh had higher rates of female migrants, whereas the majority of labour migrants were male across villages in Andhra Pradesh. Deshingkar and Start (2003) suggest one reason for this difference is that male migrants appeared to engage in streams of migration that were new or deemed risky. Only after these routes became more established did female migrants begin to accompany their husbands or start engaging in labour migration alone.

There is clear segregation of the labour market based on gender, as gender also shapes who has access to migrant labour opportunities. In the Mahabubnagar district of Andhra Pradesh, Garikipati (2008) found that the larger number of off-farm labour opportunities for male seasonal migrants translates into a widening wealth gap between males and females in this context. This was important because an inability to generate off-farm income in this setting severely limited a woman's decision making power in her household. With the gendered segregation of the migrant labour market in mind and a recognition of how this segregation influences our understanding of internal labour migration processes, there are calls for greater attention to the contributions of female migrants in male-dominated sectors (Raguram, 2008). In India, there is some research that details the work and experiences of female migrants in male-dominated sectors including the construction sector (Barnabas, Anbarasu, & Paul, 2009; Baruah, 2010; Bhattacharyya & Korinek, 2007). Regardless of sector, it is of critical importance to consider how gender can shape vulnerability, exploitation, and agency within the workplace and how these experiences influence the economic, social, and health-related outcomes associated with labour migration

(Agnihotri & Mazumdar, 2009). For example, there is evidence of differential wage rates between women and men, with women paid less for the same work completed (de Haan, 2011; Mosse et al., 2002).

In addition, for individuals who do not participate directly in labour migration, gender can still shape experiences with migration. For example, Rogaly and Rafique (2003) investigated the ways in which remittances are negotiated, acquired, and used by poor migrant households. They found that male migrants and female partners from migrant households who do not migrate play different roles and have distinct experiences in supporting their household during periods of financial insecurity such as in between remittance payments. In particular, women may need to invest heavily in social relations and rely on local social supports to acquire credit in order to sustain themselves and their households when income from their migrant male counterparts is inconsistent or not guaranteed.

Due to the complexity of the association between gender and internal labour migration in India, most studies use qualitative approaches to explore and explain how gender shapes experiences with and outcomes from migration (e.g., Agnihotri & Mazumdar, 2009; Garikipati, 2008; Rogaly & Rafique, 2003). Quantitative approaches are used to model the differential rates of participation in labour migration by sex (i.e., set of biological attributes) (Keshri & Bhagat, 2010), however they fail to fully capture how gender (i.e., socially constructed roles, behaviours, and identities) mediates the relationship between sex and internal labour migration. A notable study combining both quantitative and qualitative methods and data was conducted by Arun (2012) in the Malappuram district of Kerala to describe how gender roles are influenced by male migration and the feminization of agriculture. For households in this context, men increasingly seek employment outside of the village, while their female counterparts become responsible for

all facets of agricultural production and farm management. However, Arun (2012) argued that the volatility of the agricultural markets coupled with the male-dominated nature of the agricultural sector means that women with migrant partners face hardships within this traditionally male domain as they work to provide for and sustain their households.

### Age

Like gender, age can influence participation and access to specific migrant employment opportunities, in addition to the economic and social outcomes associated with labour migration. In general, age influences perceptions surrounding productivity and subsequently labour recruitment models (de Haan, 2011; Habersfeld, Menaria, Sahoo, & Vyas, 1999). Young workers, and particularly young male workers, tend to be desired for physical jobs (de Haan, 2011). Despite this perceived desirability, Mosse et al. (2002) found from their research with the Bhil tribal group that, in some cases, younger migrant workers may be financially compensated less than older workers for the same job.

Beyond the connection between age and financial outcomes from internal labour migration, there may also be social outcomes associated with labour mobility and age. For example, Alpa Shah (2006) examined seasonal labour migration among brick kiln workers from the state of Jharkhand to the state of West Bengal and demonstrated that these movements cannot be framed exclusively as economic endeavour under an exploitative arrangement. Rather, migrants, and particularly young migrants, viewed brick kilns as spaces of 'freedom,' and engaged in casual seasonal work as a temporary escape from problems at home.

As previously referenced, child labour continues to constitute one form of labour migration in India. Children may either accompany and work with their parents or work alone depending on the labour arrangement. In the case of multi-generational debt bondage, a parent's

debt can be transferred to a child, effectively forcing the child to engage in labour migration (Bhukuth, 2005). Despite the highly exploitative nature of child labour and the vulnerability that migrant children experience, Iversen (2002) argued that child migrants can exhibit autonomy and agency under certain conditions. Drawing on data from the Mandya district in Karnataka, Iversen (2002) demonstrated how older male children exhibit a greater degree of autonomous behaviour compared to their female and younger counterparts.

Recognizing that life stages are, in part, socially constructed and dependent on context, studies that use qualitative approaches and examine the relationship between age and internal labour migration often categorize age based on broad categories such as ‘child’, ‘adult’, ‘young,’ and ‘elderly’ (e.g., Mosse et al., 2002). At times, quantitative studies limit their analyses to individuals of ‘migrating age’, which is typically considered to be 15-64 years (Keshri & Bhagat, 2013). Additionally, age is modeled as both a continuous variable (e.g., Keshri & Bhagat, 2010) or as a categorical variable (e.g., Millett et al., 2013). Thus, these diverse methods used to measure the association between age and migration limit the comparability of findings across studies. However, in general, the very young and the very old tend to be excluded from active participation in internal labour migration (de Haan, 2011; Haberfeld et al., 1999).

### Education and skill level

The relationship between educational attainment and internal labour migration can play a role in who moves for work and the employment opportunities available to these individuals. As argued by Kothari (2002), this relationship is mediated by a complex interplay of structure and agency, including an individual’s ability to process and respond to information coming into their village from labour recruiters or otherwise surrounding potential labour opportunities. According to Skeldon (2002), the individuals with the best ability to process and respond to this information

tend to be better educated, more innovative, and most likely to be the first to engage in labour migration. However, in geographically remote and underserved areas, Skeldon (2002) cautioned that basic primary education may constitute ‘educated’ among largely illiterate groups. Thus, there may be slight differences in actual educational attainment between those who participate in internal labour migration and those who do not participate, underscoring the importance of collecting valid education data.

These slight difference translate into mixed results regarding the association between educational attainment and propensity to migrate. For example, Amita Shah (2010), who models years of formal education as a continuous variable, found that education level was not a significant predictor of migration in three dry land districts of Gujarat after controlling for other factors such as socioeconomic status and caste. Similarly, Keshri and Bhagat (2013), who model education as a categorical variable and use NSS data, demonstrated there is wide regional variation in terms of the relationship between educational attainment and the likelihood of an individual to engage in labour migration. However, they did make the distinction that lower educated individuals tended to participate in temporary labour migration, whereas higher educated individuals were more likely to engage in permanent migration. Thus, rather than being a predictor on its own, the relationship between education and internal labour migration appears to be dependent on particular streams of migration.

Some labour migration streams require a certain skill set, while other streams purposively recruit ‘unskilled’ labour (Breman, 1996; Mosse et al., 2002). Within some sectors, such as construction, different skill sets may be needed at a particular work site. However, there may be gendered dimensions to who receives training to perform higher skilled work, with corresponding financial implications for migrants and their families (Barnabas et al., 2009;

Baruah, 2010; Dasgupta, 2002; Mosse et al., 2002). Beyond influencing the financial returns associated with labour migration, education level may also influence the ways in which migrants send money back to their families, as individuals with low educational attainment may not interact with formal financial institutions (Deshingkar, 2006).

### *Household-level factors*

#### Life cycle and social relationships

As previously alluded to, intrahousehold dynamics can influence whether or not a household participates in labour migration in addition to who within a household migrates. In particular, a labour surplus (i.e., when the total number of individuals with a specific demographic profile exceeds the amount of work available) within a household is considered to be a predictor of migration from within a given household (Deshingkar & Start, 2003; Haberfeld et al., 1999). In addition, household-level stressors or conflict can push some members of a household to move for work (Alpa Shah, 2006). Moreover, the life cycle of the household at a given time, which is a composite of the gender, age, and education level of the household's members, can shape labour migration decisions (Rogaly, 2003).

Notable contributions to the study of temporary labour migration in India include the research by Ben Rogaly and his colleagues in West Bengal who broadly examined the role of seasonal labour migration in changing social relations throughout several districts in this state (see Rogaly, 1998, 2003; Rogaly et al., 2001; Rogaly & Coppard, 2003; Rogaly et al., 2002; Rogaly & Rafique, 2003). Much of this work was ethnographic in nature and investigated intra- and inter-household dynamics that were associated with these migration patterns. More specifically, Rogaly (2003) found that different events in the life cycle of a household, such as the age and gender composition of the household at a particular time, in addition to previous

experiences with and attitudes toward labour migration, strongly influence household decisions to seasonally migrate. Some households may engage in seasonal labour migration only once, while other households consistently have one or more members who seasonally migrate every year. Thus, a ‘migrant household’ may not remain a ‘migrant household,’ and similarly a ‘non-migrant household’ may not remain a ‘non-migrant household.’

In terms of quantitative analyses, Haberfeld et al. (1999) developed a model from data collected in the Dungarpur district of Rajasthan that examines that relationship between a household’s life cycle and the propensity of someone within that household to move for work. They find that a larger labour supply is positively associated with being a migrant household, whereas higher levels of education within the household are negatively associated with being a migrant household. In this study, household education was measured as the number of individuals within the household with post-primary education. The authors also tested the determinants of migrant labour supply to determine the relationship between intrahousehold dynamics and the number of months that a household engages in labour migration. Similar to the determinants of being a migrant household, a larger labour size and especially an increase the number of men of prime working age contributed to an increase in the number of months that a household engaged in labour migration.

#### *Multi-scalar factors*

##### Caste

Caste continues to shape rural Indian society and represents a key organizing principle in terms of social mobility, inequality, power, and economic opportunities throughout India (Desai & Dubey, 2012; Zacharias & Vakulabharanam, 2011). Evidence from census data and in-depth village level studies demonstrates that members of historically disadvantaged castes appear to

have a higher incidence of migration than members of castes that have traditionally had a greater degree of power and social mobility (Deshingkar, 2006; Deshingkar & Akter, 2009; Keshri & Bhagat, 2013). Additionally, caste plays an important role in organizing different streams of labour migration as members from a particular caste may only be able to find employment opportunities within a specific sector or industry (Deshingkar, 2005). Moreover, there may be confounding between caste and village dynamics and the two are closely connected to and reinforce each other strengthening caste specific migration streams under certain conditions (Deshingkar & Start, 2003, p. 13).

Along the same lines, members of the same village may migrate or work together over time. Thus, the presence and influence of village-based and likely caste-specific social networks can play a role securing employment, and potentially higher wages among migrant workers. Well-established absorptive networks provide a crucial source of support for workers as they navigate the migration process through mitigating some of the economic and psychosocial costs and risks associated with their journeys and work (Banerjee, 1983; Mitra & Murayama, 2009). In particular, Mitra and Murayama (2009) argued that these networks appear strongest for short distance labour migration.

Ethnographic studies demonstrate how caste operates at the individual, household, and village level to influence migration decisions and outcomes (Breman, 1996; Mosse et al., 2002). Quantitative analyses often model caste at the individual level to demonstrate how it shapes individual level determinants and outcomes of internal labour migration (e.g., Keshri & Bhagat, 2010; Keshri & Bhagat, 2013). Haberfeld et al. (1999) considered caste as a household-level variable and include it in their model on the household level determinants of internal labour migration in the Dungarpur district of Rajasthan. Similarly, Deshingkar and Start (2003)

modeled caste as a household level variable and find an association between historically marginalized castes and being a migrant household in sampled villages in both Andhra Pradesh and Madhya Pradesh.

### Socioeconomic status

There is a high degree of variability in terms of how the relationship between socioeconomic status and internal labour migration in India is measured and investigated. In terms of the association between household socioeconomic status and migration, there is evidence of higher rates of migration among poor households in some contexts (Deshingkar & Akter, 2009) and relatively better off households in other settings (Keshri & Bhagat, 2013). In addition, there is also evidence to suggest that the poorest and often landless households from rural areas may be less likely to engage in longer-term or permanent labour migration (Amita Shah, 2010). Although some studies have demonstrated that poorer regions are more likely to experience net outmigration (Castaldo, Deshingkar, & McKay, 2012), there are mixed findings concerning the association between village-level wealth and migration (Deshingkar & Start, 2003).

In terms of socioeconomic outcomes associated with internal labour migration, individual internal migration streams are often characterized based on their ability to aid migrants and their households to either cope with serious deprivation, or to accumulate resources to contribute toward saving, investment, and overall wellbeing (Deshingkar, 2010; Deshingkar & Start, 2003). This distinction is helpful in understanding the role of migrant labour in rural livelihoods, and particularly where distress-induced mobility limits the development potential of migration. As previously described, coping migration refers to movement for labour opportunities to ensure household survival when income and other resources are scarce. Coping migration is often

opportunistic and lacks a stable connection to a specific employer. These streams often lack consistency in terms of the availability of wage labour and are also associated with exploitative labour arrangements and restrictions on migrant agency and rights (Deshingkar & Start, 2003). Conversely, accumulative migration streams, whereby migrant labour opportunities contribute to household savings and well-being, tend to be better established. These streams are often characterized by absorptive social networks and are connected to the same employer over several years. These flows also may allow for advancement or skill development within a particular industry for migrant workers (Deshingkar, 2010).

Despite the ability of this framework to distinguish between different types of migration, both coping and accumulative migration streams are dynamic processes. Rogaly and Coppard (2003) argued that migration streams that were once utilized for coping can become accumulative over time and vice versa (Rogaly & Coppard, 2003). Furthermore, as a result of the ambiguity surrounding the concepts of coping and accumulation, it is also difficult to determine when a supposed transition between coping and accumulation may occur (Deshingkar, 2010). Finally, a focus on coping and accumulation emphasizes the economic returns associated with migration. However, the allocation of these resources within the household in addition to broader questions of how specific streams of migration may limit or contribute to multidimensional human and household development are not adequately addressed.

It is important to note that there is a lack of uniformity in the study of the socioeconomic determinants and outcomes of internal labour migration in India. One approach is to account for different household-level assets, such as land holdings, livestock, housing, and other durables, and investigate the relationship between asset ownership and the likelihood of being a migrant household (Czaika, 2012; Amita Shah, 2010). Along the same lines, some studies also include

household income as a proxy for socioeconomic status. For example, Haberfeld et al. (1999) defined household income as income acquired from salaries and other sources in addition to the size of cultivated land, the size of irrigated land, and the value of livestock owned. Alternatively, Keshri and Bhagat (2013) measured socioeconomic status at the individual-level by dividing total household expenditure by the household size. A limitation of these approaches is that they implicitly assume that assets and income are equally allocated within the household. However, intrahousehold disparities can lead to differential development outcomes, particularly in health and nutrition, for different members within the same household unit (Behrman & Deolalikar, 1990; Berman, Kendall, & Bhattacharyya, 1994; Messer, 1997). Critically, gender-based and age-based discrimination are often considered the two most important sources of inequality within households (Messer, 1997).

### Social policy

There are a number of social welfare schemes and subsidies established to benefit poor rural families in India. Access to some of these schemes and subsidies are tied to the possession of a ration card that is used to classify individuals and households based on poverty status. In particular, a 'Below the Poverty Line' (BPL) ration card entitles the holder to subsidies for food through the Public Distribution System (PDS), in addition to education and healthcare depending on the setting (Deshingkar & Akter, 2009). Importantly, ration cards are issued on the basis of place of residence, and ration card holder cannot access or claim their entitlements in another village or city in India. Thus, the ration card system is viewed as one example of how social policy is structured in India to inhibit human mobility (Deshingkar, 2006).

One of the most prominent rural social policy measures is the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), created by the government of India in 2005, to

provide local employment opportunities in rural areas and to foster rural development. More specifically, MGNREGA was designed “to provide for the enhancement of livelihood security of the households in rural areas of the country by providing at least one hundred days of guaranteed wage employment in every financial year to every household whose adult members volunteer to do unskilled manual work” (Ministry of Law and Justice, 2005, p. 1). Successfully piloted in 2006, the program expanded to become the largest public employment scheme in the world (Reddy, Tankha, Upendranadh, & Sharma, 2010).

Similar to the ration card system, MGNREGA is also widely understood and discussed as an attempt to curb labour migration, and especially rural to urban labour migration (Das, 2015). Through the provision of local and flexible employment opportunities, MGNREGA is positioned as a substitute for internal labour migration. However, while MGNREGA may offer local income-generating opportunities in rural areas, the presence of this welfare scheme may not address the same needs and desires as migration for individuals and households (Tacoli & Mabala, 2010).

This lack of portability of social protections and entitlements for the rural poor can contribute to and enhance the vulnerability that these individuals experience while engaged in migrant labour. Beyond entitlements, reference is made to the ‘invisibility’ of migrants within Indian social policy leading to barriers in accessing services including healthcare and education (de Haan, 2011). While there is evidence of innovative programs that aim to promote the inclusion of migrant workers and reduce their vulnerability, these barriers and the lack of portability of social protections curtails the ability of migrant workers to leverage the benefits from their labour for their households (UNESCO/UNICEF, 2013).

### Health

Participation in internal labour migration is a selective process whereby migrant workers may have a health advantage over their non-migrant counterparts (Lu, 2008). This health advantage is the premise of the ‘healthy migrant effect’, which is the notion that migrant workers have better than expected health outcomes when the socioeconomic conditions of their place of origin are taken into account (Fennelly, 2007). Although typically applied to international migration, there is some evidence to suggest the presence of the ‘healthy migrant effect’ among internal migrant workers in Croatia (Kolčić & Polašek, 2009), Indonesia (Lu, 2008), and China (Chen, 2011; Hesketh, Jun, Lu, & Mei, 2008; Lu & Qin, 2014). However, research on migration from low-income to high-income countries demonstrates that this potential health advantage is difficult to maintain over the long-term (Antecol & Bedard, 2006; Fennelly, 2007; Frisbie, Cho, & Hummer, 2001; McDonald & Kennedy, 2004). In particular, Fennelly (2007) detailed how problems with poverty, housing, stress related to a new environment, nutrition, substance abuse and poor access to healthcare can contribute to the loss of this apparent health advantage. In addition to this health advantage, psychosocial factors, including personality traits, knowledge, attitudes, and concerns, may influence and motivate labour migration decisions (Groenewold, Bruijn, & Bilsborrow, 2012; Lu, 2012).

Beyond influencing who participates in internal labour migration, previous research on the relationship between health and mobility in India has primarily examined the health outcomes of migrant workers compared to their non-migrant counterparts either from the migrant’s place of origin or destination. Disease transmission among migrant workers, and between migrant workers and their households and communities of origin, is a prominent area of focus, with specific interest in the transmission of HIV/AIDS and other sexually transmitted infections (Deering et al., 2008; Gupta & Singh, 2002; Halli, Blanchard, Satihal, & Moses, 2007;

Saggurti, Schensul, & Verma, 2009; Saggurti et al., 2008). Additional studies examine health outcomes associated with hazardous workplace conditions that migrant workers experience in specific industries such as textile factories (Jaiswal, 2007; Padmini & Venmathi, 2012), manual labour (Ray et al., 2004; Srinivasan & Ilango, 2013), and construction (Akram, 2014; Bhattacharyya & Korinek, 2007; Jayakrishnan et al., 2013). There is also evidence to suggest that the prevalence of mental health problems is higher among migrant individuals than non-migrants (Ganguli, 2000). There has also been research into the prevalence of non-communicable and chronic disease among migrant workers indicating that migrants may be at an elevated risk for obesity (Ebrahim et al., 2010). In addition, migration may be associated with negative changes in dietary habits including the higher consumption of energy and fat (Bowen et al., 2011).

There is some research into the broad health benefits experienced by households of origin attributed to internal migration (Abas et al., 2009), yet research on any potential health benefits attributed to internal labour migration for migrant workers in India is limited (see Bowen et al., 2011 for improvements in dietary diversity). However, there are often indirect health benefits attributed to the financial returns associated with accumulative streams of migrant labour. In particular, these returns may be invested into improved education and healthcare for the migrant household (Deshingkar, 2006).

### *Broader factors*

Broader forces of political economy also shape migration decisions and trajectories. Historical contraction and expansion of agricultural employment combined with the generalized feminization of agricultural labour throughout India has created additional barriers for women to participate in internal labour migration (Agnihotri & Mazumdar, 2009; Garikipati, 2008). In

addition, economic liberalization and privatization policies have contributed to rapid urban growth, creating labour opportunities in multiple industries to respond to the resulting infrastructure needs to maintain this growth (Chadchan & Shankar, 2012; Sudhira, Ramachandra, & Subrahmanya, 2007).

The environment and seasonality also comprise broader forces that influence internal labour migration. Growing seasons and rainfall patterns form the basis of seasonal labour migration whereby migration is triggered by the agricultural lean season (Deshingkar & Start, 2003). There is also evidence to suggest that dry land regions, where water represents the limiting factor in agricultural production, have higher rates of outmigration in India (Bird & Deshingkar, 2009; Deshingkar & Start, 2003; Amita Shah, 2010). Moreover, the degradation of common pool resources, such as water and land, can exacerbate rates of outmigration (Amita Shah, 2010). Natural disasters can also influence internal labour migration, with recognition of how pronounced shifts in global climate can contribute to climate-induced migration and environmental refugees (Hassani-Mahmooei & Parris, 2012; Jülich, 2011).

Spatial and temporal elements are integrated into an analysis of temporary labour migration in West Bengal by Rogaly and Thieme (2012). In particular, they argued that place of origin relative to place of destination in addition to historical experiences with migration can shape migrant work and wellbeing in addition to experiences with marginalization and exclusion. Moreover, subjective considerations of time and space can also influence perceptions surrounding the feasibility of mobility by accounting for individual fears concerning the insecurity and dangers associated with certain types of migration or migrant labour.

## **Description of the study described in this thesis**

The research described in this thesis was part of a larger interdisciplinary international development research project titled ‘Revalorizing Small Millets in the Rainfed Regions of South Asia’ (RESMISA). Based in Nepal, India, and Sri Lanka, the RESMISA project received funding between 2011-2014 through the Canadian International Food Security Research Fund (CIFSRF) delivered by the International Development Research Centre (IDRC) and the Department of Foreign Affairs, Trade and Development (DFATD; formally, the Canadian International Development Agency and now Global Affairs).

The overarching objective of this larger research project was to increase the production, consumption, and distribution of small millets across eight project sites (six in India, one in Nepal, and one in Sri Lanka) (see Figure 1.2). The growth and distribution of these nutritious crops has been consistently neglected in agricultural policy in favour of rice, wheat, and other cash crops. In addition to attention to the increased production of small millet varieties in the project sites, this project also aimed to provide innovation in post-harvest technology and product development, as well as attention to the development of markets and the analysis of socio-economic, political, and policy opportunities and barriers to the enhancement of small millet farming in South Asia. Project sites were selected on the basis of: 1) the presence of small millets based cropping systems and their local use as food; 2) the predominance of rainfed agriculture; 3) the high prevalence of poverty; and 4) poor performance in human development indicators including female literacy and malnutrition. All research sites were geographically remote and included a diversity of agro-ecological, sociocultural, economic, and political complexity across locations. Within the Krishnagiri district of Tamil Nadu, Anchetty was selected as one of the primary study sites for this larger research project.

### *Research location and approach*

The Krishnagiri district is consistently ranked as one of the poorest districts in Tamil Nadu, with one of the lowest gross district domestic products (GDDP), a high rate of illiteracy, and a poor rating for the gender development index (GDI) (D. K. Srivastava, Shanmugam, & Bhujanga Rao, 2010). Within the study site, the prevalence of poverty and illiteracy were higher than the district averages, with 36 per cent of the population living below the poverty line and an adult literacy rate of 48.3 per cent (Karthikeyan et al., 2012). There is a history of government-led rural development initiatives in addition to the presence of agricultural and community development programming initiated by non-governmental organizations (NGOs) in this setting. The majority of households, and particularly adult women within these households, participate in local employment opportunities through MGNREGA. Other initiatives available to poor households in this setting include access to the Public Distribution System (PDS) and subsidized agricultural inputs (Patel, Gartaula, Johnson, & Karthikeyan, 2015).

As previously indicated, Anchetty was selected as one of the primary study sites for the larger RESMISA project. It is important to clarify that Anchetty was the name of both a large village that served as a regional market hub and the name of a village *panchayat* (rural local council) within which 14 separate villages were located (including the village of Anchetty proper). In the village of Anchetty proper, Development of Humane Action (DHAN) Foundation, who was a collaborating partner on the RESMIA project and is an organization with a presence throughout India, acted as the supervisory non-governmental organization for this research location. DHAN Foundation also had a field office in the village of Anchetty proper through which they organized their local extension activities.

Anchetty *panchayat* is geographically connected to several other village *panchayats* including Thaggatti, Madakkal, and Urigam. These *panchayats* are located in the northwest corner of Tamil Nadu in the Melagiri Hill Ranges of the Eastern Ghats close to the Karnataka state border, with access to the growing urban centres of Hosur and Bengaluru. This is a multilingual region, with both Tamil and Kannada widely spoken. Of the four *panchayats* included in this study, Anchetty *panchayat* was the best networked in terms of road quality, access to public transportation, and the availability of public services such as education and public and private healthcare. There were four private health clinics and one public health centre in Anchetty *panchayat*, while none of the other *panchayats* had any private or public healthcare facilities. Urigam *panchayat* was the most geographically isolated *panchayat* included in this study.

I arrived in the village of Anchetty proper in November 2012 and worked with DHAN Foundation to set up the initial stages of the research described in this thesis. Prior to initiating the study, I approached local authorities (*panchayat* councils, hospital medical staff, and local law enforcement officials) and obtained permission to carry out the study. The study was also reviewed and approved by the leadership of DHAN Foundation in Chennai, Tamil Nadu.

A mixed methods approach was used that included qualitative and quantitative components. This approach was chosen in order to engage with the complexity of the topics of internal labour migration, health, and rural livelihoods that were explored through this study. In December 2012, the qualitative portion of this research was completed. This qualitative research involved 66 semi-structured interviews in 17 villages in the *panchayats* of Anchetty (8 villages; 29 interviews), Thaggatti (4 villages; 14 interviews), Madakkal (3 villages; 19 interviews), and Urigam (2 villages; 4 interviews).

Beyond collecting qualitative data, the qualitative component of the research also provided broader lessons that enhanced the overall study. First, I became aware of the general rhythms of rural livelihoods in the villages where the interviews were conducted including when individuals were at home during the day and the time periods when specific household duties were completed. In addition, I became conscious of how my positionality as a researcher in addition to the positionality of my male research assistants shaped the research process. Although my research assistants were from the area where the study was completed, our positionality as males meant that conducting interviews with female participants was initially challenging. In moving to the quantitative component of the study, concerted effort was made to include female voices in the study, and survey administration was timed as to not interfere with the daily activities of most females in the study setting. This led to equal representation of female and male voices in the quantitative portion of the study. In addition to these lessons, the qualitative portion of this study allowed for familiarization with local explanations and terminology surrounding internal labour migration and health outcomes. For example, labour migration was commonly referred to as ‘outside work’. These nuances in terms of local terminology were important to include in the development of the subsequent household survey.

Following a preliminary analysis of themes from the semi-structured interviews, a household survey was created and conducted between January – March 2013. In total, 300 household surveys were completed in 20 villages in Anchetty (7 villages; 123 surveys), Thaggatti (6 villages; 111 surveys), Madakkal (7 villages; 66 surveys) *panchayats*. Urigam *panchayat* was excluded from the quantitative portion of the study due to its geographic remoteness making repeated visits to this area challenging and expensive. Overall, 11 villages (5 from Anchetty; 3 from Thaggatti; 3 from Madakkal) were included in both the qualitative and

quantitative components of the study. My previous experience in these villages to conduct the semi-structured interviews helped to facilitate subsequent household survey administration.

In chapters where only quantitative data were analyzed (Chapters 2 and 6), the 20 villages from Anchetty, Thaggatti, and Madakkal *panchayats* where the household survey was administered are referenced. In chapters where both quantitative and qualitative data were analyzed (Chapters 3, 4, and 5), the 26 villages from Anchetty, Thaggatti, Madakkal, and Urigam *panchayats* are referenced where qualitative and quantitative study components were completed (including the 11 overlapping villages where both qualitative and quantitative components were completed within the same village). Table 1.1 provides an overview of the mixed methods approach used including the study objectives and the data included and analyzed in each chapter.

#### *Notable features of study location*

##### Caste

As previously mentioned, caste is an important variable to include when investigating the nature of internal labour migration in a particular setting in India. In the research location for this thesis, there were five overarching caste groups. These groups include Scheduled Castes (SC), Scheduled Tribes (ST), Other Backwards Castes (OBC), Most Backwards Caste (MBC), and Higher Caste (also known as Brahmin in this setting). Unique to Tamil Nadu, the Most Backward Caste (MBC) is a term used by the state government to designate a group of castes that were historically marginalized and eligible for specific government benefits and welfare benefits together with OBC, SC, and ST households (Department of Backward Classes and Most Backward Classes and Minority Welfare, 2015). However, the exact entitlements of SC and ST individuals differ slightly from the entitlements available to OBC and MBC individuals. Thus, and as is convention in most quantitative-oriented studies in India that include caste, SC and ST

individuals and households were grouped together and OBC and MBC individuals and households were grouped together for analytical purposes (Keshri & Bhagat, 2013).

### Housing

Housing quality represents a proxy for socioeconomic status and as such was an important variable in the research presented in this thesis. In particular, there are four types of housing structures that are referenced in this thesis including pucca, semi-pucca, kutcha, and government-subsidized. In line with the definitions used by the Ministry of Statistics and Programme Implementation in India, a pucca house has walls made of solid materials such as cement concrete, stones packed with cement, or burnt bricks and a roof made of materials such as reinforced cement concrete, tiles, or galvanized corrugated iron sheets. In kutcha houses, the roof and/or walls are made with materials such as grass, mud, thatched sticks, unburnt bricks or loose stones. A semi-pucca house has solid walls that are found in pucca houses, but the roof is made of materials other than those found in pucca houses. Government-subsidized housing is only available to members of SC or ST castes, but is made from the same materials as a pucca house (Ministry of Statistics and Programme Implementation, 2011).

### *Study Rationale and Objectives*

Exploring and characterizing the connections between internal labour migration, health, and rural livelihoods in low resource settings represents a contemporary global health and development challenge. Moreover, an improved understanding of how these processes inform each other in a particular context is critical for the creation of inclusive social policy in addition to targeted and sustainable development initiatives. Drawing on four months of data collection in southern India and using epidemiological tools, this thesis aimed to explore the connections

between these themes in the *panchayats* of Anchetty, Thaggatti, Madakkal, and Urgiam, Tamil Nadu, and position them within the broader development context of India.

With this background, the thesis first examined the determinants of temporary labour migration originating from the study area (Chapter 2). Then, using qualitative and quantitative data, the thesis explored the outcomes of internal labour migration for migrant individuals and households and what this means more broadly for human development (Chapter 3). Chapter 4 explores experiences with public and private rural healthcare, health seeking behaviour, health literacy, and self-reported morbidity. Next, the determinants of migrant worker health were described and the physical health profile between migrants and non-migrants was compared (Chapter 5). In Chapter 6, the relationship between MGNREGA and migration in this setting was explored. Finally, the qualitative and quantitative research findings were synthesized and used to make recommendations for researchers, non-governmental organizations, and decision makers in rural Tamil Nadu (Chapter 7). As such, the specific objectives of this thesis are to:

- 1) Identify and describe the individual- and household-level determinants of temporary labour migration in the *panchayats* of Anchetty, Thaggatti, and Madakkal, Tamil Nadu, India;
- 2) Identify and describe the individual- and household-level outcomes of internal labour migration originating from the *panchayats* of Anchetty, Thaggatti, Madakkal, and Urgiam, Tamil Nadu, India;
- 3) Investigate demographic and socioeconomic factors that are associated with self-reported morbidity and explore how health literacy and barriers to accessing rural healthcare influence health seeking behaviour in Anchetty, Thaggatti, Madakkal, and Urgiam, Tamil Nadu, India;

- 4) Identify and describe the pathways through which internal labour migration influences migrant and migrant household health in Anchetty, Thaggatti, Madakkal, and Urigam, Tamil Nadu, India; and
- 5) Examine how MGNREGA interacts with internal labour migration in Anchetty, Thaggatti, and Madakkal, Tamil Nadu, India.

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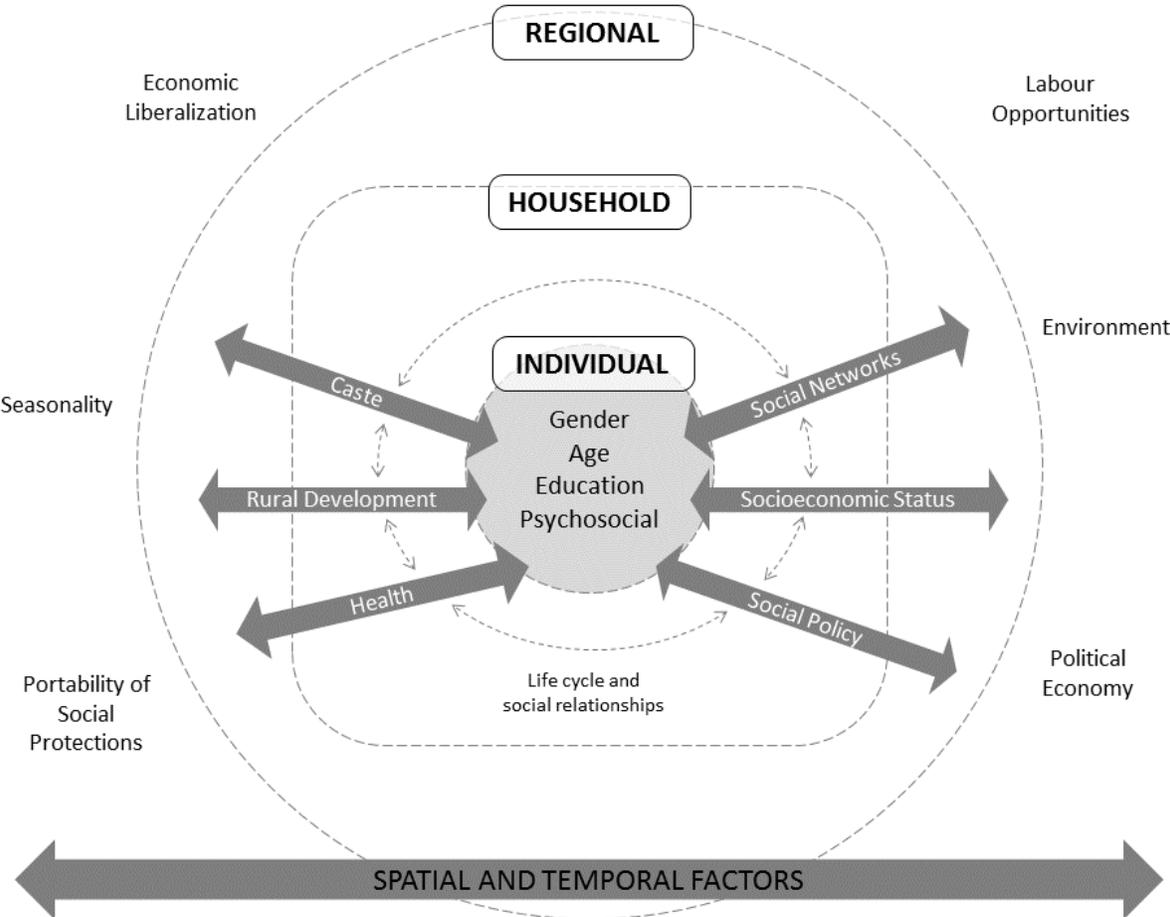
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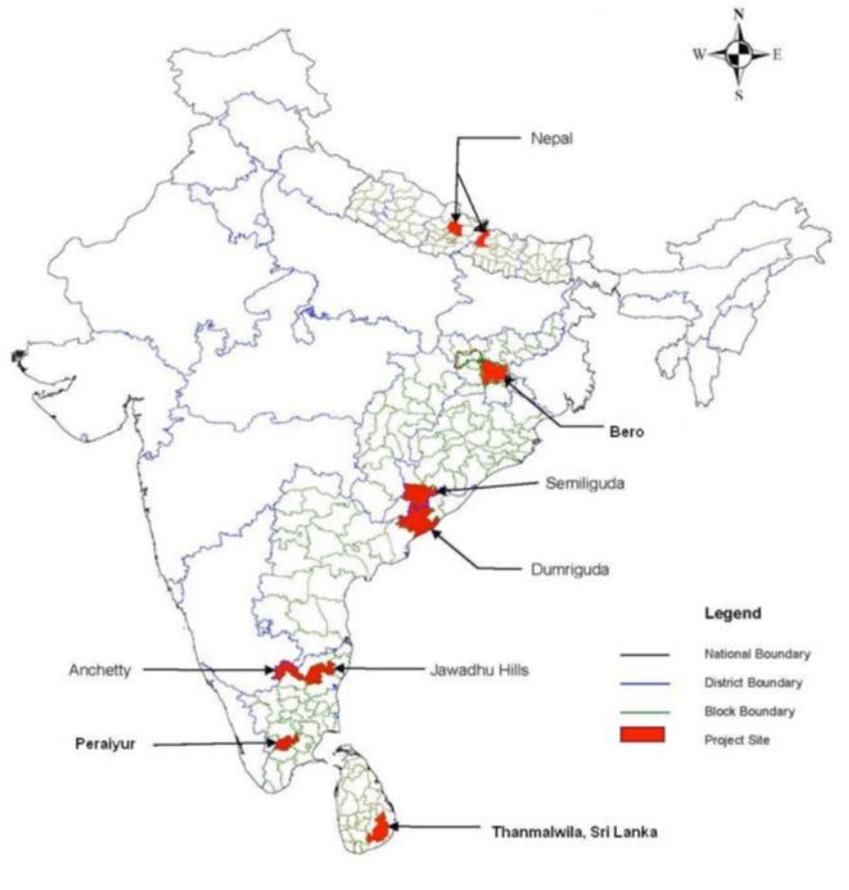
**Table 1.1:** Overview of research objectives and mixed methods (qualitative and quantitative) approach

Objectives	Qualitative Approach (66 semi-structured interviews in 17 villages in Anchetty, Thaggatti, Madakkal, and Urigam <i>panchayats</i> using snowball sampling)	Quantitative Approach (300 household surveys including 1693 individuals in 20 villages in Anchetty, Thaggatti, and Madakkal <i>panchayats</i> using multistage random sampling)	
		Individual level data and analysis	Household level data and analysis
Identify and describe the individual and household level determinants of temporary labour migration	N/A	<u>Data:</u> All adults age 15-64 years. Current migrant individuals engaged in daily labour commutes or permanent migration were excluded (n=1110). <u>Analysis:</u> Current temporary migrant individuals (n=170) compared to non-migrant individuals (n=940) using multivariable logistic regression.	<u>Data:</u> Households that exclusively had individuals who engaged in daily labour commutes or permanent migration were excluded (n=278). <u>Analysis:</u> Temporary migrant households (n=115) compared to non-migrant households (n=163). Households with multiple migrant members (n=32) compared to households with one migrant member (n=83) using multivariable logistic regression.
Identify and describe the individual and household level outcomes of internal labour migration	66 semi-structured interviews analyzed using thematic analysis	<u>Data:</u> Current migrant individuals with daily wage information (n=176). <u>Analysis:</u> Factors associated with daily wage of current migrant individuals using multivariable linear regression model with village as a random effect.	<u>Data:</u> All households (n=300). <u>Analysis:</u> Motivations for migration ranked among migrant households (n=134) and barriers to migration ranked among non-migrant households (n=163). Three migrant households did not respond.
Investigate demographic and socioeconomic factors that are associated with self-reported morbidity and explore how health literacy and barriers to accessing rural healthcare influence health seeking behaviour	66 semi-structured interviews analyzed using thematic analysis	<u>Data:</u> All individuals (n=1693). <u>Analysis:</u> Factors associated with self-reported major health problems using multivariable logistic regression.	<u>Data:</u> All households (n=300). <u>Analysis:</u> Barriers faced in accessing public and private healthcare. Three households did not respond.
Identify and describe the pathways through which internal labour migration influences migrant and migrant household health	66 semi-structured interviews analyzed using thematic analysis	<u>Data:</u> All adults age 14-65 years. (n=1217). <u>Analysis:</u> Current female migrants (n=17) compared to female non-migrants (n=564) and current male migrants (n=188) compared to male non-migrants (n=448) using Pearson chi-square test. Data was stratified based on age (< 40 years; ≥ 40 years).	<u>Data:</u> Current migrant households (n=137). <u>Analysis:</u> Perceptions of migrant member health including health outcomes and reasons for health outcomes.
Examine how MGNREGA interacts with internal labour migration	N/A	N/A	<u>Data:</u> All households (n=300). <u>Analysis:</u> ‘MGNREGA households’ (n=131) compared to ‘remittance households’ (n=53) using multivariable logistic regression. ‘MGNREGA <i>plus</i> remittance households’ (n=60) compared to households that do not participate in MGNREGA nor receive remittances (n=56)

**Figure 1.1:** Factors associated with internal labour migration in India across scales



**Figure 1.2:** Map of project sites included in ‘Revalorizing Small Millets in Rainfed Regions of South Asia’ (RESMISA) project including Anchetty site in Tamil Nadu



## CHAPTER 2 – DETERMINANTS OF TEMPORARY LABOUR MIGRATION IN SOUTHERN INDIA

### *Published Article:*

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### **Abstract**

We present new data from three village panchayats in northwest Tamil Nadu and investigate the associations between demographic and socioeconomic factors with temporary labour migration from this setting. Individual (n=1,110) and household (n=278) level logistic regression models were used to demonstrate how factors at each of these levels can influence temporary labour migration trajectories. Young males were most likely to temporarily migrate for work from this region. Additionally, large households from historically disadvantaged castes with marginal land and housing were most likely to have at least one migrant member. Households with multiple migrant members appear to use temporary migration to cope with serious deprivation relative to households with only one migrant member. These findings provide a strong case that can be compared to other settings in India and can be used to inform improved policy and targeted development initiatives to support temporary migrant workers and their households.

### **Introduction**

There is optimism within migration and development studies surrounding the potential of temporary internal labour migration to contribute to poverty reduction and human development in low resource settings. In contrast to permanent migration, temporary labour migration involves shorter cycles of mobility where migrant workers return to their village and household of usual residence following a period of labour elsewhere (Keshri & Bhagat, 2013). In India and

other contexts, participation in temporary labour migration is considered to have the greatest gains among the poorest households, as inputs are relatively low and economic returns, while generally smaller than the returns from international labour migration, are less volatile and more equally dispersed among a broader base (Czaika & Spray, 2013; Deshingkar, 2006; Housen, Hopkins, & Earnest, 2013). In addition, the number of internal labour migrants is increasing and outpaces the number of international labour migrants in many contexts, contributing to growth in India's domestic industries (Deshingkar, 2006).

In India however, this optimism is tempered by local realities including the presence of exploitative labour arrangements, a domestic policy environment that largely neglects migrant workers and their rights, and distress induced migration trajectories where labour migration represents a necessity for household subsistence rather than a free choice (Deshingkar & Akter, 2009; Deshingkar & Start, 2003; Mosse, Gupta, & Shah, 2005; Rogaly et al., 2001; Rogaly & Rafique, 2003). With these realities in mind, advocates for temporary migrant workers seek changes in both policy and targeted development initiatives to better support temporary labour migration in order to leverage the purported benefits of these labour movements for migrant workers and their households (Deshingkar & Akter, 2009). However, these advocacy efforts, in addition to any reforms in policy or development initiatives, require an improved understanding of the multidimensional determinants and dynamics of different streams of temporary labour migration throughout India (Deshingkar, 2005, 2006; Deshingkar & Akter, 2009). In particular, more empirical evidence is needed on how individual and household level characteristics and factors shape labour migration trajectories and influence who participates in temporary labour migration.

Both census data (for example, Keshri & Bhagat, 2011, 2013; Kundu & Sarangi, 2007)

and in-depth village level studies (for example, Breman, 1996; de Haan, 2002; Deshingkar & Start, 2003; Mosse et al., 2002; Rogaly et al., 2001) are used to investigate the determinants of temporary labour migration in different contexts in India. Studies that make use of National Sample Survey and Census (NSS) data are able to examine trends and make comparisons, often at the state level, with respect to temporary labour mobility patterns. Despite improvements in the latest round of the NSS with respect to its recognition and attempt to capture temporary labour movements, studies that use these data are limited by the design of the NSS, which fails to examine the non-economic dimensions and the full complexity of temporary migration flows and consistently underestimates the total number of workers engaged in temporary labour migration (Deshingkar, 2005; Deshingkar & Akter, 2009). In-depth village level studies, while often focusing on one region or group of people, allow for a more robust analysis of the economic and non-economic determinants of labour migration and a more careful calculation of the total number of migrant workers in a specific context. If done consistently across regions, useful comparisons can be made in India concerning the varying characteristics and factors that are important determinants of temporary labour migration at the individual and household level (Deshingkar, 2005).

This study was part of a larger development research project called 'Revalorising Small Millets in Rainfed Regions of South Asia' (RESMISA) that aimed to enhance the livelihoods of small scale farming households growing small millets through agricultural and community development and research initiatives.<sup>1</sup> Although supporting small scale farming households and activities was the primary objective of the RESMISA project, there was also recognition that collecting data on rural livelihood diversification and off farm income generation was crucial to

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<sup>1</sup> Funding for the RESMISA project provided by the International Development Research Centre (IDRC) and the Department of Foreign Affairs, Trade and Development (DFATD) through the Canadian International Food Security Research Fund (CIFSRF).

understanding the context in which this larger project was operating. Thus, the primary objective of the study presented in this paper was to determine the economic and non-economic determinants of internal temporary labour migration in three rural village *panchayats* (townships) in the Krishnagiri district of Tamil Nadu in order to investigate individual and household level factors that were associated with temporary labour migration originating from this region.<sup>2</sup> These village *panchayats*, namely Anchetty, Thaggatti, and Madakkal, are positioned in the northwest corner of Tamil Nadu, close to the Karnataka state border with relatively easy access to the urban centres of Hosur and Bengaluru. Anchetty is the best networked *panchayat* in terms of quality of roads and access to public transportation, and the town of Anchetty proper (not included in this study) serves as a regional market hub. Madakkal *panchayat* is the most geographically remote of the three village *panchayats*, however, some villages within Madakkal have quality roads or access to good, if infrequent, public or collective transportation.

This multilingual region provides an opportunity to investigate multiple temporary labour migration trajectories including rural to urban, rural to peri-urban, and rural to rural streams, in addition to intrastate and interstate patterns. This study presents new quantitative data from a region where the multidimensional determinants of temporary labour migration have not been previously examined, allowing for a deeper understanding of the factors associated with labour migration from this context and offering a strong case that can be compared to other regions of India where similar studies have been conducted.

## Methods

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<sup>2</sup> Village *panchayats* are intended to be autonomous local self-governing bodies charged with ensuring representation of marginalised groups and government sponsored development initiatives (Johnson, Deshingkar, & Start, 2005).

### *Survey Development*

A comprehensive survey tool was developed to collect a range of socioeconomic, health, and labour migration related information at the household and individual level. The survey was informed by previous qualitative work in the area and refined following consultation with local partners from Development of Humane Action (DHAN) Foundation. In addition, previously used methodological tools developed as part of the larger RESMISA project were consulted and adapted based on the local context. Final refinement of the survey was completed following its pre-testing with four households in two different villages in Anchetty *panchayat*.

### *Survey Administration*

In total, 300 household surveys were administered in 20 rural villages in Anchetty, Thaggatti, and Madakkal *panchayats* between January-March 2013 using face to face interviewing with translation assistance. Two translators were trained in survey administration and interviewing techniques by the first author and questions were delivered in either Tamil or Kannada based on the primary language of the respondent. The response to each question was recorded in English by the translator onto the survey. A translator and the first author were present during the administration of every survey to ensure quality and consistency between interviews.

Multistage random sampling was used to sample villages and then households within villages. Approximately half of the villages (6-7 villages per village *panchayat* depending on size) within each village *panchayat* were randomly sampled and included in the study.<sup>3</sup> Then, approximately 10 per cent of households within each village were systematically randomly

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<sup>3</sup> The research team was unable to access precise village-level demographic information from village *panchayat* offices. Instead, these were obtained through at least three (3) independent estimates of the number of households in every village included in this study. These estimates were provided by survey respondents. In the event of any discrepancy between the estimates of respondents, the estimates were averaged to determine the number of households in a specific village.

sampled (approximately every tenth household was included) based on the estimated number of households.

Careful attention was given to ensure equal representation of both female and male voices in this study. In order to elicit female participation, survey administration was specifically timed to not coincide with daily household responsibilities of women such as collecting water, preparing meals, or with involvement in daily manual labour through the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) social welfare program. In addition, if an adult female was present when a household was approached for inclusion in the study, she would be asked first if she was willing to complete the survey. If the female member was unable or unwilling to complete the survey, a male member of the same household would be asked to complete the survey if present. Although the survey questions were typically asked of one respondent from each household, demographic, socioeconomic, and health data were collected on all of the people living in or currently participating in labour migration from that household.

### *Statistical Analysis*

For the purposes of this study, a *migrant individual* was defined as an individual who was 15-64 years old and was currently (at the time of survey administration) engaged in temporary labour migration in another village or city other than his or her usual village of residence lasting, on average, between 1 and 26 weeks (that is, 6 months) (Keshri & Bhagat, 2013). Individuals who did not meet the age inclusion criterion (15-64 years) were excluded from subsequent individual level analysis. In addition, individuals who engaged in daily labour commutes or individuals who had permanently migrated to another village or city (defined as labour migration lasting greater than 6 months without a return visit to their village of previous residence) were excluded from further analysis. Similarly, a *migrant household* was defined as a household

where at least one member was currently engaged in temporary labour migration in another village or city other than his or her usual village of residence lasting, on average, between 1 and 26 weeks (that is, 6 months) (Keshri & Bhagat, 2013). Again, households that exclusively had individuals who engaged in daily labour commutes or permanent migration were excluded from further analysis. Many of the households included in this study included multiple generations living within a single housing structure. For the purposes of this study, these multi-generational families were counted as a single household unit.

Descriptive statistics for all independent variables were calculated to examine trends within the data and two-sample t-tests were calculated to examine differences between migrant and non-migrant individuals. In total, four separate multivariable logistic regression models (one at the individual level and three at the household level) were used to investigate individual and household level determinants of temporary labour migration among respondents. At the individual level, the dependent variable was current *migrant individual* status. All individuals who met the age inclusion criteria were included in the final model and migrant individuals were compared to non-migrant individuals to investigate the association between migration status and individual level demographic characteristics. At the household level, the dependent variable was current *migrant household* status based on the inclusion criteria outlined above and in the first two models, migrant households were compared to non-migrant households. The first household level model examined demographic and socioeconomic factors associated with temporary labour migration. The second household level model investigated household income sources in the last year that were associated with temporary labour migration. An additional household level model was built to compare households with one migrant member to households with more than one

migrant member to examine if there were any differences between these households in terms of demographic and socioeconomic factors.

To build each multivariable logistic regression model, all independent variables were screened using univariate logistic regression and a liberal p-value of 0.20. All variables that met this criterion were inputted into the multivariable model and a manual backwards elimination process was used to exclude all variables with a p-value greater than 0.05. In the first household level model, 'Higher Caste' was used as the referent category to represent the differences between various caste groups and their association with temporary labour migration. In the final household model that compared households with multiple migrant members to households with one migrant member, the referent category for caste was changed from 'Higher Caste' to 'Scheduled Caste (SC) or Scheduled Tribe (ST).' This change was made to better demonstrate the greater propensity of Other Backward Caste (OBC) or Most Backward Caste (MBC) households to have multiple migrant members compared to SC or ST households.<sup>4</sup>

Confounding and two-way interaction among all independent variables were assessed by identifying changes in the coefficients throughout the model building process. Finally, diagnostic tests were run for each logistic model to assess goodness of fit and for the presence of influential observations that might skew the results. All statistical analysis of data was completed using Stata®12.

## **Results**

The response rate was 95.5 per cent with 300 out of 314 households responding to the household survey. Of the 1,693 individuals initially included in the study, 1,110 met the

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<sup>4</sup> The Most Backward Caste (MBC) is a term used by the government of Tamil Nadu to designate a group of castes that were historically marginalised and eligible for specific government benefits and welfare benefits together with OBC, SC, and ST households.

individual level age inclusion criteria and were included in subsequent individual level analysis. Of the 300 households initially surveyed, 22 households had individuals who exclusively engaged in either daily labour commutes or permanent migration and were subsequently excluded from further analysis. In total, 1,477 individuals were represented in the remaining 278 households. Table 2.1 provides a breakdown of village level descriptive statistics within each *panchayat* including the number of households included in the study, the number of migrant households, the number of migrant households with multiple migrant members, the caste composition, the quality of roads, and the quality of access to public transportation. The proportion of migrant households in a specific village ranged from 13.0% - 75.0%. At the village *panchayat*-level, the proportion of migrant households was consistent, with the greatest proportion of migrant households in Anchetty (44.0%), followed by Thaggatti (42.6%) and Madakkal (34.4%). However, Thaggatti had the greatest proportion of migrant households with multiple migrant members (13.9%).

At the individual level, the independent variables included in the final multivariable logistic regression model were sex and age. At the household level, the independent variables included in the final multivariable logistic regression models fell under demographic (the number of household members and caste) and socioeconomic (current land holdings, housing type, and source(s) of household income in the last year) domains. Household land ownership was collinear with several sources of household income; thus, a separate model was needed to investigate household income sources in the last year that were associated with temporary labour migration. For the final household level logistic regression model that compared households with one migrant member to households with multiple migrant members, all independent variables

that were included in the two separate household level models were collapsed into the one model.

Of the 1,110 individuals who met the individual level age inclusion criteria, 531 (47.8%) were females. The mean age of these individuals was 32.9 years (SD=13.06) and the mean number of years of formal education was 4.0 years (SD=5.00) ranging from 0 to 22 years. In total, 170 (15.3%) of these individuals were considered *migrant individuals* meaning that these individuals were currently engaged in temporary labour migration in another village or city other than his or her usual village of residence lasting, on average, between one week and 26 weeks (6 months) in length. However, of these 170 individuals, only 14 were female (8.2% of all migrants and 2.6% of all females). The remaining 156 male migrants represented 26.9 per cent of all males age 15-64 years who were included in this study. The average age of migrant individuals (27.4 years; SD=8.04) was less ( $p<0.01$ ) than the average age of non-migrant individuals (33.9 years; SD=13.54). In addition, migrant individuals had an average of 5.3 (SD=5.44) years of formal education, which was greater ( $p<0.01$ ) than the average of 3.7 years (SD=4.87) of formal education held by non-migrant individuals.

Of the 278 households included in this study, 115 (41.4%) were migrant households. Of these 115 migrant households, 32 (27.8% of all migrant households) had more than one current migrant member. The mean number of household members per household was 5.6 (SD=2.56). On average, households had 2.7 sources (SD=0.93) of income in the last year demonstrating that the majority of households generated income in more than one way. Additional household level descriptive statistics are shown in Table 2.2. Only independent variables that were associated with household migration ( $p<0.05$ ) are presented in Table 2.2.

At the univariate level, the total years of formal education held by an individual had a linear association with individual level migration. However, education was confounded by sex and age and subsequently excluded from the final multivariable individual level model.<sup>5</sup> The association between individual level migration and demographic factors is shown in Table 2.3. Males were 16.04 times ( $p<0.01$ ) more likely than females to engage in temporary labour migration. Age had a curvilinear association with individual temporary labour migration as the likelihood that an individual would participate in temporary labour migration increased with age to a point, and then decreased. In total, 80 per cent of migrant individuals were 18-38 years of age.

At the household level, Table 2.4 shows the association between household level migration and specific demographic and socioeconomic factors. As the size of a household increased by one member, the odds that at least one individual within this household was engaged in temporary labour migration increased by 1.34 times ( $p<0.01$ ). OBC or MBC households were 3.73 times ( $p=0.04$ ) and SC or ST households were 3.71 times ( $p=0.03$ ) more likely to have a migrant member than households from higher castes. In terms of land ownership, households with a marginal amount of land (0.1-0.5 acres) were 3.97 times ( $p=0.02$ ) more likely to have at least one migrant member than households with more than two acres of land. Similarly, landless households ( $OR=2.95$ ;  $p=0.02$ ) and households that had 0.6-2 acres of land ( $OR=2.02$ ;  $p=0.05$ ) were more likely to have at least one migrant member compared to households with more than two acres of land. A family living in a semi-pucca house (medium

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<sup>5</sup> At the univariate level, education was associated with sex, age, and individual-level migration. More specifically, males had a higher level of education than females, middle-aged individuals had the highest level of education compared to younger and older individuals included in the study, and migrants had a higher level of education than non-migrants.

quality house) was 4.22 times ( $p=0.01$ ) more likely to have at least one migrant member than a family living in a kutcha house (lowest quality house).

The association between household level migration and household income sources is shown in Table 2.5. Households that generated income through a local shop or business ( $OR=0.11$ ;  $p<0.01$ ), livestock ownership ( $OR=0.24$ ;  $p<0.01$ ), or agriculture ( $OR=0.29$ ;  $p<0.01$ ) were less likely to have a migrant member than households that did not generate income through these sources. Similarly, households that generated income through local day labour work in a local landowner's field ( $OR=0.39$ ;  $p=0.001$ ) or through MGNREGA ( $OR=0.51$ ;  $p=0.02$ ) were less likely to have a migrant member than households that did not generate income in this way.

The association between multiple person migration households ( $n=32$ ) compared to single person migration households ( $n=83$ ) and demographic and socioeconomic factors are described in Table 2.6. As the size of a household increases by one member, the odds that that household will move from a single migrant household to a multiple migrant household increases by 1.52 times ( $p<0.01$ ). In addition, OBC or MBC households ( $OR=4.03$ ;  $p=0.03$ ) were more likely to have more than one migrant member than SC or ST households. Households that borrowed money through loans over the last year were more likely ( $OR=3.18$ ;  $p=0.03$ ) to have multiple migrant members than households that did not borrow money through loans.

## **Discussion**

### *Individual characteristics shaping temporary labour migration decisions*

At the individual level, both sex and age were associated with temporary labour migration. Largely considered to be a male dominated activity in the past, the connection between gender and temporary labour migration in the Indian context has become more complex as gender specific labour migration streams are studied and the differential gendered experiences

of both migrant women and men are explored (Agnihotri & Mazumdar, 2009; Bhatt, 2009; de Haan, 2011; Deshingkar & Start, 2003; Raghuram, 2008). Although female migrant labourers and their experiences should not be overlooked, the strong propensity of males to migrate for temporary work compared to females in this study area mirrors what other studies have found throughout India (Arun, 2012; Garikipati, 2008; Keshri & Bhagat, 2013; Rogaly & Rafique, 2003; Shah, 2010). The association between age and individual level temporary labour migration found in this study also reflects what other studies have found in terms of a connection between temporary labour migration and perceived productivity or labour recruitment models linked to age (de Haan, 2011; Haberfeld et al., 1999).

Education was associated with migration in our univariate analysis, as migrants had a significantly higher level of education than non-migrants. However there was no statistically significant relationship between years of formal education and individual level migration in the multivariable model as a result of confounding by sex and age. Thus, the potential effect of education on individual level migration may be accounted for by the age and sex of an individual. Although other studies, including country-wide studies that include Tamil Nadu, have found a relationship, this association is not straightforward and highly contextual based on location and different temporary migrant labour streams (de Haan, 2011; Deshingkar & Start, 2003; Keshri & Bhagat, 2013; Shah, 2010). The absence of a relationship between education and temporary labour migration in this study may suggest that several different streams of temporary labour migration co-exist in this setting, and that individuals with differing levels of formal education are finding employment outside of their village. This finding also provides caution in the interpretation of results when assessing the relationship between education and temporary

labour migration in other contexts and a reminder to evaluate education as a determinant of labour migration in the presence of both sex and age.

### *Household Size*

At the household level, household size was associated with both migrant household status and multiple member migrant households. For rural households with a labour surplus, temporary labour migration offers an opportunity for a household and its members to generate more income, whereas household labour scarcity may act as a barrier to participation in migration (Deshingkar & Start, 2003). Alternatively, as household size increases, internal demand for basic necessities increases, which in turn may lead to a household sending one or more members to find employment elsewhere. Our study demonstrates that as the size of a household increases, there is a greater likelihood that multiple household members will participate in temporary labour migration. However, there is the possibility that this finding is not causal, but rather the result of an increased probability that larger households will have at least one migrant member.

### *Caste and temporary labour migration*

Caste continues to shape rural Indian society and represents a key organising principle in terms of social mobility, inequality, power, and economic opportunities in this study area and throughout India (Desai & Dubey, 2012; Zacharias & Vakulabharanam, 2011). Although it is difficult to make generalisations about the relationship between caste and temporary labour migration in India, evidence from either census data or in-depth village level studies demonstrate two trends that are relevant for this study. First, members of historically disadvantaged castes appear to have a higher incidence of migration than members of castes that have traditionally had a greater degree of power and social mobility (Deshingkar, 2006; Deshingkar & Akter, 2009; Keshri & Bhagat, 2013). Similarly, after controlling for household size and assets, we found that

households from historically disadvantaged castes (OBC, MBC, ST, and SC) were more likely to be a migrant household than households from higher castes. Second, caste plays an important role in organising different streams of labour migration as members from a particular caste may only be able to find employment opportunities within a specific sector or industry (Deshingkar, 2005). Additionally, there is an interplay between caste and village dynamics and the two are closely connected to and reinforce each other strengthening caste specific migration streams under certain conditions (Deshingkar & Start, 2003, p. 13). In comparing single migrant households to multiple migrant households, we found that OBC or MBC households were more likely to have multiple migrant members compared to SC or ST households. This suggests that OBC or MBC households may be following different temporary labour migration trajectories in different configurations than SC and ST households.

#### *Household assets*

Land ownership and housing are two central assets for rural households in low resource settings and unequal access to these assets across households included in this study was associated with differential temporary labour migration decisions. Land ownership in particular is not only the basis of relative wealth comparisons between rural households, but also a source of rural employment making this asset of particular interest to the study of the determinants of temporary labour migration in this and other contexts (VanWey, 2003). Other studies that examine the relationship between land ownership and labour migration patterns in India point to both the quality of land and the amount of land owned as the specific determinants of a household's participation in labour migration. Shah (2010) examined the associations between household characteristics, land degradation, availability of irrigation, and amount of private and common pool land holdings with short and long term labour migration in three dry land districts

in Gujarat. That study demonstrated that degradation of common pool land facilitated short term labour migration whereas access to irrigation deterred households from participation in labour migration. Similarly, Deshingkar and Start (2003) show that the highest rates of labour migration in Andhra Pradesh and Madhya Pradesh are from villages where a majority of the population have marginal land holdings with low agricultural potential.

In this study, land quality did not differ substantially between villages, and although access to irrigation was examined in this study, the majority of households that owned land had no access to irrigation and depended exclusively on the extended rainy season for agricultural production. After controlling for household size, caste, and housing type, landless households in addition to households with marginal land holdings (0.1 to 0.5 acres in addition to between 0.6 and two acres of land) were more likely to have at least one migrant member than households with more than two acres of land. Households with 0.1 to 0.5 acres of land had the highest odds of having at least one migrant member compared to households with more than two acres of land. This finding indicates that these households may have just enough resources to send at least one household member for employment outside of their village, but not enough land to allow all household members to remain at home with productive employment options. Furthermore, census data indicate that given the choice, small scale farmers with the most marginal land holdings in India would pursue alternative employment opportunities outside of agriculture (Agarwal, 2014).

Reference to housing quality within the study of both temporary and long term labour migration in India is usually in relation to the quality of housing that migrant workers experience when accessing labour markets outside of their place of permanent residence (Deshingkar, Khandelwal, & Farrington, 2008; Mahadevia, Liu, & Yuan, 2012). In this study, we found that

housing quality, considered as another proxy for relative household wealth, was also associated with temporary labour migration among rural households in this study area. Households that lived in a medium quality house (semi-pucca house) were more likely to have at least one migrant member than households who lived in the lowest quality house (kutcha house). This finding again indicates that households may require some minimal resources in order for at least one member to seek employment outside of the village. However, there is also the possibility that for some households in this study, the participation of at least one household member in temporary labour migration may translate into improved housing quality for the entire household, as income from employment outside of the village may have been used for better housing materials. There was no relationship between land ownership or housing quality when comparing households that had one migrant member and households that had multiple migrant members. Thus, there appears to be no difference between single migrant member and multiple migrant member households in terms of access to these assets after controlling for specific demographic and socioeconomic factors.

#### *Income generation and rural livelihood diversification*

Rural livelihood diversification and access to non-farm employment opportunities for members of rural households in low resource settings is often closely linked with the examination of temporary labour migration trajectories. More specifically, rural livelihood diversification is framed not only in terms of securing multiple income streams and employment sources for households to better withstand localised and broader shocks, but also in terms of how the process of and opportunities for diversification can contribute to social and gendered changes within and between rural households and communities (Ellis, 1998, 2000; Rigg, 2006). Moreover, in other studies from India, the participation of one or multiple household members in

temporary labour migration is often conceptualised as a strategy for rural households to either barely cope with serious deprivation, or conversely, to accumulate resources to contribute toward strengthening the well-being of the household and its members (Deshingkar, 2010; Deshingkar & Start, 2003). While this distinction is helpful in framing the role of temporary migratory labour in rural livelihoods, other studies have demonstrated the dynamic nature of both of these concepts and how migration streams that were once utilised for coping became accumulative over time or vice versa (Rogaly & Coppard, 2003). Thus, in understanding the role of temporary labour migration in rural livelihood diversification within a particular context, it is important to consider the degree to which livelihood diversification can actually be realised by rural households and their members and how this reality shapes the potential of temporary labour migration to be used as a coping or accumulation strategy.

At the same time, it is important to consider the role that remittances may have in livelihood diversification, and how temporary labour migration can stimulate rural investment and development. Rogaly (2003) demonstrates how specific tribal groups place a high value on land ownership and may use income from migration to intensify their own agricultural production. Moreover, migrant status can be fluid, meaning that present income diversification by a non-migrant household may have been funded by previous migration. Thus, in assessing the relationship between livelihood diversification and temporary labour migration, it is important to position livelihood diversification within the broader history of labour migration originating from a specific area.

In our study, the majority of rural households were engaged in multiple on farm and off farm income generating activities within the last year, providing evidence that livelihood diversification is common in this context. The time frame of one year was used to account for

seasonal variability that may shape income generating activities for the households in this study. Of particular interest, while 115 households in this study had at least one member engaged in temporary labour migration, 101 households (87.8%) cited remittances from migration as a source of income for the household in the last year. This finding demonstrates that the participation of an individual in temporary labour migration does not necessarily equate with guaranteed economic returns for their household of origin due to a number of possible factors including, but not limited to, the exploitative nature of some temporary labour arrangements, the costs associated with living away from one's household and village of usual residence, or the intra-household allocation of remittances.

Households that generated income through activities in their own village were less likely to have at least one migrant household member. However, there appears to be a distinction between income generating activities that were controlled by the household unit and activities that involved local employment or work offered through a government social welfare scheme. Households that participated in income generating activities that were controlled by the household unit (local business, agriculture, and livestock) were much less likely to have at least one migrant member than households that did not participate in these activities. Households that generated income through local employment, largely through daily labour in a neighbour's agricultural plot, or through MGNREGA, were less likely to have at least one migrant member than households that did not participate in these activities. However, the strengths of the associations are weaker between these uncontrolled forms of income generation and the diminished tendency for migration originating from these households than the associations with household controlled income generating activities. Importantly, households with multiple

migrant members were more likely to generate income through obtaining loans than households with only one migrant member.

These findings have several implications in terms of understanding rural livelihoods and diversification in this context. First, the types of income generating activities that a household pursues in its village, and the relative control of the household over these activities may influence migration decisions. Household based management of income generating activities appears to provide a greater degree of autonomy and choice for households, including the choice for all household members to remain in their village, than income generating opportunities that are provided by neighbours or through the government. As a result, there is an opportunity and need for targeted rural and agricultural development initiatives and public policy to support rural households in the creation and self-management of these particular income generating activities.

A second important point to raise from these findings, however, is that generating income through a small business, agriculture, or livestock requires that a household meets a basic threshold of resources to participate in these activities, effectively excluding some households from these options for livelihood diversification. MGNREGA guarantees rural households throughout India with 100 days of casual manual labour per year for at least one adult household member at a fixed income rate. This social welfare scheme is largely considered to be one method of stemming the flow of temporary and permanent migrants into India's urban centres (Basu, 2013; Bird & Deshingkar, 2009). However, in this context, the structure of this policy appears to complement livelihood diversification and temporary labour migration, as women and men from low resource households are able to access and use both MGNREGA and temporary labour migration simultaneously or consecutively to support their household. According to village *panchayat* level statistics, female participation in MGNREGA for 2013-2014 was 88.1

per cent in Anchetty, 72.3 per cent in Thaggatti and 58.9 per cent in Madakkal (Ministry of Rural Development, 2014). Thus, in this context, MGNREGA is highly segregated by gender and effectively acts as a de facto employment scheme for women while men continue to participate in temporary labour migration.

Finally, the propensity of households with multiple migrant members to borrow money through loans indicates that these households may use temporary labour migration as a coping strategy rather than as an accumulation strategy. In Tamil Nadu and elsewhere in India, bonded labour arrangements are common and are often used by households as a method of loan repayment (Bhukuth & Ballet, 2006; Carswell & De Neve, 2013; Guérin, 2013; Marius-Gnanou, 2008). In these cases, temporary labour migration may be used to access and participate in these labour arrangements, which are often highly exploitative with lower economic returns than freer forms of labour. Thus, for these households, temporary labour migration may be used as an attempt to address cycles of severe indebtedness through the entrance of one or multiple household members into a debt bondage agreement or another exploitative labour arrangement.

## **Conclusion**

This study contributes new village level empirical evidence from southern India on the nature of temporary labour migration in this context. In our analysis, individual and household level factors were separated and examined to demonstrate how dynamics at each of these levels can influence temporary labour migration decisions. The strength of the study design, including the use of multistage random sampling, allows for comparisons to be made between this case and similar studies from other regions in India.

At the individual level, we found that young males are most likely to temporarily migrate for work from this region. At the household level, we found that larger households were more

likely to have at least one temporary migrant member. In addition, SC, ST, OBC, and MBC households were more likely to have at least one migrant member than households from higher castes. OBC and MBC were more likely to have multiple migrant members compared to SC or ST households indicating the presence of multiple temporary migration trajectories originating from this region. Landless households and households with very marginal land holdings were more likely to have at least one migrant member than households with more than two acres of land and households who lived in a semi-pucca (medium quality) home were more likely to have at least one migrant member compared to households who lived in the lowest quality structure (kutchra house). These findings indicate that poor households are involved in temporary labour migration, however, some minimal threshold of resources may be required to participate in and leverage the benefits from these labour movements. Non-migrant households are more likely to generate income through opportunities inside their village than households with at least one migrant member. However, there is a stronger association between income generating activities that are controlled by non-migrant households compared to activities that rely on employment by a neighbour or MGNREGA. In addition, households with multiple migrant members are more likely to rely on loans for household income than households with one migrant member indicating that multiple migrant member households may be in a more marginal position and use temporary labour migration as a coping strategy.

This study highlights the need for further research in several areas. First, there is a need to better understand and disaggregate the specific experiences of and outcomes from temporary labour migration for households from different castes in this context and others, as this study has demonstrated that caste shapes specific temporary labour migration trajectories. In addition, further investigation is needed into the gendered use of MGNREGA in combination with

temporary labour migration by rural household as a livelihood diversification strategy. Finally, further research should investigate additional non-economic determinants of temporary labour migration, including psychosocial factors, to better understand how these factors shape both the determinants and outcomes of temporary labour migration.

The data and findings from this study provide a strong foundation and a comparative case for further investigation into the determinants and dynamics of temporary labour migration in other regions of India. In addition, this study contributes to a growing evidence base concerning the nature and complexities of temporary labour migration in India. This growing evidence base should be used to inform both policy and targeted development initiatives in order to create an enabling environment where the development potential of temporary labour migration can be leveraged for migrant workers and their households.

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## Tables

**Table 2.1:** Village-level descriptive statistics for 278 households from Anchetty, Madakkal, and Thaggatti *panchayats* included in study, 2013\*

Panchayat	Village	Total number of households	Number of households included in study* (%)	Number of migrant households (%)	Number of migrant households with multiple migrant members (%)	Caste composition of village	Quality of roads to and from village	Access to public transportation
Anchetty	1	350	33 (9.43%)	11 (33.33%)	1 (3.03%)	Primarily OBC/MBC	Good	Poor
	2	300	19 (6.33%)	13 (68.42%)	0	Primarily SC/ST	Good	Poor
	3	250	23 (9.20%)	3 (13.04%)	0	Primarily higher caste	Good	Good
	4	175	17 (9.71%)	9 (52.94%)	3 (17.65%)	Primarily OBC/MBC	Good	Good
	5	150	14 (9.33%)	8 (57.14%)	3 (21.43%)	Mixed	Good	Poor
	6	80	8 (10.0%)	6 (75.0%)	5 (62.5%)	Primarily OBC/MBC	Poor	Poor
	7	20	2 (10.0%)	1 (50.0%)	0	Primarily OBC/MBC	Poor	Poor
	<b>Total</b>	<b>1325</b>	<b>116 (8.75%)</b>	<b>51 (43.97%)</b>	<b>12 (10.34%)</b>			
Madakkal	8	185	13 (7.03%)	2 (15.38%)	0	Mixed	Poor	Good
	9	145	14 (9.66%)	5 (35.71%)	1 (7.14%)	Mixed	Poor	Good
	10	80	8 (10.0%)	3 (37.50%)	2 (25.0%)	Mixed	Poor	Good
	11	75	7 (9.33%)	3 (42.86%)	0	Primarily OBC/MBC	Poor	Good
	12	75	6 (8.0%)	4 (66.67%)	1 (16.67%)	Primarily OBC/MBC	Good	Poor
	13	75	6 (8.0%)	3 (50.0%)	1 (16.67%)	Primarily SC/ST	Good	Poor
	14	55	7 (12.73%)	1 (14.29%)	1 (14.29%)	Mixed	Poor	Good
	<b>Total</b>	<b>690</b>	<b>61 (8.84%)</b>	<b>21 (34.43%)</b>	<b>6 (9.84%)</b>			
Thaggatti	15	500	45 (9.0%)	15 (33.33%)	4 (8.89%)	Primarily OBC/MBC	Good	Good
	16	270	20 (7.41%)	8 (40.0%)	0	Mixed	Good	Good
	17	160	16 (10.0%)	12 (75.0%)	8 (50.0%)	Mixed	Poor	Poor
	18	80	8 (10.0%)	3 (37.50%)	0	Primarily SC/ST	Good	Good
	19	75	6 (8.0%)	2 (33.33%)	0	Mixed	Good	Good
	20	60	6 (10.0%)	3 (50.0%)	2 (33.33%)	Primarily OBC/MBC	Poor	Poor
	<b>Total</b>	<b>1145</b>	<b>101 (8.82%)</b>	<b>43 (42.57%)</b>	<b>14 (13.86%)</b>			

\*In total, 22 households were excluded from the initial sample of 300 households because they did not meet inclusion criteria for 'migrant household'.

OBC = Other Backwards Caste; MBC = Most Backwards Caste; SC = Scheduled Caste; ST = Scheduled Tribe

**Table 2.2:** Frequency of household factors associated with household level temporary labour migration in 278 households from southern India, 2013

	Frequency n(%)
<b>Caste</b>	
Scheduled Caste (SC) or Scheduled Tribe (ST)	77 (27.70%)
Other Backward Caste (OBC) or Most Backward Caste (MBC)	176 (63.31%)
Higher Caste	25 (8.99%)
<b>Land</b>	
0 acres (no land )	61 (21.94%)
0.1-0.5 acres	18 (6.83%)
0.6-2 acres	128 (46.04%)
>2 acres	70 (25.18%)
<b>Housing Type<sup>6</sup></b>	
Government-subsidised housing	36 (12.95%)
Kutchha house (low quality)	204 (73.38%)
Semi-pucca house (medium quality)	18 (6.47%)
Pucca house (high quality)	20 (7.19%)
<b>Income Source(s)<sup>7</sup></b>	
Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)	181 (65.11%)
Local day labour work	124 (44.60%)
Agriculture	101 (36.33%)
Remittances from temporary labour migration	101 (36.33%)
Borrowing money through loans	82 (29.50%)
Livestock	43 (15.47%)
Local shop or business	35 (12.59%)

<sup>6</sup> In line with the definitions used by the Ministry of Statistics and Programme Implementation in India, a pucca house has walls made of solid materials such as cement concrete, stones packed with cement, or burnt bricks and a roof made of materials such as reinforced cement concrete, tiles, or galvanised corrugated iron sheets. In kutchha houses, the roof and/or walls are made with materials such as grass, mud, thatched sticks, unburnt bricks or loose stones. A semi-pucca house has solid walls that are found in pucca houses, but the roof is made of materials other than those found in pucca houses. Government-subsidised housing is only available to members of SC or ST castes, but resembles a pucca house.

<sup>7</sup> Respondents were able to provide more than one income source if applicable.

**Table 2.3:** Individual level demographic factors associated with temporary labour migration in southern India, 2013 based on multivariable logistic regression

	<b>Odds Ratio</b>	<b>95% CI</b>	<b>p-value</b>
<b>Sex</b>			
Male	16.04	9.09-28.29	<0.0001
Female*	1.00	-	-
<b>Age</b>			
Age	1.22	1.09-1.37	0.0007
Age <sup>2</sup> (squared)	1.00	0.99-1.00	<0.0001

\*Referent category based on multivariable logistic regression

**Table 2.4:** Household level demographic and socioeconomic factors associated with temporary labour migration from 278 households in southern India, 2013 based on multivariable logistic regression

	<b>Odds Ratio</b>	<b>95% CI</b>	<b>p-value</b>
<b>Household Composition and Size</b>			
Total number of household members	1.34	1.18-1.52	<0.0001
<b>Caste</b>			
Scheduled Caste (SC) or Scheduled Tribe (ST)	3.71	1.07-12.90	0.0392
Other Backward Caste (OBC) or Most Backward Caste (MBC)	3.73	1.17-11.93	0.0265
Higher Caste*	1	-	-
<b>Land (Acres)</b>			
No land	2.95	1.23-7.06	0.0155
0.1 acres – 0.5 acres	3.97	1.21-12.96	0.0225
0.6 acres – 2 acres	2.02	1.01-4.03	0.0473
>2 acres*	1	-	-
<b>Housing Type</b>			
Pucca house (high quality)	NS	0.76-5.63	0.1565
Semi-pucca house (medium quality)	4.22	1.38-12.88	0.0113
Government-subsidised housing	NS	0.78-4.49	0.1633
Kutch house* (low quality)	1	-	-

\*Referent category based on multivariable logistic regression

NS = not statistically significant

**Table 2.5:** Household level income sources in the last year associated with temporary labour migration from 278 households in southern India, 2013

<b>Income Source</b>	<b>Odds Ratio</b>	<b>95% CI</b>	<b>p-value</b>
Agriculture	0.29	0.16-0.53	<0.0001
No agriculture*	1	-	-
Livestock	0.24	0.11-0.55	0.0007
No livestock*	1	-	-
Local day labour work	0.39	0.23-0.68	0.0008
No local day labour work*	1	-	-
Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)	0.51	0.29-0.90	0.0197
No Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)*	1	-	-
Local shop or business	0.11	0.04-0.29	<0.0001
No local shop or business*	1	-	-

\*Referent category based on multivariable logistic regression

**Table 2.6:** Household level demographic and socioeconomic factors associated with multiple member temporary labour migration (n=32) versus single member temporary labour migration households (n=83) in southern India, 2013 based on multivariable logistic regression.

	<b>Odds Ratio</b>	<b>95% CI</b>	<b>p-value</b>
<b>Household Composition and Size</b>			
Total number of household members	1.52	1.27-1.83	<0.0001
<b>Caste</b>			
Scheduled Caste (SC) or Scheduled Tribe (ST)*	1	-	-
Other Backward (OBC) or Most Backward Caste (MBC)	4.03	1.12-14.46	0.0327
Higher Caste	NS	0.17-41.94	0.4934
<b>Income Source</b>			
Borrowing money through loans	3.18	1.14-8.83	0.0226

\*Referent category used for the multivariable logistic regression

NS = not statistically significant

## CHAPTER 3 - THE INTERNAL MIGRATION-DEVELOPMENT NEXUS: EVIDENCE FROM SOUTHERN INDIA

*Article under review:*

Dodd, W., Humphries, S., Patel, K., Majowicz, S., & Dewey, C. (under review). The internal migration-development nexus: evidence from southern India. *Asian and Pacific Migration Journal*.

### **Abstract**

This study examines the extent to which the internal migration-development nexus is operational in four village panchayats in northwest Tamil Nadu. We investigate who participates in labour migration in this context and explore the experiences of and outcomes from labour migration for migrant workers and their households. In addition, we examine the motivations for migration among migrant households and the barriers to migration among non-migrant households. We argue that internal labour migration can contribute to development in this setting; however, recognition of the barriers to and within migration is needed to frame subsequent policy discussions and rural development planning.

### **Introduction**

There is increasing public and political interest in, and awareness of, the intersections between migration and development, with research on the migration-development nexus becoming a recognized subfield within both migration and development studies (Faist, 2008; Nyberg-Sørensen, Hear, & Engberg-Pedersen, 2002; Piper, 2009; Skeldon, 2008). While international migration has received most of the attention from policy makers and scholars, there is growing recognition of the significance of internal labour migration to contribute to poverty reduction and human development in low-income settings (Afsar, 2003; Deshingkar, 2006; Tandoh-Offin & Awuse, 2013). The optimism surrounding the potential for internal migration to spur development was well captured by Deshingkar (2006) who argued that “internal migration

has greater potential for poverty reduction, meeting the Millennium Development Goals (MDGs) and contributing to economic growth in developing countries than does international migration” (1).

Despite this optimism, significant challenges exist in leveraging the benefits of internal labour migration for migrant workers and their households in India. Additionally, policy measures that aim to promote community and agricultural development in rural settings are sometimes at odds with mobile livelihoods. With these challenges in mind, this study aimed to describe the complexity of labour migration trajectories originating from one rural area in northwest Tamil Nadu, India, using both qualitative and quantitative data. In particular, we aimed to explore migrant workers experiences with internal labour migration and the outcomes from migration for migrant households. We also investigated motivations for labour migration among migrant households and barriers to migration among non-migrant households. Overall, we aimed to assess the extent to which the internal migration-development nexus operates within this context. While there are clear economic incentives and benefits to participate in labour migration, this study found that these benefits are unequally accessed and distributed within and across households. Thus, there is an opportunity for the barriers identified by this study to be included in subsequent policy discussions and rural planning to better support rural households that choose to pursue mobile livelihoods.

### **The Internal Migration-Development Nexus: Cautious Optimism**

The optimism surrounding the development potential of internal migration in India is largely grounded in evidence of the relatively stable and equitable transfer of remittances from migrant workers to their households, especially in comparison to the sometimes volatile and unreliable economic returns from international migration (Czaika & Spray, 2013; Deshingkar,

2006; Housen, Hopkins, & Earnest, 2013). In addition, poor households and historically marginalized groups are able to more easily participate in internal labour migration compared to international migration, due to the relatively low inputs leading to a potential equalizing effect on income distribution within villages (Housen et al., 2013). As the number of internal migrant workers continues to increase, these workers are also significant contributors in the growth of India's domestic industries and infrastructure (Deshingkar, 2006).

Although the economic outcomes from internal labour migration appear promising, the migration-development nexus has received considerable criticism on theoretical and empirical grounds. While international migration has received most of this criticism, analyses of the experiences of internal migrant workers and their households reveal that some of this criticism is relevant to internal labour migration.<sup>8</sup> From a theoretical perspective, critics of the migration-development nexus contend that the fixation on remittances as a tool for development fails to question wider economic and social inequality that is responsible, in part, for growing internal and international mobility in the first place (Binford, 2003; Castles, 2010; Delgado Wise, Márquez Covarrubias, & Puentes, 2013). Instead, neoliberal economic growth and globalization and its role in driving migration and undermining development, especially in rural areas, is placed above scrutiny (Binford, 2003; Boucher, 2008; Delgado Wise et al., 2013). These theoretical debates reveal competing visions for human development in India that can manifest themselves in poorly designed rural and agricultural policies, which create impediments to mobility rather than support diversified livelihoods.

At an empirical level, the focus on remittances as the tool for development means that the non-economic costs associated with labour migration are often overlooked (Castañeda, 2013;

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<sup>8</sup> King and Skeldon (2010) argue that theorizing on the migration-development nexus offers an opportunity for improved synergies between studies on internal and international labour migration.

Piper, 2009; Silver, 2014). Of particular relevance to internal labour migration in India, migrant labour in some industries is often synonymous with exploitative labour arrangements and human rights abuses that severely curtail a migrant's ability to leverage any benefits from this work (de Haan, 2000; Deshingkar & Akter, 2009). Additionally, India's domestic policy environment fails to fully recognize the extent of human mobility within its borders, leading to poorly designed rural development policies and a lack of access to social protections for migrant workers (de Haan, 2000; Deshingkar & Start, 2003). This policy environment creates barriers to participate in labour migration and contributes to hardships for migrant workers at their destination.

With these critiques in mind, it is necessary to broadly examine the connections between internal migration and development in different contexts to investigate the extent to which the internal migration-development nexus is operational. This includes an assessment of who is participating in migration, what their experiences are, what the outcomes of migration are for migrants and their households, and what factors motivate or prevent migration in a particular setting. While our analysis includes a number of economic measures, we also aim to demonstrate the pathways through which migration decisions are made in addition to the non-economic costs and benefits of internal labour migration. Overall, our objective was to provide empirical evidence to inform subsequent debate surrounding the internal migration-development nexus in India in addition to enabling policy that supports migrant workers and their households.

## **Methods**

### *Study Area*

This study was conducted in 26 villages in Anchetty, Thaggatti, Madakkal, and Urigam *panchayats* in the Krishnagiri district of Tamil Nadu. As a result of its proximity to Karnataka, both Tamil and Kannada are spoken in this region. The Krishnagiri district is consistently ranked

as one of the poorest districts in Tamil Nadu, with one of the lowest gross district domestic products (GDDP), a high rate of illiteracy, and a poor rating for the gender development index (GDI) (D. K. Srivastava, Shanmugam, & Bhujanga Rao, 2010). Within the study site, the prevalence of poverty and illiteracy were higher than the district averages, with 36 per cent of the population living below the poverty line and a literacy rate of 48.3 per cent (Karthikeyan et al., 2012).

There is a history of government-led rural development initiatives in addition to the presence of agricultural and community development programming initiated by non-governmental organizations (NGOs) in this setting. The majority of households, and particularly adult women within these households, participate in the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), which guarantees adults 100 days of local employment.<sup>9</sup> Other initiatives available to poor households in this setting include access to the Public Distribution System (PDS) and subsidized agricultural inputs.

All *panchayats* were adjoined with relatively easy access to the urban centres of Bengaluru and Hosur. However, Anchetty *panchayat* was the most networked in terms of road quality, access to public transportation, and the availability of public services such as education and public and private healthcare. Urigam *panchayat* was the most geographically isolated *panchayat* included in this study, and as a result, it was only included in the qualitative portion of this study.

### *Qualitative Methods and Analysis*

A semi-structured interview guide was developed to examine the different dimensions of labour migration and community development among rural households in Anchetty, Thaggatti, Madakkal, and Urigam *panchayats*. Interviews inquired about general perceptions of the

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<sup>9</sup> MGNREGA is also referred to as the National Rural Employment Guarantee Act (NREGA).

presence of labour migration in each village, different motivations for labour migration, the perceived barriers to participation in labour migration, remittances and other socioeconomic outcomes associated with labour migration, earnings from participation in local labour opportunities, and the role of social networks in shaping labour migration trajectories. The development of the interview guide was informed by participant observation and input from local partners and research assistants. In total, semi-structured interviews were completed with 66 individuals from 17 villages using snowball sampling techniques in December 2012. One translator was trained in interviewing techniques by the first author and questions were delivered in either Tamil or Kannada based on the primary language of each respondent. Each interview was audio recorded and the response to each question was translated into English by the translator for the audio recording. The first author was present for every interview to ask follow up questions when appropriate. Each interview was then transcribed by the first author. Thematic analysis was completed to elucidate key concepts that were discussed across interviews.

#### *Quantitative Methods and Analysis*

A comprehensive survey tool was developed and refined based on the results of the semi-structured interviews and consultation with local partners. Surveys collected a range of information on socioeconomic status, health, and labour migration from 300 rural households in 20 rural villages in Anchetty, Thaggatti, and Madakkal *panchayats* between January-March 2013 with translation assistance. Multistage random sampling was used to sample villages and then households within villages. Approximately half of the villages within each *panchayat* were randomly sampled and included in the study. Then, approximately 10 per cent (8.1%-12.7%) of households within each village were systematically randomly sampled (approximately every tenth household was included) based on the estimated number of households.

Household-level descriptive statistics for caste, geographic location, economic status, and the presence and number of migrant members were calculated for all households included in this study. Additionally, descriptive statistics were calculated for all migrant individuals included in this study to explore demographic, labour, and migration characteristics. A migrant individual was defined as someone who was engaged in labour outside of her or his village of usual residence at the time of survey administration as reported by the survey respondent. The skill level of different occupations was defined based on descriptions of the training or education required for each position, and was provided by survey respondents and interviewees. Low skilled jobs required no or minimal training, whereas semi-skilled professions required some training or an apprenticeship and high skilled occupations required advanced training or education. Additionally, examples of low skilled, semi-skilled, and high skilled occupations held by migrant individuals were examined and the average daily wage of select migrant workers was calculated for workers employed in specific industries at each skill level.<sup>10</sup>

The association between migrant household status and household caste was assessed via univariate logistic regression. In addition, the association between the daily wage earned among known migrant wage earners and various demographic, labour, and migration factors was determined using simple linear regression. Migrant individuals who were paid by piece work or in room and board, along with individuals with an unknown daily wage, were excluded from further analysis. All independent variables with a p-value of  $<0.20$  from the simple linear regression were included in a multiple linear regression model with manual backwards elimination to exclude all variables with a p-value  $>0.05$ . If one level within a categorical variable grouping had a p-value  $<0.05$ , all categories of the variable were retained in the model.

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<sup>10</sup> Throughout this study, average daily wage is shown in Indian Rupees (INR) and U.S. Dollars (USD). The conversion rate of 1 INR = 0.016072 USD was determined based on the average exchange rate between the two currencies during the survey administration of January – March 2013.

Village of residence was controlled for in the multivariable model as a random effect to account for the influence of clustering by village on daily wage. The intraclass correlation coefficient (ICC) was calculated to assess the amount of variation in daily wage that was attributed to village level effects. Confounding among independent variables was assessed by identifying changes in coefficients or in the level of statistical significance of independent variables throughout the model building process. Two-way interactions were tested for sex, age, education level, migration destination, job classification, and industry. Diagnostic tests were run for the multivariate regression model to assess goodness of fit and for the presence of influential observations.

Differences in average monthly economic returns from migrant labour for migrant households in general, and for the month prior to survey administration, were tested using a two-sample t-test. The relative importance of remittances to household viability was also assessed through inquiring about the importance of income from internal migration compared to other possible income sources for each migrant household. Migrant households also ranked the three most important motivators for engaging in migrant labour. Conversely, non-migrant households ranked the three most important barriers preventing anyone in their household from engaging in migrant labour. The overall frequency of responses, the number of times a particular response was ranked as the most important motivator or barrier, and the mean rank of each response was calculated for both of these questions. All statistical analysis of data was completed using Stata®12.

## **Results**

Of the 300 households surveyed, 90.7 per cent of households were classified as ‘Below the Poverty Line’ (BPL) and held a BPL ration card.<sup>11</sup> Additionally, 100% of households included in this study identified as Hindu. In terms of caste composition, 184 households (61.33%) identified as ‘Other Backwards Caste (OBC) or Most Backwards Caste (MBC),’ 88 (29.33%) households identified as ‘Scheduled Caste (SC) or Scheduled Tribe (ST),’ and 28 households (9.33%) identified as ‘Higher Caste.’ In total, 137 households (45.67%) had at least one current migrant member participating in some form of labour migration. Table 3.1 shows a further breakdown of household demographic factors by household migrant status. Compared to higher caste households, SC or ST households (OR=3.82; p=0.006) and OBC or MBC households (OR=2.32; p=0.068) were more likely to have at least one current migrant member.

From the 137 migrant households, there were 205 migrant workers, including 188 males (91.71%) and 17 females (8.29%). The mean age of migrant workers was 27.4 years (SD=8.66) with an average of 5.6 years (SD=5.26) of formal education. In total, 12 female migrant workers (70.59%) were currently married, whereas 108 male migrant workers (57.45%) were currently married. All married female migrant workers except one (91.67%) were migrating with their male partner and often, but not always, working in the same occupation or industry as their male counterpart. Conversely, of the 108 married male migrant workers, 60 (55.56%) were accompanied sometimes or always by their female partner on their labour migration journey. It is important to note that few of these female partners engaged in wage labour while living outside of their village of usual or original residence.

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<sup>11</sup> Households with a BPL ration cards are eligible to receive subsidized or free food grains and subsidized kerosene or cooking fuel through the Public Distribution System (PDS). These households may also have access to various social welfare schemes such as free housing an old age pension, and subsidized healthcare (Besley, Pande, & Rao, 2012; Ram, Mohanty, & Ram, 2009).

In addition, migrant workers included in this study migrated to 31 separate destinations. These locations were collapsed into six categories and included Bengaluru and its surrounding suburbs (42.93%), Hosur and its surrounding suburbs (30.73%), rural destinations within Tamil Nadu (11.71%), rural destinations in another state (5.85%), urban destinations within Tamil Nadu (5.85%), and urban destinations in another state (2.93%). As a result of the study location's proximity to the Karnataka border, interstate migration was common. Table 3.2 provides additional characteristics of migrant workers included in this study.

Most of the migrants included in this study were engaged in either low skilled (131 individuals; 64.53%) or semi-skilled work (55 individuals; 27.09%). Migrant workers earned an average daily wage of 261.96 INR (SD=111.73; 4.21 USD; SD=1.80). Interviewees who did not participate in labour migration mentioned that they could earn between 70-100 INR (1.13-1.61 USD) per day through local labour in a neighbour's field or an average of 80 INR (1.29 USD) per day through participation in MGNREGA. Table 3.3 provides an example of occupations from different skill levels held by migrant workers along with the average daily wage of selected workers in each industry at the time of survey administration.

Labour and migration factors associated with the daily wage earned by internal migrant workers are described in Table 3.4. The highest wages were earned by workers who migrated to Bengaluru, workers in high skilled professions, and workers in the construction industry. Thirty-seven per cent of the variation in daily wages earned by migrant workers was explained by village level effects.

Of the 137 migrant households in the study, 113 (82.48%) reported receiving monetary remittances from their migrant members (37.7% of all households in this study). Of these 113 households, 95 (84.07%) reported that the money generated through migrant labour represented

the primary source of household income and was very important to sustaining the household. In terms of the absolute value of remittances, 109 households reported that they received an estimated 3168.26 INR (SD=2137.70; range 200-10,000 INR; 50.92 USD; SD=34.36; range 3.21-160.72 USD) in remittances on average per month. When asked how much their household received in the month prior to survey administration, these 109 households reported that they had received an average of 2876.94 INR (SD=2317.31; range 0-10,000 INR; 46.24 USD; SD=37.24; range 0-160.72 USD). After taking the number of migrant workers per household into account, households received an estimated 2505.80 INR (SD=1674.98; range 50-7,500 INR; 40.27 USD; SD=26.92; range 0.80-120.54 USD) per migrant worker per month overall and 2262.65 INR (SD=1815.37; range 0-7,500 INR; 36.37 USD; SD=29.18; range 0-120.54 USD) per migrant worker in the previous month. There was no significant difference between the mean amount of monthly remittances that households received in general and during the month prior to survey administration, even after accounting for the number of migrant members per household. Nine households (3.0% of all households) relied solely on remittances from migration as their only source of household income; overall, households had an average of 2.7 sources (SD=0.93) of income in the last year.

The most frequently cited motivation for migration was a lack of local employment opportunities (66.42%). This motivation was also ranked as the most important reason for migration by 45.5 per cent of respondents. Further motivators for migration are shown in Table 3.5.

Agricultural responsibilities (60.74%) and family responsibilities (57.06%) were the most frequently cited hindrances to migration. In addition, these barriers were consistently ranked as the most important barriers to migration by respondents (30.06% and 32.52%, respectively).

Further barriers to the participation of any household member in labour migration are shown in Table 3.6.

## **Discussion**

### *Participation in the internal migration-development nexus*

Our findings of who is participating in internal labour migration provide insights into who may subsequently control the income and resources generated from migration and what this might mean for uneven individual, household, and village development. Internal migration originating from this setting was segregated by sex, age, and caste, with young men from historically marginalized castes (SC, ST, OBC, and MBC) having the highest probability of participating in internal labour migration. This finding is consistent with other studies that examine the demographic factors that shape internal labour migration in other areas in India (Deshingkar, 2005; Deshingkar & Akter, 2009; Deshingkar & Start, 2003; Keshri & Bhagat, 2013; Shah, 2010; Sridhar, Reddy, & Srinath, 2013).

Although female dominated labour migration trajectories are documented elsewhere in India (Agnihotri & Mazumdar, 2009; Deshingkar & Start, 2003), we did not find evidence of these patterns. Instead, when women did participate in labour migration, the majority were accompanied by their male partner who was also engaged in labour migration. We identified one stream of labour migration involving unmarried girls (three individuals) participating in lengthy daily labour commutes to Bengaluru to work alone in the garment industry. Daily transportation from these workers' villages was provided by their employer, which is a practice among some garment factories within Bengaluru (Singh, 2009). We also found that some married women migrated with their male partner, but did not participate in wage labour outside of the household during temporary or permanent migration trips. These women also tended not to participate in

MGNREGA in their village of origin as a result of their migration journeys, meaning that their access to and control of financial resources was limited.

Children sometimes migrated with their parents, however, it was more likely that they did not participate in migration and stayed behind under the supervision of extended family members within virilocal residences. Although, we did not directly measure and compare the differential experiences of migrant and non-migrant children, other studies in India have found a negative relationship between migration and educational outcomes for migrant children (Coffey, 2013; Smita, 2008). Conversely, a positive association is found among children and teenagers with a migrant parent or parents, but who remain in their village and do not participate in labour migration (Mueller & Shariff, 2011).

The majority of migrants possessed some formal education, although the amount of education varied. However, daily wage was not associated with education level after controlling for migration destination, job classification, and industry. There was evidence of several highly educated individuals (completed post-secondary education) migrating to high skill occupations either temporarily or permanently, usually in administrative or supervisory roles. However, the majority of migrants from this setting held less than a full secondary education and subsequently found employment in low and semi-skilled occupations. This lack of homogeneity among migrant workers with respect to education corresponds to the findings of other studies in India demonstrating an unclear relationship between internal labour migration and education that is largely dependent on specific migration streams and sub-streams (Rogaly et al., 2001; R. Srivastava, 2003).

Despite this unclear relationship between migration and education, the propensity of young males to engage in labour migration means that these individuals are largely responsible

for the delivery and possibly the distribution of resources generated from migration within their household. Intra-household disparities can lead to differential development outcomes, particularly in health and nutrition, for different members within the same household unit (Behrman & Deolalikar, 1990; Berman, Kendall, & Bhattacharyya, 1994; Messer, 1997). Gender-based and age-based discrimination are often considered the two most important sources of inequality within households. Although this study did not directly investigate the pathways through which resource allocation decisions are made, the disproportionate number of males engaged in migration suggests, at least, that these men are responsible for initiating this distribution decision process.<sup>12</sup> Thus, for the internal migration-development nexus, differential participation in labour migration based on the demographic factors discussed above may have implications for experiences with and outcomes from migration processes for non-migrant members of migrant households.

*Experiences with and outcomes from internal labour migration for migrant workers*

The descriptive analysis of migrant workers provided insights into how labour migration operates in this context. There is a history of migration in this setting, as the majority of migrant workers had engaged in migrant labour for at least several years prior to survey administration. Most labour migration is temporary in nature, lasting seven weeks on average. However, there is also evidence of daily labour commutes involving daily, and often lengthy, trips to another village or urban centre to engage in wage labour.

The majority of migrants included in this study were engaged in rural to urban migration streams with most (73.7%) working in the urban centres of either Bengaluru or Hosur. Rapid urban growth and the resulting infrastructure needs to maintain this growth, especially in

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<sup>12</sup> Resource allocation decision pathways may differ depending on whether a migrant worker is the head of their household or a member of a virilocal residence.

Bengaluru, is attributed in part to economic liberalization and privatization policies in India, creating labour opportunities in multiple industries (Chadchan & Shankar, 2012; Sudhira, Ramachandra, & Subrahmanya, 2007). Conversely, 17.6 per cent of migrant workers were engaged in rural to rural migration streams either within Tamil Nadu or across state boundaries to either Karnataka or Andhra Pradesh. These streams primarily involved work in agriculture, brick kilns, or quarries.

Most work carried out by migrants included this study was either low or semi-skilled (91.6%). Additionally, construction work was the most frequent source of employment (44.9%) for migrant workers. This propensity of migrant workers from this setting to be engaged in construction work mirrors what other studies from India have shown concerning migrant employment in construction work and its connection to urban growth (Deshingkar & Akter, 2009; Mosse et al., 2002; Mosse, Gupta, & Shah, 2005). Construction work appears attractive because of its flexibility and relatively high returns compared to other sectors. In this study, the daily wage from construction work was significantly higher than the returns from any other industry. However, these high returns are often coupled with precarious working conditions and informal labour arrangements that offer little or no job security (Cross, 2010; Pais, 2002; Zeitlyn & Deshingkar, 2014). These precarious working conditions are particularly pronounced for women, who tend to perform the lowest skill work which requires the highest physical demands, and who are often overlooked to receive formal training for advancement within the sector (Baruah, 2010; Dasgupta, 2002). In addition to construction, a number of migrant workers found employment in the textile and manufacturing sectors. Although recent reforms are noted in each of these sectors, these industries are also notorious for their precarious working conditions (Kalhan, 2008; Nath, 2008). However, our study shows that regardless of industry and working

conditions, the majority of migrant workers were able to earn more per day on average than through local day labour work or MGNREGA emphasizing the strong economic incentives to participate in labour migration in this context.

Our study also revealed that approximately one third (37.4%) of the variation in daily wage between migrant workers was attributable to their village of origin. One explanation for this is the propensity of some castes to migrate over others in this context. Deshingkar and Start (2003) argue, “Caste characteristics of migration streams are closely associated with village characteristics and the two reinforce each other, leading to a higher incidence of migration amongst certain castes” (13). Along the same lines, the presence and influence of village-based and likely caste-specific social networks in securing employment, and potentially higher wages among migrant workers, provides a further explanation for this observed variation in daily wage between villages. Well-established absorptive networks provide a crucial source of support for workers as they navigate the migration process through mitigating some of the economic and psychosocial costs and risks associated with their journeys and work (Banerjee, 1983; Mitra & Murayama, 2009). Indeed, migrant households in this study reported that most (73.6%) migrants worked with relatives or friends, thus supporting the existence of networks to direct migration decisions and trajectories. Important for this context, Mitra and Murayama (2009) argue that networks appear strongest for short distance migration, which comprised the majority of migration in this context.

#### *Remittances, internal labour migration, and household-level impact*

Although there are many potential returns from migration, including the transfer of new ideas and knowledge, we focused on the distribution and volume of financial remittances received by rural households and the perceived importance of these remittances. In terms of the

distribution of remittances, approximately one third (37.7%) of households received monthly income directly from migrant members demonstrating that the financial returns from internal migration are widely circulated in the villages included in this study. Among those households that did receive remittances, however, there was wide variability in the total amount of remittances received per month demonstrating that some recipient households experienced much higher gains from migration than others.

There was clear indication of livelihood and income diversification with very few households (3.0%) relying solely on remittances from migration as the only source of household income. Despite this, remittances were perceived to be the most important source of income for most recipient households. In addition, there was little variation reported in the amount of remittances received by the same household on a month to month basis demonstrating the relative stability of these transfers.

It is recognized that migrant journeys and labour involve costs for migrants and their households, regardless of the distance traveled from their household of origin (Afsar, 2003; Deshingkar & Start, 2003; Skeldon, 2002). After comparing the daily wage received by migrant workers and the amount these workers remitted to their households monthly, it was clear that workers did not remit the full amount they earned to their households. This disparity in wage earned compared to remittances received by households was a prominent theme throughout the semi-structured interviews, as interviewees discussed the various costs and factors that might limit the financial returns from migration. In particular, the costs associated with migration were most pronounced in urban centres:

“My son-in-law makes 200 rupees [3.21 USD] per day and my daughter earns 100-150 rupees [1.61-2.41 USD] per day. From that income, they have to manage their life in the city. When they visit me, they only give me 500-1,000 rupees [8.04-16.07 USD]...They have to pay electricity tax, water tax, and rent

for housing. There is very little money left after all of these payments and they give it to me” (53 year old male, Urigam *panchayat*).

A minority of interviewees did not experience the same financial gains from migration and alluded to how intrahousehold conflict impacted the expected returns for the household.

“We do not know how much our son is earning. He never remits any money to us. If he visits, he is taking money from us” (Married couple, Thaggatti *panchayat*).

Alternatively, when the costs associated with migration were either reduced or eliminated, interviewees spoke of the greater financial benefit for themselves and their families.

“My son earns 270 rupees [4.34 USD] per day. He pays all of the money to us...He stays for one week or 15 days to work...Room facilities are provided by his employer. There is no rent for the shared room” (41 year old male, Anchetty *panchayat*).

Indeed, the value of financial remittances received by migrant households is mediated by a number of factors including wages earned, costs incurred, and intrahousehold dynamics. Accounting for these, and other contextual factors that influence remittance transfers, is necessary when assessing the development potential of internal migration in a particular setting.

#### *Motivators for internal migration: Consequences for rural development?*

The primary motivations for engaging in migrant labour originating from this setting were largely interconnected and represented a combination of economic and non-economic drivers. While our quantitative work separated and prioritized these different motivations, our qualitative work demonstrated the pathways through which households made labour migration decisions.

For example, a lack of local employment opportunities was consistently ranked as the most important motivator for migration. Through our qualitative analysis, two distinct themes emerged to better explain the significance of this motivation. First, some interviewees believed that work was simply not available in their rural village, or that their household did not have

enough land for all members to be productively engaged in agriculture work (fifth most frequently cited motivation). This relationship between a labour surplus within a household and labour migration is consistent with findings from other studies in India (Deshingkar & Start, 2003; Shah, 2010; Sridhar et al., 2013).

However, this sentiment surrounding the absence of local labour opportunities was countered by other interviewees who believed that local work was available, but that this work was undesirable either because of the low wage (third most frequently cited motivation) or because of restrictions around length of employment. This finding corresponds with Agarwal's (2014) analysis of census data that demonstrated that small scale farmers with marginal land holdings would prefer to seek out alternative employment opportunities outside of agriculture. Regardless of a participant's opinion on what lack of local employment opportunities represented, the majority of households included in this study sought to diversify their income streams with different members engaging in specific income generating activities. As described earlier, decisions on who was involved in migration, and who tended to earn the highest wage within a household, was largely based on demographic characteristics including sex and age.

An examination of the different motivations for migration also reveals potential consequences for rural development and agricultural intensification that are of relevance to understanding the internal migration-development nexus in this setting. In particular, a lack of knowledge around agriculture was ranked as the second most important motivator for migration. From interviews, ambitions for children to attain more formal education and employment outside of agriculture were prioritized by some households leading to less emphasis on agricultural knowledge transfer across generations:

“If my son stayed in the village, he would become lazy. He would join with other friends and become irresponsible. He studied in schools and does not

know about agricultural work so we sent him to the work in the garment factory” (65 year old male, Madakkal *panchayat*).

This ongoing agrarian transition does not mean that households are fully substituting small-scale agriculture for migrant labour; however, there is evidence of agricultural knowledge loss between generations, which could contribute to the further contraction of the agriculture sector.

The second most frequently cited motivation for labour migration by migrant households was ‘to meet daily needs.’ While a minority of migrant households cited saving for a future household expense as a motivation for migration, this finding suggests that the majority of migrant households from this context use labour migration as a tool to address serious deprivation. The coping versus accumulation debate is a common feature of studies on internal labour migration in India with different labour trajectories defined by the ability of migrants and their household to save resources that result from migrant labour (Deshingkar, 2010; Deshingkar & Start, 2003; Rogaly & Rafique, 2003). Although there is recognition that experiences within specific migration streams are diverse and not static, primarily coping migration streams are rarely viewed as a pathway towards broader development objectives compared to accumulative migrant labour. However, this view can overlook the benefits of primarily coping migration to the poorest households or fail to value how migrant labour fits into larger household diversification projects. Thus, the presence of coping migration within a particular context does not indicate the absence of development, but rather may demonstrate the active efforts and agency of migrants and their households to address serious deprivation.

In determining the extent of the potential of internal migration to contribute to human development in this context, it is important to recognize that trade-offs may exist between the immediate inflow of remittances to some households and the opportunity for agricultural innovation and long term rural development. Critically, the negative consequences of this trade-

off may be particularly pronounced by households who experience barriers to participating in migration.

*Barriers preventing migration: Who is excluded?*

In order to assess the development potential of internal migration within a particular setting, it is important to assess the barriers that individuals and households experience to participating in migration. Somewhat paradoxically, the factors that appear to motivate and enable labour migration in some households also make labour migration undesirable or infeasible for other households within the same villages. Again, while our quantitative analysis separated and prioritized the different barriers, our qualitative work revealed the interconnections between the different factors that prevent migration from occurring in this context.

Agriculture and family responsibilities represented the two most important reasons why a household was not engaged in migration at the time of survey administration. In terms of the connection between agriculture and labour migration, our analysis identified two general routes through which agricultural responsibilities inhibit participation in internal labour migration, both of which were connected, in part, to family responsibilities and intrahousehold dynamics. First, some households in this context are able to use agriculture to adequately sustain their household and to generate income through selling surplus crops in local markets. These households may venture into growing commercial crops such as bananas or tomatoes, which require greater inputs and experience higher price volatility, but also have higher returns within local markets. Sufficient access to household labour and land in addition to favourable experiences with rural development policies and local NGO initiatives means that these households choose not to engage in labour migration.

Alternatively, other households from this setting were prevented from migration because they lacked the resources to sustain a combination of marginal agricultural output and labour migration usually due to household labour constraints. For these households, agriculture was viewed as a very modest insurance scheme and households were unwilling to forgo the relatively marginal returns from agriculture to engage with the risks of labour migration.

“I have lots of responsibilities. I have a family, I have children...If I leave my family for outside work, I could not live because life would be too expensive and I would not be able to pay rent and buy things. This is why I am living in the [rural] village, because I have so many responsibilities. I cannot leave my land here. I don't want to lose my land. I want to do agricultural work here. Here we can live our lives from what we produce, but in the city we cannot live our life. Everything has to be purchased. That is why I am living here.” (35 year old male, Madakkal *panchayat*)

It is clear that for this individual, agriculture and family responsibilities are intricately connected. For other respondents, household upkeep and livestock responsibilities were also closely linked with family and agriculture responsibilities. It is important to note that there was still evidence of livelihood diversification by these households with apparent labour scarcity, but it largely involved accessing local off-farm employment opportunities such as day labour work in a neighbour's field or MGNREGA (third most frequently cited reason for not participating in labour migration).

A perceived lack of education was also viewed as an important reason why some households did not participate in labour migration. This sentiment often combined not only a perceived lack of formal education, but also a fear of navigating the migration process and finding employment outside of one's village.

“No one else is available to go and do the outside work from my house because no one is educated. They do not know how to do the outside work.” (64 year old male, Thaggatti *panchayat*).

This finding again reinforces the importance of social networks in addressing the barriers to entry to migration and in supporting mobile livelihoods.

Rural development policy is viewed as one mechanism for overcoming some of the barriers that rural households experience in utilizing migration to build a diversified livelihood portfolio (Barrett, Reardon, & Webb, 2001; Ellis, 2000). However, other scholars have argued that rural and agricultural development policies in the Indian context and others that appear to benefit marginal farmers and rural households have an implicit sedentary bias that discourages mobility and effectively prevents some small scale farming households from using labour migration as a complementary livelihood strategy with subsistence agriculture (de Haan, 2000; Deshingkar, 2004). In the Indian context, MGNREGA is implicitly viewed as one approach to limit migration from rural areas through the provision of local employment opportunities (Mukherjee & Ghosh, 2009; Solinski, 2012). However, in the setting where this study was conducted, the presence of MGNREGA led to the further entrenchment of an already gendered labour market. In particular, women were more likely to engage in MGNREGA work and forfeit the better economic returns from migrant labour, demonstrating how this social policy differentially impacts the ability of women and men in their pursuit of mobile livelihoods. Thus, the implementation of MGNREGA represents a misunderstanding of the mechanisms that motivate and prevent rural migration in this context, and largely ignores the necessity and desire of rural households to pursue diversified livelihoods in spite of a poorly designed policy environment.

This discussion of the reasons why specific households did not participate in labour migration reveals that some households choose not to participate in labour migration while other households may desire to participate, but cannot overcome the barriers to entry. In assessing the

development potential of internal labour migration streams from this setting, it is important to consider how these barriers shape migration streams and who can participate in internal migration. Additionally, there is an opportunity to look at ways these barriers can be mitigated through enabling rural development policies that support rather than discourage mobile livelihoods.

## **Conclusion**

This study examined the nature and extent of the internal migration-development nexus in four rural village *panchayats* in Tamil Nadu using both qualitative and quantitative approaches. In particular, our study found unequal participation in labour migration between women and men and across age groups, which may have implications for the control and distribution of resources within households. At the village level, households from historically marginalized castes with a labour surplus and who are unable to rely fully on agriculture to sustain their household were more likely to participate in labour migration. However, labour scarcity combined with family and agricultural responsibilities represent barriers preventing participation by a household in labour migration.

In terms of the experiences with and outcomes from internal migration, migrant workers earned the highest daily wages in Bengaluru and in the construction industry. However, despite these economic incentives, migrants, and especially female migrants, are confronted with precarious working conditions and little job security. In addition, daily wages were the highest in high skill jobs, but the majority of migrant workers originating from this setting were engaged in either low or semi-skilled occupations. For migrant households, the economic returns remitted from migration were dependent on the costs related to migration that migrant members faced in addition to intrahousehold dynamics. However, the costs related to migration were reduced

through either employer subsidies such as the provision of housing, or through supportive village-based social networks that contributed to the variation in daily wages observed across village.

Internal labour migration can contribute to individual and household material gain in this setting through increased access to economic resources to cope with serious deprivation. However, there are also a number of barriers identified by this study that individuals and households experience that prevent them from either participating in labour migration or fully leveraging the development benefits from labour migration. The recognition of these barriers must enter into subsequent policy discussions and rural development planning, as there is an opportunity to create policies that better understand the underlying motivations and barriers to migration and support mobile livelihoods and migrant households.

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## Tables

**Table 3.1:** Characteristics of migrant and non-migrant household in southern India (n=300), 2013

	Frequency of migrant households (%) (n=137)	Frequency of non- migrant households (%) (n=163)	Frequency of all households (%) (n=300)
<b><i>Panchayat</i></b>			
Anchetty	59 (43.07%)	64 (39.26%)	123 (41.00%)
Thaggatti	52 (37.96%)	59 (36.20%)	111 (37.00%)
Madakkal	26 (18.96%)	40 (24.54%)	66 (22.00%)
<b>Caste</b>			
Scheduled (SC) or Scheduled Tribe (ST)	51 (37.23%)	40 (24.54%)	91 (30.33%)
Other Backwards Caste (OBC) or Most Backwards Caste (MBC)	79 (57.66%)	102 (62.58%)	181 (60.33%)
Higher Caste	7 (5.11%)	21 (12.88%)	28 (9.33%)
<b>Ration Card Status</b>			
Ultra Poor (UP)	0	23 (14.11%)	23 (7.67%)
Below Poverty Line (BPL)	137 (100.00%)	135 (82.82%)	272 (90.67%)
Above Poverty Line (APL)	0	1 (0.61%)	1 (0.33%)
No ration card	0	4 (2.45%)	4 (1.33%)

**Table 3.2: Characteristics of migrant workers from southern India (n=205), 2013**

<b>Demographic Factors (n=205)</b>	<b>N</b>
Female (%)	17 (8.29%)
Male (%)	188 (91.71%)
Mean age (standard deviation)	27.37 years (8.66)
Mean years of formal education (standard deviation)	5.56 years (5.26)
Married (%)	120 (58.54%)
Unmarried (%)	85 (41.46%)
Scheduled Caste (SC) or Scheduled Tribe (ST) (%)	72 (35.12%)
Other Backwards Caste (OBC) or Most Backwards Caste (MBC) (%)	123 (60.00%)
Higher Caste (%)	10 (4.88%)
<b>Destination (n=205)</b>	
Bengaluru (%)	88 (42.93%)
Hosur (%)	63 (30.73%)
Rural (Tamil Nadu) (%)	24 (11.71%)
Rural (outside of Tamil Nadu) (%)	12 (5.85%)
Urban (Tamil Nadu) (%)	12 (5.85%)
Urban (outside of Tamil Nadu) (%)	6 (2.93%)
<b>Migration Dynamics</b>	
Mean years migrating (standard deviation)	5.61 years (5.85) (n=203)
Median years migrating (25 <sup>th</sup> percentile, 75 <sup>th</sup> percentile)	4 years (2 years, 8 years)
Mean length of each migration trip in weeks (standard deviation) (15 responded 'variable')	6.63 weeks (10.18) (n=190)
Median length of each migration trip in weeks (25 <sup>th</sup> percentile, 75 <sup>th</sup> percentile)	4 weeks (1 week, 8 weeks)
<b>Labour Migration Type (n=205)</b>	
Daily commute	25 (12.20%)
Temporary labour migration (migrate 1 week – 6 months at a time before return visit to village of usual residence)	159 (77.56%)
Permanent labour migration (migration trips >6 months)	6 (2.93%)
Variable	15 (7.31%)
<b>Accompanied by Spouse (n=204)</b>	
Yes (%)	71 (34.80%)
No (%)	133 (65.20%)
<b>Accompanied by Children (n=204)</b>	
Yes (%)	52 (25.49%)
No (%)	152 (74.51%)
<b>Work with Relatives or Friends (n=204)</b>	
Yes (%)	150 (73.53%)
No (%)	54 (26.47%)
<b>Daily Wage (n=205)</b>	
Mean daily wage in INR (standard deviation)	261.96 INR (111.73; 4.21 USD; 1.80) (n=176)
Piece work (%)	10 (4.88%)
Room and board (%)	2 (0.98%)
Unknown (%)	17 (8.29%)
<b>Job Classification (n=203)</b>	
Low skilled (%)	131 (64.53%)
Semi-skilled (%)	55 (27.09%)
High skilled (%)	17 (8.37%)
<b>Industry (n=205)</b>	
Construction (%)	92 (44.88%)
Manual labour (%)	33 (16.10%)
Textile (%)	18 (8.78%)
Manufacturing (%)	15 (7.32%)
Trades (%)	14 (6.83%)
Administration (%)	13 (6.34%)
Pharmaceuticals (%)	5 (2.44%)
Other (%)	13 (6.34%)
Unknown (%)	2 (0.98%)

**Table 3.3:** Examples of low skilled, semi-skilled, and high skilled occupations with average daily wage of select migrant workers from southern India (n=203), 2013

	Occupation	Frequency (%) of all migrant workers (n=203)	Average daily wage among selected wage earners in each industry by job classification in INR and USD (standard deviation) (n=176)
Examples of low skilled occupations (n=131)	<b>Construction</b>		279.22 INR (60.60)
	Assistant at a construction site	47 (23.15%)	4.49 USD (0.97)
	Stone cutter	10 (4.93%)	n=58
	<b>Manual labour</b>		157.24 INR (57.30)
	Labour in garden nursery	10 (4.93%)	2.53 USD (0.92)
	Labour in a flower market	3 (1.48%)	n=29
	<b>Textile</b>		140.00 INR (35.59)
	Assistant to a tailor	2 (0.99%)	2.25 USD (0.57)
	Ironer	2 (0.99%)	n=4
	<b>Manufacturing</b>		188.33 INR (31.57)
Factory labour (not specified)	13 (6.40%)	3.03 USD (0.51)	
Automotive factory labour	2 (0.99%)	n=12	
Examples of semi- skilled occupations (n=55)	<b>Construction</b>		428.57 INR (59.98)
	Construction worker	27 (13.30%)	6.89 USD (0.96) n=27
	<b>Textile</b>		193.00 INR (44.23)
Tailor	12 (5.91%)	3.10 USD (0.71) n=10	
<b>Administration</b>		170.00 INR (0)	
Fee collector for <i>panchayat</i> electricity office	1 (0.49%)	2.73 USD (0) n=2	
Examples of high skilled occupations (n=17)	<b>Administration</b>		207.5 INR (92.54)
	Administrator at a government health clinic	1 (0.49%)	3.33 USD (1.49)
	Call centre employee	1 (0.49%)	n=8

**Table 3.4:** Labour and migration factors associated with daily wage (measured in INR) of migrant workers in southern India (n=176), 2013 based on a multivariable linear regression model with village as a random effect

	$\beta$ (INR)	Standard Error	p-value	95% CI
<b>Destination</b>				
Bengaluru	referent	-	-	-
Hosur	-13.59	11.83	0.251	-36.773, 9.596
Rural (Tamil Nadu)	-38.07	18.77	0.043	-74.860, -1.281
Rural (outside of Tamil Nadu)	-3.39	22.64	0.881	-47.764, 40.990
Urban (Tamil Nadu)	-5.06	21.01	0.771	-46.231, 36.120
Urban (outside of Tamil Nadu)	-11.40	27.44	0.678	-65.183, 42.383
<b>Job Classification</b>				
Low skilled	referent	-	-	-
Semi-skilled	124.75	11.85	<0.001	101.521, 147.969
High skilled	130.35	32.75	<0.001	66.167, 194.530
<b>Industry</b>				
Construction (n=86)	referent	-	-	-
Manual Labour (n=29)	-100.14	17.33	<0.001	-134.109, -66.180
Textile (n=14)	-168.52	20.08	<0.001	-206.886, -128.156
Manufacturing (n=12)	-85.33	19.41	<0.001	-123.370, -47.293
Trades (n=11)	-40.23	20.08	0.045	-79.583, -0.867
Administrative (n=10)	-186.99	34.64	<0.001	-254.88, -119.106
Pharmaceuticals (n=5)	-149.26	33.13	<0.001	-214.189, -84.339
Other (n=9)	-104.89	23.07	<0.001	-150.110, -59.671
<b>Constant</b>	277.15	15.24	<0.001	247.287, 307.012

Model significance <0.0001

Intra-class correlation coefficient 0.374

**Table 3.5:** Motivations for migration among migrant households in southern India (n=134), 2013

<b>Motivation for Migration</b>	<b>Overall frequency (%)</b>	<b>Ranked as the 'most important motivation' (%)</b>	<b>Mean Rank</b>
No local employment opportunities	89 (66.42%)	61 (45.52%)	1.38 (SD=0.61)
Meet daily household needs	66 (49.25%)	10 (7.46%)	2.23 (SD=0.70)
Opportunity to earn more income	51 (38.06%)	15 (11.19%)	1.86 (SD=0.66)
Not knowledgeable about agricultural work	46 (34.33%)	28 (20.90%)	1.52 (SD=0.72)
Not enough land	24 (17.91%)	7 (5.22%)	2.04 (SD=0.81)
Pay off household loans	17 (12.69%)	8 (5.97%)	1.88 (SD=0.93)
Pressure from household	8 (5.97%)	3 (2.24%)	2.00 (SD=0.93)
Save for large household expense	6 (4.48%)	0	2.33 (SD=0.52)
Pay for health problem of household member	5 (3.70%)	2 (1.49%)	1.60 (SD=0.55)
Raise household status in village	1 (0.75%)	0	3.00

**Table 3.6:** Reasons or barriers preventing migration among non-migrant households in southern India (n=163), 2013

<b>Reasons or barriers preventing migration</b>	<b>Overall frequency (%)</b>	<b>Ranked as the 'most important barrier' (%)</b>	<b>Mean Rank</b>
Agriculture responsibilities	99 (60.74%)	49 (30.06%)	1.71 (SD=0.80)
Family responsibilities	93 (57.06%)	53 (32.52%)	1.55 (SD=0.70)
Local work available	37 (22.70%)	18 (11.04%)	1.73 (SD=0.80)
Household upkeep and responsibilities	27 (16.56%)	4 (2.45%)	1.89 (SD=0.42)
Not enough education	26 (15.95%)	8 (4.91%)	2.11 (SD=0.86)
Livestock responsibilities	26 (15.95%)	4 (2.45%)	2.19 (SD=0.69)
Demographic factors within household (e.g. age of household members, no or few male children, etc.)	18 (11.04%)	6 (3.68%)	2.10 (SD=0.87)
Health problem(s) within household	15 (9.20%)	10 (6.13%)	1.40 (SD=0.63)
Not knowledgeable about migration process	15 (9.20%)	6 (3.68%)	1.80 (SD=0.77)
Unable to find work outside of village	5 (3.07%)	3 (1.84%)	1.60 (SD=0.89)
Distance	3 (1.84%)	2 (1.23%)	1.67 (SD=1.15)
Wary of poor conditions facing migrants	3 (1.84%)	0	2.33 (SD=1.15)
No interest	2 (1.23%)	0	2.50 (SD=0.71)
Village responsibilities	1 (0.61%)	0	2.00
Worry about perceptions of others in village	1 (0.61%)	0	3.00

## CHAPTER 4 - SELF-REPORTED MORBIDITY AND HEALTH SERVICE UTILIZATION IN RURAL TAMIL NADU, INDIA

### *Published article:*

Dodd, W., King, N., Humphries, S., Little, M., & Dewey, C (2016). Self-reported morbidity and health service utilization in rural Tamil Nadu, India. *Social Science & Medicine*, 161, 118-125.

### **Abstract**

In Tamil Nadu, India, improvements have been made toward developing a high-quality, universally accessible healthcare system. However, some rural residents continue to confront significant barriers to obtaining healthcare. The primary objective of this study was to investigate self-reported morbidity, health literacy, and healthcare preferences, utilization, and experiences in order to identify priority areas for government health policies and programs. Drawing on 66 semi-structured interviews and 300 household surveys (including 1693 individuals), administered in 26 rural villages in Tamil Nadu's Krishnagiri district, we found that the prevalence of self-reported major health conditions was 22.3%. There was a large burden of non-communicable and chronic diseases, and the most common major morbidities were: connective tissue problems (7.6%), nervous system and sense organ diseases (5.0%), and circulatory and respiratory diseases (2.5%). Increased age and decreased education level were associated with higher odds of reporting most diseases. Low health literacy levels resulted in individuals seeking care only once pain interfered with daily activities. As such, individuals' health-seeking behaviour depended on which strategy was believed to result in the fastest return to work using the fewest resources. Although government facilities were the most common healthcare access point, they were mistrusted; 48.8% and 19.2% of respondents perceived inappropriate treatment protocols and corruption, respectively, at public facilities. Conversely, 93.3% of respondents reported high treatment cost as the main barrier to accessing private facilities. Our results highlight that addressing the chronic and

non-communicable disease burdens amongst rural populations in this context will require health policies and village-level programs that address the low health literacy and the issues of rural healthcare accessibility and acceptability.

## **Introduction**

Over the past decades, the Indian national and state governments have focused on improving population health indicators by developing a high-quality, universally accessible public healthcare system (Planning Commission of India, 2011). Since 2000, the life expectancy in India increased from 62 to 66 years, while the under-five mortality rate decreased from 91 to 53 per 1000 live births (The World Bank, 2013). Despite these improvements, the burden of disease, particularly among the rural poor, remains high (Aparajita & Ramanakumar, 2004; Planning Commission of India, 2011). Due to the unequal healthcare resource distribution and healthcare access barriers, many segments within India's rural population remain without access to affordable, high-quality public healthcare, thus undermining the goal of universal access to healthcare and hindering India's progress toward achieving established health targets (Aparajita & Ramanakumar, 2004; Deogaonkar, 2004; Planning Commission of India, 2011). Consequently, in 2005, the Government of India launched the National Rural Health Mission, composed of numerous public health programs, to provide affordable, high-quality public healthcare to rural populations (Planning Commission of India, 2011).

While the national government develops health policies, state governments control most public health spending (Planning Commission of India, 2011). In response to considerable social development over the last three decades, the state of Tamil Nadu is considered to be at the forefront of healthcare provision (Navaneetham & Dharmalingam, 2002; Vijayabaskar, 2014). By 2014, Tamil Nadu had achieved the health-related Millennium Development Goals, and its Vision

2023 plan foresees itself surpassing healthcare standards of some high-income countries (Government of Tamil Nadu, 2012; Vijayabaskar, 2014). Nevertheless, studies report the continued difficulties faced by some rural Tamil Nadu residents in accessing basic public healthcare (Sreeramareddy, Sathyanarayana, & Kumar, 2012; Sudha et al., 2003).

Health-seeking behaviour (HSB) refers to an individual's response to illness (Mackian, 2003; Shaikh, Haran, Hatcher, & Iqbal Azam, 2008). Since certain modifiable behaviours may lead to preventable undesirable health outcomes and economic burdens, policy-makers can greatly improve health outcomes by creating evidence-based health policies and programs based on an understanding of the way individuals think and behave within their environment (Mackian, Bedri, & Lovel, 2004; Shaikh, Haran, Hatcher, et al., 2008; Shaikh, Haran, & Hatcher, 2008; The World Bank, 2015). Determinants of HSB may include demographic factors, socioeconomic status, cultural beliefs and practices, healthcare system structure, and disease characteristics. However, specific HSB determinants are unique to each population and context (Mackian, 2003; Shaikh & Hatcher, 2005). As such, in order to effectively address healthcare access inequalities, HSB must be considered within rural Tamil Nadu's broader social context (Amegbor, 2014; Navaneetham & Dharmalingam, 2002; Shaikh, Haran, Hatcher, et al., 2008).

Tamil Nadu's pluralistic healthcare system allows individuals to meet their health needs using a variety of public biomedical, private biomedical, and private traditional services (J. Bhatia & Cleland, 2004; Bhojani, Beerenahalli, Devadasan, Munegowda, & Devadasan, 2013). Although the Indian government has committed to providing universal public healthcare access, private healthcare provision dominates: 80% of outpatient and 60% of inpatient visits occur within the private sector (Sreeramareddy et al., 2012). This demonstrates that in spite of the national and state

government efforts, a discrepancy exists between public healthcare policy design and execution (Dey & Mishra, 2014).

Improving rural public healthcare policies and programs requires a better understanding of area-specific prevalence and determinants of morbidity, individuals' HSB, and individuals' experiences with the healthcare system, particularly in regards to healthcare access barriers (Prosser, 2007; Shaikh, Haran, Hatcher, et al., 2008). Several researchers have investigated the determinants of HSB using National Sample Survey data (Dey & Mishra, 2014; Navaneetham & Dharmalingam, 2002; Pillai et al., 2003; Rani & Bonu, 2003); however, there are a limited number of in-depth village-level studies that provide a comprehensive understanding of the interrelated factors influencing healthcare utilization in rural Tamil Nadu. Factors influencing the choice of a particular healthcare service provider also remain largely unexplained (Dey & Mishra, 2014). Furthermore, most HSB studies conducted in India focus on a single morbidity (Abraham et al., 2014; Bhojani et al., 2013; Navaneetham & Dharmalingam, 2002; Rani & Bonu, 2003) rather than providing an overall prevalence and profile of morbidity.

Using an exploratory mixed methods approach within four rural village *panchayats* in Tamil Nadu, the objectives of this study were: to provide an overall prevalence and profile of self-reported morbidity in this setting; to examine demographic and socioeconomic factors associated with broad self-reported morbidity categories; to investigate how health literacy influenced HSB; and to assess how perceptions of and experiences with both public and private healthcare services shaped HSB.

## **Methods**

### *Study location and design*

This exploratory mixed methods study was conducted in 26 rural villages within the four village *panchayats* of Anchetty, Thagatti, Madakkal, and Urigam in the Krishnagiri district of Tamil Nadu. A sequential study design was used, whereby qualitative data were first collected and analyzed to inform the development of a quantitative survey tool. The study was part of the larger ‘Revalorising Small Millets in Rainfed Regions of South Asia’ (RESMISA) agricultural and community development research project. As such, village *panchayats* with ongoing RESMISA project activities were purposively sampled to facilitate the research process. In Anchetty *panchayat* there were four private health clinics and one public health centre, while none of the other village *panchayats* had biomedical healthcare facilities.

#### *Qualitative study*

A semi-structured qualitative interview guide was developed by the research team to elicit in-depth information about social and economic determinants of health and HSB. Interview questions were open-ended, but prompts were provided if an interviewee had difficulty answering a specific question. The interview guide inquired about common illnesses and the general course of treatment for each illness. Interview guide development was informed by community engagement in research villages, input from local partners, and previously validated research tools used as part of the larger RESMISA project. In December 2012, 66 semi-structured interviews were conducted using snowball sampling in 17 villages from four selected village *panchayats*. The final sample size was reached following a determination of data saturation. Each interview was audio recorded and was conducted in Tamil or Kannada according to the respondent’s preference. The research assistant translated each response into English for the audio recording. Interviews were manually transcribed, and transcriptions were then imported into the software package NVivo (QSR International Pty Ltd., 2014) for coding and thematic content analysis following a

Grounded Theory approach. Thus, following familiarization with the qualitative data, coding themes were developed from the data using an iterative reflexive process (Corbin & Strauss, 1990, 2014).

### *Quantitative study*

The themes derived from the semi-structured interviews subsequently informed the development of a quantitative survey used to collect data concerning demographic factors, healthcare utilization, barriers to healthcare access, and self-reported morbidity. To inquire about self-reported morbidity, a list of common major illnesses identified through the interviews was compiled for inclusion with the survey. Self-reported morbidity was defined as a generalized subjective assessment of health and illness. Major illnesses were defined as acute or chronic health problems that typically required prescribed medication, a clinic visit, or hospitalization to manage or remedy. A chronic health problem was defined as a health problem lasting one year or more prior to survey administration. The survey was piloted in four households from two different villages in Anchetty *panchayat* and questions deemed unclear were revised.

Between January and March 2013, 300 household surveys were administered in 20 villages sampled from three village *panchayats*. Urigam *panchayat* was excluded due to logistical barriers. Multistage random sampling was used to first sample villages and then households. Approximately half of the villages within each village *panchayat* were randomly sampled, yielding a total of 20 villages. Then, approximately 10% (8.1%-12.7%) of households within each selected village were systematically randomly sampled. The female or male household head was interviewed and served as a proxy respondent for all household members. Virilocal families living within one housing structure were considered as a single household unit.

Survey questions were delivered in Tamil or Kannada based on the respondent's preference, and the research assistant recorded responses directly onto the questionnaire in English. Each respondent was verbally provided with the previously generated list of common major illnesses as a prompt, and then asked if any member of their household was currently suffering from any of these illnesses. Following the completion of survey administration, the first author reviewed the questionnaires with the research assistant to ensure completeness and to clarify information. Reported illnesses were initially recorded using the respondents' lay terms and later revised to classify responses according to a context-adapted version of the International Classification of Diseases' (ICD) broad categories (World Health Organization, 2011). This process was initiated by the second author and validated by the first author. The first author was present for survey administration to ensure quality and consistency.

To ensure equal representation of both females and males in the study, interview and survey administration was timed to avoid interfering with women's daily household responsibilities. Additionally, if present in the household, an adult female was first asked to participate in the study and only if she was unable or unwilling to participate was a male member of the same household asked to participate.

The quantitative survey data were analyzed with Stata® 12 statistical package (StataCorp, 2011). The data were checked for errors prior to standard descriptive analysis. A Pearson chi-square test was used to compare female and male literacy levels. An additional Pearson chi-square test was used to compare barriers faced in accessing healthcare services between users and non-users of public healthcare facilities and to users and non-users of private healthcare facilities.

#### Dependent variables

The dependent variables for the multivariable logistic regression models were major illnesses currently affecting respondents or their family members at the time of the survey. The major illness categories were classified according to the adapted ICD categories.

#### Independent variables

Categorical variables included in the final multivariable logistic regression models were sex ('female' or 'male'), age ('0-14', '15-29', '30-44', '≥60'), and caste ('Scheduled Caste (SC) or Scheduled Tribe (ST)', 'Other Backward Caste (OBC) or Most Backward Caste (MBC)', or 'Higher caste'). Females, ≥60, and SC or ST served as referent categories. Continuous variables included years of formal education and household size (number of members).

#### Multivariable logistic regression

To identify the predictors of the self-reported morbidity categories, all independent variables that were statistically significant at  $p < 0.20$  from univariate analysis were initially included in the multivariable logistic regression model. Subsequently, using a manual backward stepwise elimination process, predictor variables that were not significant at  $p < 0.05$  were dropped individually beginning with the variable with the largest p-value. Confounding among independent variables was assessed by identifying changes in coefficients throughout the model building process and two-way interaction was assessed among all independent variables in the final model. Lastly, Hosmer and Lemeshow's goodness-of-fit test was run and Pearson residuals were calculated to assess the fit of the data to the assumptions of the model.

#### *Ethical considerations*

Prior to beginning each interview and survey, respondents received an explanation of the study, the voluntary nature of their participation, and the privacy of data. An opportunity was provided to ask questions. If an individual refused to participate for any reason, the research team

continued to the next nearest household. Informed oral consent was obtained prior to beginning each interview and survey. The response rate was 96.5%, with 300 of 314 households completing the survey. Non-response was attributed to survey administration conflicting with the timing of household responsibilities or lack of interest.

## **Results**

### *Demographics of survey respondents*

All individuals included in this study were Hindu. Based on criteria set out by the Tamil Nadu District-Level Household Survey, the above-age-seven literacy level was 48.3% (International Institute for Population Sciences, 2008). Males (53.9%) were significantly more literate than females (42.1%;  $p < 0.001$ ). Individuals had completed an average of 3.4 years (SD=4.52; 0-22 years) of formal education. Notably, the literacy level was lower and the proportion of individuals from Schedule Castes (SC) or Schedules Tribes (ST) was higher in the study population than district averages (Office of the Registrar General & Census Commissioner, 2011). Additional individual-level demographic characteristics are displayed in Table 4.1.

Surveyed households averaged 5.6 members (SD=2.66), reaching a maximum of 19 members residing within one household. According to government-issued ration cards, 90.7% of surveyed households were living below the poverty line as defined by the Planning Commission of India (International Institute for Population Sciences and Macro International, 2008). The two most common household drinking water sources were community taps and boreholes and 90% of households had access to one of these sources within 50 metres of their residence. Few (2.3%) households had toilet facilities.

### *Self-reported morbidities*

At the time of survey administration, 377 (22.3%) individuals suffered from at least one major health problem. In addition, only 23.0% of households were currently unaffected by a major illness. As presented in Table 4.2, the three most common major health conditions were connective tissue problems (7.6%), nervous system and sense organ diseases (5.0%), and circulatory and respiratory diseases (2.5%). Most respondents (78.8%) did not currently manage these major illnesses with medical care or medication. On average, individuals suffered from an illness for 5.1 years (SD=5.00) prior to survey administration with 90% of cases beginning one year or more prior to survey administration.

Through the semi-structured interviews, interviewees discussed demographic and socioeconomic factors related to specific disease categories. Connective tissue problems were cited as a major concern by individuals engaged in heavy manual labour work either through agriculture or through local or migrant labour opportunities. These individuals tended to be from historically marginalized castes or a poorer socioeconomic status and relied on heavy manual labour to support their livelihoods:

“When I come home from local day labour work, I have a lot of body pain because I am a moving stones and digging in the mud...I have to meet a daily quota with how far I dig. If I do not get far enough, I am not paid my full daily wage.” (Male, 39 years old, Madakkal *panchayat*)

The associations between self-reported major illness and specific demographic factors were further explored through the quantitative survey and are shown in Table 4.3. Each additional year of formal education achieved decreased the odds of reporting connective tissue problems (OR=0.92, p=0.01), nervous and sense organ diseases (OR=0.91, p=0.01), and circulatory and respiratory diseases (OR=0.86, p=0.04). Men were 7.99 times (p=0.005) more likely to have an injury or poisoning incident and 3.47 times (p=0.03) more likely to have diabetes compared to women.

*Health-seeking behaviour and barriers to healthcare access*

Through the semi-structured interviews, interviewees described how their beliefs surrounding disease etiology informed their HSB. In particular, traditional treatment was viewed as the appropriate course of action for specific agents linked to spiritual causes. If traditional treatment was unsuccessful, biomedical care was rarely sought as it was deemed futile in treating spiritual illnesses:

“[Referencing his wife] Her health condition is not good. She has become so weak. She has gone to so many temples to cure the ghost effect, but they cannot, so we just leave it.” (Male, 24 years old, Anchetty *panchayat*)

Survey respondents were asked which healthcare facility type their household most commonly accessed for major health problems and to detail specific barriers in accessing care in both public and private facilities, regardless of preferred facility type (Table 4.4). Overall, government facilities were the primary healthcare access point among households for major health problems (69.7%). However, 15.8% of households noted that for child birth, there was a preference for home births and traditional medicine over public or private healthcare facilities.

Interviewees discussed specific barriers they faced in accessing public and private healthcare. Overall, there was extensive mistrust in government healthcare provision. Respondents regularly reported the same treatment protocol regardless of diagnosis, which was perceived to be inappropriate and ineffective. In addition, interviewees described that public practitioners often demanded bribes prior to providing treatment:

“In government hospitals there is more corruption. The medicines are the same for each and every disease. There are no facilities to provide good treatment. That is why I like to go to private hospitals. When people go to government hospitals, they are charged 20 to 30 rupees. The government claims they are providing free treatment, but they are not really.” (Male, 42 years old, Thagatti *panchayat*)

Cost represented the primary barrier for interviewees in accessing private healthcare. More specifically, one interviewee detailed how private healthcare costs sent his household into a cycle of financial vulnerability:

“Before, I had money to provide treatment for my first wife, but now I live in poverty. I put my wife in a private hospital and spent 80 000 rupees [1285.76 USD] on her treatment but she passed away. Now I am facing so many difficulties and poverty because I took out loans to pay for the treatment.” (Male, 39 years old, Madakkal *panchayat*)

Similarly, the cost of private healthcare was particularly difficult to bear when an illness impacting physical productivity had major consequences on livelihoods and quality of life:

“I have been told to get an operation from a private hospital, but I cannot afford the operation. If I did not have this health problem, I would be able to do the hard work in the field, earn more income, eat good food, and provide all things for my family.” (Female, 35 years old, Anchetty *panchayat*)

Despite these prohibitive costs, private care was perceived to be superior to public healthcare, especially for severe conditions:

“For small diseases like fever and headache, government hospitals are best. But for other diseases like diabetes...private hospitals are best.” (Male, 52 years old, Madakkal *panchayat*)

This sentiment regarding the perceived superiority of private healthcare for major health problems was mirrored among survey respondents. Of the 231 households (77.0%) that had at least one member with a major health problem at the time of survey administration, 33.8% indicated a preference for, or were currently using, private healthcare services, compared to 19.1% of households that were not currently experiencing a major health problem ( $p=0.02$ ). Moreover, the main barriers to accessing both public and private healthcare services that were discussed by interviewees were corroborated by survey respondents. Overall, 96.0% of surveyed households had encountered at least one barrier to accessing private healthcare services. In particular, the high cost was the primary barrier among both users and non-users of private facilities (93.3%).

Conversely, one third (36.4%) of households had not encountered any problems with government healthcare services. However, non-users were less likely to report no problems with public healthcare facilities (21.1%) compared to users of these facilities (42.5%;  $p < 0.001$ ). Similarly, non-users were more likely to report that public healthcare facilities offered inappropriate treatment (65.6%) compared to users of these services (41.5%;  $p < 0.001$ ).

## **Discussion**

### *Self-reported morbidities*

The proportion of individuals experiencing a major health problem at the time of survey administration in this study (22.3%) was higher than the overall proportion of ailing persons in rural Tamil Nadu (14.6%) collected during the 2014 National Sample Survey (NSS) (National Sample Survey Office, 2015). This difference may be attributed, in part, to the high prevalence of poverty and low literacy level in the study population, which may contribute to poorer health outcomes among the study population. In addition, this study used a broader definition of major health problems than the 2014 round of the NSS to include pre-existing disabilities (National Sample Survey Office, 2015).

The high prevalence of non-communicable diseases among study participants corresponds to broader trends in India, as non-communicable diseases are now the leading cause of death in the country (Indian Council of Medical Research (ICMR), 2009; National Commission on Macroeconomics and Health, 2005). In addition, 90% of cases began one year or more prior to survey administration, reflecting the emerging burden of chronic conditions in rural India (Balarajan, Selvaraj, & Subramanian, 2011; Joshi et al., 2006). However, the proportion of chronic conditions relative to acute conditions found in this study was higher than recent national averages (National Sample Survey Office, 2015). One reason for this difference may be the propensity of

study participants to highlight chronic conditions that interfered with the ability of household members to perform manual labour tasks that influenced agricultural production or off-farm employment opportunities. In particular, connective tissue problems, including joint pain, knee problems, and lower back pain were the most commonly reported major health problem overall, accounting for 34.0% of self-reported major health problems. These health problems were viewed to not only affect individual health, but also household productivity and well-being.

Conversely, conditions with a less obvious or direct impact on individual and household productivity, at least initially, were less likely to be reported. For example, the self-reported diabetes prevalence was 1.1%, which is comparable to self-reported prevalence figures in rural India (Corsi & Subramanian, 2012). However, a recent diabetes prevalence study in Anchetty and Madakkal *panchayats* that used an oral glucose tolerance test rather than self-reports found an adult prevalence of diabetes of 10.8%, with 56.4% of cases previously undiagnosed (Little, Humphries, Patel, Dodd, & Dewey, 2016).

Increasing formal education level significantly decreased an individual's likelihood of having a connective tissue problem, nervous or sense organ disease, and circulatory or respiratory disease. This association may represent a combination of two factors. First, better-educated individuals may be less likely to become sick due to enhanced knowledge surrounding hygiene and sanitation practices. In addition, these individuals may be less likely to do hard physical labour and have access to greater income, which may translate to improved housing quality, water supply quality, and preventive healthcare access (Awasthi & Agarwal, 2003; Dongre, Deshmukh, & Garg, 2006; Gwatkin et al., 2007). Second, studies from comparable settings have found that low-educated individuals are more likely to report a morbidity compared to those with higher education (Prosser, 2007; Subramanian, Subramanyam, Selvaraj, & Kawachi, 2009).

There were also notable distinctions concerning the distribution of chronic disease within this population. As previously highlighted, the majority of the population included in this study, and especially individuals from historically marginalized castes or a poorer socioeconomic status, relied on some form of heavy manual labour to support their livelihood. This contextual reality provides some insight into the high prevalence of connective tissue problems reported in this setting. Similarly, recent studies have reported that such injuries constituted 16.7% of India's total disease burden, and the associated healthcare costs accounted for nearly 5% of India's gross domestic product (National Commission on Macroeconomics and Health, 2005). In addition, in 2010, lower back pain was among the top five causes of Years Lived with Disability in India, suggesting that additional resources should be targeted toward injury prevention (Institute for Health Metrics and Evaluation, 2016).

Alternatively, chronic diseases such as diabetes, were associated with a different demographic and socioeconomic profile within this rural setting. Individuals from higher castes were more likely to experience diabetes (OR=45.61;  $p<0.001$ ), which likely represents a composite of the following: higher health literacy and better access to quality healthcare due to higher socioeconomic status, increased risk due to genetic variation, access to processed purchased foods, and a more sedentary lifestyle (Adinatesh & Prashant, 2013; Anjana et al., 2011; Bamshad et al., 2001; Corsi & Subramanian, 2012; Gaiha, Jha, & Kulkarni, 2010; International Institute for Population Sciences and Macro International, 2008; Little et al., 2016; Ramachandran et al., 2001). Due to the common mechanisms underlying diabetes and circulatory diseases, these conditions are expected to increase concomitantly, which may explain why higher castes also had a higher likelihood of reporting circulatory or respiratory diseases (Ramachandran et al., 2001). These findings demonstrate the importance of understanding how exposure to specific risk factors, in

addition to different demographic and socioeconomic backgrounds, can lead to differential morbidity trends within subgroups of a rural population. These findings also serve as a caution to not homogenize the prevalence of chronic morbidity or the determinants of specific illnesses across rural populations in this context.

### *Health seeking behaviour*

#### Health literacy

Health literacy and perceived disease etiologies have been shown to influence healthcare preferences among individuals with certain illnesses (Seeberg et al., 2014; The World Bank, 2015). In this study, illnesses that followed a quarrel or involved changes in an individual's temperament were attributed to spiritual causes, and were therefore preferentially treated by traditional healers (Amegbor, 2014; Mackian et al., 2004). While biomedical care may temporarily relieve symptoms, only traditional healers were believed to permanently rid an individual of these illnesses (Amegbor, 2014; Shaikh, Haran, & Hatcher, 2008). Thus, perceived disease etiology is a crucial determinant of HSB (Amegbor, 2014; Hausmann-Muela & Ribera, 2003). Low health literacy levels may result in inadequate, incomplete, or delayed treatment seeking, which could lead to undesirable health outcomes, chronic illnesses, unnecessary economic costs, and amplified susceptibility to future illnesses (Fikree, Ali, Durocher, & Rahbar, 2004; Navaneetham & Dharmalingam, 2002; Shaikh, Haran, & Hatcher, 2008).

#### Perceived healthcare quality

The perceived difference in the quality of care between public and private facilities was also found to shape healthcare preferences. As found in other studies in India, respondents generally favoured private healthcare, in principle, due to its perceived superior quality (Barua & Pandav, 2011; Bhojani et al., 2013; Sudha et al., 2003). In contrast, inappropriate treatment (48.8%

of households), corruption (19.2% of households), and lengthy wait times (18.9% of households) were considered to be the primary problems in public healthcare facilities (Balarajan et al., 2011; J. C. Bhatia & Cleland, 2001; J. Bhatia & Cleland, 2004; Seeberg et al., 2014).

Notwithstanding national and state-level efforts to improve the image of the public healthcare system, skepticism remains about the ability of these facilities to offer low-cost, high-quality public healthcare (J. Bhatia & Cleland, 2004; Dey & Mishra, 2014). Households that did not primarily use public healthcare facilities for major health problems were more likely to report the presence of inappropriate treatment and less likely to report they experienced no problems in accessing care at these facilities compared to households that primarily used public healthcare. Thus, the perception of inappropriate treatment and additional barriers may be enough to deter some households in this setting from using public healthcare services altogether. Our results confirm other studies' findings that client-perceived healthcare service quality is often a more significant factor shaping an individual's HSB than both cost and convenience (Barua & Pandav, 2011; Prosser, 2007).

Despite the low level of trust in government healthcare provision, respondents' utilization of public healthcare was high as compared to other studies (Abraham et al., 2014; Dey & Mishra, 2014; Sudha et al., 2003). Consistent with the literature, this gap between preference and usage resulted from the prohibitive private healthcare treatment costs (Abraham et al., 2014; J. Bhatia & Cleland, 2004; Sreeramareddy et al., 2012; Sudha et al., 2003). Of the 277 households (93.3%) that reported cost as a barrier in accessing private healthcare, 83 households (30.0%) reported actual use of private healthcare facilities. Thus, when seeking treatment, rural households in this context must decide between accessing inexpensive care of perceived low-quality or expensive care of perceived high-quality.

Based on our semi-structured interviews, our findings show that this decision relies on an informal, pragmatic cost-benefit analysis used to determine the strategy allowing for the fastest return to work using the fewest resources possible (Kamat, 2001; The World Bank, 2015). Critically, quality care was viewed to expedite an individual's return to work, and as a result, quality care was emphasized in HSB decisions (Anwar, Green, & Norris, 2012; Barua & Pandav, 2011; J. Bhatia & Cleland, 2004; Griffiths & Stephenson, 2001). Similarly, as has been reported throughout India, government hospitals were characterized by long queues and limited hours. Thus, in spite of the high prevalence of poverty in this setting, some individuals chose to pay for private care so they could return to work earlier (Abraham et al., 2014; Barua & Pandav, 2011; Griffiths & Stephenson, 2001). This may explain why the perception of illness severity also influenced HSB, as with increasing perceived severity, illnesses were more likely to be treated at private facilities where a higher perceived quality of care was deemed more important to yield a faster recovery.

### *Limitations*

Proxy reporting is shown to be less accurate than self-reporting, and limited health literacy may have also led to underreporting (Kroeger, 1983; Pillai et al., 2003). Despite this limitation, Subramanian *et al.* (2009) found that self-reported morbidity measures are a valid starting point to understanding the burden of disease in low-income settings. Additionally, respondents' perception of morbidity is important to policy-makers as it influences HSB (Kroeger, 1983; Rani & Bonu, 2003). Overall, the findings on self-reported morbidity in addition to health literacy may reflect trends in other rural areas throughout India with similar sociodemographic characteristics. The findings on HSB and experiences with the healthcare system may only be reflective of this context in Tamil Nadu as a result of the higher proportion of SC and ST individuals in addition to the

lower literacy levels compared to district and state census data. However, these findings offer important insights that may be corroborated in other rural settings in Tamil Nadu.

## **Conclusion**

Using an exploratory mixed methods approach, this study contributes new individual- and household-level data from rural Tamil Nadu on self-reported morbidity and HSB. In particular, this study found a high prevalence of self-reported major health problems, and especially chronic conditions, among study participants. In addition, this study identified a set of challenges that continue to impede further improvements to health indicators in this rural setting, including low health literacy, low perceived quality of government healthcare services, and high private healthcare treatment costs.

Improving health indicators and access to quality healthcare requires policy-makers and stakeholders to create evidence-based and well-targeted health policies and programs based on a detailed understanding of the determinants of morbidity and HSB in a particular setting. In order to avoid homogenizing rural communities that may differ according to factors including socioeconomic status, physical distance from healthcare facilities, and ease of transportation, future research should investigate how the degree of rurality influences morbidity and healthcare access within rural Tamil Nadu. Our study builds on earlier evidence of the growing burden of non-communicable and chronic diseases in rural India, which warrants further research to inform area-specific public health interventions, especially in light of high prevalence rates of particular chronic diseases.

The findings from this study provide a strong foundation and a comparative case for further investigation into self-reported morbidity and HSB in other regions of rural Tamil Nadu. In order to facilitate the development of more effective public health policies and programs, this study

highlights the need for further mixed methods village-level research throughout Tamil Nadu to understand the interplay between the determinants of morbidity and HSB among this state's rural populations.

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## Tables

**Table 4.1:** Descriptive analyses of demographic variables from 1693 individuals living in rural villages, Tamil Nadu, India, 2013

	<b>Frequency n (%)</b>
<b>Sex</b>	
Male	896 (52.9%)
Female	797 (47.1%)
<b>Age</b>	
0-14 years	441 (26.0%)
15-29 years	559 (33.0%)
30-44 years	319 (18.8%)
45-59 years	209 (12.3%)
≥60 years	165 (9.7%)
<b>Caste</b>	
Scheduled Caste (SC) or Scheduled Tribe (ST)	545 (32.2%)*
Other Backward Caste (OBC) or Most Backward Caste (MBC)	1025 (60.5%)
Higher Caste	123 (7.3%)

\*The proportion of SC and ST individuals in this study is higher than the district average (15.4%) (The Registrar General and Census Commissioner, 2011).

**Table 4.2:** Frequency of major self-reported health problems among 1693 individuals living in rural villages, Tamil Nadu, India, 2013

<b>Major health problem category</b>	<b>Female frequency</b>	<b>Male frequency</b>	<b>Total frequency</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Connective tissues	55 (6.9%)	73 (8.2%)	128 (7.6%)
Nervous/sense organs	43 (5.4%)	42 (4.7%)	85 (5.0%)
Circulatory/respiratory	18 (2.3%)	24 (2.7%)	42 (2.5%)
Digestive	13 (1.6%)	19 (2.1%)	32 (1.9%)
Injury/poisoning	2 (0.3%)	19 (2.1%)	21 (1.2%)
Diabetes	4 (0.5%)	14 (1.6%)	18 (1.1%)
Infective/vector-borne	4 (0.5%)	11 (1.2%)	15 (0.9%)
Skin	6 (0.8%)	9 (1.0%)	15 (0.9%)
Pregnancy/family planning related	12 (1.5%)	0	12 (0.7%)
Ill-defined	6 (0.8%)	2 (0.2%)	8 (0.5%)
Genito-urinary	1 (0.1%)	0	1 (0.1%)
<b>Total</b>	<b>164 (20.6%)</b>	<b>213 (23.8%)</b>	<b>377 (22.3%)</b>

**Table 4.3:** Demographic factors associated with self-reported major health problems based on multivariable logistic regression living in rural villages, Tamil Nadu, India, 2013

Predictor variables	Connective tissues (n=128)	Nervous/ sense organs (n=85)	Circulatory/ respiratory (n=42)	Digestive (n=32)	Injury/ poisoning (n=21)	Diabetes (n=18)
	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)
<b>Sex</b>						
Female <sup>a</sup>	-	-	-	-	Referent	Referent
Male	-	-	-	-	7.99 (1.85, 34.57)**	3.47 (1.12, 10.75)*
<b>Age</b>						
0-14	0.01 (0.002, 0.09)***	0.13 (0.06, 0.30)***	0.16 (0.04, 0.61)**	-	Omitted <sup>b</sup>	-
15-29	0.17 (0.08, 0.33)***	0.28 (0.13, 0.57)***	0.13 (0.03, 0.65)*	-	0.12 (0.03, 0.45)**	-
30-44	0.61 (0.35, 1.04)	0.32 (0.17, 0.63)***	0.86 (0.34, 2.18)	-	0.55 (0.20, 1.51)	-
45-59	1.41 (0.85, 2.35)	0.59 (0.32, 1.11)	1.70 (0.73, 3.98)	-	0.21* (0.04, 0.99)	-
≥60 <sup>a</sup>	Referent	Referent	Referent	-	Referent	-
<b>Caste</b>						
SC or ST <sup>a</sup>	-	-	Referent	-	-	Referent
OBC or MBC	-	-	0.71 (0.35, 1.45)	-	-	4.28 (0.53, 34.30)
Higher caste	-	-	3.02 (1.21, 7.54)**	-	-	45.61 (5.70, 364.97)***
<b>Years of formal education</b>	0.92 (0.86, 0.98)*	0.91 (0.84, 0.98)*	0.86 (0.75, 0.99)*	-	-	-
<b>Household size</b>	-	0.90 (0.83, 0.98)*	-	0.83 (0.71, 0.97)*	-	-

<sup>a</sup> Referent categories; <sup>b</sup> No individuals were within this category; \* Significant at p<0.05; \*\*Significant at p<0.01 level; \*\*\*Significant at p<0.001; '-' Denotes a non-significant (p>0.05) relationship in the multivariable logistic regression model. Thus, the variable was excluded from the final model.

**Table 4.4:** Difficulties or barriers faced in accessing healthcare for major health problems among 297 households in rural villages, Tamil Nadu, India, 2013<sup>a</sup>

<b>Public Healthcare</b>			
	Barrier Among Users (n=207)	Barrier Among Non-Users (n=90)	Overall (n=297) <sup>b</sup>
Inappropriate treatment	86 (41.5%)	59 (65.6%)*	145 (48.8%)
No problems	88 (42.5%)	19 (21.1%)*	108 (36.4%)
Corruption	36 (17.4%)	21 (23.3%)	57 (19.2%)
Long queue	45 (21.7%)	11 (12.2%)	56 (18.9%)
Not enough staff	27 (13.0%)	8 (8.9%)	35 (11.8%)
Not proper resources	19 (9.2%)	13 (14.4%)	32 (10.8%)
Poorly trained doctors	13 (6.3%)	8 (8.9%)	21 (7.1%)
Inconvenient hours	15 (7.2%)	6 (6.7%)	21 (7.1%)
Distance	6 (2.9%)	6 (6.7%)	12 (4.0%)
Unable to file a complaint	8 (3.9%)	3 (3.3%)	11 (3.7%)
Cost	3 (1.4%)	3 (3.3%)	6 (2.0%)
<b>Private Healthcare</b>			
	Barrier Among Users (n=90)	Barrier Among Non-User (n=207)	Overall (n=297) <sup>b</sup>
Cost	83 (92.2%)	194 (93.7%)	277 (93.3%)
Inappropriate treatment	4 (4.4%)	31 (15.0%)*	35 (11.8%)
Not proper resources	2 (2.2%)	11 (5.3%)	13 (4.4%)
No problems	7 (7.8%)	5 (2.4%)*	12 (4.0%)
Corruption	0	7 (3.4%)	7 (2.4%)
Poorly trained doctors	0	5 (2.4%)	5 (1.7%)
Distance	2 (2.2%)	3 (1.4%)	5 (1.7%)
Long queue	0	3 (1.4%)	3 (1.0%)
Inconvenient hours	1 (1.1%)	2 (0.97%)	3 (1.0%)
Unable to file a complaint	1 (1.1%)	2 (0.97%)	3 (1.0%)
Not enough staff	0	1 (0.48%)	1 (0.34%)

<sup>a</sup> Three households chose not to respond

<sup>b</sup> Does not add to 100%, some respondents reported multiple responses

\* p<0.5 based on Pearson chi-square test

\*\*p<0.01 based on Pearson chi-square test

\*\*\*p<0.001 based on Pearson chi-square test

## CHAPTER 5 - DETERMINANTS OF INTERNAL MIGRANT HEALTH IN SOUTHERN INDIA: A MIXED METHODS STUDY

*Article under review:*

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### **Abstract**

Internal labour migration is an important and necessary livelihood strategy for millions of individuals and households in India. However, the precarious position of migrant workers within Indian society may have consequences for the health of these individuals. Previous research on the connections between health and labour mobility within India have primarily focused on the negative health outcomes associated with this practice. Thus, there is a need to better identify the determinants of internal migrant health and how these determinants shape migrant health outcomes. An exploratory mixed methods study was conducted in 26 villages in the Krishnagiri district of Tamil Nadu. Sixty-six semi-structured interviews were completed using snowball sampling, followed by 300 household surveys using multi-stage random sampling. For qualitative data, an analysis of themes and content was completed. For quantitative data, information on current participation in internal labour migration, in addition to self-reported morbidity and determinants of internal migrant health, was collected. Morbidity categories were compared between migrant and non-migrant adults (age 14-65 years) using a Pearson chi-square test. Of the 300 households surveyed, 137 households (45.7%) had at least one current migrant member, with 205 migrant and 1,012 non-migrant adults (age 14-65 years) included in this study. The health profile of migrant and non-migrants was similar in this setting, with 53 migrants (25.9%) currently suffering from a health problem compared to 273 non-migrants (27.0%). Migrant households identified both occupational and livelihood factors that contributed

to changes in the health of their migrant members. These determinants of internal migrant health were corroborated and further expanded on through the semi-structured interviews. Internal labour migration in and of itself is not a determinant of health, as participation in labour mobility can contribute to an improvement in health, a decline in health, or no change in health among migrant workers. Targeted public health interventions should focus on addressing the determinants of internal migrant health to enhance the contributions these individuals can make to their households and villages of origin.

## **Introduction**

Internal labour migration is a necessary livelihood strategy for millions of individuals and households throughout India. With all of these individuals and families engaged in these temporary or permanent movements for work, there is optimism surrounding the ability of internal labour migration to meaningfully contribute to human development throughout the country (Deshingkar, 2006). In particular, there are often economic incentives associated with migrating for work, which can contribute to material gain for migrants and their families (Deshingkar, 2005, 2006). In addition, the relative stability and frequency of financial transfers between migrants and their families, as well as the circulation of ideas, knowledge, and technology, can extend the economic benefits of migrant labour to households and communities of origin (Castaldo, Deshingkar, & McKay, 2012; Czaika & Spray, 2013; Deshingkar, 2005; Housen, Hopkins, & Earnest, 2013). However, there is also broad recognition that participation in labour mobility may have significant consequences for the health and wellbeing of migrant workers, and these consequences may pose challenges in leveraging the purported benefits of

internal labour migration (Castaldo et al., 2012; Deshingkar, 2005; Deshingkar & Akter, 2009; Deshingkar & Start, 2003).

Previous research on the relationship between health and internal labour migration in India has primarily examined the negative health outcomes among migrant workers as a result of their participation in labour mobility. Disease transmission among migrant workers, and between migrant workers and their households and communities of origin, is a prominent area of focus, with specific interest in the transmission of HIV/AIDS and other sexually transmitted infections (Deering et al., 2008; Gupta & Singh, 2002; Halli, Blanchard, Satihal, & Moses, 2007; Saggurthi, Schensul, & Verma, 2009; Saggurthi et al., 2008). Additional studies have examined health outcomes associated with hazardous workplace conditions that migrant workers experience in specific industries such as textile factories (Jaiswal, 2007; Padmini & Venmathi, 2012), manual labour (Ray, Mukherjee, Roychowdhury, & Lahiri, 2004; Srinivasan & Ilango, 2013), and construction (Akram, 2014; Bhattacharyya & Korinek, 2007; Jayakrishnan, Thomas, Rao, & George, 2013). There has also been evidence to suggest that the prevalence of mental health problems is higher among migrant individuals than non-migrants (Ganguli, 2000). In terms of non-communicable and chronic disease, migrants may be at an elevated risk for obesity (Ebrahim et al., 2010). In addition, participation in migration may be associated with some negative changes in dietary habits including the higher consumption of energy and fat (Bowen et al., 2011). Conversely, there has been some research into the broad health benefits experienced by households of origin attributed to internal migration (Abas et al., 2009), yet research on any potential health benefits attributed to internal labour migration for migrant workers in India is limited (see Bowen et al., 2011 for improvements in dietary diversity).

In addition to research on health outcomes, other studies have focused on the generalized vulnerability of migrant workers in India and how this vulnerability shapes migrant worker experiences with health. In particular, reference is made to the ‘invisibility’ of migrants within Indian social policy leading to barriers in accessing services including healthcare (de Haan, 2011). Poor health outcomes among migrant workers are further exacerbated because of these barriers, and as a result, improvements in migrant worker healthcare access combined with targeted preventive public health initiatives are considered to concretely improve migrant worker health outcomes and reduce vulnerability (Akinola, Krishna, & Chetlapalli, 2014; Deshingkar, 2005, 2006).

Despite this vulnerability, there is also recognition that participation in internal labour migration is a selective process whereby migrant workers may have a health advantage over their non-migrant counterparts (Lu, 2008). This health advantage is the premise of the ‘healthy migrant effect’, which is the notion that migrant workers have better than expected health outcomes when the socioeconomic conditions of their place of origin are taken into account (Fennelly, 2007). Although typically applied to international migration, there is some evidence to suggest the presence of the ‘healthy migrant effect’ among internal migrant workers in Croatia (Kolčić & Polašek, 2009), Indonesia (Lu, 2008), and China (Chen, 2011; Hesketh, Jun, Lu, & Mei, 2008; Lu & Qin, 2014). However, research on migration from low-income to high-income countries demonstrates that this potential health advantage is difficult to maintain over the long-term (Antecol & Bedard, 2006; Fennelly, 2007; Frisbie, Cho, & Hummer, 2001; McDonald & Kennedy, 2004). In particular, Fennelly (2007) details how problems with poverty, housing, stress related to a new environment, nutrition, substance abuse and poor access to healthcare can contribute to the loss of this apparent health advantage.

Thus, there is a need for evidence-based public health policies and interventions that directly identify and address the determinants of internal migration health (Akinola et al., 2014; Davies, Basten, & Frattini, 2006; Zimmerman, Kiss, & Hossain, 2011). With this need in mind, and drawing on both qualitative and quantitative data, this study has two objectives: first, to compare the health outcomes of migrant workers to non-migrant adults to see if there are any differences in the health profile between these two groups; and second, to identify the broad determinants of internal migrant health and to examine how these determinants influence the health of migrant workers in this setting.

## **Methods**

### *Study area and design*

This exploratory mixed method study was conducted in 26 rural villages in Anchetty, Thaggatti, Madakkal, and Urigam *panchayats* within the Krishnagiri district of Tamil Nadu, India. These adjoining *panchayats* are located in the northwest corner of Tamil Nadu in the Melagiri Hill Ranges of the Eastern Ghats along the border with Karnataka. While all of the *panchayats* have road access, Anchetty *panchayat* is the best networked in terms of quality of roads and access to public transportation, and the town of Anchetty proper is a regional market hub. Conversely, Urigam is the most geographically remote *panchayat*, and consequently, was only included in the qualitative portion of this study.

The prevalence of poverty and illiteracy are higher than district averages within the study site, with 36 per cent of the population living below the poverty line and an adult literacy rate of 48.3 per cent (Karthikeyan et al., 2012). Despite ongoing investment in agricultural and rural development, as well as access to social welfare schemes, the research area's proximity to the

urban centres of Bengaluru and Hosur means that internal labour migration is prevalent among households (Patel, Gartaula, Johnson, & Karthikeyan, 2015). The economic incentives for migration are strong, with some migrants reportedly earning double or triple the amount of income per day through migrant labour compared to local employment opportunities. Adult males from large families and historically marginalized castes (Schedule Castes, Scheduled Tribes, Other Backwards Castes, Most Backwards Castes) were the most likely to participate in labour migration from the research area. Labour migration was largely temporary in nature, meaning that a typical migration trip lasted one week to six months. Additionally, rural to urban labour migration comprised the majority of movements, although there was some rural to rural migration originating from this area.

#### *Qualitative methods and analysis*

A semi-structured interview guide exploring health and migration dynamics was developed with input from local partners and informed by community engagement in the research villages. In particular, the interview guide inquired about common illnesses and the general course of treatment for each illness. In December 2012, 66 semi-structured interviews were completed using snowball sampling in 17 villages within the four *panchayats* included in the study. With translation assistance, each interview was conducted in Tamil or Kannada according to the respondent's preference. Interviews were audio recorded and the research assistant translated each response into English for the audio recording. Interviews were manually transcribed and any discrepancies in translation were clarified with the research assistant. An analysis of themes and content was completed and informed the subsequent survey development (below).

#### *Quantitative methods and analysis*

Based on the preliminary analysis of the semi-structured interviews, a survey tool was developed to collect information on socioeconomic status, labour migration, and health. To inquire about self-reported morbidity, a list of common illnesses was compiled that were identified through the interviews for inclusion with the survey. The survey was piloted and refined with four households from two different villages in Anchetty *panchayat*, and any questions that posed problems were clarified. Then, between January-March 2013, 300 household surveys were completed in 20 rural villages in Anchetty, Thaggatti, and Madakkal *panchayats*.

Multistage random sampling was used to sample villages and then households within villages. Approximately half of the villages within each *panchayat* were randomly sampled and included in the study. Then, approximately 10 per cent (8.1%-12.7%) of households within each village were systematically randomly sampled (approximately every tenth household was included) based on the estimated number of households. The female or male household head was surveyed and served as a proxy respondent for all household members. Virilocal families living within one housing structure were considered as a single household unit. Surveys were delivered in either Tamil or Kannada depending on the respondent's preference, and responses were recorded directly onto the questionnaire in English. As part of survey administration, each respondent was verbally provided with the previously generated list of common illnesses as a prompt, and then asked if any member of their household was currently suffering from any of these illnesses. At the end of each day of survey administration, the first author reviewed the questionnaires with the research assistant to ensure completeness and to clarify information.

To achieve equal representation of both females and males in the study, survey administration was timed to avoid interfering with women's daily household responsibilities.

Additionally, if present in the household, an adult female was first asked to participate in the study and only if she was unable or unwilling to participate, was a male member of the same household asked to participate. The response rate was 96.5%, with 300 of 314 households completing the survey. Non-response was attributed to lack of interest.

To assess participation in labour migration, a migrant was defined as an individual who was engaged in labour outside of her or his village of usual residence at the time of survey administration as reported by the survey respondent. In addition, the skill level of different occupations was self-defined by survey respondents and based on the amount training or education required for each position. Self-reported illnesses were initially recorded using the respondents' lay terms and later categorized according to the International Classification of Diseases' (ICD) version 10 broad categories (World Health Organization, 2011) with adaptations according to local context.

The prevalence of each self-reported illness category was compared between migrant and non-migrant adults (age 14-65). Data were stratified based on sex and age. For age, the median age of 40 years was used to create two groups (i.e., <40 years and  $\geq$ 40 years). A Fisher's exact test was used to assess if there was a difference in the prevalence of the various disease categories between migrants and non-migrants for each sex and age strata.

#### *Ethical considerations*

Ethics clearance was obtained from a Canadian university research ethics board. Prior to initiating the study, local authorities (*panchayat* councils, hospital medical staff, and local law enforcement officials) were approached and permission was obtained to carry out the study. The study was also reviewed and approved by the leadership of Development of Humane Action (DHAN) Foundation in Chennai, Tamil Nadu. DHAN Foundation is a national non-

governmental organization and acted as the local collaborating partner on this study. Informed oral consent was obtained prior to each interview or survey. This process involved each respondent receiving a detailed explanation of the study and having the opportunity to ask questions. If a potential respondent refused to participate for any reason, the research team continued to the next nearest household.

## **Results**

### *Self-reported health outcomes for migrant workers*

Of the 300 households surveyed, 137 households (45.7%) had at least one current migrant member with 205 migrant workers included in this study. In total, 188 migrants (91.7%) were male and the average age of all migrant workers was 27.5 years (14-65 years; SD=8.44) compared to 34.2 years (SD=14.71) for non-migrant adults in the same age cohort ( $p<0.001$ ). Most migrants included in this study were engaged in rural to urban migration streams with many (73.7%) working in the nearby urban centres of either Bengaluru or Hosur. In addition, most migrants were engaged in either low skilled (131 individuals; 63.9%) or semi-skilled work (55 individuals; 26.8%). The main industries that migrants were working in included construction (92 individuals; 44.9%), manual labour (33 individuals; 16.1%), the textile sector (18 individuals; 8.8%), and manufacturing (15 individuals; 7.3%).

In total, 53 migrants (25.9%) were currently suffering from a health problem. Table 1 provides an overview of all health events experienced by adults included in this study and compares the prevalence of these health events between migrant and non-migrant individuals. Migrant males under age 40 were more likely to have a connective tissue problem ( $p=0.012$ ), an infective or parasitic disease ( $p=0.021$ ) or a skin problem ( $p=0.028$ ) compared to non-migrant

males under age 40. There was insufficient data available to test the difference in the prevalence of various morbidity categories between female migrants and non-migrants in either age group.

#### *Health events ending or altering migration*

Through the semi-structured interviews, several former migrants spoke of how their participation in migrant labour was detrimental to their health, forcing them to stop migrating altogether:

“I worked as a tailor in Bengaluru six year ago, but I do not migrate anymore. That work is not suitable for my health. I stopped migrating because I was experiencing regular fevers and other health problems. I cannot work in the city. I will work in agriculture from now on” (45-year old male, Madakkal *panchayat*).

Additionally, one female interviewee spoke of how health problems forced her husband to stop working in construction:

“When my husband was working as a mason, he was getting worse pain in his shoulders and chest. He was also getting holes in his feet from the cement...He left the mason work and now tries to find work locally in agriculture” (35-year old female, Anchetty *panchayat*).

Some former migrants stopped migrating not because of the deterioration of their own health, but because of the poor health of a family member who accompanied them on their migration journey:

“Because of our son’s health problem, we cannot migrate for employment. We all worked together in a brick kiln cutting bricks near Bengaluru, but stopped nine years ago. Our son got very sick from the brick work so we had to return to our village. His health changed due to high fevers and bad headaches. He now has mental health problems and needs to be heavily medicated. We cannot leave our son alone. Someone has to take care of him in the house” (female and male couple, Anchetty *panchayat*).

Poor health from occupational or livelihood hazards experienced while migrating did not deter all migrants from continued future migration. Other interviewees opted to seek out

alternative employment opportunities when they recognized the toll that their work was having on their health. One interviewee spoke of his son, who was in the process of looking for new work outside of their village:

“One year ago, my son went to work in an automotive manufacturing factory in Hosur. He worked on the assembly line and had to stand all day. The work was not good for him so he left...He has submitted an application to be a police constable but has not heard anything. If he is not accepted as a police constable, he will go to Bengaluru to work in another factory” (55-year old male, Anchetty *panchayat*).

### *Perceptions of the determinants of internal migrant health*

Of the 137 migrant households included in the quantitative part of this study, 62 (45.3%) saw an overall decline in the health of their migrant members as a result of their participation in labour migration. This decline in health was largely attributed to long working hours and a physically demanding job. Conversely, 45 households (32.9%) saw no change in health and 18 households (13.1%) saw an overall improvement in the health of their migrant members. Enhanced mental health was the most frequently cited health improvement and was often attributed to good working hours and improved food security (Table 5.2).

Consistent with the findings from the surveys, the semi-structured interviews revealed mixed results related to migrant experiences with health. Interviewees from migrant households commonly expressed their concerns for the health and wellbeing of their migrant members who were currently engaged in migrant labour. In particular, interviewees were wary of poor working conditions and how these might contribute to adverse health outcomes and subsequently decreased earning potential for their migrant family members. Furthermore, and consistent with survey findings, poor health outcomes were most often linked to jobs that required heavy manual labour or long working hours.

Connective tissue problems (e.g., back pain, chest pain, and joint pain) was the most commonly discussed health event among migrant households, as this was seen to directly interfere with or impede further manual work. In cases where migrants were paid based on work completed, physical pain was framed in terms of impacting not only the health of the migrant, but also the financial stability of the household. However, it was noted that some migrant work that involved manual labour was often no more strenuous or physically demanding than local agricultural work. In comparing migrant work with local agricultural work, one interviewee argued that agricultural work in his village was more physically demanding:

“I have worked in the city. After a day of work in the city, I would need to sleep for a day in order to recover from the work. But now that I am doing heavy agricultural work in the field, I need longer to recover from that work. People who go to work outside of the village are no longer suited for agricultural work” (47-year old male, Anchetty *panchayat*).

In addition, changes in the mental health and personality of migrant members were frequently noted as an outcome of participation in migrant labour. The nature of these changes was primarily tied to the type of work that migrants were engaged in, but was also connected to factors outside of the workplace. Demanding work conditions and hard manual labour were generally associated with a decline in mental health or a ‘dull’ personality. One interviewee noted the difficult trade-off between a perceived decline in the mental health in his sons and the necessity of income they generated for their household:

I am seeing lots of changes in my sons. If my sons stayed here, it means they have no work to do, but they are energetic and their personality is good. When they come back from work in the city, they are so tired, and their personality is dull and weak. Every day, they carry cement bags from the ground floor to the sixth floor. They are also facing lots of problems like shelter, sleep, and sometimes problems getting food. I would like to keep my sons in my home, but we need the income” (45-year old male, Thaggati *panchayat*).

Conversely, some households saw their migrant members grow personally and professionally by taking on new opportunities outside of their village:

“Our middle son is a very talented person, and has learned a lot as a result of going to the city for work. Before, in the village, he had a dull personality and hated doing work in the field. Now, in the city, he is using his talents” (64-year old male, Thaggatti *panchayat*).

In addition to working conditions, living arrangements including housing, access to adequate food and clean water, access to medical care, and the physical environment were considered to influence the health of migrants. Experiences with each of these factors differed depending on destination, industry, and the presence and strength of social networks. However, there was a general perception that in most cases, food was more readily available in the city than in the village, which contributed to enhanced migrant wellbeing:

“My son is healthy in the city. He is eating three times per day and earning a good income. If he were to stay in the village, he would only eat two times per day. He would also have to do agricultural work in the village, which would make him unhealthy” (50-year old male, Anchetty *panchayat*).

Furthermore, social networks were seen to mediate some of the challenges associated with migrating to a city including securing employment and housing. However, these networks were also viewed by a minority of migrant households as a source of ‘bad habits’ including alcoholism and smoking.

Several survey respondents (n=12) acknowledged that they were unaware of the health of their migrant household members. One reason for this lack of knowledge was attributed by interviewees to migrants obscuring their health problems from their family members:

“I know my sons are facing lots of health problems like frequent colds, coughs, and high fevers. But they don’t share these problems with us because they do not want us to worry. They go to clinics on their own and take care of their own health problems” (45-year old male, Madakkal *panchayat*).

“If our son stays in the village, he is healthy. When he migrates, we do not know what health problems he faces in the city. All we know is that mason work is difficult work to do” (female and male couple, Anchetty *panchayat*).

### *Perceptions of migrant health from non-migrant households*

There was consensus among interviewees who did not have any migrant family members that migrant workers and migrant households appeared ‘well-off’ and ‘healthy.’ In these cases, health was synonymous with perceived financial wellbeing and stability. A number of non-migrant households mentioned how they either aspired to be like migrant households or desired for members of their family to migrate for work:

“When I see people who have migrated return to the village, they appear to look very good and live in good conditions. I wish my sons could migrate for work. If they did, we could live like the migrant families and earn a good income” (70-year old male, Thaggatti *panchayat*).

Interviewees from non-migrant households also perceived the physical environment as a threat to migrant health and contrasted the quality of the environment in the village to the quality of the environment in the city. In particular, the apparent poor air and water quality in the city was viewed as a potential source of health problems for migrant workers among non-migrant households.

## **Discussion**

### *Comparing the health of migrants and non-migrants*

Using a mixed methods approach, our findings reinforce the notion that internal labour migration is a selective process. As other studies have demonstrated, health considerations can shape pre-migration decisions and internal migration trajectories (Gushulak & MacPherson, 2011; Lu, 2008; Zimmerman et al., 2011). However, our findings also show that the selectivity

of internal labour migration processes is not necessarily synonymous with the ‘healthy migrant effect.’

Our quantitative data on self-reported illness demonstrates that migrant workers and non-migrant adults from the same rural area have similar health profiles. However, migrant males under age 40 appear to have a higher prevalence of some health problems including connective tissue problems. Moreover, for health problems reported among migrant workers, the relationship between a particular health outcome and migrant labour activities was obvious in some cases (e.g., a broken arm due to a workplace accident). At other times though, the association between health and migrant labour was less clear (e.g., joint pain attributed to ongoing manual labour), however the causal relationship between migration and a poor health outcome was clear in the mind of the respondent.

Despite these connections between internal migrant activities and poor health outcomes, the similar health profile between migrant and non-migrant adults in this context calls into question the idea that internal migrant workers have a distinct health advantage over their non-migrant counterparts. In the research area, non-migrant adults are largely engaged in agricultural work, either on their own land, or on the land of large landowners. This work is physically demanding, and as other studies have demonstrated, rural agricultural workers, are at risk for a host of occupational hazards and health problems (Sarkar, Aronson, Patil, & Hugar, 2012; Singh & Gupta, 2009). In some cases, rural-to-urban and rural-to-rural migrant workers are exposed to similar working conditions as non-migrant workers.

This reality may have several implications for understanding the similar health profiles across migrant and non-migrant individuals in addition to the construction of the ‘healthy migrant effect’ in this context. First, it is possible that the ‘healthy migrant effect’ operates as it

is theorized to, and that healthy migrants lose their supposed health advantage over non-migrant individuals, leading to an eventual equalizing of health across individuals from this area. This explanation is supported by the majority of migrant households who believed that the health of their migrant members declined as a result of their participation in migrant labour. Second, as a result of the similarities in working conditions across migrant and non-migrant industries, it is also possible that any generalized changes in health in migrant populations are mirrored by non-migrant populations. Finally, and as demonstrated by other studies, internal migrant worker status is fluid (Rogaly, 2003). Of particular importance to this context, the high proportion of temporary labour migration means that many individuals included in this study balance working locally and in another destination, which makes it difficult to attribute a specific health problem exclusively to migrant labour activities.

A combination of these explanations likely provides insights into the comparable health profile across migrant and non-migrant individuals in this context. These findings also underscore the problem with generalizing the health statuses of migrant workers or how the health of migrant workers will be impacted as a result of their participation in migrant labour.

#### *The determinants of internal migrant health*

The physical health of migrant workers is mediated through a number of pathways, which directly influence health outcomes. However, the emphasis on health outcomes associated with internal labour migration can, at times, neglect the causal pathways that impact the health of migrant workers. Instead, internal labour migration is often viewed as the primary exposure variable whereby negative changes in migrant health are associated with their generalized vulnerability (Ebrahim et al., 2010). The prioritization of health outcomes correlated with internal labour migration over the determinants of internal migrant health, contributes to an

incomplete understanding of how internal migration processes and migrant labour shape health in a particular context. Furthermore, this limited understanding and measurement of the determinants of internal migrant health can lead to a lack of or misguided public health interventions aimed at addressing these determinants.

In our study, participants identified two broad categories that shaped internal migrant experiences with health. First, occupational factors including industry, position, working hours, working conditions, and employer, were considered to have a significant impact on the health of migrant workers. For example, positions with heavy manual labour components and long working hours were seen as detrimental to physical and mental health (Akram, 2014; Bhattacharyya & Korinek, 2007; Jayakrishnan et al., 2013). Conversely, positions where migrants were given challenging tasks with good working hours were viewed as beneficial for mental health. Thus, there is a need to look beyond industries to the diverse positions that migrants hold, as well as the reward mechanisms within industries, to understand how these various positions within a specific industry may differentially influence health (Jayakrishnan et al., 2013; To & Tam, 2016).

Second, livelihood factors including destination, housing, food security, water quality, access to medical care, social networks, and the physical environment were viewed to impact migrant worker physical health. Although not directly referenced by interviewees, it was also clear that gender shaped experiences with migration and subsequently health (Agnihotri & Mazumdar, 2009; Barnabas, Anbarasu, & Clifford, 2013; Baruah, 2010; Bhattacharyya & Korinek, 2007; Rogaly, 1998; Srinivasan & Ilango, 2013). Like occupational factors, respondents indicated that the nature of the relationship between individual livelihood factors and migrant health was complex and dependent on context. For example, the presence and

strength of social networks were viewed by the majority of respondents as beneficial to the health of migrant workers, as these networks could assist in securing employment and housing (Banerjee, 1983; Mitra & Murayama, 2009). However, social networks, as well as the influences of urban lifestyles for urban migrants, were also seen to be detrimental to health when ‘bad habits’ such as excessive alcohol consumption and smoking were promoted (Allender et al., 2010; Jirapramukpitak, Prince, & Harpham, 2008).

This examination of the occupational and livelihood factors that influenced migrant health in this context provides several insights. First, greater focus needs to be on identifying the occupational and livelihood factors that operate within internal labour migration processes and are responsible for shaping physical health (Akram, 2014). We demonstrated that village-based mixed method studies can be an important starting point for identifying and defining what these factors are and how they may function within a particular migration trajectory. In addition, bringing the perspectives of migrant and non-migrant households together aids our understanding of how these groups perceive and experience the determinants of internal migrant health. Second, following identification, these factors need to be measured using both quantitative and qualitative methods to better understand the extent to which they influence internal migrant health (Cummins, Curtis, Diez-Roux, & Macintyre, 2007; Macintyre, Ellaway, & Cummins, 2002). In this way, we can begin to examine, for example, how migrant experiences in specific positions within certain industries may impact a particular health outcome. Finally, a broader definition of health is needed in such examinations, concurrent with that suggested by Huber et al. (2011), to move beyond a definition of health as the absence of physical disease (World Health Organization, 1948), and recognize that health encompasses an individual’s ability to adapt and manage in a new setting. This understanding allows us to better assess

whether or not internal migrants are able to fully leverage the purported benefits of internal migration for themselves and their households.

## **Conclusion**

Using an exploratory mixed methods study conducted in 26 villages in the Krishnagiri district of Tamil Nadu, we compared the prevalence of self-reported illness between migrant and non-migrant adults and demonstrated that the health profile of these two groups was similar. In addition, we identified occupational and livelihood factors that were viewed as critical determinants of internal migrant health and examined how these determinants influence the health of migrant workers in this setting. We showed how individual determinants can have differential impacts on health outcomes and subsequently cautioned against generalizations of migrant worker experiences with health. The importance of internal labour migration for individuals and households in this setting and throughout India means the diagnosis of health problems associated with internal labour migration must be combined with the identification and measurement of the determinants of internal migrant health. With greater resources allocated to public health interventions that respond to these contextual determinants of health, it is more likely that internal labour migration will contribute to the expected gains in human development for migrant workers and their households.

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**Tables**

**Table 5.1:** Frequency of health problems among migrant and non-migrant adults (14-65 years) in southern India, 2013 (n=1217)

Disease Category	Prevalence among females (n=581)				Prevalence among males (n=636)				Overall prevalence (n=1217)
	< 40 years		≥40 years		<40 years		≥40 years		
	Prevalence among migrants (n=13)	Prevalence among non-migrants (n=395)	Prevalence among migrants (n=4)	Prevalence among non-migrants (n=169)	Prevalence among migrants (n=174)	Prevalence among non-migrants (n=250)	Prevalence among migrants (n=14)	Prevalence among non-migrants (n=198)	
Connective tissues	1 (7.69%)	15 (3.80%)	1 (25.0%)	31 (18.34%)	13 (7.47%)*	5 (2.0%)	2 (14.29%)	47 (23.74%)	115 (9.45%)
Nervous/sense organs	1 (7.69%)	13 (3.29%)	0	22 (13.02%)	6 (3.45%)	9 (3.60%)	1 (7.14%)	16 (8.08%)	68 (5.59%)
Circulatory/respiratory	0	1 (0.25%)	0	15 (8.88%)	4 (2.30%)	2 (0.80%)	3 (21.43%)	11 (5.56%)	36 (2.96%)
Digestive	1 (7.69%)	6 (1.52%)	0	6 (3.55%)	3 (1.72%)	7 (2.80%)	0	6 (3.30%)	29 (2.38%)
Injury/poisoning	0	0	0	2 (1.18%)	4 (2.30%)	4 (1.60%)	1 (7.14%)	7 (3.54%)	18 (1.48%)
Diabetes	0	0	0	4 (2.37%)	0	3 (1.20%)	0	10 (5.05%)	17 (1.40%)
Infective/parasitic	0	2 (0.51%)	0	1 (0.59%)	6 (3.45%)*	1 (0.40%)	0	2 (1.01%)	12 (0.99%)
Reproductive health	0	11 (2.78%)	0	1 (0.59%)	0	0	0	0	12 (0.99%)
Skin	0	4 (1.01%)	0	1 (0.59%)	4 (2.30%)*	0	2 (14.29%)	1 (0.51%)	12 (0.99%)
Ill-defined	0	2 (0.51%)	0	3 (1.78%)	0	0	0	0	5 (0.41%)
Genito-urinary	0	1 (0.25%)	0	0	0	0	0	0	1 (0.08%)
<b>Totals</b>	3 (23.08%)	55 (13.92%)	1 (25.0%)	86 (50.89%)	40 (22.99%)	31 (12.4%)	9 (64.29%)	100 (50.51%)	325 (26.71%)

\*p<0.05 based on Fisher's exact test

**Table 5.2:** Perceptions of migrant member health from migrant households in southern India, 2013 (n=137)

<b>Perceived deterioration in health (n=62)</b>	
<i>How has health deteriorated for migrant members since migration started?</i>	<i>Total number of migrant households (% of all migrant households)</i>
Experienced a medium health problem (e.g. respiratory problem; broken bone; etc.)	29 (21.17%)
Body pain	18 (13.14%)
Decline in mental health	18 (13.14%)
Fever	11 (8.03%)
Decrease in energy level	10 (7.30%)
Chronic headache	10 (7.30%)
Major health problem (e.g. amputation; cancer; etc.)	5 (3.65%)
<i>Why has health deteriorated for migrant members?</i>	
Long working hours	24 (17.52%)
Job is physically demanding	24 (17.52%)
Poor working conditions and environment	14 (10.22%)
Bad employer	13 (9.49%)
Poor access to food	7 (5.11%)
Poor housing	5 (3.65%)
Started drinking	3 (2.19%)
Started drinking and smoking	1 (0.73%)
Long commute	1 (0.73%)
Unknown	1 (0.73%)
<b>Perceived improvement in health (n=18)</b>	
<i>How has health improved for migrant members since migration started?</i>	<i>Total number of migrant households (% of all migrant households)</i>
Improvement in mental health	17 (12.41%)
Increased energy level	8 (5.84%)
Acquired new skills	1 (0.73%)
<i>Why has health improved for migrant members?</i>	
Good working hours	13 (9.49%)
Good access to food	10 (7.30%)
Job is not physically demanding	9 (6.57%)
Good employer	6 (4.38%)
Good housing	3 (2.19%)
<b>No perceived change in health (n=45)</b>	
<b>Unknown (n=12)</b>	

Respondents could report multiple health outcomes and reasons for health outcomes

## CHAPTER 6 - THE RELATIONSHIP BETWEEN MGNREGA AND INTERNAL LABOUR MIGRATION IN SOUTHERN INDIA

*Article under review:*

Dodd, W., Wyngaarden, S., Humphries, S., Patel, K., Majowicz, S., & Dewey, C. (under review). The relationship between MGNREGA and internal labour migration in southern India. *European Journal of Development Research*.

### **Abstract**

India's constitution contains provisions for the 'right to work' and the 'right to movement' for all citizens. Established in 2005, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is broadly considered to operationalize this 'right to work'. At the same time, a public discourse persists that views MGNREGA as a substitute for internal labour migration. Drawing on the results from 300 household surveys in three *panchayats* in the Krishnagiri district of Tamil Nadu, we test the validity of this discourse in this setting. We find that households that rely exclusively on MGNREGA have different demographic and socioeconomic characteristics compared to households that rely exclusively on remittances from internal labour migration. Furthermore, 20 per cent of households surveyed use both MGNREGA and internal labour migration as complementary livelihood strategies. We argue that there is need for better understanding and recognition of the complementary potential of MGNREGA and internal labour migration.

### **Introduction**

In 2005, the Government of India created the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) to provide local employment opportunities and foster development in rural areas. Targeted at the rural poor, the program was intended to enhance rural household livelihood security through the yearly provision of one hundred days of employment to any adult who desired to participate (Ministry of Law and Justice, 2005). In addition, the

program was meant to operationalize India's constitutional 'right to work' (Dutta, Murgai, Ravallion, & Van de Walle, 2014). Successfully piloted in 2006, the program has become the largest public employment scheme in the world (Dutta et al., 2014; Klonner & Oldiges, 2014; Reddy, Tankha, Upendranadh, & Sharma, 2010).

Although its explicit objective is rural poverty alleviation, MGNREGA is also widely considered as an attempt to reduce or prevent internal labour migration (Das, 2015; Jacob, 2008; Solinski, 2012). Although all citizens possess the 'right to movement', internal migrant populations are often viewed as responsible for overpopulating urban areas, burdening urban infrastructure, overwhelming job markets, increasing crime, creating pollution, and exacerbating congestion (de Haan, 1999; Debnath & Roy, 2013; Deshingkar & Start, 2003; Tacoli, McGranahan, & Satterthwaite, 2015; UNESCO/UNICEF, 2013). Moreover, internal labour migration is perceived as a 'poverty problem' inflicted upon urban areas and caused, in part, by a lack of rural employment (Tacoli, McGranahan, & Satterthwaite, 2008). Thus, according to public and political discourse, the provision of local employment opportunities through MGNREGA should theoretically provide migrants and their families with a viable substitution for their migrant labour activities.

Drawing on household-level survey data from 20 villages in three *panchayats* in Tamil Nadu, India, we investigate the public and political discourse surrounding MGNREGA as a substitute for internal labour migration. First, we demonstrate that in some cases, the profile of households using MGNREGA and migration is different, meaning that these two income generating opportunities may be used by different populations. Second, we demonstrate in other cases, this framing obscures local realities whereby rural households may use both MGNREGA *and* migrant labour opportunities as complementary livelihood strategies. Finally, we argue that

there is a lack of recognition and protection of the ‘right to move for work’ for rural households that desire to participate in migrant labour opportunities. This lack of recognition and protection fails to acknowledge internal labour migration as a necessary and viable livelihood strategy for rural households. Furthermore, the problematic public and political discourse obscures further exploration into the complementary potential of MGNREGA and internal labour migration and the role that both of these livelihood strategies can play in rural development among poor households.

## **Overview of MGNREGA**

### *Program objectives, beneficiaries, and outcomes*

With its main objectives to alleviate poverty and facilitate human and rural development through the provision of local employment opportunities, MGNREGA is intended to balance ‘top-down’ and ‘bottom-up’ approaches to rural development and social policy. Though nationally implemented, the program is decentralized. Administration of the program is directed through the state-level government and program execution is directed through districts, *panchayats*, villages, and worksite-level officials (Carswell & De Neve, 2014). MGNREGA jobs include the construction of irrigation infrastructure, land development, water management for conservation and flood control, and road construction (Marius-Gnanou, 2008; Reddy et al., 2010).

MGNREGA is lauded for its universal accessibility and rights-based approach, creating the opportunity for voluntary participation by any rural resident. However, the nature of the work offered through MGNREGA, combined with the wages paid, means that there is an implicit self-targeting mechanism aimed toward the rural poor (Shankar, Gaiha, & Jha, 2011). Wage rates are the same for women and men, which differentiates MGNREGA from most other rural or

agricultural wage labour opportunities (Carswell & De Neve, 2014; Narayanan & Das, 2014). Moreover, women are explicitly targeted through the program (Carswell & De Neve, 2013). One third of program participants are mandated to be female and according to the Ministry of Rural Development (2014), women made up approximately 48 per cent of all participants across India in 2013-2014. Individuals from lower castes are also targeted by MGNREGA, and approximately 41 per cent of participants were from Scheduled Castes (SC) and Schedule Tribes (ST) during the same time period (Ministry of Rural Development, 2014). However, rates of participation among females and individuals of low caste differ significantly between states (Ravi & Engler, 2015).

Due to the decentralized nature of MGNREGA and the variability in its implementation, program outcomes also differ considerably between regions of India. For example, there is evidence that female participation in MGNREGA can contribute to increased empowerment among female workers (Pankaj & Tankha, 2010) in addition to better educational outcomes for their children (Afridi, Mukhopadhyay, & Sahoo, 2012). Participation in MGNREGA is also connected to improvements in household welfare including improved food security (Patel, Gartaula, Johnson, & Karthikeyan, 2015; Ravi & Engler, 2015) and increasing consumption expenditure (Liu & Deininger, 2010). At the village-level, there is evidence to suggest that MGNREGA projects have contributed to improvements in rural development and infrastructure in some settings (Jacob, 2008).

At the same time, MGNREGA is criticized by workers in other settings for its inability to meet the demand for employment and for failing to provide the guaranteed 100 days of paid labour (Dutta, Murgai, Ravallion, & van de Walle, 2012). This lack of employment leads to job rationing and rotation, which may disproportionately affect the most marginalized workers, and

particularly women, in some states (Imbert & Papp, 2014; Liu & Barrett, 2012; Narayanan & Das, 2014). Furthermore, as a result of the type of work offered through the program, there may be stigma associated with program participation (Jakimow, 2014); however this stigma may be less than the stigma associated with agricultural labour in some settings (Carswell & De Neve, 2013). There is also the concern among landowners offering comparable local agricultural labour opportunities that MGNREGA influences the supply and demand of rural labour, arguably putting upward pressure on rural wage rates (Azam, 2011; Basu, 2013). Within the program's administration, the scale and complex governance of MGNREGA provides ample opportunities for inefficiencies and corruption at many levels (Reddy et al., 2010).

#### *MGNREGA in Tamil Nadu*

Tamil Nadu is viewed as a model state in terms of its capacity to administer a program with the scale and complexity of MGNREGA. In particular, Tamil Nadu has one of the highest female participation rates in India, with female participation consistently above 80 per cent (Ravi & Engler, 2015). Of relevance to this study and according to village *panchayat* level statistics, female participation in MGNREGA for 2013-2014 was 88.1 per cent in Anchetty *panchayat*, 72.3 per cent in Thaggatti *panchayat*, and 58.9 per cent in Madakkal *panchayat* (Ministry of Rural Development, 2014).

There is clear commitment on the part of the Tamil Nadu government to implement MGNREGA and adhere to the program's broad mandate. In particular, Carswell and De Neve (2013) detail a number of state-level policies that enhance the effectiveness of MGNREGA in Tamil Nadu including the development of administrative support structures, the issuing of job cards with individual workers' names, weekly cash payments, and the establishment of more attainable work targets. Moreover, Tamil Nadu's commitment to the implementation of

MGNREGA has arguably contributed to broader changes in rural agrarian relations which include increasing rural wage rates and enhancing the bargaining power of low caste workers (Carswell & De Neve, 2014). However, Carswell and De Neve (2014) caution that there is limited evidence of MGNREGA's direct influence on broader rural development through lasting improvements to rural infrastructure in Tamil Nadu.

### **The relationship between MGNREGA and internal labour migration**

#### *MGNREGA as a substitute for internal labour migration?*

Internal labour migration has historically represented an important livelihood strategy for millions of rural households across India (de Haan, 2002, 2011). In addition, there is optimism surrounding the contributions of internal labour migration to poverty alleviation and human development throughout the country (Deshingkar, 2006). However, the creation of MGNREGA means that rural households now have access to a new and local employment opportunity. With this novel opportunity for local income generation, there is interest in the influence of MGNREGA on rates of internal labour migration. The interplay between MGNREGA and migration has received particular attention in light of the perspective that this policy was created, in part, to reduce labour mobility in India (Jacob, 2008; Solinski, 2012).

In a review of five studies that examine the effect of MGNREGA on internal labour migration in India, Hagen-Zanker and Himmelstine (2013) demonstrate an ambiguous and context-dependent relationship between these two livelihood strategies. While some of the studies reviewed indicated that the presence of MGNREGA contributed to a decrease in internal labour migration in a particular setting, other studies showed that the policy either had no influence on rates of migration, or had facilitated an increase in migration. A study by Das (2015) in the Cooch Behar district of West Bengal demonstrated that specific streams or types of

internal labour migration have a greater likelihood of being influenced by the presence of MGNREGA. In particular, this study found that the number of days of work and the earnings through MGNREGA decreased short-term migration, but did not impact long-term migration (Das, 2015). There is also evidence to suggest that income from MGNREGA is used not as a primary source of income for households, but as a supplement to off-farm and non-farm employment, including migrant labour activities (Carswell & De Neve, 2013).

Despite these nuanced findings in terms of the influence of MGNREGA on rates of internal labour migration, a simplistic discourse is perpetuated among policymakers and bureaucrats that argues that MGNREGA is a viable substitute for internal labour migration. More specifically, MGNREGA is often framed as an effective tool to prevent internal labour migration within popular media. For example, in a report in *the Hindu* from March 2015, the Chittoor District Water Management Authority Project Director in Andhra Pradesh asked MGNREGA staff to increase the availability of work from 100 to 150 days in order to prevent interstate migration during the dry season (Staff Reporter, 2015). In another similar report from April 2016, MGNREGA administrators in the Ballari and Koppal districts of Karnataka praised the ability of MGNREGA to prevent migration in spite of ongoing drought conditions (Special Correspondent, 2016). These reports highlight entrenched attitudes surrounding the perceived ability of MGNREGA to replace internal labour migration and the relative importance of this policy for sustaining rural livelihoods. These attitudes and their influence on public discourse surrounding the relationship between MGNREGA and internal labour migration are especially important to consider in light of constitutional provisions meant to guarantee the ‘right to move for work’.

*A rights-based approach to work and movement*

Under Article 41 of the Indian constitution, the State has the obligation, within its capacity, to make effective provision for securing the right to work for all citizens (Ministry of Law and Justice, 2007). Indeed, the creation of MGNREGA was broadly viewed as a concerted effort by the Government of India to operationalize this constitutional ‘right to work’ (Dutta et al., 2014). At the same time, Articles 19.1.d and 19.1.e under the constitution provide the right to movement and residence anywhere within India (Ministry of Law and Justice, 2007). Thus, under this constitutional framework, Indian citizens arguably have the ‘right to move for work’, which is the freedom to pursue employment opportunities free from exploitation and unnecessary hardships anywhere within India.

Despite these constitutional provisions, there is a disconnect between policy and discourse concerning the ‘right to move for work.’ In particular, the discourse that positions MGNREGA as a viable substitute for internal labour migration may overstate MGNREGA’s value for rural households, while calling into question the legitimacy, desirability, and necessity of internal labour migration as a livelihood strategy for rural households. Recognition of this discourse and its potential implications for rural households is important in light of sedentary models of rural development (Bakewell, 2008; Castles, 2010). In addition, internal migrant populations in India experience ongoing hardships and human rights abuses including violence, fear of eviction, and exploitative work arrangements (Deshingkar, 2005, 2006; UNESCO/UNICEF, 2013).

With this background, we use two research questions to test the validity of the discourse surrounding MGNREGA as a substitute for internal labour migration. First, we ask if there are differences in the demographic and socioeconomic characteristics of households that rely exclusively on MGNREGA compared to households that rely exclusively of remittances from

internal labour migration. Second, we explore if there is evidence that MGNREGA *plus* internal labour migration can be used as complementary livelihood strategies for households in this setting.

## **Methods**

### *Study Location*

This study was conducted in three rural village *panchayats* of Anchetty, Thaggatti, and Madakkal in the Krishnagiri district of Tamil Nadu. These adjacent *panchayats* are located in the northwest corner of Tamil Nadu in the Melagiri Hill Ranges of the Eastern Ghats close to the Karnataka state border, with easy access to the rapidly growing urban centres of Hosur and Bengaluru. As a result, there is a high rate of intrastate and interstate labour migration originating from this area. Anchetty *panchayat* has the best access to public transportation, and most villages within the *panchayat* are located in close proximity to a secondary highway. The village of Anchetty proper also serves as a regional market centre for the area.

In addition, this study was affiliated with a larger agricultural and development research project named ‘Revalorising Small Millets in Rainfed Regions of South Asia (RESMISA)’. Beginning in 2011, the primary focus of this larger interdisciplinary project was to work with small scale farming households to promote the cultivation, production, value addition, and consumption of small millets across eight sites in South Asia. Anchetty was selected as one region where the RESMISA project operated with leadership from the non-governmental organization, Development of Humane Action (DHAN) Foundation.

### *Survey Design*

A survey was developed to collect household level demographic, socioeconomic, and labour migration information. Survey design was informed by two months of community

engagement in the three village *panchayats* in addition to input from research partners from the local field office from DHAN Foundation. Previously validated survey tools used as part of the RESMISA project were also consulted and adapted based on the local context and study design. The survey was pre-tested with four households in two different villages in Anchetty *panchayat* and changes were made to clarify any problematic questions.

### *Survey Administration*

Between January-March 2013, 300 household surveys were completed in 20 rural villages in the three village *panchayats*. Multistage random sampling was used to sample half of the villages within each *panchayat*. Then, based on the geographic distribution of each village, every tenth household was sampled. This resulted in approximately 10 per cent (8.1%-12.7%) of the households within each village participating.

Survey questions were delivered in Tamil or Kannada depending on the respondent's preference, and a research assistant recorded verbal responses directly onto the questionnaire in English. The female or male household head was interviewed and served as a proxy respondent for all household members. The first author was present for the completion of every survey to ensure consistency across survey administration. At the end of each day, the first author reviewed the questionnaires with the research assistant to clarify inconsistent answers.

Informed oral consent was obtained prior to beginning each survey. If an individual did not wish to participate in the study for any reason, the research team continued to the next nearest household. Three hundred of 314 households invited to participate (96.5%) completed the survey. Non-response was attributed to survey administration conflicting with the timing of household responsibilities or lack of interest.

### *Statistical Analysis*

Three exclusive categories of households were created based on income generating activities within the last year to test the two research questions guiding this study. The time period of one year was chosen to account for seasonality in labour opportunities and decisions. ‘MGNREGA households’ were defined as households that received income from participation in MGNREGA, but did not receive income from remittances. ‘Remittance households’ were defined as households that received income through remittances from migrant household members, but did not participate in or receive income from MGNREGA. ‘MGNREGA *plus* remittance households’ were defined as households that received income from both participation in MGNREGA and remittances. It is important to note that not all households that had a migrant member at the time of survey administration received financial remuneration from this individual. Thus, the current receipt of remittances by a household was chosen as a more appropriate defining characteristic by which to compare income generating activities across households. Households that had a migrant member who did not send remittances were classified as either a ‘MGNREGA household’ or grouped with household that did not generate income from MGNREGA nor remittances.

Descriptive statistics were calculated for all variables that were initially included in the univariate analyses. A Pearson chi-square test was used to determine differences between categorical variables by *panchayat*, while a two sample t-test was used to determine differences between continuous variables by *panchayat*.

To examine whether or not MGNREGA was used as a substitute for internal labour migration, a multivariable logistic regression model was developed to compare the demographic and socioeconomic profile of ‘MGNREGA households’ to ‘remittance households’. To understand the demographic and socioeconomic profile of households that used both

MGNREGA and internal labour migration as complementary livelihood strategies, a second and separate multivariable logistic regression model was developed to compare ‘MGNREGA *plus* remittance households’ to households that pursued neither of these income generating activities. To build both multivariable logistic regression models, the income generating groups described above were regressed on household-level demographic and socioeconomic factors using two separate univariate logistic regression analyses.

Variables initially tested in each univariate model were included based on *a priori* assumptions regarding their relationship with participation in MGNREGA and internal labour migration. Descriptive statistics were calculated for all variables that were initially included in the univariate analyses. A Pearson chi-square test was used to determine differences between categorical variables by *panchayat*, while a two sample t-test was used to determine differences between continuous variables by *panchayat*.

In terms of demographic factors included, household size (number of household members) and intrahousehold composition (number of household members with specific age and sex characteristics) were initially included in the univariate analyses. A labour surplus within a household is considered to be a predictor of livelihood diversification, including participation in internal labour migration (Deshingkar & Start, 2003; Habersfeld, Menaria, Sahoo, & Vyas, 1999). However, the life cycle of the household at a given time, which is a composite of the gender, age, and education level of the household’s members, can also shape livelihood diversification and labour migration decisions (Rogaly, 2003). Thus, both household size and intrahousehold composition were initially tested to account for the effect of surplus labour and the life cycle within a household on decisions to participate in MGNREGA or internal labour migration.

In addition, caste was initially included in each univariate analysis. Caste is associated with participation in internal labour migration, as historically marginalized castes may have a greater likelihood of engaging in some forms of internal labour migration such as temporary labour migration (Deshingkar & Start, 2003; Haberfeld et al., 1999; Keshri & Bhagat, 2010, 2013). Similarly, the nature of the work offered through MGNREGA, in addition to mandated targets, means that historically marginalized castes are more likely to participate in MGNREGA (Carswell & De Neve, 2014; Jakimow, 2014).

For socioeconomic factors, a combination of household assets and alternative household income generating activities were initially included in each univariate analysis. In terms of the association between household socioeconomic status and migration, there is evidence of higher rates of migration among poor households in some contexts (Deshingkar & Akter, 2009), and relatively better off households in other settings (Keshri & Bhagat, 2013). Conversely, there is a presumed clear relationship between participation in MGNREGA and socioeconomic status, with the assumption that poorer households will be more likely to be engaged in MGNREGA work (Jakimow, 2014; Shankar et al., 2011). In this setting, housing quality and vehicle ownership were selected as two meaningful assets that differed between households of different socioeconomic status. In addition, income generation in the last year through agriculture, livestock, borrowing money through loans, local business ownership, and local day labour further differentiated households based on socioeconomic status. Local day labour involved agricultural *coolie* work for a larger landowner. Although the nature of this work was similar to the work offered through MGNREGA, wage rates were not standardized for all workers or across job sites. For some income sources such as livestock, income generation implied

productive asset ownership. In addition, income generation through agriculture implied land ownership.

All independent variables that were statistically significant at  $p < 0.20$  from univariate analyses were inputted into the multivariable logistic regression model. Then, a manual backwards elimination process was used to exclude all variables with a  $p$ -value  $> 0.05$ . Confounding among independent variables was assessed by identifying a change of at least 20 per cent in coefficients or in the level of statistical significance of independent variables throughout the model building process. All statistical analysis of data was completed using Stata®12.

## Results

Of the 300 households included in this study, 131 households (43.7%) were classified as a 'MGNREGA household', 53 households (17.7%) were classified as a 'remittance household', and 60 households (20.0%) were classified as a 'MGNREGA *plus* remittance household'. Thaggatti *panchayat* had a significantly lower proportion of 'remittance households' and a significantly higher proportion of 'MGNREGA *plus* remittance households' than Anchetty or Madakkal *panchayat*. However, there was no difference in the proportion of 'MGNREGA households' across the three *panchayats*.

In addition to generating income through MGNREGA *plus* remittances, there was evidence of further livelihood and income diversification as households averaged 2.7 sources (SD=0.93) of income in the last year. However, there were significant differences in terms of the type of household income generating activities between *panchayats*. For example, households in Anchetty *panchayat* were less likely to generate income through local day labour, but more likely to generate income through a local business compared to households in Madakkal or

Thaggatti *panchayat*. Table 6.1 presents additional household-level demographic and socioeconomic information.

There were several factors associated with ‘MGNREGA households’ compared to ‘remittance households’ based on the first multivariable logistic regression model (Table 6.2). With the addition of each male age 15-64 years within the household, the odds of the household being a ‘MGNREGA household’ rather than a ‘remittance household’ decreased by 0.54 times ( $p=0.001$ ). ‘MGNREGA households’ were significantly more likely to live in a kutchra (low quality) house and less likely to own a vehicle compared to remittance households. ‘MGNREGA households’ were also significantly more likely to earn additional household income through agriculture (OR=4.37;  $p=0.004$ ), livestock (OR=3.52;  $p=0.046$ ), a local business (OR=15.74;  $p=0.002$ ), or local day labour (OR=3.78;  $p=0.002$ ) compared to ‘remittances households’.

‘MGNREGA *plus* remittance households’ differed from households that pursued neither of these livelihood strategies based on the second multivariable logistic model (Table 6.3). Household size was positively associated with ‘MGNREGA *plus* remittance households’. As the number of people within the households increased by one individual, the likelihood of being a ‘MGNREGA *plus* remittance household’ increased by 1.9 times. Similarly, SC and ST households, in addition to OBC and MBC households, were highly likely to be ‘MGNREGA *plus* remittance households’ compared to higher caste households. Also, ‘MGNREGA *plus* remittance households’ were less likely to own a vehicle (OR=0.31;  $p=0.046$ ) and were less likely to generate additional household income through agriculture (OR=0.16;  $p=0.002$ ) or livestock (OR=0.04;  $p=0.01$ ) than households that did not participate in MGNREGA and did not receive remittances.

## **Discussion**

*Can MGNREGA be a substitute for migration?*

The first objective was to examine the discourse surrounding MGNREGA as a substitute for internal labour migration in this setting. In comparing households that earned income through MGNREGA to households that earned income through remittances, we found key differences between the demographic and socioeconomic profile of these two groups.

In terms of demographic factors, neither household size nor caste differed significantly between ‘MGNREGA households’ and ‘remittance households’. However, these two groups differed in terms of intrahousehold composition, as ‘remittance households’ contained a significantly higher number of male members age 15-64 years compared to MGNREGA households. This result was consistent with Haberfeld et al. (1999), who found that the number of males of prime working age within a household was positively associated with internal labour migration. In this setting, the life cycle and intrahousehold composition of a household was a predictor of whether a household and its members pursue MGNREGA or internal labour migration as a livelihood strategy. However, the intrahousehold composition of a specific household is not fixed, and thus its influence on decisions to engage in internal labour migration may change over time (Rogaly, 2003; Alpa Shah, 2006). Similarly, MGNREGA may be a meaningful livelihood strategy for a household at a given point in time. However, as the intrahousehold composition of a household transitions, the utility of MGNREGA as a livelihood strategy may change.

In terms of socioeconomic factors, housing quality and vehicle ownership were two assets that differed significantly between ‘MGNREGA households’ and ‘remittance households’. In particular, households that generated income through MGNREGA were more likely to live in a low quality structure and were less likely to own a vehicle compared to households that

received income through labour migration. Although both groups had a poor asset base, this difference suggests that a minimum threshold of resources may be necessary to participate in and generate income through labour migration in this setting. Others have argued that despite the low barriers to entry, the poorest and most socially marginalized groups may be excluded from internal labour migration in some contexts (Amita Shah, 2010). Alternatively, as a result of the higher financial returns associated with labour migration relative to MGNREGA, it is also possible that these assets were acquired through remittances. This explanation suggests that for some households in this setting, internal labour migration may be accumulative in nature, and contribute to the enhanced wellbeing of the household and its members (Deshingkar, 2010; Deshingkar & Start, 2003).

After controlling for demographic factors, housing status, and vehicle ownership, MGNREGA households were more likely to generate additional income locally through several different sources compared to ‘remittances households’. This finding suggests a difference in livelihood portfolios and strategies pursued by these two groups. In particular, ‘MGNREGA households’ may already be more inclined to work locally, and view MGNREGA as an opportunity to supplement this existing investment. Similarly, Amita Shah (2010) found in three dry land districts of Gujarat that households that engaged in agriculture and animal husbandry were less likely to engage in labour migration. Thus, our results suggest that local employment through opportunities such as MGNREGA, agriculture, and local day labour, are not a substitute for internal labour migration, as there may be differing motivations and requirements for engaging in these activities (Carswell, 2013; Tacoli & Mabala, 2010).

*MGNREGA and migration: complementary livelihood strategies*

For 20 per cent of the households included in this study, MGNREGA *plus* internal labour migration were used together as complementary livelihood strategies. To better understand the demographic and socioeconomic characteristics of these households, they were compared to households that did not engage in MGNREGA and did not receive remittances.

Household size was positively associated with ‘MGNREGA *plus* remittance households’, suggesting that these households had a larger labour supply than households that did not participate in these activities. For rural households, both MGNREGA and internal labour migration offer income-generating opportunities that are not constrained by existing household capital such as land ownership. At the same time, increasing household size also coincides with an increased demand for resources within the household, thus increasing the need for additional household income. In contrast to households with fewer members, larger households in this setting may require income from both MGNREGA and remittances to meet this internal demand.

Caste strongly influences participation in MGNREGA and internal labour migration. Our second model demonstrated that households from historically marginalized castes (SC, ST, OBC, and MBC) were significantly more likely to simultaneously earn income from both activities compared to households from higher castes. As previously noted, MGNREGA implicitly targets individuals of low caste through its design and the type of work offered through the program (Jakimow, 2014). Our findings showed that in this setting, MGNREGA was successful in recruiting individuals of low caste. At the same time and as shown in other contexts, low caste households were more likely to participate in internal labour migration (Deshingkar, 2006; Deshingkar & Start, 2003; Keshri & Bhagat, 2013). Caste not only is a predictor of participation in internal labour migration, but also shapes migration trajectories, in addition to experiences with and outcomes from labour mobility (Breman, 1996; Deshingkar, 2005). Thus, while low

caste households in general have a greater propensity to generate income through remittances in this setting, there may be variability in the financial returns between households of different castes within this broader group. Despite this likely variability, this overall association with caste underscores the importance of both MGNREGA and remittances as complementary income sources for low caste households in this setting.

‘MGNREGA *plus* remittance’ households were heavily reliant on these two income sources, as they were less likely to generate income through agriculture or livestock compared to households that did not earn income through MGNREGA and remittances. One possible reason for this finding was that the income from MGNREGA and remittances was sufficient to meet the needs of these households. However, a more probable explanation is that ‘MGNREGA *plus* remittance’ households had a poor asset base and were dependent on off-farm and non-farm employment opportunities. This explanation is corroborated by the result that after controlling for household size and caste, ‘MGNREGA *plus* remittance’ households were less likely to own a vehicle than households that did not generate income from both of these activities.

These findings demonstrate that in this setting, MGNREGA is successful in fulfilling its mandate to provide local employment opportunities to poor households. However, the income offered through participation in MGNREGA alone was not sufficient for ‘MGNREGA *plus* remittance’ households. Drawing on insights from two villages in the Tiruppur region of western Tamil Nadu, Carswell and De Neve (2013) found that MGNREGA was rarely the primary source of income for a household. However, for households that had members who worked in nearby textile factories, MGNREGA offered a stable source of income during periods of recession (Carswell & De Neve, 2013, p. 89). Thus, for poor households with limited productive

assets in this setting, MGNREGA offers a reliable source of income to supplement the higher, yet unpredictable earnings provided through internal labour migration.

*The 'right to move for work'*

The high participation rate in MGNREGA relative to other income generating activities among households suggests that this program is providing a meaningful employment opportunity in this setting. Moreover, our findings demonstrate that individuals from poor and marginalized households are the most likely to acquire work through MGNREGA. Thus, for individuals who desire local employment, MGNREGA offers an opportunity for them to realize their 'right to work.'

However, for individuals who desire to find employment outside of their village, their 'right to move for work' may not be protected. Although there are constitutional provisions for the 'right to work' and the 'right to movement', the 'right to move for work' remains contested within public and political discourse. Within this discourse, local, low wage employment opportunities are deemed preferable for rural populations. Moreover, there is a seemingly straightforward relationship between these local opportunities and their role in enhancing rural community development. Local employment is also favoured over more distant employment opportunities, meaning that the potential role of internal labour migration in rural community development is not thoroughly discussed among policymakers (Deshingkar, 2006).

This study showed that income diversification within one household is common, indicating that members within the same household may exercise their 'right to work' through different opportunities. The creation of MGNREGA demonstrates how policy can effectively enable income diversification among rural households to reduce vulnerability (Ellis, 2000). Despite the problematic discourse surrounding the substitution of migrant labour for local

employment, members of some rural households in this setting circumvent this discourse by using income from both MGNREGA and remittances to sustain their household. At the same time, recognition and protection of the ‘right to move for work’ is critical to ensure that the financial gains from internal labour migration are fully leveraged to complement income from MGNREGA. This protection might entail, for example, improved oversight within industries that typically employ migrant workers and the portability of social protections when an individual leaves their place of usual residence (UNESCO/UNICEF, 2013). Furthermore, the recognition of the ‘right to move for work’ would mean greater support for the autonomy of rural households to pursue the livelihood strategies that are most meaningful and viable for them.

## **Conclusion**

Both MGNREGA and internal labour migration represent important livelihood strategies for households in the three *panchayats* surveyed in Krishnagiri district of Tamil Nadu. However, we found that ‘MGNREGA households’ had a different demographic and socioeconomic profile than ‘remittance households’. Thus, it is unlikely that MGNREGA can be considered as a substitute for internal labour migration among these households. At the same time, 20 per cent of households were found to use MGNREGA and internal labour migration as complementary livelihood strategies. These households tended to be from lower caste groups, have a poor asset base, and were less likely to have additional income sources compared to households that did not use MGNREGA *plus* internal labour migration as complementary livelihood strategies.

Future research on the relationship between MGNREGA and internal labour migration should more fully explore how gender shapes participation in and outcomes from MGNREGA. As previously indicated, preliminary findings from this setting indicate that participation in these activities is segregated by gender, with women more likely to participate in MGNREGA and

men more likely to engage in internal labour migration. The gendered nature of these activities is especially important in households that use MGNREGA and internal labour migration as complementary livelihood strategies. This analysis may provide further insights into the intrahousehold allocation of resources and the relative importance of income from MGNREGA compared to remittances.

In this setting, rural livelihood diversification among rural households may include local employment, migrant labour opportunities, or both. However, this reality is not adequately reflected in public and political discourse, which limits exploration into the role that MGNREGA *and* internal labour migration can play together in rural development efforts. Although the constitutional provisions are already in place, there is also a need to better recognize, support, and protect the ‘right to move for work’. This recognition and protection represents one approach to legitimize mobile livelihoods and migrant labour as important and necessary for rural households in India.

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## Tables

**Table 6.1:** Descriptive statistics of all households included in study on participation in MGNREGA<sup>a</sup> and remittance recipient households (n=300) in Anchetty, Madakkal, and Thaggatti panchayats

	Anchetty panchayat (n=123)	Madakkal panchayat (n=66)	Thaggatti panchayat (n=111)	Overall (n=300)
MGNREGA households (%)	46 (37.40%) <sup>b</sup>	30 (45.45%) <sup>b</sup>	55 (49.55%) <sup>b</sup>	131 (43.7%)
Remittance households (%)	28 (22.76%) <sup>b</sup>	15 (22.73%) <sup>b</sup>	10 (9.01%) <sup>c</sup>	53 (17.7%)
MGNREGA plus remittance households (%)	21 (17.07%) <sup>b</sup>	8 (12.12%) <sup>b</sup>	31 (27.93%) <sup>c</sup>	60 (20.0%)
<i>Household demographics</i>				
Total number of household members (SD)	4.70 (2.02) <sup>d</sup>	6.44 (2.82) <sup>e</sup>	6.21 (2.88) <sup>e</sup>	5.64 (2.7)
Total number of males age 15-64 years (SD)	1.75 (0.99) <sup>d</sup>	2.25 (1.21) <sup>e</sup>	2.16 (1.18) <sup>e</sup>	2.01 (1.1)
Total number of females age 15-64 years (SD)	1.50 (0.82) <sup>d</sup>	1.98 (1.05) <sup>e</sup>	1.97 (1.00) <sup>e</sup>	1.78 (0.97)
<i>Caste</i>				
SC or ST (%)	22 (17.89%) <sup>b</sup>	30 (45.45%) <sup>c</sup>	36 (32.43%) <sup>c</sup>	88 (29.3%)
OBC or MBC (%)	74 (60.16%) <sup>b</sup>	36 (54.55%) <sup>b</sup>	74 (66.67%) <sup>b</sup>	184 (61.3%)
Higher caste (%)	27 (21.95%) <sup>b</sup>	0	1 (0.90%) <sup>c</sup>	28 (9.3%)
<i>Housing</i>				
Pucca (high quality)	14 (11.38%) <sup>b</sup>	5 (7.58%) <sup>bc</sup>	4 (3.60%) <sup>c</sup>	23 (7.67%)
Semi pucca (medium quality)	11 (8.94%) <sup>bc</sup>	10 (15.15%) <sup>b</sup>	3 (2.70%) <sup>c</sup>	24 (8.00%)
Government subsidized Kutcha (low quality)	10 (8.13%) <sup>b</sup>	2 (3.03%) <sup>b</sup>	12 (10.81%) <sup>b</sup>	24 (8.00%)
	88 (71.54%) <sup>b</sup>	49 (74.24%) <sup>b</sup>	92 (82.88%) <sup>b</sup>	229 (76.33%)
<i>Household assets</i>				
Vehicle ownership	51 (41.46%) <sup>b</sup>	16 (24.24%) <sup>c</sup>	20 (18.02%) <sup>c</sup>	87 (29.00%)
<i>Additional household income sources</i>				
Agriculture	39 (31.71%) <sup>b</sup>	31 (46.97%) <sup>c</sup>	39 (35.14%) <sup>bc</sup>	109 (36.33%)
Livestock	13 (10.57%) <sup>b</sup>	21 (31.82%) <sup>c</sup>	11 (9.91%) <sup>b</sup>	45 (15.00%)
Borrowing money through loans	55 (44.72%) <sup>b</sup>	8 (12.12%) <sup>c</sup>	23 (20.72%) <sup>c</sup>	86 (28.67%)
Local business	24 (19.51%) <sup>b</sup>	3 (4.55%) <sup>c</sup>	9 (8.11%) <sup>c</sup>	36 (12.00%)
Local day labour	17 (13.82%) <sup>b</sup>	46 (69.70%) <sup>c</sup>	73 (65.77%) <sup>c</sup>	136 (45.33%)

<sup>a</sup> Mahatma Gandhi National Rural Employment Guarantee Act

<sup>bc</sup> Different superscript within rows denotes a significant difference (p<0.05) based on a Pearson Chi-Square test

<sup>de</sup> Different superscript within rows denotes a significant difference (p<0.05) based on a two-sample t-test

**Table 6.2:** Factors associated with ‘MGNREGA<sup>a</sup> households’ (n=131) compared to ‘remittance households’ (n=53) based on multivariable logistic regression analysis

	<b>Odds Ratio</b>	<b>p-value</b>	<b>95% CI<sup>b</sup></b>
<i>Household demographics</i>			
Total number of males age 15-64 years	0.54	0.001	0.367, 0.788
<i>Housing</i>			
Pucca (high quality)	0.49	0.355	0.107, 2.225
Semi-pucca (medium quality)	0.12	0.002	0.030, 0.460
Government subsidized	0.26	0.059	0.063, 1.051
Kutcha (low quality) (referent)	-	-	-
<i>Household assets</i>			
Vehicle ownership	0.18	0.001	0.069, 0.509
<i>Additional household income sources</i>			
Agriculture	4.37	0.004	1.599, 11.957
Livestock	3.52	0.046	1.021, 12.118
Local business	15.74	0.002	2.822, 87.829
Local day labour	3.78	0.002	1.631, 8.750

<sup>a</sup> Mahatma Gandhi National Rural Employment Guarantee Act

<sup>b</sup> 95% confidence interval

**Table 6.3:** Factors associated with ‘MGNREGA<sup>a</sup> plus remittances households’ (n=60) compared to households that do not participate in MGNREGA nor receive remittances (n=56) based on multivariable logistic regression analysis

	<b>Odds Ratio</b>	<b>p-value</b>	<b>95% CI<sup>b</sup></b>
<i>Household demographics</i>			
Total number of household members	1.91	<0.001	1.405, 2.612
<i>Caste</i>			
SC or ST	42.48	0.002	3.810, 473.753
OBC or MBC	25.42	0.005	2.686, 240.524
Higher caste (referent)	-	-	-
<i>Household assets</i>			
Vehicle ownership	0.31	0.046	0.099, 0.978
<i>Additional household income sources</i>			
Agriculture	0.16	0.002	0.053, 0.513
Livestock	0.04	0.001	0.001, 0.099

<sup>a</sup> Mahatma Gandhi National Rural Employment Guarantee Act

<sup>b</sup> 95% confidence interval

## CHAPTER 7 - CONCLUSION

This research explored and examined the broad determinants and outcomes of internal labour migration in 26 rural villages in the Krishnagiri district of Tamil Nadu. In addition, this research investigated health, healthcare, and social policy, and the relationship of these concepts to labour mobility and rural livelihoods. Data were collected at the individual person level as well as the household level. Throughout this research, a household was defined as a virilocal family living within one housing structure.

First, the individual and household level demographic and socioeconomic determinants of temporary labour migration were examined (Chapter 2). Then, the outcomes from and motivations for internal labour migration were explored among migrant individuals and households. In addition, the barriers to labour mobility were investigated among non-migrant households (Chapter 3). Next, self-reported morbidity, health literacy, and health-seeking behaviour and the relationship between these factors and experiences with public and private healthcare were examined (Chapter 4). This background on internal labour migration and experiences with health and healthcare then informed an exploration of the determinants of internal migrant health (Chapter 5). Finally, the relationship between the social policy, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), and internal labour migration was examined in this setting (Chapter 6).

In this concluding chapter, I summarize the key findings that cut across chapters. In addition, I reflect on the key strengths, the implications for policy and development practice, the limitations, and the key contributions of this work. Finally, I make suggestions for future comparative research.

## **Summary of key findings**

This thesis combined both qualitative (66 semi-structured interviews) and quantitative data (300 household surveys, including 1,693 individuals) covering internal labour migration, health, social policy, and rural livelihoods. The following section summarizes the key findings that emerged from the research.

### *Importance of internal labour migration for rural livelihoods*

In order to assess the importance of internal labour migration for individuals and households in this setting, two broad analyses were conducted. The first analysis examined temporary labour migration (i.e., migration trips lasting between one week and six months on average). Of the 278 households included, 113 households (40.6%) had at least one member engaged in temporary labour migration and 32 households (11.5% of 278 households) had multiple members engaged in temporary labour migration. Low resource households were the most likely to have at least one household member participate in temporary labour migration. However, these households appeared to meet a minimum threshold of resources needed to engage in labour migration. At the same time, households with multiple migrant members appeared to be in a more marginal position compared to households with only one migrant member.

The second analysis included all streams of labour migration (including daily labour commutes, temporary, and permanent migration) to assess the outcomes associated with labour mobility in this setting. Of the 300 households surveyed, 137 (45.7%) had at least one current migrant member. In addition, 113 households (82.48%) reported receiving monetary remittances from their migrant members (37.7% of all households). Of these 113 households, 95 (84.1%) reported that the money generated through migrant labour represented the primary source of

household income and was very important to sustaining the household. When the motivations for migration were investigated, the most frequently cited reasons for engaging in migration included a lack of local employment opportunities, to meet daily household needs, and to earn more income.

Overall, there were 205 migrant workers from these 137 migrant households, including 188 males (91.7%) and 17 females (8.3%). The mean age of migrant workers was 27.4 years (SD=8.66) with an average of 5.6 years (SD=5.26) of formal education. These individuals migrated to 31 separate destinations, with the primary destinations being Bengaluru and its surrounding suburbs (42.9%) and Hosur and its surrounding suburbs (30.7%). Most of the migrants were engaged in either low skilled (131 individuals; 64.5%) or semi-skilled work (55 individuals; 27.1%). Migrant workers earned an average daily wage of 261.96 INR (SD=111.73; 4.21 USD; SD=1.80), which was two to three times more than they could earn through local day labour work or MGNREGA. The highest daily wages were earned by high skilled workers, and among individuals in the construction industry in Bengaluru. Village of origin accounted for 37.4 per cent of the variation in daily wage between migrant workers. One explanation for this variation was the existence of supportive village-based networks that assisted in securing employment and reducing additional costs associated with labour mobility in some cases. Indeed, 73.5 per cent of migrant workers indicated they worked with family members or friends from their village.

The findings from both analyses demonstrate that participation in labour mobility is a selective process, meaning that individuals and households with specific demographic and socioeconomic characteristics are more likely to engage in labour mobility. In addition, labour migration is financially advantageous for individuals and households in this setting, with the

potential to contribute to individual and household development. In particular, the financial gains from labour mobility represent a critical source of household income used most frequently to meet daily needs. However, a number of factors were identified that constrained these gains such as intrahousehold conflict, meaning that migrant workers sometimes withheld remittances from their household. In addition, there were significant costs related to migration including securing housing and food.

#### *Association between caste and village composition*

There was a strong association between caste and village composition. In some villages, there was only one caste group (e.g., Other Backwards Caste). In addition, both caste and village of origin shaped labour migration trajectories through, for example, the establishment of village-specific social networks or the availability of caste-based employment opportunities (Deshingkar & Start, 2003). Furthermore, the presence of multiple caste groups within one village did not necessarily mean that all of these groups engaged in internal labour migration. These realities presented a challenge in terms of modelling the relationship between caste and internal labour migration, while also recognizing that the determinants and outcomes of labour mobility may be clustered by village. Due to the confounding of caste and village, only one of the two variables could remain in any one multivariable model.

In analyses where logistic, linear, and mixed models were presented, the model building process was guided by an epidemiological approach in addition to intentional consideration of policy and theoretical relevance (i.e., caste is the basis of many social entitlements and protections in India). As a result of the confounding of caste and village, the following approaches were used to examine the relationship between caste, village composition, and internal labour migration. In the analysis that examined the household-level determinants of

temporary labour migration, a household-level logistic regression model was built. In this model, caste was initially tested and deemed statistically significant within the univariate and multivariable models. A mixed model was then created where village was introduced as a random effect to control for possible clustering of households by village. However, the introduction of this term meant that caste was no longer statistically significant in the mixed model (see Appendix II). Thus, village was excluded due to confounding, and the original multivariable model that included caste was used to convey the household-level determinants of temporary labour migration.

In another analysis, an individual-level linear regression model was built to examine the financial outcomes associated with internal labour migration. In this model, caste was not significant in the final multivariable model. Village was introduced as a random effect into the model to control for clustering by village. This mixed model and the variables included in the model remained statistically significant after the introduction of the random effect. Thus, village was retained and an intra-class correlation coefficient was calculated to determine the effect of village on financial outcomes from internal labour migration. In this case, village of origin accounted for 37.4 per cent of the variability in daily wage observed in the model.

In settings where caste and village composition are associated, special consideration needs to be taken in modeling the relationship between these two factors and the determinants and outcomes and internal labour migration. Introducing village as a random effect presents one tool for controlling for possible clustering by village. At the same time, the policy and theoretical relevance of caste should be taken into account when difficult decisions arise in the model building process.

*Prevalence of self-reported morbidity*

The proportion of individuals experiencing a major health problem at the time of survey administration in this study (22.3%) was higher than the overall proportion of ailing persons in rural Tamil Nadu (14.6%) collected during the 2014 National Sample Survey (NSS) (National Sample Survey Office, 2015). One explanation for this finding may be the high prevalence of poverty in the study population. In addition, the low number of health facilities in this setting may further exacerbate this problem.

In addition, a high prevalence of chronic and non-communicable disease was reported among the study population. The most common morbidities reported were connective tissue problems (7.6%) (e.g., joint pain, knee problems, lower back pain), nervous system and sense organ diseases (5.0%) (e.g., vision problems, major headache, mental weakness), and circulatory and respiratory diseases (2.5%) (e.g., chest pain, high blood pressure, asthma). In particular, connective tissue problems accounted for 34.0 per cent of all self-reported health problems. Connective tissue problems were also the most reported problem among migrant workers, with 11.8 per cent of migrant females and 8.0 per cent of migrant males reporting connective tissue problems. One reason offered for the high prevalence of connective tissue problems was that these problems directly interfered with the ability of individuals to perform manual labour tasks, including agricultural work, local day labour work, MGNREGA, and the majority of migrant labour activities. Moreover, the high prevalence of non-communicable disease reported (e.g., diabetes and heart-related problems) corresponds to broader trends in India, as non-communicable diseases are now the leading cause of death in the country (Indian Council of Medical Research, 2009; National Commission on Macroeconomics and Health, 2005).

*Experiences with rural healthcare system*

A number of challenges were identified in accessing quality private or public healthcare among rural households. Overall, 96.0% of surveyed households had encountered at least one barrier to accessing private healthcare services. In particular, the high cost of these services was the primary barrier cited among both users and non-users of private facilities (93.3%). Conversely, one third (36.4%) of households had not encountered any problems with government healthcare services. However, non-users were less likely to report no problems with public healthcare facilities (21.1%) compared to users of these facilities (42.5%;  $p < 0.001$ ). This finding suggested that the perception of problems within the public healthcare system was enough to deter some households from using these services altogether. Similarly, non-users were more likely to report that public healthcare facilities offered inappropriate treatment (65.6%) compared to users of these services (41.5%;  $p < 0.001$ ).

The poor perception of the public healthcare system combined with the high cost of private healthcare meant that rural households with few resources were faced with a difficult decision when accessing healthcare. This reality also compounded existing problems surrounding the high prevalence of self-reported morbidity, as inappropriate or delayed care seeking may exacerbate existing health problems. This finding underscores the need for the rural public healthcare system in Tamil Nadu to continue to work to reform its image to ensure that rural households have access to high quality free healthcare.

#### *Determinants of internal migrant health*

Two broad categories of determinants of health for internal migrants were identified in this research. First, occupational factors including industry, job, working hours, working conditions, and employer were considered to have a significant impact on the health of migrant workers. Second, livelihood factors including destination, housing, food security, water quality,

access to medical care, social networks, and the physical environment were also viewed to influence migrant worker health. Critically, there were diverse experiences among migrant workers with these determinants contributing to both positive and negative health outcomes. Thus, this finding confirms that internal labour migration is in and of itself not a risk to health (Davies, Basten, & Frattini, 2009). This finding also cautions against the use of migration as the sole exposure variable in studies that examine health outcomes among internal migrant populations (Ebrahim et al., 2010; Gushulak & MacPherson, 2006), and encourages the further identification and measurement of the determinants of internal migrant worker health.

#### *MGNREGA, rural livelihoods, and internal labour migration*

MGNREGA was the most common income generating activity among households in this setting with 181 households (60.3%) earning income from this social welfare program. Households that participated in MGNREGA were from historically marginalized castes and generally had few resources. Thus, MGNREGA was meeting its mandate to provide local employment opportunities to poor households in this setting. By design, MGNREGA is meant to complement other, primarily local, sources of household income. However, 20 per cent of households included in this population generated income from both MGNREGA and remittances from internal labour migration. Thus, contrary to political and public discourse that views MGNREGA as a substitute for labour mobility, MGNREGA and internal labour migration were used as complementary livelihood strategies by some households in this setting.

#### **Strengths of approach**

The interdisciplinary approach used to explore the themes of labour mobility, health and rural livelihoods represents a major strength of this study. The complexity of each of these areas of research meant that perspectives from multiple disciplines were needed in order to adequately

address the research objectives posed in the introductory chapter. Previous work on internal labour migration in India largely draws from the disciplines of economics, political science, anthropology, sociology, geography, and development studies. Thus, familiarization of the approaches, insights, and contributions from each of these disciplines to the study of labour mobility was necessary to inform and enhance the research presented in this thesis.

In addition, this body of work was a formal collaborative venture between the disciplines of epidemiology and development studies. Epidemiology provided the terminology and framework to systematically examine both the determinants and outcomes of internal labour migration and health in this setting. Study design, sampling, and data analysis was also guided by an epidemiological approach. At the same time, particular emphasis was placed on determinants and outcomes that had development and policy relevance for rural households with few resources. In this way, study objectives, the creation of data collection tools, and the interpretation of the data drew heavily on development studies.

Connected to this interdisciplinary approach, a second major strength of this study was the mixed methods study design. The inclusion of multivariable linear, logistic, and mixed models alongside qualitative data represents a novel approach to the study of internal labour migration in India and its relationship to health and rural livelihoods. As stated in the introductory chapter, previous studies examining internal labour migration in India primarily relied on either census data (e.g., Keshri & Bhagat, 2010, 2013) or in-depth qualitative studies at the individual-, household-, village-, or group-level (e.g., Breman, 1996; Mosse et al., 2002; Rogaly, 2003). The mixed methods study design used aimed to bridge these two approaches by collecting, analyzing, and interpreting both qualitative and quantitative data at the individual- and household-level in the same target population.

## **Implications for policy and development practice**

In one analysis, the determinants of morbidity and health-seeking behaviour were presented and examined. There was recognition that improvement in health indicators and access to quality healthcare requires policymakers and stakeholders to create evidence-based and well-targeted health policies and programs based on a detailed understanding of these determinants. Thus, there is need for health-seeking behaviour to be incorporated into future planning and policy surrounding the provision of rural public healthcare.

Despite the financial gains available through migrant labour, the costs associated with labour mobility can severely limit the ability of migrant workers to leverage the benefits associated with internal labour migration for themselves and their household. The concept of ‘the right to move to work’ was introduced as a way to use existing constitutional provisions to recognize and protect the rights of migrant workers and to reduce the costs associated with labour mobility. The protection of ‘the right to move to work’ might include, for example, improved oversight within industries that typically employ migrant workers and the portability of social protections when an individual leaves their place of usual residence (UNESCO/UNICEF, 2013). Furthermore, the recognition of ‘the right to move to work’ would mean greater support for the autonomy of rural households to pursue the livelihood strategies that are most meaningful and viable for them.

In addition, there are many non-governmental organizations (NGOs) with mandates of rural and agricultural development that work alongside highly mobile populations in low resource settings. However, these development and extension efforts are often tied to one or several specific geographic locations. As a result, these NGOs may be unable to directly respond to the needs of migrant households or include highly mobile individuals and households in their

programming. Thus, there is an opportunity for these NGOs to examine their current practices in terms of their support for migrant households and to better understand the barriers that may prevent them from engaging with migrant households. Through this work, it is important that these NGOs recognize the existence and importance of mobile livelihoods and its potential role in rural and agricultural development. Furthermore, these organization should seek out opportunities to engage with and support mobile individuals and households.

### **Limitations of approach**

The research described in this thesis was conducted using a cross-sectional study design. This study design was particularly useful in addressing the research objectives presented in the introductory chapter as a result of the ability of cross-sectional studies to examine multiple outcomes and exposures at one time. In addition, a cross-sectional study design allowed for the measurement of the prevalence of a number of outcomes of interest including individual and household participation in internal migration, household participation in MGNREGA, and self-reported morbidity categories.

However, a cross-sectional study design is limited in that it cannot establish a temporal sequence, which leads to the potential for reverse causation. This issue specifically emerged when examining the asset base of migrant households. In particular, it was difficult to establish whether the existing asset base of migrant households motivated migration or if these assets were a direct outcome of labour mobility. In addition, it was difficult to establish whether health problems present in migrants at the time of survey administration were the result of migrant labour activities. Cross-sectional studies are also limited in their ability to detect diseases with short-outcomes. This limitation became evident in determining the prevalence of certain self-reported morbidity categories. More specifically, there was a notable lack of infectious disease

cases detected at the time of survey administration, which may have been a consequence of study design.

In addition, proxy reporting was used during household survey administration. This process involved the head of the household reporting on the demographic, migration, and health status of all members within her or his household. Proxy reporting is dependent on the recall of the head of the household, and may be less reliable than if each household member reported on behalf of herself or himself. Due to the high participation in labour mobility, in addition to participation in other income generating activities at the time of survey administration, self-reports were not feasible. Moreover, although the head of the household was the principal respondent for the survey, in many households (approximately 35%), survey administration became a collective process with multiple household members providing input and clarifying responses. Additionally, for self-reported morbidity, other studies have shown that proxy reporting for members within the same household is valid and reliable in low resource settings, especially for chronic conditions (Halabi, Zurayk, Awaida, Darwish, & Saab, 1992; Subramanian, Subramanyam, Selvaraj, & Kawachi, 2009).

### **External validity**

Special considerations need to be taken into account when making inferences beyond the source population from this study. As a result of differences in governance at the state, district, *panchayat*, and village level, there are variations in the number and quality of public services and entitlements available for rural households in India. In addition, the area where this study was conducted had a higher proportion of Scheduled Castes and Scheduled Tribes individuals in addition to lower literacy levels compared to rates reported in district and state census data.

For the findings related to the determinants and outcomes of internal labour migration originating from the study area (Chapters 2, 3, and 5), in addition to self-reported morbidity and health literacy (Chapter 4), the results described in this thesis may reflect broader trends in other rural areas throughout India with similar demographic and socioeconomic characteristics. The findings on the relationship between MGNREGA and internal labour migration (Chapter 6) may only be reflective of other rural areas in Tamil Nadu due to the decentralized administration of MGNREGA. The findings related to health-seeking behaviour and experiences with the healthcare system (Chapter 4) may only be reflective of this context in Tamil Nadu.

### **Key contributions**

This study contributes new individual- and household-level data on internal labour migration, and its relationship to health and rural livelihoods from an area where, to our knowledge, no previous research on this topic has been conducted before. Critically, this thesis responds to calls for intersectional and contextualized studies that incorporate both qualitative and quantitative methods in their investigation of internal labour migration within a particular setting (Deshingkar, 2005, 2006, forthcoming). In this way, this research provides a strong case that can be compared to other settings in India in order to build a more comprehensive understanding of the determinants and outcomes of internal labour migration throughout the country.

### **Future research**

In addition to further mixed methods comparative research in Tamil Nadu and across India on the connections between internal labour migration, health, and rural livelihoods, there are several other areas of future research that should be pursued. This research introduced the

concepts of health and social policy as lenses through which to understand and contextualize the determinants and outcomes of internal labour migration in a particular setting. Future research should build and expand on these approaches to address how these concepts influence and are influenced by labour mobility. In particular, longitudinal studies could illuminate some of the temporal patterns concerning the role of health and social policy in shaping internal labour migration. This approach could also account for transitions in intrahousehold dynamics and how changing household composition may contribute to migration decisions.

Further research should also engage more directly with gender and its relationship to both internal labour migration and participation in MGNREGA. Only 8.3 per cent (17 individuals) of migrant workers included in this study were female. However, out of the 188 male migrant workers included, 108 (57.45%) were currently married. Moreover, of the 108 married male migrant workers, 60 (55.56%) were accompanied sometimes or always by their female partner on their labour migration journey. Thus, women were participating in migration in this setting, however, they were not always engaged in wage labour outside of their place of residence. Further research should strive to understand the experiences of these women who engage in migration, but do not directly participate in the wage labour market. In addition, future research should also document the experiences of women who remain in their village when their male partner leaves for work outside of the village.

Based on *panchayat* level data (Ministry of Rural Development, 2014), in addition to my observations made during data collection, participation in MGNREGA is higher among women than men in this setting. Consequently, there are further opportunities to study how gender shapes participation in and outcomes from MGNREGA, and what this means for rural households. This is especially important in households that use MGNREGA and internal labour

migration as complementary livelihood strategies as this more in-depth study may provide further insights into the intrahousehold allocation of resources and the relative importance of income from MGNREGA compared to remittances.

Finally, future research should continue to work to reconcile whether internal labour migration can contribute to human, household, and community development in India, and if so, under what conditions. In particular, this research should more completely investigate the use of remittances by migrant households in this and other contexts in India. Our analysis revealed that most households were motivated to participate in migration to meet their daily needs, with a minority of households using labour migration as a tool to save for large household expenses. In addition, further research should examine the influence of village-based social networks on development outcomes for migrant individuals and households. It is important that these estimates do not, as articulated by Iversen, Sen, Verschoor, and Dubey (2009: 523), conflate demand-side explanations, such as the recruitment of labour by networks, with supply-side explanations, such as the sharing of information concerning employment opportunities through networks, on the effects of social networks on development outcomes. There is also a need to evaluate rural development and agricultural policies that explicitly or implicitly influence or challenge mobile livelihoods. It is necessary to explore how these policies may present a competing vision for development in this context, and what this competing vision means for households and individuals who desire or need to use labour migration as a means of livelihood diversification.

### **Concluding remarks**

Internal labour migration in India is a dynamic and complex process with implications for the health and livelihoods of migrant workers and their households. This research engaged with

this dynamic and complex process and described the determinants and outcomes of internal labour migration, in addition to its relationship with health and rural livelihoods in 26 rural villages in 4 *panchayats* in the Krishnagiri district of Tamil Nadu. The findings from this research demonstrated that internal labour migration is an important and necessary livelihood strategy for many individuals and households in this setting. At the same time, there are barriers to participation in internal labour migration as well as costs and risks associated with labour mobility. These risks may influence the health of migrant workers and impact their ability to leverage the benefits associated with migrant labour. Internal labour migration also has a dynamic relationship with social policy, with a number of households using MGNREGA and internal labour migration as complementary livelihood strategies. Thus, this work has important implications for future comparative research in India, in addition to policy and development practice.

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## APPENDICES

### Appendix I: Qualitative and Quantitative Data Collection Tools

#### Semi-structured interview guide

##### Introductory Questions (Unstructured/Open-ended)

1. Name
2. Age
3. Village
4. Number of People in the Household
5. Do you own farmland? If yes, how much land? What crops are grown?
6. Is the head of the household literate or illiterate?
7. What are the main health problems for this village?
8. What are the main health problems for your household?
9. Of the health problems you have identified for your household, which of these are the most serious?
10. Do you or your family members miss work or school because of this health problem?
11. What do you and your family do when you get sick? Do you seek professional medical assistance, do you use traditional or home remedies, or do you go to local chemists?

##### Does anyone in this household migrate for employment?

1. *If yes,*
  - a. Who is migrating? What is their age?
  - b. When did they start migrating?
  - c. Where are they going?
  - d. What are they doing?
  - e. What is the compensation for this work? How does that compare to what someone might make if they stayed and worked in this village?
  - f. How long is each trip for employment?
  - g. Are there other people from this village who also migrate? Do people from the same village or area migrate together?
  - h. Is there any change in the health of your family member between the time they leave and when they return home?
    - If yes,
      - In what way(s) does their health change?
    - If no,
      - Why do you think there is no change?

2. *If no,*
  - a. How does this household generate income?
  - b. Why does no one from this household migrate right now?
  - c. Has anyone from this household migrated in the past?
    - If yes,
      - When did they migrate? Where did they go? What did they do?
  - d. What do you think of migrating for employment? Is this positive or negative?
  - e. Do you think anyone from this household will migrate for employment in the future?
  - f. Do you think there is any change in the health of migrants between the time they leave and when they return home?
    - If yes,
      - In what way(s) does their health change?
    - If no,
      - Why do you think there is no change?

**How would you define ‘health?’**

1. Do you think things like viruses and bacteria affect your household’s health?
  - a. If yes, in what way?
  - b. If no, then why not?
2. Do you think that your mental state is an important component of health? Explain.
3. Do you think that spirits and ghosts can affect your household’s health? Explain.
4. Do you think that cultural practices can affect your household’s health? Explain.
5. Do you think that things like the quality of your house, how much land you have, how much money you have, and the level of education of your family members can affect your household’s health? Explain.
6. Do you think that the quality of the natural environment can affect your household’s health? Explain.
7. Do you think that the quality of roads and the number of public hospitals in the area can affect your household’s health? Explain.
8. What do you think are the three most important factors that can make someone healthy or unhealthy? Explain.

## Household Survey

NAME OF INTERVIEWER: \_\_\_\_\_  
 VERBAL CONSENT:  YES  NO

DATE: \_\_\_\_\_

### A) GENERAL QUESTIONS

1. Panchayat: \_\_\_\_\_
2. Village: \_\_\_\_\_
3. Name of Respondent: \_\_\_\_\_
4. Background of household members (Note: Please mark a (\*) beside the head of the household):

	Name of the household members *	Sex (M/F)	Age	Marital status 0=married 1=unmarried; 2=widower/widow 3=divorced	School Standard Achieved (completed)	If currently attending school, Government or Private School? 0=Government 1=Private	Literacy 0 = Illiterate 1 = Only write name 2 = Can read, not write 3 = Can read and write
1	Respondent						
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

5. **Religion:**  Hindu       Christian       Muslim       Other
6. **Caste:**  GC       SC       ST       OBC       OMBC       BRAHMIN
7. **Economic Category of the Household** (based on ration card):  
 Above Poverty Line     Below Poverty Line     Ultra Poor     Other

**B) HOUSEHOLD ASSETS**

8. **Do you currently own land:**       YES       NO

IF YES:

- a. **How many total acres?** \_\_\_\_\_ acres
- b. **How many acres are currently under your personal cultivation?** \_\_\_\_\_ acres
- c. **How many acres of land are no crops grown during the rainy season (fallow)?** \_\_\_\_\_ acres
- d. **How many acres of land do you lease to other farmers?** \_\_\_\_\_ acres
- e. **On your land, do you currently grow:** (Check all that apply)  
 Food crops for household consumption (e.g. ragi, avarai, thobara, etc.) \_\_\_\_\_ acres  
 Food crops for local resale (sell to family, neighbours, and/or local market within your village) \_\_\_\_\_ acres  
 Feed crops for livestock \_\_\_\_\_ acres  
 Commercial crops (e.g. bananas, tomatoes, etc.) \_\_\_\_\_ acres
- f. **How did you acquire your land:** (Check one)  
 Inheritance       Purchased       Combination of inheritance and purchased
- g. **On your land, what is the current status of irrigation facilities?** (Check one)  
 No irrigation facilities (depend on rain only)  
 Irrigation facilities that are not working  
 Working irrigation facilities

IF NO: a. **Do you currently rent land from a landowner?**  YES \_\_\_\_\_ (acres and arrangement)  NO

9. **Do you currently own livestock (chickens, goats, sheep, cows, buffalo):**       YES       NO
- a. **If YES, Please indicate the number of current livestock:**
- \_\_\_\_\_ CHICKENS & TURKEYS       \_\_\_\_\_ GOATS&SHEEP       \_\_\_\_\_ NATIVE COWS
- \_\_\_\_\_ HYBRID COWS       \_\_\_\_\_ BUFFALO       \_\_\_\_\_ OTHER \_\_\_\_\_

10. Do you currently own any vehicles?     YES             NO  
 Bicycle         Two wheeler (motorcycle)     Three-wheel auto         Four-wheel auto         Other \_\_\_\_\_

11. What type of house do you currently live in?     Own             Rented  
 Kutchra House         Semi-Pucca House     Pucca House         Other \_\_\_\_\_

Number of rooms \_\_\_\_\_ Roof material \_\_\_\_\_ Wall material \_\_\_\_\_

12. PRIMARY drinking water source for household:

Tap             Bore well             Hand pump             Open Well             Stream             Other \_\_\_\_\_

13. Where is this drinking water source located:

In the house or on your property     In the village \_\_\_\_\_ meters away     Outside the village \_\_\_\_\_ meters away

14. Does your household have any toilet facilities?

Own flush toilet     Shared flush toilet     Own pit toilet             Shared/public pit toilet     No facility/open space

15. How would you classify roads and transportation in your village:

The roads are poor and there is no transportation             The roads are poor, but there is regular transportation  
 The roads are good, but there is no transportation             The roads are good and there is regular transportation

16. On a typical day, how many hours do you have electricity (current)? \_\_\_\_\_ hours

### C) MIGRATION

17. Does anyone in this household currently go for outside work for 1 week or more at a time?

YES             NO

18. a) If YES to Question 15,

Name	Sex M/F	Age Years	Where? (City)	Primary Job	Daily Wage	Years Migrating	Length of Each Trip (Weeks)	Continuous/ Seasonal (C/S)	Work with Friends or Family(Y/N)	Accompanied by Spouse (Y/N)	Accompanied by Children (Y/N)

b) Does your household receive money from migrant household members?  YES  NO

IF YES:

i. How much PER MONTH? \_\_\_\_\_ rupees PER MONTH ii. Last month, how much did you receive? \_\_\_\_\_ rupees

iii. How important is this money for paying for household expenses (education, loans, marriage, etc.)?

- This money is the household's only source of income
- This money is important, but the household has other sources of income
- This money is not important, and the household has other sources of income

c) Please rank the 3 most important reasons why a member or members of your household currently migrate:

No acceptable employment opportunities close to village	<input type="text"/>	Pay off household loans and interest	<input type="text"/>
Opportunity to earn more income	<input type="text"/>	Pay for household health problem or medical treatment	<input type="text"/>
Not knowledgeable about agriculture cultivation	<input type="text"/>	Raise Household Status in Village	<input type="text"/>
Not enough land to meet household needs (food, income, etc.)	<input type="text"/>	Social pressure from friends or family	<input type="text"/>
Save for large household expense (e.g. marriage, school fees)	<input type="text"/>	Marriage	<input type="text"/>
Meet daily household needs (e.g. food, clothes)	<input type="text"/>	Adventure	<input type="text"/>
Other _____	<input type="text"/>		<input type="text"/>

d) As a result of outside work, do you think there is an improvement or decline in the health of your migrant household member or members?

- Improvement in migrant health
- Decline in migrant health
- Improvement AND decline in migrant health
- No change in migrant health
- Unknown

If IMPROVEMENT IN HEALTH:

i. In what ways does their health improve? (Read all choices and check all that apply)

- Increase in energy level
- Better personality
- More physical strength
- Learning new skills and talents
- More food
- Greater happiness
- Other \_\_\_\_\_

ii. Why does the health of your migrant household member or members improve? (Read all choices and check all that apply)

- Good housing
- Good working hours
- Job is not too physically demanding
- Good employer
- Good access to food
- Good access to medical care if needed
- Good climate
- Able to meet daily needs
- Other \_\_\_\_\_

If DECLINE IN HEALTH:

iii. In what ways does their health decline? (Read all choices and check all that apply)

- Decrease in energy level (tiredness)
- Worse personality (dullness)
- Body pain (lower back pain, knee pain, etc.)
- Fever
- Headache
- Not enough food
- Medium health problem (e.g. fever lasting more than one week)
- Big health problem (e.g. cancer)
- No happiness/ heavy mental strain
- Other \_\_\_\_\_

iv. Why does the health of your migrant household member or members decline? (Read all choices and check all that apply)

- Poor housing
- Long working hours
- Job is physically demanding
- Bad employer
- Poor access to food
- Poor access to medical care
- Bad climate
- Not able to meet daily needs
- Other \_\_\_\_\_

a) If NO to Question 15, in the last 5 years did anyone in this household go for outside work for 1 week or more at a time?

Name	Sex M/F	Age Years	Primary Location	Primary Job	Daily Wage	Years Migrating	Length of Each Trip (Weeks)	Permanent/ Seasonal (P/S)	Work with Friends or Family(Y/N)	Accompanied by Spouse (Y/N)	Accompanied by Children (Y/N)

b) Please rank the 3 most important reasons why no members of your household does not currently migrate:

- Family responsibilities (children, spouse, parent)
- Household responsibilities (e.g. house repairs)
- Agriculture responsibilities (e.g. work in the fields)
- Livestock responsibilities (e.g. maintaining cows)
- Village responsibilities (e.g. involvement in organization)
- Not knowledgeable about outside work or city life
- Other \_\_\_\_\_


- Not enough education
- Household members are too old or too young to migrate
- Worry about what neighbours might think
- Health problem(s)
- No interest
- No reason


c) Do you expect anyone from this household to go for outside work within the next 5 years?  YES  NO

19. In the last **6 months**, has anyone in your household suffered from a minor health problem (e.g. fever, headache, cold, etc.)

Household Member Name	Health problem(s)	When did the health problem(s) start?	How long did the health problem(s) last? Is it ongoing or was it cured?

20. In the last **10 years**, has anyone in your household suffered from a major health problem: (e.g. body pain, cancer, diabetes, tuberculosis, ghosts, fits (seizures), asthma, high blood pressure, kidney problems)

Household Member Name	Health problem(s)	When did the health problem(s) start?	How long did the health problem(s) last? Is it ongoing or was it cured?

21. In the last **5 years**, has anyone in this household died from a health problem

Household Member Name	Sex (M/F)	Health problem(s)	What age did they die?

22. Which of the following problems is **CURRENTLY** a consistent worry for your household? (Select all that apply)

- |   |   |
|---|---|
| <input type="checkbox"/> Not enough income (income problem)                           | <input type="checkbox"/> Not enough food (food problem)           |
| <input type="checkbox"/> Not enough clothing (clothing problem)                       | <input type="checkbox"/> Poor housing (shelter problem)           |
| <input type="checkbox"/> Unable to provide education for children (education problem) | <input type="checkbox"/> Agriculture problems                     |
| <input type="checkbox"/> Health problems  | <input type="checkbox"/> Employment problem (unable to find work) |
| <input type="checkbox"/> Quarrels with neighbours                                     | <input type="checkbox"/> Quarrels with family member              |

23. In comparing your current household difficulties with your household difficulties 10 years ago, which of the following is true for your house?

- Our current difficulties are much easier to manage than they were 10 years ago
- Our current difficulties are a little easier to manage than they were 10 years ago
- Our difficulties have not changed in the last 10 years
- Our current difficulties are a little harder to manage than they were 10 years ago
- Our current difficulties are much harder to manage than they were 10 years ago

24. How would you rate your household relationships between family members?

- Very Good (no quarrels)
- Good
- Neither Good nor Bad
- Bad
- Very Bad (daily quarrels)

25. How would you rate your relationships with your neighbours in the village?

- Very Good (no quarrels)
- Good
- Neither Good nor Bad
- Bad
- Very Bad (daily quarrels)

26. What do people do in this village when someone in the village gets sick or has a health problem?

- People in the village are helpful all the time (always provide transport, loans, and/or support if needed)
- People in the village are helpful sometimes (sometimes provide transport, loans, and/or support if needed)
- People in the village do nothing (do not care or do not bother when someone else is sick)

27. Was your household able to meet its food needs every day for the past 1 year?  YES  NO

28. In comparing how much food you eat now with how much food you ate 10 years ago, which of the following is true for your house?

- We eat a lot more food now than we did 10 years ago
- We eat a little more food now than we did 10 years ago
- The amount of food we eat has not changed over the past 10 years
- We eat a little less food now than we did 10 years ago
- We eat a lot less food now than we did 10 years ago

29. In comparing the taste and quality of your current diet with the taste and quality of your diet 10 years ago, which of the following is true:

- The current taste and quality of our food is much better now than it was 10 years ago
- The current taste and quality of our food is a little better now than it was 10 years ago
- The taste and quality of our food has not changed over the past 10 years
- The current taste and quality of our food is a little worse now than it was 10 years ago
- The current taste and quality of our food is much worse now than it was 10 years ago

30. Does your household currently have any outstanding loans?

- YES (estimated amount \_\_\_\_\_ rupees)  NO
- If YES: Is your household **ALWAYS** able to pay the interest payments for these loans?  YES  NO

31. Over the last 1 year, how did this household generate income? (Select all that apply)

- Agriculture
- Livestock
- Local day labour work
- NREGA work
- Money from outside work
- Loans
- Local shop or business
- Local job (e.g. cook, sweeping)
- Support from relatives
- Government scheme
- Providing loans to others
- Daily outside work
- Other \_\_\_\_\_

32. Is this household currently supporting any member to attend UG, PG or some other form of higher education?

Name	Sex(M/F)	City	Degree Level (e.g. UG, PG)	Cost of Tuition for 1 year

33. In the last 1 year, were you able to pay for the following household expenses without using loans or selling household assets

- |   |                           |                          |                                      |
|---|---------------------------|--------------------------|--------------------------------------|
| School fees for ALL children                            | <input type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> Not applicable |
| Marriage expenses for ALL children                      | <input type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> Not applicable |
| Agriculture inputs (seeds, fertilizer, labourers, etc.) | <input type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> Not applicable |
| House repairs (holes in the roof, etc.)                 | <input type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> Not applicable |
| Food for every day of the year                          | <input type="radio"/> Yes | <input type="radio"/> No | <input type="radio"/> Not applicable |

34. In comparing your village environment with the city environment, which of the following is true for your household:

- Village environment is much better than city environment (much better air, water, and environment in the village)
- Village environment is a little better than city environment (a little better air, water, and environment in the village)
- Village environment and city environment are the same
- Village environment is a little worse than city environment (a little better air, water, and environment in the city)
- Village environment is much worse than city environment (much better air, water, and environment in the city)

35. For the following health problems, which health care option does your household most often access?

- |                                    |   |   |  |
|------------------------------------|---|---|--|
| Medium health problem              | <input type="radio"/> Government hospital<br><input type="radio"/> None | <input type="radio"/> Private hospital<br><input type="radio"/> Other _____ | <input type="radio"/> Traditional medicine |
| Pregnancy                          | <input type="radio"/> Government hospital<br><input type="radio"/> None | <input type="radio"/> Private hospital<br><input type="radio"/> Other _____ | <input type="radio"/> Traditional medicine |
| Major health problem (e.g. cancer) | <input type="radio"/> Government hospital<br><input type="radio"/> None | <input type="radio"/> Private hospital<br><input type="radio"/> Other _____ | <input type="radio"/> Traditional medicine |

36. In the last 5 years, has anyone in this household been to a government hospital?  YES  NO

a) Of the following difficulties, which has your household personally faced in accessing government hospitals?

(Select all that apply)

- |   |  |  |
|---|--|--|
| <input type="radio"/> Not open when needed  | <input type="radio"/> The doctors are not properly trained | <input type="radio"/> The treatment is not appropriate |
| <input type="radio"/> Long queue  | <input type="radio"/> Too far away (bad location)          | <input type="radio"/> Not enough staff (e.g. nurses)   |
| <input type="radio"/> Unable to file a complaint  | <input type="radio"/> Cost is too high                     | <input type="radio"/> Corruption                       |
| <input type="radio"/> Not proper resources (e.g. medications, scanning equipment, etc.) |  | <input type="radio"/> Other                            |

37. In the last 5 years, has anyone in this household been to a private hospital?  YES  NO

a) Of the following difficulties, which has your household personally faced in accessing private hospitals?

(Select all that apply)

- |   |  |  |
|---|--|--|
| <input type="radio"/> Not open when needed  | <input type="radio"/> The doctors are not properly trained | <input type="radio"/> The treatment is not appropriate |
| <input type="radio"/> Long queue  | <input type="radio"/> Too far away (bad location)          | <input type="radio"/> Not enough staff (e.g. nurses)   |
| <input type="radio"/> Unable to file a complaint  | <input type="radio"/> Cost is too high                     | <input type="radio"/> Corruption                       |
| <input type="radio"/> Not proper resources (e.g. medications, scanning equipment, etc.) |  | <input type="radio"/> Other                            |

List of Common Health Problems (included with household survey)

*Minor Health Problems*

- Fever
- Minor Loose Motions
- Headache
- Minor skin rash
- Cold

*Serious Health Problems*

Body Pain:

- Lower Back Pain
- Arthritis
- Joint Pain
- Knee Pain
- Broken Bone/Injury
- Stomach Pain
- Joint Pain
- Heart Pain
- General Body Pain

Chronic Illness:

- Diabetes
- Kidney Problems
- Cancer
- High Blood Pressure

Respiratory Illness:

- Asthma
- Tuberculosis
- Shortness of Breath
- Allergies

Gastro-Intestinal Problems:

- Serious Loose Motions (Diarrhea)
- Ulcer
- Files (Blood in Stool)
- General Gas Problems

Neurological Problems:

- Fits (Seizures)
- Disability/Handicapped
- Depression/Sadness

Dietary Deficiencies:

- Anemia
- Stunting
- Tiredness/Fatigue

Vector-Based Diseases:

- Chikungunya
- Dengue Fever

Other:

- Major skin problem/rash
- Dental Problems (Teeth)
- Hearing Problems
- Snake Bite
- Appendicitis
- Eye Problems
- Ghosts

## Appendix II: Supplementary Information for Chapter 2

**Supplementary Table 2.1:** Household level demographic and socioeconomic factors associated with temporary labour migration from 278 households in southern India, 2013 based on a multivariable logistic regression, with village as a random effect

	Odds Ratio	95% CI	p-value
<b>Household Composition and Size</b>			
Total number of household members	1.41	1.21-1.63	<0.001
<b>Caste</b>			
Scheduled Caste (SC) or Scheduled Tribe (ST)	2.76	0.47-16.22	0.260
Other Backward Caste (OBC) or Most Backward Caste (MBC)	3.43	0.64-18.55	0.152
Higher Caste*	1	-	-
<b>Land (Acres)</b>			
No land	3.24	1.25-8.40	0.016
0.1 acres – 0.5 acres	5.01	1.41-17.75	0.013
0.6 acres – 2 acres	2.19	1.00-4.49	0.050
>2 acres*	1	-	-
<b>Housing Type</b>			
Pucca house (high quality)	2.47	0.83-7.42	0.106
Semi-pucca house (medium quality)	3.75	1.16-12.11	0.027
Government-subsidised housing	2.03	0.78-5.27	0.147
Kutcha house* (low quality)	1	-	-

\*Referent category based on multivariable logistic regression

Model significance = 0.0031

NB: Caste is no longer statistically significant ( $p>0.05$ ) in the model

**Supplementary Table 2.2:** Household level demographic and socioeconomic factors associated with multiple member temporary labour migration ( $n=32$ ) versus single member temporary labour migration households ( $n=83$ ) in southern India, 2013 based on a multivariable logistic regression, with village as a random effect

	Odds Ratio	95% CI	p-value
<b>Household Composition and Size</b>			
Total number of household members	1.57	1.26-1.95	<0.001
<b>Caste</b>			
Scheduled Caste (SC) or Scheduled Tribe (ST)*	1	-	-
Other Backward (OBC) or Most Backward Caste (MBC)	2.51	0.45-13.98	0.292
Higher Caste	4.03	0.14-115.51	0.416
<b>Income Source</b>			
Borrowing money through loans	3.01	0.89-10.25	0.077

\*Referent category used for the multivariable logistic regression

Model significance = 0.0692

NB: Mixed model with village as a random effect is not statistically significant ( $p>0.05$ ). In addition, caste is no longer statistically significant ( $p>0.05$ ) in the model

### Appendix III: Supplementary Information for Chapter 3

**Supplementary Table 3.1:** Daily wage of migrant workers in southern India (INR), 2013, based on simple linear regression model

	$\beta$	Standard Error	p-value	95% CI
<b>Demographic Factors</b>				
Female* (n=14)	-	-	-	-
Male (n=162)	65.37	30.82	0.035	4.55, 126.20
Age (n=176)	2.03	0.99	0.043	0.68, 3.99
Formal educational attainment (n=176)	-4.95	1.62	0.003	-8.14, -1.76
Married* (n=106)	-	-	-	-
Unmarried (n=70)	-22.47	17.17	0.192	-56.36, 11.43
SC or ST* (n=57)	-	-	-	-
OBC or MBC (n=112)	40.48	17.71	0.023	5.53, 75.43
Higher Caste (n=7)	-77.87	43.59	0.076	-163.90, 8.16
<b>Destination</b>				
Bengaluru* (n=73)	-	-	-	-
Hosur (n=58)	45.05	18.69	0.017	8.16, 81.94
Rural (Tamil Nadu) (n=22)	-75.43	25.84	0.004	-126.44, -24.42
Rural (outside of Tamil Nadu) (n=8)	-10.77	39.57	0.786	-88.88, 67.34
Urban (Tamil Nadu) (n=10)	54.48	35.82	0.130	-16.24, 125.20
Urban (outside of Tamil Nadu) (n=5)	-20.52	49.11	0.677	-117.47, 76.43
<b>Migration Dynamics</b>				
Years migrating (n=176)	1.72	1.37	0.212	-0.99, 4.43
Length of each migration trip (average weeks) (n=164)	-2.75	1.12	0.015	-4.97, -0.53
Accompanied by spouse (n=61)	-29.47	17.61	0.096	-64.22, 5.28
Accompanied by children (n=45)	-44.28	19.07	0.021	-81.92, -6.65
Work with friends or relatives (n=136)	82.77	19.15	<0.001	44.97, 120.57
<b>Labour Migration Type</b>				
Daily commute (n=21)	-	-	-	-
Temporary labour migration (1 week – 6 months) (n=141)	62.17	25.97	0.018	10.88, 113.47
Permanent labour migration (>6 months) (n=2)	19.76	82.18	0.810	-142.53, 182.05
<b>Job Classification</b>				
Low skilled* (n=117)	-	-	-	-
Semi-skilled (n=48)	110.77	17.11	<0.001	77.00, 144.53
High skilled (n=11)	-8.95	31.68	0.778	-71.47, 53.57
<b>Industry</b>				
Construction (n=86)	-	-	-	-
Manual labour (n=29)	-170.61	18.66	<0.001	-207.44, -133.78
Factory work (n=12)	-139.52	26.77	<0.001	-192.37, -86.66
Textile (n=14)	-149.99	25.04	<0.001	-199.42, -100.56
Administrative (n=10)	-127.85	29.03	<0.001	-185.16, -70.54
Trades (n=11)	-46.94	27.82	0.093	-101.86, 7.98
Pharmaceuticals (n=5)	-123.85	39.97	0.002	-202.75, -44.94
Other (n=9)	-51.18	30.44	0.095	-111.27, 8.91

\*Denotes referent group; INR = Indian Rupees

NB: Variables or variable groups with a p-value<0.20 were carried forward to the multivariable logistic regression model.

*Notes on demographic factors for male and female migrant workers*

There was no significant difference ( $p>0.05$ ) in the mean age between female and male migrant workers based on a two sample t-test. The mean age of migrant female workers was 29.24 years (SD=12.26) and the mean age of migrant male workers was 27.20 years (SD=8.28).

There was no significant difference ( $p>0.05$ ) in the mean years of formal education between female and male migrant workers based on a two sample t-test. Female migrant workers had an average of 4.35 years of formal education (SD=4.61) and male migrant workers had an average of 5.66 years (SD=5.31) of formal education.

#### Appendix IV: Supplementary Information for Chapter 4

**Supplementary Table 4.1:** International Classification of Disease categories and major health problem frequencies from 1693 individuals living in rural villages, Tamil Nadu, India, 2013

<b>Category</b>	<b>Frequency of major health problems (n)</b>
Connective tissues (n=128)	Joint pain (38), knee problem (38), lower back pain (25), general body pain (13), general physical handicap (9), foot pain (2), shoulder pain (1), ankle pain (1), numbness and leg pain (1)
Nervous/Sense organs (n=85)	Vision problem (30), major headache (21), mental weakness and instability (15), hearing problem (9), seizures (5), fainting spells (5)
Circulatory/Respiratory (n=42)	Chest pain (19), high blood pressure (10), asthma (5), heart problem (3), breathing problem (2), diaphragm pain (1), blood in cough (1), heart attack (1)
Digestive (n=32)	Gastric problem (13), food allergy (7), ulcer (6), appendicitis (2), files (3), vomiting and diarrhea (1)
Injury/Poisoning (n=21)	Lower body fracture (7), lower back fracture (4), upper body fracture (4), amputation (2), snakebite (1), burn (1), donkey bite (1), back operation (1)
Type II diabetes (n=18)	Type II diabetes (18)
Infective/Vector-borne (n=15)	Tuberculosis (4), undefined cough (4), undefined fever (2), undefined infection (2), typhoid fever (1), dengue fever (1), yellow fever (1)
Skin (n=15)	Rash (15)
Pregnancy/family planning related (n=12)	Family planning complication (4), seizure during pregnancy (4), womb pain (2), fertility problems (1), general body pain from pregnancy (1)
Ill-defined (n=8)	Tiredness (4), ghost (2), salt disease (1), nosebleed (1)
Genito-urinary (n=1)	Kidney problem (1)

*Notes on frequency of mortality*

Deaths and reported causes within the household in the five years preceding survey administration are presented in Table 4. Approximately one sixth (15.7%) of households had experienced at least one death within this period. Deaths among males accounted for 62.3% of all deaths reported. The average age of the deceased was 61.9 years (SD=27.61). Over half (58.5%) of the deaths were attributed to ill-defined causes. Four mortalities in children under five years of age were reported, with three of these deaths having ill-defined causes and the fourth being attributed to cardiac failure.

**Supplementary Table 4.2:** 5-year period frequency of deaths within the household and reported causes among 300 households living in rural villages, Tamil Nadu, India, 2013

Cause of death category (N=53)	Female frequency	Male frequency	Total frequency
	n (%)	n (%)	n (%)
Nervous/sense organs	2 (10.0%)	1 (3.0%)	3 (5.7%)
Circulatory/respiratory	2 (10.0%)	4 (12.1%)	6 (11.3%)
Digestive	0	3 (9.1%)	3 (5.7%)
Pregnancy/family planning related	1 (5.0%)	0	1 (1.9%)
Injury/poisoning	1 (5.0%)	1 (3.0%)	2 (3.8%)
Type II diabetes	0	1 (3.0%)	1 (1.9%)
Infective/vector-borne	1 (5.0%)	2 (6.1%)	3 (5.7%)
Ill-defined*	12 (60.0%)	19 (57.6%)	31 (58.5%)
Genito-urinary	1 (5.0%)	2 (6.1%)	3 (5.7%)
Total	20 (37.7%)	33 (62.3%)	53

\*Examples of ill-defined causes include: senility (n=13), undefined cancer (n=5), suicide (n=4), and ghosts (n=2)

## Appendix V: Supplementary Information for Chapter 5

Of the 53 migrants currently experiencing a health problem, 9 (17.0%) voluntarily chose to provide further details of their health problem and directly attributed their health incident to an occupational or livelihood hazard experienced in relation to migrant labour.

**Supplementary Table 5.1:** Description of health events experienced by migrants directly attributed to migrant activities in southern India, 2013 (n=9)

Demographic details	Migration destination and details	Occupation (skill-level; sector)	Health event; approximate date of incident (disease classification)	Cause of health event	Outcome
30 year old male; SC; fully literate	Bengaluru; 5 years migrating; each trip 5 weeks on average	Painter (low-skilled; trades)	Lost three fingers; 5 years ago (injury/poisoning)	Workplace accident	Poorly managed, needed to change occupation, affects work performance
26 year old male; MBC; fully literate	Hosur; 10 years migrating; each trip 4 weeks on average	Shoe factory labourer (low-skilled; general manual labour)	Skin problems; 7 years ago (skin)	Chemicals in workplace	Managed with medication, but still causes problems
28 year old male; OBC; fully literate	Hosur; 1 year migrating; each trip 1 week on average	Mason assistant (low-skilled; construction)	Back pain; 1 year ago (connective tissues)	Labour induced	Ongoing
24 year old male; Brahmin; fully literate	Bengaluru; 2 years migrating; each trip 6 months on average	Rubber factory worker (low-skilled; manufacturing)	Allergies and difficulty breathing; 2 years ago (circulatory/respiratory)	Chemicals in workplace	Managed with medication
18 year old male; MBC; fully literate	Bengaluru; 6 months migrating; each trip 4 weeks on average	Mason assistant (low-skilled; construction)	Broken arm; 5 months ago (injury/poisoning)	Workplace accident	Managed with medical care
65 year old male; MBC; fully literate	Hosur; over 10 years migrating; each trip 2 weeks on average	Mason assistant (low-skilled; construction)	Chest pain and difficulty breathing; 7 years ago (circulatory/respiratory)	Workplace accident	Ongoing
25 year old male; MBC; illiterate	Bengaluru; 5 years migrating; each trip 4 weeks on average	Mason (semi-skilled; construction)	Infection in feet; 2 years ago (infective/parasitic)	Poor workplace and living conditions	Ongoing
25 year old male; MBC; illiterate	Hosur; 10 years migrating; each trip 4 weeks on average	Mason (semi-skilled; construction)	Joint pain; 5 years ago (connective tissues)	Labour induced	Ongoing
22 year old male; OBC; fully literate	Not specified	Factory work (low-skilled; manufacturing)	Blindness in one eye and reduced vision in the other eye; 2 years ago (nervous/sense organs)	Workplace accident	Poorly managed, stopped migrating for work for a time, deterioration in mental health

SC=Schedule Caste; MBC=Most Backwards Caste; OBC=Other Backwards Caste

Poorly managed = unable to seek appropriate medical care, or considered that medical care sought was inappropriate.

## Appendix VI: Supplementary Information for Chapter 6

**Supplementary Table 6.1:** Factors associated with ‘MGNREGA<sup>a</sup> households’ (n=131) compared to ‘remittance households’ (n=53) based on univariate logistic regression analysis

	<b>Odds Ratio</b>	<b>p-value</b>	<b>95% CI<sup>b</sup></b>
<i>Household demographics</i>			
Total number of household members	0.94	0.280	0.836, 1.053
Total number of males age 15-64 years	0.64	0.004	0.472, 0.870
Total number of females age 15-64 years	0.85	0.356	0.608, 1.196
<i>Caste</i>			
SC or ST	0.46	0.272	0.117, 1.832
OBC or MBC	0.82	0.771	0.212, 3.152
Higher caste (referent)	-	-	-
<i>Housing</i>			
Pucca (high quality)	0.35	0.103	0.101, 1.232
Semi-pucca (medium quality)	0.20	0.004	0.065, 0.592
Government subsidized	0.34	0.071	0.108, 1.094
Kutcha (low quality) (referent)	-	-	-
<i>Household assets</i>			
Vehicle ownership	0.41	0.012	0.208, 0.827
<i>Additional household income sources</i>			
Agriculture	2.47	0.015	1.190, 5.135
Livestock	2.04	0.172	0.733, 5.699
Borrowing money through loans	1.18	0.649	0.577, 2.417
Local business	2.65	0.131	0.748, 9.423
Local day labour	2.74	0.004	1.387, 5.400

<sup>a</sup> Mahatma Gandhi National Rural Employment Guarantee Act

<sup>b</sup> 95% confidence interval

**Supplementary Table 6.2:** Factors associated with ‘MGNREGA<sup>a</sup> plus remittances households’ (n=60) compared to households that do not participate in MGNREGA nor receive remittances (n=56) based on univariate logistic regression analysis

	<b>Odds Ratio</b>	<b>p-value</b>	<b>95% CI<sup>b</sup></b>
<i>Household demographics</i>			
Total number of household members	1.63	<0.001	1.277, 2.091
Total number of males age 15-64 years	2.88	<0.001	1.796, 4.601
Total number of females age 15-64 years	1.66	0.016	1.099, 2.494
<i>Caste</i>			
SC or ST	24.56	0.004	2.752, 219.091
OBC or MBC	16.06	0.009	1.999, 129.006
Higher caste (referent)	-	-	-
<i>Housing</i>			
Pucca (high quality)	0.65	0.490	0.191, 2.210
Semi-pucca (medium quality)	1.14	0.856	0.285, 4.529
Government subsidized	1.09	0.892	0.309, 3.852
Kutcha (low quality) (referent)	-	-	-
<i>Household assets</i>			
Vehicle ownership	0.34	0.010	0.153, 0.770
<i>Additional household income sources</i>			
Agriculture	0.42	0.028	0.193, 0.912
Livestock	0.16	0.006	0.043, 0.585
Borrowing money through loans	1.17	0.702	0.522, 2.631
Local business	0.05	0.005	0.006, 0.402
Local day labour	0.83	0.613	0.395, 1.729

<sup>a</sup> Mahatma Gandhi National Rural Employment Guarantee Act

<sup>b</sup> 95% confidence interval

**Supplementary Table 6.3:** Factors associated with ‘MGNREGA<sup>a</sup> households’ (n=131) compared to households that do not participate in MGNREGA nor receive remittances (n=56) based on multivariable logistic regression analysis

	<b>Odds Ratio</b>	<b>p-value</b>	<b>95% CI<sup>b</sup></b>
<i>Household demographics</i>			
Total number of household members	1.26	0.018	1.041, 1.532
<i>Caste</i>			
SC or ST	3.18	0.053	0.984, 10.254
OBC or MBC	2.63	0.050	1.001, 6.931
Higher caste (referent)	-	-	-
<i>Household assets</i>			
Vehicle ownership	0.29	0.001	0.134, 0.613
<i>Additional household income sources</i>			
Livestock	0.40	0.034	0.174, 0.932

<sup>a</sup> Mahatma Gandhi National Rural Employment Guarantee Act

<sup>b</sup> 95% confidence interval

**Supplementary Table 6.4:** Factors associated with ‘remittance households’ (n=53) compared to households that do not participate in MGNREGA<sup>a</sup> nor receive remittances (n=56) based on multivariable logistic regression analysis

	<b>Odds Ratio</b>	<b>p-value</b>	<b>95% CI<sup>b</sup></b>
<i>Household demographics</i>			
Total number of males age 15-64 years	2.22	0.003	1.308, 3.770
<i>Caste</i>			
SC or ST	10.07	0.019	1.459, 69.552
OBC or MBC	2.73	0.270	0.459, 16.218
Higher caste (referent)	-	-	-
<i>Additional household income sources</i>			
Agriculture	0.16	0.002	0.053, 0.512
Livestock	0.25	0.040	0.069, 0.939
Local business	0.06	0.002	0.010, 0.350
Local day labour	0.23	0.013	0.076, 0.736

<sup>a</sup> Mahatma Gandhi National Rural Employment Guarantee Act

<sup>b</sup> 95% confidence interval