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Ten Years in Tamil Nadu: Exploring Labour, Migration and Debt from Longitudinal Household Surveys in South India^{*}

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Abstract Indian society has been experiencing significant changes since the nineties brought by a gradual set of reforms in favour of a market economy and the country's integration into the global economy. However, despite outstanding economic growth for the last decades, India continues to be gripped by strong inequalities and the burden of social institutions such as caste, family or gender. Regarding the time pace of such changes, longitudinal studies appear to be particularly useful and revealing in analysing the extent of socio-economic dynamics. This paper aims to propose a new longitudinal data collection tool and a broad picture of socio-economic dynamics in rural areas of Tamil Nadu for the last decade. Data have been collected using the NEEMSIS survey. It is focused on more than 600 households from 10 villages in Tamil Nadu at three points in time; 2010, 2016-17 and 2020-21. The NEEMSIS survey encompass key topics including employment, indebtedness, agriculture, wealth, formation of skills, social networks, or social and spatial mobilities.

Keywords Panel data, household survey, caste, Tamil Nadu, labour, debt, gender, migration.

JEL Codes C81, C83, D1, O1.

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1 Introduction

The last decades have seen the achievements of a modern India. The country is the second-fastest-growing economy and the world's largest democracy (Drèze and Sen 2013). However, economic progress has to be counterbalanced by mitigated social and environmental improvements all over India, between and within Indian States, between urban and rural areas, and along different social groups in a very segmented society, making the study of socioeconomic dynamics, however diverse, necessary.

This article presents the original first-hand longitudinal quantitative household survey NEEMSIS (*Networks, Employment, dEbt, Mobilities, and Skills in India Survey*) which consists of a baseline survey, RUME (*RURal Microfinance and Employment*), carried out in 2010 (Guérin, Roesch, Venkatasubramanian, et al. 2023), and two follow-up surveys, NEEMSIS-1 implemented in 2016-17 (Nordman et al. 2017), and NEEMSIS-2 conducted in 2020-21 (Nordman et al. 2021), which constitutes a three-year panel of households and individuals. In addition, we provide a general picture of the main dynamics regarding socio-economic characteristics (including education), employment, migration and debt.

Compared to cross-sectional data, the scientific advantages of quantitative panel data are numerous. Panel data enable the observation of dynamics and changes over time, both for individual/household and social groups. Then, in addition to capturing inter-individual heterogeneity, panel data allow researchers to grasp *intra-individual* heterogeneity over time. Combining inter- and intra-individual differences enables a better understanding of the complexity of human behaviour (Hsiao 2014). Coupled with qualitative surveys (e.g., ethnography, participant observation, semi-structured interviews), quantitative panel data allow to grasp the institutional and structural dynamics and the way individuals navigate within them. Within the framework of NEEMSIS, quantitative surveys are systematically combined with qualitative data of various kinds. Qualitative data are crucial for gathering reliable data, posing innovative hypotheses, grasping realities that questionnaire surveys miss, and interpreting or illustrating quantitative results.

Several projects aim to collect longitudinal data in India. The aim is not to replace national statistical surveys but to reveal what they miss by exploring socioeconomic processes, such as the transformation of agriculture, the functioning of labour markets, and social mobility trajectories (Himanshu, Jha, and Rodgers 2016). The most famous case study of long-term data collection is the Palanpur village in Uttar Pradesh (Himanshu, Lanjouw, and Stern 2018). The whole population of Palanpur has been surveyed seven times from 1958 to 2015. Initially aimed at studying post-independence agrarian reforms and then the Green Revolution (1960-70), the objective of the Palanpur study has broadened over time, including, for example, the analysis of the social mobility

of individuals and social groups (Bolazzi 2020). The special feature of the Palanpur study is the longevity and exhaustiveness of the sample, which covers the entire village population and thus enables an extremely detailed analysis of intra-village dynamics and individual trajectories in their institutional context over a long period (Himanshu, Lanjouw, and Stern 2018). Tamil Nadu has a long tradition of long-term village monographs, from the “Slater village” studied as early as 1916 (the latest study dates from 2008) to more recent initiatives, some of which have chosen a regional scale and cover several villages (Harriss 2016).

NEEMSIS is in keeping with this tradition of longitudinal studies while presenting at least three specific features. Firstly, RUME, the baseline survey of NEEMSIS, emphasised the diversity of links between urban and rural areas. Indeed, RUME started in 2010 with 405 households in 10 villages unequally integrated into the non-farm economy. Tamil Nadu is one of the most developed, urbanised, and industrialised Indian states. However, many villages remain heavily dependent on agriculture, albeit unevenly and with rapid transformations. This creates diverse and changing urban-rural linkages that need to be studied. Secondly, NEEMSIS covers a broad spectrum of original information collected at the household and individual levels (e.g., labour episodes, indebtedness, interpersonal networks, cognitive skills or personality traits, for instance). The main purpose is to capture the diversity of urban-rural linkages and their interactions with household and individuals’ labour, debt, skills, social networks, and social and spatial mobility. Thirdly, NEEMSIS makes it possible to trace individuals who have permanently migrated between two survey waves to other Tamil (or non-Tamil) villages for work-related reasons. Combined with a household and individual survey, migrant tracking offers a unique opportunity to better understand migration processes.

The data collection occurs within the *Observatory of Rural Dynamics and Inequalities in South India* (ODRIIS – <https://odriis.hypotheses.org/>), hosted at the French Institute of Pondicherry (IFP) in partnership with the French National Research Institute for Sustainable Development (IRD). The objective of the *Observatory* is to collect and share quantitative and qualitative data to better understand the region’s structural changes and crises. The ODRIIS draws on the experience of researchers present in the region since 2003 and involved in various quantitative and qualitative surveys.

Long-term presence has many advantages: accumulation of data over time, good knowledge of the context, building relationships of trust with the local population. This, in turn, makes possible to improve the quality of the data collected, to combine complementary methodologies more easily, and to integrate deductive and inductive approaches (Rao 2022). However, repeated surveys raise ethical issues, such as population fatigue and legitimate questions about the direct benefits of the survey. In the manner of anthropologists, NEEMSIS team responds by forging reciprocal relationships with local populations (Guérin, Kumar, and Venkatasubramanian 2023). It includes two key

aspects. On the one hand, members of the NEEMSIS team act as confidants and mediators within local communities to support their access to the world beyond the village boundaries (e.g., sharing information about welfare programs and job opportunities, assisting with paperwork). On the other hand, NEEMSIS and ODRIIS team regularly raises funds for individual emergencies or collective hardship (e.g., food distribution support during the pandemic, such as, for instance, the COVINDIA project).

The rest of the article is organised as follows. Section 2 presents the context in which the longitudinal surveys took place. Section 3 details the data (sampling, questionnaires). Section 4 provides an overview of the data collected. Section 5 concludes.

2 Context

The survey occurred in central Tamil Nadu, in the Kallakurichi and Cuddalore districts. Kallakurichi district is a newly named district derivated from the South of Viluppuram district in 2020.

2.1 India

With a population of over 1.2 billion, India is the second-fastest-growing large economy and the world's largest democracy (Drèze and Sen 2013).

The country is a federal republic, governed through a democratic parliamentary system, and composed of 28 States and eight union territories. The states and union territories are further subdivided into districts and smaller administrative divisions. Each state and union territory has its own institutions and the power to pass laws in certain areas.

From the nineties until 2010, India displayed an annual growth rate between 6% and 9%. However, such a sustained economic performance is offset by glooming social indicators. Economic growth has improved the standard of living of a minority of Indian citizens and has left out other disadvantaged groups who have seen their living conditions barely improving at a dismally slow pace. Economic growth was reached at the same pace as the rise of significant inequalities (Chancel and Piketty 2019), widespread corruption (Harriss-White and Michelutti 2019), and a lack of essential social services. India has been climbing up the ladder of per capita income while slipping down the slope for social indicators (Drèze and Sen 2013). Improvements in living conditions have only reached specific social groups, while others lag behind.

Drawing a general picture of the development of contemporary India by contrasting rural and urban can be misleading because of the strong interdependence between these two areas. Firstly, rural areas are facing a decline in agricultural returns with low productivity and a multiplication of livelihood sources, especially non-agricultural

employment (Kumar et al. 2011). Secondly, urban and peri-urban areas tend to benefit from the development of industry and services due to large metropolises and subaltern cities with a better connection to globalised markets (Mukhopadhyay, Zerah, and Denis 2020), and connections between urban and their rural backwards have improved. Thirdly, anthropologists observe an attachment to rural ways of living despite jobs in urban areas (De Neve 2003).

2.2 Tamil Nadu

Located in South-East India, Tamil Nadu is one of the most socially developed Indian States (Joshi and McGrath 2015). Growth levels and per capita income are among the highest in the country, and rural and urban poverty levels are below the national average (Kalaiyarasan and Vijayabaskar 2021).

In 2011, Tamil Nadu's Human Development Index (HDI) was 0.544, ranked in 6th position, above the Indian average at 0.504 and far beyond the poorer Indian States in the Northern belt such as Bihar, Odisha or Chhattisgarh (Suryanarayana, Agrawal, and Prabhu 2016).¹

Significant political efforts have been made to support education for all, and human development programmes have worked well compared to other states (Kalaiyarasan and Vijayabaskar 2021). Tamil Nadu was more active than other Indian States in trying to design inclusive social policies. The government of Tamil Nadu was a pioneer in the creation of social programmes (Drèze and Sen 2013). For instance, Tamil Nadu was the first state to introduce free and universal midday meals in primary schools. It was also more creative and advanced than other States regarding the implementation standards of nationwide social programmes such as the public distribution system, which involves the distribution of food and non-food items to the poor at subsidised prices, or the national rural employment guarantee act (NREGA, now known as Mahatma Gandhi national rural employment guarantee act, i.e., MGNREGA) which guarantees employment in rural areas in the form of unskilled manual labour for at least 100 days per financial year.

Regarding employment, Tamil Nadu is an industrialised State due to the large production units in the major cities and the small industrialised urban centres (Marius-Gnanou 2010). This is leading to new forms of urbanisation and production dynamics that are redesigning the organisation of work and lifestyles in the territory (Djurfeldt et al. 2008; Amelot and Kennedy 2010). Notwithstanding the growing industrialisation and economic progress, the shift from the primary to the secondary sector and its

1. HDI combines a measure of the standard of living, health and education. Variables used to calculate the standard of living is the per capita income in 2004-5 from the National Sample Survey (NSS). For health, it is the life expectancy in 2002-6 from the Sample Registration System. For education, it is the mean years of schooling in 2006 and the expected years of schooling in 2010 from the NSS.

associated implications have exhibited uneven patterns across the entirety of Tamil territory. Rural regions persistently rely on agriculture as their principal economic activity (Harriss, Jeyaranjan, and Nagaraj 2010).

The agricultural sector still employs a significant proportion of the Tamil workforce despite its low contribution to the state's GDP (Michiels 2016). The agricultural sector is characterised by low productivity, partly due to the intense fragmentation of land. The literature argues that land fragmentation in India is partly caused by the law of inheritance of paternal property, the absence of a progressive tax on inherited land, and the underdeveloped land market (Niroula and Thapa 2005). For example, in Tamil Nadu in 2019, 73% of households that own land have a surface area of less than 1 hectare, and the average is around 0.8 hectares (Government of India 2019).

As elsewhere in India, people tend to be attached to rural areas. While urban ways of living are attractive, the country is surprisingly not experiencing a rural exodus (Racine 1994). In Tamil Nadu, only half (48.4%) of the population lives in urban areas, and it appears as one of the most urban states in India (Government of India 2011).

In addition, the labour market is strongly segmented by caste and gender. Traditionally, caste implies that jobs are determined at birth (Deshpande 2000). Despite a persistent congruence between caste and occupation, this trend tends to be mitigated by the modernisation process of the Indian economy that has been deployed since the 1980s. However, facing modernisation, the caste system adapts and rearranges (Harriss-White 2002) to create new forms of employment segregation and discrimination. Consequently, individuals from the lowest castes are trapped into occupations that are more arduous, more degrading, and more unstable than others. They are twice as likely to engage in casual agricultural labour and experience poverty (Harriss-White and Gooptu 2001). Regarding gender, social and cultural factors keep females outside the labour force (Mehrotra and Parida 2017). For example, the fact that females do not work is a matter of prestige for the economically better-off households and forward castes. Additionally, females are more likely to be present in temporary and casual occupations than in more stable jobs because of barriers (e.g., not meeting educational requirements, lack of experience, insufficient social network or discrimination), and much of their time is spent on domestic work (Ratheesh and Anitha 2022).

2.3 Study area

In 2008-2009, the RUME team travelled the length and breadth of Tamil Nadu, looking for a region that encapsulates the diversity of rural dynamics on a territory small enough to facilitate the logistics of the surveys. In the end, ten villages were chosen from the South-Arcot region because it exhibits several key tendencies in the State of Tamil Nadu, such as:

- a strong diversification of rural activities;
- an important agricultural sector despite declining returns,
- the rise of subaltern medium-size cities (Denis and Zérah [2017](#)); and
- various forms of rural-urban linkages.

The South-Arcot region is located in east-central Tamil Nadu at the border between Kallakurichi and Cuddalore districts (see Figure 1). Kallakurichi was previously part of the Viluppuram district and has been a separate district since 2019. South-Arcot used to be a district in the Madras presidency of British India. It no longer has an administrative existence, but it still has regional significance, and the term continues to be used. South-Arcot benefits from diversified but declining agriculture, a port, a regional market, and an industrial cluster.

The zone under study is economically dynamic, featuring a large proportion of irrigated agricultural land alongside arid pockets, two industrial towns (Neyveli and Cuddalore), and two medium-size dynamic regional business centres (Panruti and Viluppuram).

- Neyveli, around 100 00 inhabitants (Government of India [2011](#)), is an industrial town born in the 1960s when a state-run lignite mine and a thermal power station were constructed. Today, workers in both state enterprises live on-site in purpose-built housing, enjoying considerable privileges. However, many small-scale subcontracting industries are on the site, and hire local workers and migrants.
- Cuddalore, around 170 000 inhabitants (Government of India [2011](#)), is an industrialised urban centre formerly specialised in fishing. Today, the city is specialised in the pharmaceutical and petrochemical industries and has large agri-food production units specialised in the processing of sugar cane and cashew nuts.
- Panruti, around 60 000 inhabitants (Government of India [2011](#)), is the nearest town in the area. Its primary source of attractiveness comes from its commercial activity (e.g., large fruit and vegetable market, sale of building materials) and its strategic geographical position (e.g., large bus station serving most of the surrounding villages and towns).
- Viluppuram, around 96 000 inhabitants (Government of India [2011](#)). This is the second nearest town in the study area. Viluppuram is a hub for public transport at the junction of the central railways in Tamil Nadu, with a direct connection with Chennai, the capital of Tamil Nadu.

The Pennai River runs through the area, irrigating part of the villages, while remote villages have to make do with rain-fed agriculture.

As data from the Kallakurichi district are not yet available, in the following paragraph we use data from the Viluppuram district. The Viluppuram district has a low level of HDI in 2017 compared to the rest of Tamil Nadu (respectively 0.561 and 0.709), while the Cuddalore district has an average level (0.719) (Government of Tamil Nadu 2017).² Both districts cope with high levels of poverty. More than half of the population was living below the poverty line when we started to collect our longitudinal data. The poverty headcount ratio of Cuddalore district (50.73%) was two times higher than the Tamil Nadu level (24.90%), and the headcount ratio of Viluppuram district more than two and a half times higher (63.56%) (Mohanty et al. 2016).³

The jatis present in the region can be classified into three main categories for the sake of simplicity of analysis, which we call castes: Dalits, middle castes, and upper castes.

- Dalits, formerly called the “untouchables”, the low-caste individuals, include *Paraiyar* and *Arunthathiyar*.
- Middle castes include *Asarai*, *Kulalar*, *Gramani*, *Vanniyar* (also called *Padayachi*), *Nattar*, and *Navithar*. *Vanniyars* are a farming caste with a low ritual rank but, in the villages we studied, as with many places in northeast Tamil Nadu, they control much of the land and are politically dominant. Muslims are also classified as middle castes.
- Upper castes include *Rediyar*, *Marwari* (also called *Settu*), *Naidu*, *Chettiyar*, *Mudaliar*, and *Yathavar*.

Note that the caste titles used here are simplistic. According to some anthropologists (see, e.g., Headley 2021), it is difficult or even impossible to determine the extent to which the caste histories have changed over the last two to three centuries. There are sub-castes/castes/meta-castes that have radically changed their name since the middle of the 19th century, taking with them only part of “their group”, knowingly leaving aside certain sub-castes that were structurally very close. There are also cases of sub-castes that no longer know what to call themselves in the jungle of titles and denominations. Hence, further knowledge from in-depth ethnographic surveys would

2. Variables used to calculate the standard of living is the per capita income in 2011-12 from the DOES data (Government of Tamil Nadu 2017). For health, it is the life expectancy at birth in 2011 from the State Planning Commission. For education, it is the literacy rate in 2011 from the Census of India, and the gross enrollment in primary and in secondary schools in 2013-14 from the Education Department.

3. The poverty headcount ratio is derived from the State specific poverty line of 2009–2010 and 2011–2012 as recommended by the Rangarajan Committee and adopted by the Government of India, meaning, for Tamil Nadu, a monthly poverty line per capita at INR 1 082 for rural areas and INR 1 380 for urban areas (Government of India 2014).

be needed to have certainty about the morpho-sociological units we are dealing with, and thus to be able to unravel and understand the processes of self-designation.

As in many other northeast Tamil Nadu villages, conflict often occurs between *Vanniyars* and *Paraiyars*, the two major groups in the region, over various issues, including common land usage, temple management, religious ritual organisation, local politics, and access to government schemes and resources. The upper castes of the local hierarchy account for only a small proportion of the village population. In recent decades, they have mostly moved away from the villages to nearby towns (Djurfeldt et al. 2008), adopting urban jobs and lifestyles. Their dominance has considerably declined but is by no means a thing of the past. Christians and Muslims are a minority in the area.

In addition, the studied villages still face a strong spatial segmentation that divides the space into two territories. On the one hand, the “Ur”, where mostly *Vanniyar* caste households and the few remaining upper caste households live. On the other hand, the “Colony”, reserved for Dalits.

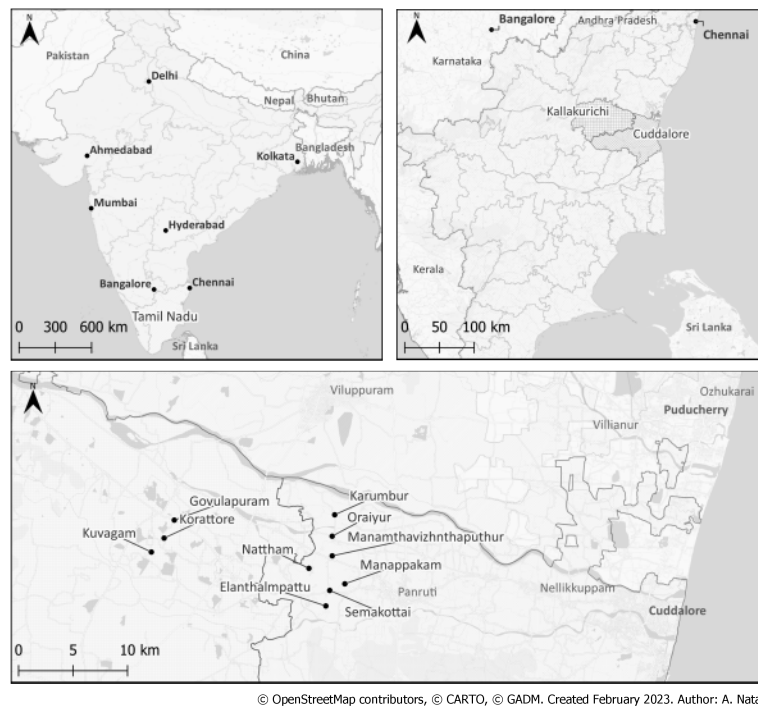


Figure 1: Location of RUME-NEEMSI villages

3 Data

3.1 Sampling, reliability and ethics

3.1.1 Village selection: common trends and diversity

Data collection mainly took place in 10 rural villages in Tamil Nadu, located at the border between Kallakurichi and Cuddalore districts, in the South-Arcot. Villages include Manappakam, Semakottai, Manamthavizhthaputhur, Natham, Korattore, Karumbur, Oraiyur, Govulapuram, Elamthampattu, and Kuvagam, with approximately 170 to 500 households in size (i.e., less than 5000 inhabitants).

We chose this region and the 10 villages after a long process of mapping the different Tamil regions. Although they are located in a small area, the 10 villages reflect several dynamics characteristic of the Tamil rural economy and its diversity, meaning a mix of irrigated and dry farming, two nearby industrial towns (Neyveli and Cuddalore), a regional business centre (Panruti), and varying degrees of remoteness. Villages were selected depending on ecotype systems (i.e., half irrigated villages, half dry villages) and accessibility and distance to main roads and small towns (i.e., Panruti, Viluppuram, Cuddalore).

3.1.2 Household selection: caste as a key factor

In rural Tamil Nadu, the influence of caste remains crucial, both spatially, economically (e.g., strong fragmentation of labour markets according to caste), socially (e.g., endogamy, making of identities, and hierarchies), and politically.

The region shows a high numerical importance of Dalits, who, in 2010, represented about half of the village population in this region. To compare the processes of change between castes (or jatis) and the role of caste in these changes, “middle” and “upper” castes have been overweighted. Thus, within villages, half of the sample was selected from the mostly upper- and middle-caste “Ur” part of the village, and the other half from the “Colony” part, where Dalits mainly live.

More broadly, households were selected in ten villages using a stratified sampling framework based on three criteria: proximity to small towns, agroecological, and caste.

To choose households, the random route sample method was used: enumerators, by a team of two, interviewed a household every five houses.

3.1.3 Unit of analysis

The household constitutes the main unit of analysis in the longitudinal data collection. This requires a clear definition of what it includes and excludes, as researchers agree

that the definition of a household is essential to evaluate economic outcomes (Beaman and Dillon 2012).

To ensure comparability with national surveys, we use the definition of household and head of the household of the Government of India (2011) used in the Census of India while keeping in mind that the household boundaries move over time, both horizontally and vertically (De Vreyer et al. 2008).

A household is then a group of persons who usually live together and take their meals from a common kitchen unless the exigencies of work prevent any of them from doing so. Persons in a household may be related or unrelated or a mix of both. The important criterion in finding out whether a group of people is a household is a common kitchen.

The head of the household is a person who is recognised as such by the family members, she or he is generally the person who bears the chief responsibility for managing the household affairs and decides on behalf of the household.

3.1.4 Representativeness

The precise socio-demographic profile of the villages was unknown at the time of the first survey in 2010 (the last census dated from 2005, and reliability at village level was doubtful). However, thanks to qualitative monographs of each village, the approximate weight of each caste in each of the 10 villages was partially known. Given the small size of the upper castes, they were overrepresented in the 2010 sample to observe inter- and intra-caste dynamics better.

The RUME survey and then the NEEMSIS waves are small-scale data collections in rural India, and these surveys do not claim to be statistically representative of the surveyed villages. Hence, any generalisation of the survey findings to a broader population might be risky. Indeed, it is impossible to know for sure whether what one would observe in the surveyed villages would hold in other locations nearby and even less in other parts of India, as the country knows substantial regional variations in social norms, economic development, and local institutions.

Using a survey that is not representative of a broader population can still be meaningful if the survey is designed and analysed appropriately and if the limitations of the survey are clearly communicated so as to avoid making generalisations beyond the sample being studied. The RUME survey, the NEEMSIS waves, and associated analysis share then some of the characteristics one can find in monograph studies, in the sense that they allow researchers to conduct in-depth examinations of a particular socioeconomic phenomenon (e.g., indebtedness, labour trajectories, social network formation) for a particular population in a specific area. As mentioned earlier, the *Observatory of Rural Dynamics and Inequalities in South India* systematically draws on

additional and complementary qualitative surveys (Hilger and Nordman 2020; Guérin, Mouchel, and Nordman 2022; Guérin et al. 2022; Guérin et al. 2017; Nordman 2024). Like all qualitative analyses, these data do not depend on representative samples in the statistical sense. They aim to illustrate a diversity of situations in relation to a given objective.

Regarding a possible extrapolation, the survey area and villages were selected because they exhibit several key tendencies in rural Tamil Nadu. There is no reason to believe that we cannot extrapolate our findings a minima to account for the dynamics of the rural areas of the Kallakurichi and Cuddalore districts, and perhaps of Tamil Nadu, given:

- the way the sample was constructed (i.e., over-weighting of upper castes) and the distribution of the 2011 Census (i.e., more Dalits in our sample) (Government of India 2011);
- the way the villages were selected (i.e., half of the villages are irrigated, and the other half has dry lands; four villages are particularly isolated, four have average accessibility, and two have relatively good accessibility); and
- the dynamics which we observed in rural South India.

3.1.5 Quality and reliability

Collecting reliable and quality data is the major concern of NEEMSIS. In rural areas with a low level of education, populations have their own visions and understandings of labour, finance, relationships, and the State, as anthropology has long shown. In addition, there are the usual biases, well known to statisticians (e.g., memory bias, acquiescence bias, social desirability bias, gender bias, interviewer bias).

The RUME survey and then the NEEMSIS waves were constructed to strike a balance between categories that make sense to local people and more general categories that are useful for comparison with other regions of India and abroad. Prior ethnographic work over several years has provided excellent knowledge of local contexts, terminologies used, units of measurement employed, and the functioning of labour, credit, and land markets. A major characteristic of the RUME survey and then the NEEMSIS waves is that the same researchers are involved in the questionnaire and ethnographic surveys. For example, with regard to income, it is a known fact that in contexts of high informality where people often change jobs and combine several jobs, measuring income is a challenge. Here, good knowledge of the different labour markets, prevailing wages, and seasonal variations were essential to assess the quality of the answers and to guide people in their questions. Similarly, the reliability of the data on debt comes from a good knowledge of the different sources of debt and the terminologies used (e.g., by

using less shameful terms than “debt”) and the prices usually charged (Guérin, Kumar, and Venkatasubramanian 2023).

The questionnaire was designed in English and then translated into Tamil by local researchers specialised in economics, sociology, and development studies, ensuring a good understanding of the terms by the respondents. The interview took place in each household’s home or workplace, depending on the respondent’s wishes. Public spaces were avoided to ensure confidentiality as much as possible.

3.1.6 Ethics

Conducting surveys is time-consuming for the populations interviewed, while the benefits for them are never guaranteed. Beyond the usual ethical rules (e.g., explaining the reasons for the survey, asking for consent, allowing people to stop a questionnaire in progress, anonymising data), the NEEMSIS team is constantly asking itself how it can conduct ethical research. This is done in different ways (Guérin, Kumar, and Venkatasubramanian 2023), such as:

- financial compensation for the families surveyed on a case-by-case evaluation by the survey team;
- mobilising funds in the event of a serious crisis for the poorest people in the village;
- restitution of the results to the village communities, carefully selecting certain outcomes so as not to harm or create local conflicts;
- as in the case of ethnographic surveys, the creation of long-term reciprocal relationships based on the exchange of information, advice, and friendships; and
- using findings to advance understanding of inequalities and social policy design.

Sharing survey data in Open Access, as is already done with RUME (Guérin, Venkatasubramanian, et al. 2023) and NEEMSIS-1 (Nordman et al. 2023), is also a form of ethics.

3.2 RUME as a baseline survey

The baseline household survey took place within the *RUral Microfinance, and Employment* research project, which aims to explore the links between rural finance and employment to contribute to ongoing discussions and interventions in the areas of rural development, poverty, and vulnerability reduction (Guérin, Roesch, Venkatasubramanian, et al. 2023). Data collection began in January 2010 and ended in March 2010 in the 10 villages listed above on 405 households, representing 1928 individuals.

Household questionnaire The questionnaire is composed of modules aimed at collecting the following information:

- socio-demographic characteristics (e.g., age, sex, education, relationship to head);
- employment (e.g., details on self-employment and salaried jobs, problems at work due to the 2008 economic crisis);
- migration and remittances;
- financial practices (e.g., borrowing, lending, guarantee and recommendation, chit funds, savings, gold, insurance);
- agriculture (e.g., land, cropping, livestock, farm equipment, labourers);
- consumption and assets (e.g., main expenses, durable goods);
- housing and facilities;
- public service works (e.g., president, ward member, temple committee); and
- memberships (e.g., participation to public political events, SHG).

Data collection process The questionnaire, in paper format, was administered by five local male enumerators and two fieldwork supervisors to the household head of each selected household, who answered for all members. The survey took place in each household location, and the data collection process took around two hours.

3.3 NEEMSIS as follow-up surveys

The *Networks, Employment, Debt, Mobilities, and Skills in India Survey* consists of two waves of data collection carried out in 2016-17 (Nordman et al. 2017) and 2020-21 (Nordman et al. 2021). The NEEMSIS survey aimed at understanding the linkages between household and individuals' labour, skills, social networks, and social and spatial mobility. This includes the investigation of various forces at play, spanning from the role of social structure (i.e., norms and institutions), the development and use of social networks, to the formation of cognitive skills.

Panel data setting NEEMSIS-1 (2016-17) recovered 388 households of RUME (2010), and NEEMSIS-2 (2020-21) recovered 485 households of NEEMSIS-1. While most households could still be found in their previous locations, some migrate seasonally for work, and some have even migrated permanently to their new workplace. Enumerators have followed a tracking methodology to search for them: meeting labour intermediaries ("maistries"), finding employers and the migration place, and being allowed by

employers to interview these households at their new workplace. Most were usually accommodated around brick kiln industries in Chennai or Coimbatore surroundings.

In addition, NEEMSIS randomly selected news households from the 10 original villages (around 10 households by village) to increase the sampled population to better reflect the village socioeconomic dynamics over time and avoid the ageing of our sample.

In 2016-17, 104 new households were added. In each village, five households were randomly selected in the “Colony” area and five in “Ur” using random route sample methods. The final sample is spread across 15 broader locations (13 villages and two “areas”) in four districts and consists of 492 households, and 2696 individuals. To ensure a minimal number of observations per location, migrant households who settled in villages less than five kilometres apart were gathered together in the same area.

In 2020-21, 147 new households were added. 86 were randomly selected, and 61 were selected thanks to their link with NEEMSIS-1 households to rejuvenate the sample with young households but also to be able to observe inter-household relationships in the data. For example, a married son who had left the household between 2017 and 2020 to form a new household could be interviewed if his family house was in the same village. This configuration of “nested household structure” is supposed to provide key information regarding inter-generational social mobility, interhousehold marriage, and social network formation. The final sample comprises 632 households and 3647 individuals.

Household questionnaire NEEMSIS questionnaire includes all RUME household questionnaire modules on employment, migration and remittances, financial practices, agriculture, consumption, and housing. NEEMSIS kept the same variables to observe their variation between the two time periods but has also supplemented these modules with new questions to delve deeper into certain issues that are crucial to a better understanding of social change and social mobility. For instance, the occupation module has more detailed questions about business outputs and costs to improve the calculation of business profits. It also recorded the debt at an individual level, thus differentiated by gender, identifying the person who went to the lender and borrowed in their own name, which is a rare and valuable advantage in such a context (Reboul, Guérin, and Nordman 2021).

New modules have also been added to the household questionnaire on individual migration episodes, education, marriage, and government schemes. Regarding education, NEEMSIS has added additional questions to create a complete module on education since measuring networks and skills is one of NEEMSIS’s main objectives. The marriage module is also more developed. Marriage has a social and economic dimension that plays a crucial role in the life of families, their networks, and intergenerational dynamics. Public schemes represent an important share of rural households’ resources,

especially in Tamil Nadu. As far as government programmes are concerned, they are numerous, but their use remains uncertain and uneven, hence the interest in having a dedicated module.

Individual questionnaire NEEMSIS added a new survey unit compared to RUME, the individual or “Ego” level. In 2016-17, two household members were directly addressed individual questionnaires: the respondent of the household questionnaire, called Ego 1, and one younger household member, called Ego 2, randomly selected by the software tablet into age brackets (i.e., a member of the household aged between 18 and 25 years old; if no one is available, a member aged between 26 and 35 and, if no one is available, a member aged over 35). There are 953 egos in 2016-17.

Individual questionnaires provide a range of information on labour force participation and outcomes (including wages and earnings), social networks (e.g., formal and informal ties using a “name generator” methodology), cognitive skills (i.e., numeracy, literacy, and Raven’s test) and personality traits (i.e., Big-Five taxonomy and the Grit). Thus, NEEMSIS survey offers a new angle of analysis of rural dynamics in South India.

In 2020-21, an additional ego (i.e., Ego 3) was added, bringing to three the number of individuals responding to the individual questionnaire. In addition, the module on participation in the labour market has been improved with questions on job satisfaction, working conditions, and discrimination at work. The personality module was completed by adding a measure of locus of control, meaning the extent to which people believe they have control over the outcome of events in their lives, as opposed to those outcomes being determined by external forces beyond their influence. A new decision-making module has also been added to understand how decisions about work are made within the household. There are 1693 egos in 2020-21.

Tracking questionnaire An individual migrant survey completes NEEMSIS household and individual surveys, called the NEEMSIS Tracking survey. This survey recovered individuals who moved from their original residential place between two survey waves. The questionnaire consists of a shortened household questionnaire and an individual questionnaire. In addition, a specific questionnaire on the migration process is asked (e.g., the reason for migration, satisfaction, help in migration, decision, cost, and working conditions).

For NEEMSIS-1 wave, the sample consists of 78 individual migrants from Chennai to Bengaluru via Tirupur, among others (Michiels, Nordman, and Seetahul [2021](#)). For NEEMSIS-2 wave, the sample consists of 63 migrants.

Data collection process NEEMSIS used digital tablets for data collection and relied on the Survey CTO software. This tool allowed for increasing the quality of the data

collected because it is meant to check quality at each stage of the data entry process (e.g., missing observations, constraints on answers to avoid aberrant answers) and to reduce the cost, time, and errors associated with data entry as this is done instantaneously on the field.

One household member, usually the head, answers questions about all household members, so we have information on each member for all modules. The individual questionnaire is directly addressed to two individuals who answer for themselves: Ego 1 and Ego 2, and, in addition, Ego 3 in 2020-21. The addition of the new unit of analysis significantly increased the duration of the data collection process (three to four hours for the household questionnaire and around two hours for each individual questionnaire). Thus, the data collection for one household was regularly spread across several days to avoid disturbing household habits.

NEEMSIS-1 enumerators' team was composed of three fieldwork supervisors and six enumerators. The supervisors and three of the six enumerators participated in the 2010 RUME survey data collection, so most of them already knew the fieldwork well. The enumerator training took place during three weeks, both in the classroom and on the field during a pilot survey, using practical cases to ensure a perfect understanding of questionnaires. In 2020-21, the enumerators' team was composed of 10 persons, including two supervisors. The team of enumerators includes six females, which certainly improved the quality of data collection, particularly with female respondents, by making them feel more at ease and giving them greater freedom of expression. Two supervisors and three enumerators participated in the 2010 and 2016-17 waves, so half of the fieldwork team had good experience. To reduce the duration of the data collection process, NEEMSIS-2 relies on preloaded data saved in the tablets. This method avoided asking for time-invariant information on the same individuals (e.g., education for individuals above 30 years, caste identity).

NEEMSIS-1 and NEEMSIS-2 were carried out during dramatic shocks (i.e., demonetisation and then the COVID-19 pandemic). These shocks obviously obliged us to stop the survey and take specific measures such as sanitary precautions during the COVID-19. In the end, this two-stage survey, before and after the shock, appeared like natural experiments enabling us to understand the effects of the shocks.

NEEMSIS-1: the shock of demonetisation NEEMSIS-1 was collected over two periods, from August 2016 to early November 2016 and from January to March 2017. The gap in the periods was due to technical issues with the batteries of digital tablets. The main crop in the region is paddy, and the districts in the region have a three-season pattern, meaning they harvest three times a year (i.e., July, November, and March). Therefore, our data collection took place during harvest season.

An external shock, the national demonetisation policy announced by the Indian

government in November 2016, occurred during the data collection. In November 2016, Narendra Modi, the prime minister of India, announced a ban on the INR 500 and INR 1k notes, the two highest-value banknotes in circulation. Although there were two previous instances of demonetisation in India, in 1946 and 1978, the 2016 Indian demonetisation was unparalleled in its size, scope, and suddenness (Guérin et al. 2017). The implementation process involved many technical challenges, leading to severe cash shortages. Due to the importance of cash in the Indian economy (98% of transactions are estimated to be in cash), this measure had strong impacts on employment, daily financial practices, and network use for more than three months, as people relied more strongly on their networks to sustain their economic and social activities. This shock seriously disrupted local economies and livelihoods during the survey. NEEMSIS took advantage of this context to observe the effects of a macroeconomic and monetary shock on rural households (Guérin et al. 2017; Hilger and Nordman 2020). Almost half the sample (42%) was interviewed after the November 2016 demonetisation.

NEEMSIS-2: the shock of the COVID-19 pandemic NEEMSIS-2 was collected from December 2020 to October 2021, six months after the end of the first COVID-19 lockdown (March 25, 2021, to June 1, 2021). In February 2021, India was hit by the largest COVID wave, which led to a sharp rise in contamination and deaths.

Thus, from April 5, 2021, to June 15, 2021, the government of Tamil Nadu imposed a complete lockdown. Almost 60% of the households were interviewed before the second lockdown, 20% during and 20% after. NEEMSIS-2 took advantage of this timing of crisis to address its effects on rural households (Guérin et al. 2022; Guérin, Mouchel, and Nordman 2022).

Table 1: Sample size of RUME-NEEMSIS datasets

	RUME (2010)	NEEMSIS-1 (2016-17)	NEEMSIS-2 (2020-21)
Number of households			
<i>Cross-sectional</i>	n=405	n=492	n=632
<i>Panel 2010 / 2016-17</i>	n=388		
<i>Panel 2016-17 / 2020-21</i>	n=485		
<i>Panel 2010 / 2016-17 / 2020-21</i>	n=382		
Number of individuals			
<i>Cross-sectional</i>	n=1928	n=2696	n=3647
<i>Panel 2010 / 2016-17</i>	n=1826		
<i>Panel 2016-17 / 2020-21</i>	n=2628		
<i>Panel 2010 / 2016-17 / 2020-21</i>	n=1783		

Source: RUME (2010), NEEMSIS-1 (2016-17), and NEEMSIS-2 (2020-21); author's calculations.

4 Descriptive statistics

In what follows, we present the central dynamics over the last decade regarding employment, agriculture, and indebtedness. This section also presents the main socio-economic characteristics of households and individuals. To ensure comparability, all monetary values are expressed in 2010 Indian rupees (INR) using the Consumer Price Index of the World Bank.

4.1 Socio-economic characteristics

In the sample, due to the stratification, 48% of the households are Dalits, between 36% and 42% are middle castes and between 10% and 17% are upper castes (see Table 2).⁴

A household comprises five household members on average over the decade. The sex ratio is also stable over the survey waves. On average, there are 1.3 males for one female.

The average age was 29 in 2010, 32 in 2016-17 and 33 years old in 2020-21. This means our strategy of counterbalancing the age dynamics of the panel households over time by selecting new and younger households in 2016 and 2020 (like one would do in a rotating panel) was somewhat satisfactory (especially in 2020), although not fully as the average age still increases. The rate of growth of the average age is also contained by the fact that newborns or relatively young and newly married household members tend to recompose the sample, while some older individuals die. Regarding the dependency ratio, there are around 0.4 non-active individuals for one active.

Marital status Regarding marital status, there are no data available for 2010. In 2016-17 and 2020-21, two-thirds of the individuals aged 15 and over were married (see Table 6 in Appendix). Getting divorced is an exception, while the sample comprises a few per cent of widows. Unmarried people are in majority between 15 and 24 years old, while the incidence of marriage reaches its maximum height for the age bracket 35-44.

Education and cognition Educational attainments is continuously increasing over the decade (see Table 3). No matter the quality of education or the kind of educational institutions, public or private, people tend to pursue further studies. For instance, one-fifth of our sample had completed tertiary education in 2020-21, while this proportion was only 5% in 2010.

The NEEMSIS-2 data provide helpful information on the potential beneficiaries of

4. In 2020-21, for technical reason, some of the information collected in the household questionnaire is unavailable for six households. Thus, we decided to drop them from the future analysis, taking the sample to 626 households in 2020-21.

Table 2: Household socio-economic characteristics

	Total				Dalits				Middle				Upper			
	2010	2016-17	2020-21	n=492	2010	2016-17	2020-21	n=194	2010	2016-17	2020-21	n=151	2010	2016-17	2020-21	n=60
	n=405	n=492	n=626		n=194	n=236	n=297		n=151	n=197	n=261		n=60	n=59	n=68	
Household size	4.76	4.68	4.76		4.86	4.92	5.14		4.70	4.60	4.55		4.62	3.95	3.90	
Sex ratio	1.37	1.33	1.29		1.37	1.36	1.30		1.31	1.27	1.31		1.50	1.43	1.21	
Dependency ratio	0.47	0.41	0.40		0.51	0.40	0.38		0.49	0.40	0.39		0.28	0.48	0.48	
Non-workers ratio	0.45	0.31	0.30		0.51	0.32	0.30		0.44	0.31	0.31		0.26	0.28	0.27	
Income (INR 1k)																
<i>Mean</i>	81.31	96.12	105.52		78.75	81.42	94.52		79.47	110.07	114.10		94.24	108.35	120.65	
<i>CV</i>	0.74	1.01	1.04		0.69	0.78	1.03		0.60	1.17	1.11		1.02	0.67	0.76	
<i>First quartile</i>	45.00	39.87	35.87		44.00	34.72	34.35		46.10	44.56	39.13		44.25	56.96	35.19	
<i>Median</i>	68.00	73.90	79.02		66.00	63.48	68.48		70.00	77.91	76.83		80.00	85.44	108.15	
<i>Third quartile</i>	98.00	123.37	137.93		96.00	107.15	124.57		95.00	130.38	142.04		116.50	149.37	195.65	
% of agricultural household*	84.69	63.41	72.36		90.21	69.92	80.47		86.75	64.47	72.41		61.67	33.90	36.76	
Assets** (INR 10k)																
<i>Mean</i>	23.98	27.70	30.19		19.57	18.94	26.77		25.98	34.42	33.80		33.19	40.33	31.31	
<i>CV</i>	0.56	1.16	0.72		0.49	0.81	0.67		0.55	1.25	0.68		0.49	0.75	0.95	
<i>First quartile</i>	15.10	10.36	16.19		13.40	8.64	15.54		16.00	12.44	18.43		19.75	12.54	14.74	
<i>Median</i>	19.90	19.83	24.42		18.28	15.91	22.17		23.50	25.15	28.05		29.98	37.78	24.18	
<i>Third quartile</i>	29.75	36.44	38.10		22.35	24.26	32.49		33.30	43.55	43.35		43.28	59.73	36.95	
Migrant rate*** (%)	44.20	37.40	20.29		57.22	43.22	24.24		34.44	28.93	14.56		26.67	42.37	25.00	

Source: RUME (2010), NEEMSI-1 (2016-17), and NEEMSI-2 (2020-21); author's calculations.

Note: *Households with at least one member working in the agricultural sector. **Assets without land. ***Households with at least one migrant.

positive discrimination in education.⁵ 21% of individuals aged over 25 have benefited from affirmative action policies. In line with the principles of such public policy, most are Dalits (45%). As for the types of schemes from which the above-mentioned individuals benefited the most, these are free secondary school fees (50%), university entrance quotas (31%), and scholarships (30%).

Regarding cognition, for all variables, except the locus of control, we have longitudinal data, which is a rare and valuable advantage to analyse the formation and use of personality traits and cognitive skills. In 2016-17, males tended to have a higher level of conscientiousness, extraversion, grit, numeracy, literacy and a higher score in the Raven progressive matrices test. However, in 2016-17, we do not observe differences between males and females regarding openness to experience, agreeableness, emotional stability, and locus of control (in 2020-21 for the latter).⁶ In terms of changes between NEEMSIS-1 and NEEMSIS-2, the data show strong instability over time and the impact of exogenous shocks (Natal 2023): individuals who experienced the Indian 2016 demonetisation are more salient in terms of openness to experience and extraversion, while those surveyed after the second COVID-19 lockdown of April 2021 are more salient in terms of neuroticism compared to others.

Income Annual household incomes are on the rise from 2010, despite the demonetisation of November 2016 and the COVID-19 crisis in 2020-21 (see Table 2). If incomes are on the rise, so are inequalities between caste groups. Dalits have the lowest income growth rates (see Table 7), and middle castes have the highest. As a result, the gap between Dalits and non-Dalits is widening in terms of annual income, and the middle castes tend to catch up with the upper castes.

Agriculture Land holding is a key issue in rural areas. Judging by the sizes of landholdings, Indian agriculture is moving towards the miniaturisation of landholdings. When we started to collect data on the survey area, 70% of all landowners across India fell into the “marginal farmers” category, i.e., holding less than one hectare of land. Conversely, less than 1% of landowners owned more than 10 hectares of land (Lerche 2011). Reddy and Mishra (2009) distinguish between three categories of landowners: a small class of rich capitalist farmers, an upwardly mobile medium small and marginal farmers, and poor marginal farmers. For a tiny minority of the population in rural

5. Affirmative action policies aim to benefit historically or currently disadvantaged individuals (i.e., women, scheduled castes, scheduled tribes, and other backward castes in India) by granting them temporary preferential advantages. In education, this can be exempted from school fees, scholarships, or quotas (of places) within schools.

6. For more analytical work on personality traits and cognitive skills using the NEEMSIS dataset, see Hilger and Nordman (2020), Michiels, Nordman, and Seetahul (2021), Natal (2023), and Natal and Nordman (2023).

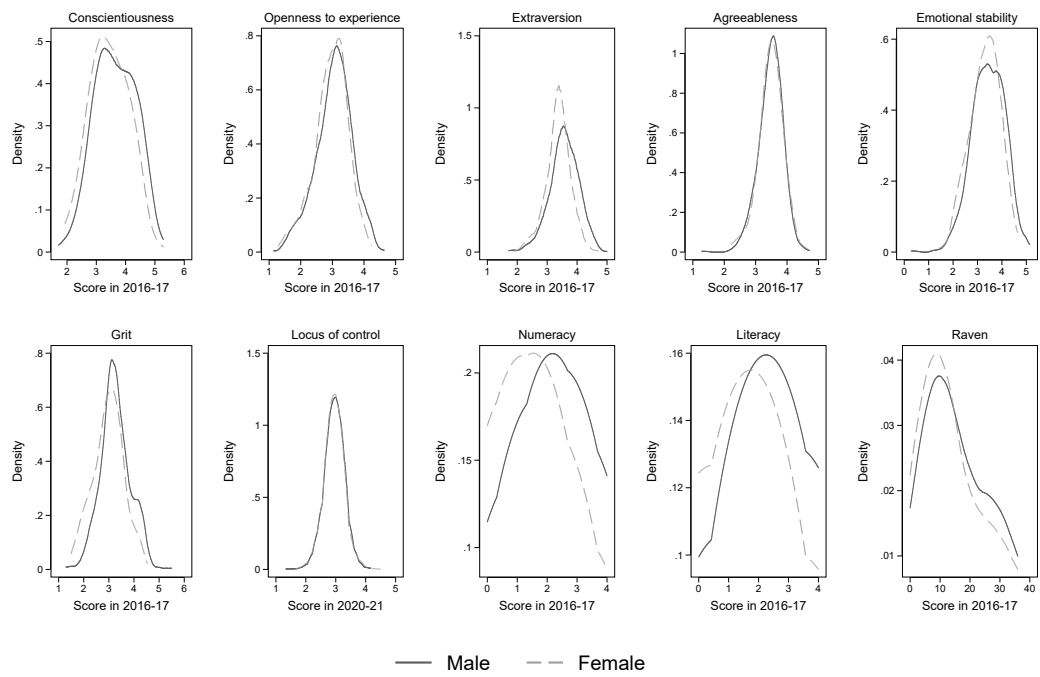


Figure 2: Scores of personality traits and cognitive skills by sex
Source: NEEMIS-1 (2016-17), and NEEMIS-2 (2020-21); author's calculations.

Table 3: Education level for individuals aged 25 and over

	Total				Male				Female			
	2010	2016-17	2020-21		2010	2016-17	2020-21		2010	2016-17	2020-21	
	n=1068	n=1335	n=1853		n=559	n=685	n=940		n=509	n=650	n=913	
No education	45.22	43.15	37.51		35.78	32.41	27.66		55.60	54.46	47.65	
Primary level	17.42	31.39	27.74		18.07	33.87	30.85		16.70	28.77	24.53	
Secondary level	32.77	12.88	13.92		38.82	17.96	17.55		26.13	7.54	10.19	
Tertiary level	4.59	12.58	20.83		7.33	15.77	23.94		1.57	9.23	17.63	

	Dalits				Middle				Upper			
	2010	2016-17	2020-21		2010	2016-17	2020-21		2010	2016-17	2020-21	
	n=486	n=631	n=893		n=401	n=539	n=771		n=181	n=165	n=189	
No education	51.03	50.55	42.11		40.90	40.26	35.93		39.23	24.24	22.22	
Primary level	16.67	25.99	24.19		17.46	34.88	30.22		19.34	40.61	34.39	
Secondary level	27.98	12.68	14.33		37.66	12.99	14.01		34.81	13.33	11.64	
Tertiary level	4.32	10.78	19.37		3.99	11.87	19.84		6.63	21.82	31.75	

Source: RUME (2010), NEEMSI-1 (2016-17), and NEEMSI-2 (2020-21); author's calculations.

Note: In 2010, 45.22% of individuals aged 25 and over have no school education.

areas, large landholding is a source of wealth, while for others being a farmer may also be a new source of precarity (Reddy and Mishra 2009).

In a context of sharp inequalities, an exhaustive analysis would require information on whole landholding in villages. The RUME-NEEMSIS data allow us to draw information only about the share held by the household of our sample. We might miss the share of households owning the majority of the land. As an example, in Manamthavizinthaputhur, the maximum farm size was between 150 and 200 hectares, while qualitative data report the existence of a family in charge of more than 150 hectares, “the biggest farmer in Manamthavizinthaputhur”, which is almost permanently living abroad, as his newly-married single daughter lives in Singapore. The second most prominent landowner reported a farm size of fewer than 20 hectares. RUME-NEEMSIS data reported that all the other landowners lag with less than 10 hectares, and for most of them, even less. Using descriptive statistics from quantitative data, the most prominent landowner in this village has 10 hectares, he/she is neither the first or the second biggest landowner identified through qualitative interviews. However, our figures tend to be consistent with nation-level trends. A fair percentage of the population owned a few hectares in 2010: 54% of the households had land with an average size of 0.8 hectares (see Figure 3). The number of households having land drops in 2016-17 at 31% while the average farm size reaches 1 hectare, and slightly increases to 35% in 2020-21 with a decreasing average farm size of 0.8 hectares. Qualitative surveys indicate that indebtedness is often an explanatory factor. While land is rarely mortgaged, people have no other choice than selling it when they can no longer pay their creditors (Guérin et al. 2022). Our study area fits with the generalisation of the nationwide trend of miniaturisation of landholding.

Landholding inequalities are also segmented along caste groups. Dalit farmers are systematically more marginal landowners than middle-caste farmers and then upper-caste farmers, no matters the wave (see Figure 3). While income inequalities between middle and upper-caste households in the villages are about to be rubbed out, landholding is still a bastion of pending historical inequalities with assets.

Last, regarding the share of agricultural income, we observe a significant decrease between 2010 and 2020-21, whatever the caste (see figure 8). However, this drop is particularly true for upper castes, in line with the observed migration of the upper castes to the cities (Djurfeldt et al. 2008).

Assets and consumption The wealth measured with assets is the sum of the monetary value of gold, house, livestock, consumption goods (cars, bikes, computers, cook-gas, phones, for instance) and land. Because of the monetary value of the land (see, e.g. Singh 2016) (around INR 10 lakhs per acre) and the drop in land ownership between 2010 and 2016-17 (see Figure 3), we do not include the value of land in the measure of

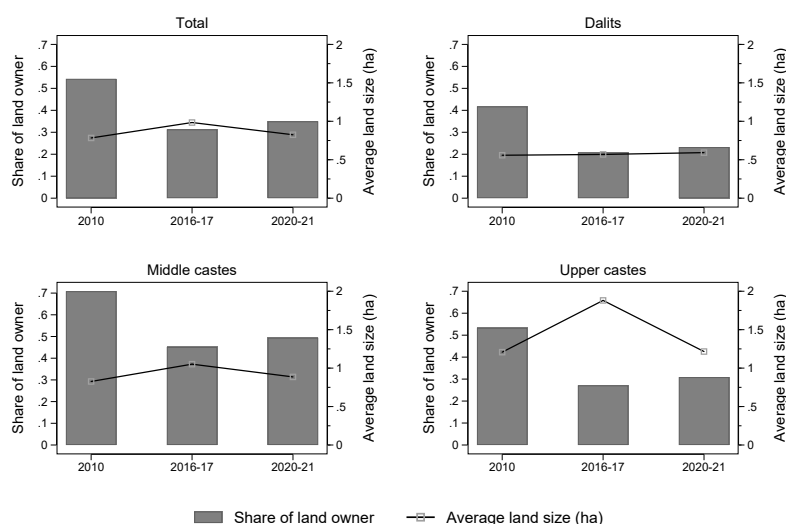


Figure 3: Land ownership trends between 2010 and 2021

Source: RUME (2010), NEEMSIS-1 (2016-17), and NEEMSIS-2 (2020-21); author's calculations.

assets held. On average, the monetary value of assets has increased over the last decade (from INR 240k in 2010 to INR 302k in 2020-21), especially for Dalits (from INR 196k in 2010 to INR 268k in 2020-21, on average). The house's monetary value can partly explain this trend. Indeed, over the last two decades, the central government of India and the government of Tamil Nadu have greatly financed houses through different national schemes programmes (Indira Awas Yojana, Samagra Awas Yojana). Targeting in priorities the poor (Dalits and free bonded labourers), these schemes provide free housing to households in rural areas, loans at a concessional interest rate to low-income group households for the construction of houses with the provision of safe drinking water, sanitation and common drainage facilities. These programmes have greatly improved the livelihood of households (Kumar 2021; Abrol et al. 2020).

RUME-NEEMSIS data indicate that gold represents around 40% of the total value of assets. Also, gold is the dominant form of saving and serving economic (the rate of gold has been constantly rising), socio-cultural (saving in gold is a matter of identity), and political purpose (loans manifest hierarchical relations) (Goedecke et al. 2018). While Dalits have a higher propensity to save in gold (Goedecke et al. 2018), they are also those who experienced a decline in the share of gold in the total value of assets between 2016-17 and 2020-21 (on average, from 41% in 2016-17 to 31% in 2020-21). The COVID-19 crisis explains this drop. Indeed, due to a lack of income and certainty about future income, many households lost their creditworthiness, and pledging assets became the only way to secure financial transactions (Guérin et al. 2022).

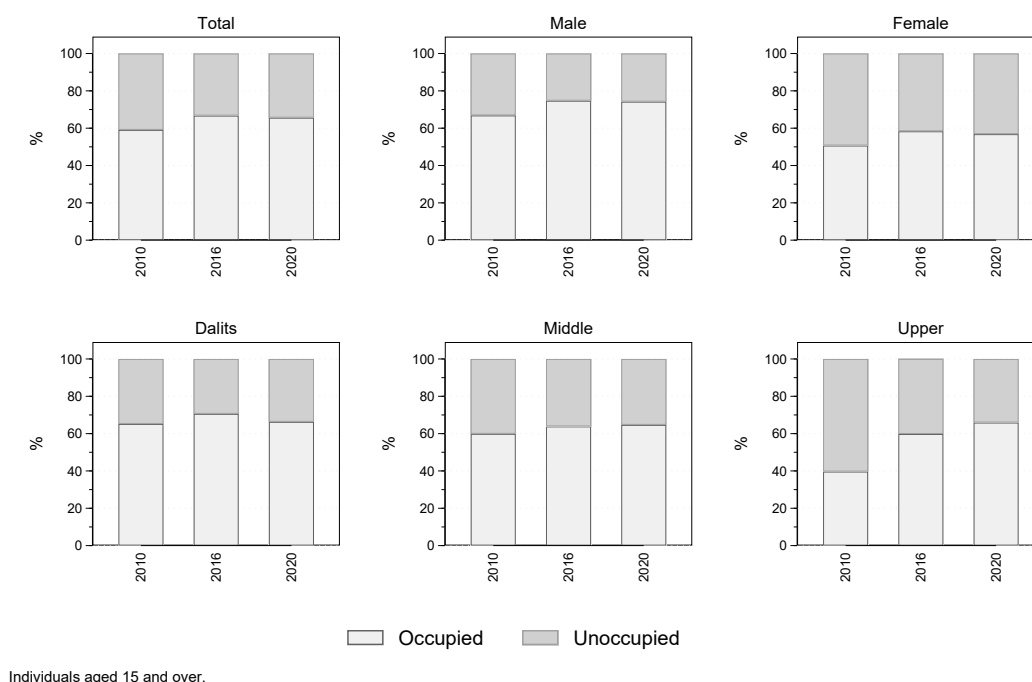
RUME-NEEMSIS data are also helpful in documenting trends in terms of consump-

tion (see Table 2). The average food expense was around INR 600 per week in 2010. This amount increased sharply between 2010 and 2016-17 (INR 750) and decreased between 2016-17 and 2020-21 (INR 705). This reduction in food consumption is due to the COVID-19 crisis (Guérin et al. 2022; Guérin, Mouchel, and Nordman 2022). Regarding health, in 2010, on average, a household spent INR 8k per year. In terms of dynamics, the trend is identical to that observed for food due to the COVID-19 crisis (Guérin et al. 2022; Guérin, Mouchel, and Nordman 2022). Finally, our data highlight the inequalities between castes. Indeed, both in terms of food and health, Dalits have significantly lower expenses than others. Regarding decision-making power concerning food and health expenses, it is mainly women who are responsible for it. Indeed, of the individuals who were identified as being primarily responsible for these expenditure items, more than 60% are women (60% and 64%, respectively). Moreover, as far as social norms are concerned, only 7% of the individuals interviewed via the individual questionnaire disagreed with the fact that a woman actively participates in household consumption decisions. Of these, 62% were men, most of whom were Dalits (47%).

4.2 Employment characteristics

Two-thirds of the sample participate in the labour market, i.e., paid employment (see Figure 4). Domestic work and chores are excluded from the calculation of the employment rate. The employment rate is stable over the decade, slightly oscillating between 66% and 67%. Regarding the worker ratio, there are around 0.4 non-worker individuals for one worker.

The agricultural sector's share is declining over the decade: from 52% to 34% of the total employment (see Table 4). However, this trend is unsteady, with a new rise in agriculture in 2020-21 that may be explained by natural and socio-economic shocks: the demonetisation of November 2016 and the successive lockdowns during the COVID-19 crisis, along with punctual and severe climatic episodes. The total share of people working in the agricultural sector is diminishing at the individual level (see Figure 5). However, this has to be nuanced regarding the importance of agricultural activities as a source of essential and complementary resources for households. For 2016-17, two-thirds of the households had at least one household member working in agriculture (see Table 2). This percentage increases to 72% of the households in 2020-21. Looking at other employment sectors, it is noteworthy to highlight the continuously diminishing share of the industrial sector: respectively 32%, 33%, then 29% of total employment in 2010, 2016-17 and 2020-21 (see Table 4). The relative decline of agriculture is counterbalanced by a rise in employment in the services ranging from 17% at the beginning of the decade to 34% in 2020-21.



Individuals aged 15 and over.

Figure 4: Employment rate for individuals aged 15 and over

Source: RUME (2010), NEEMSIS-1 (2016-17), and NEEMSIS-2 (2020-21); author's calculations.

Differences between activities To present our data on labour, we use seven categories of employment status: agricultural self-employed, agricultural casual workers, non-agricultural casual workers, non-agricultural regular non-qualified workers, non-agricultural regular qualified workers, non-agricultural self-employed and public employment scheme workers, i.e., NREGA.

The proportion of agricultural casual workers tends to decrease over the decade, as agricultural employment increasingly competes with jobs in other sectors and agricultural returns are declining (see Figure 5). On the contrary, regular workers are on the rise, suggesting potential improvements in employment forms. Casual work refers to inherently unstable jobs both in terms of tasks and employers. Regular labour includes continuity regarding tasks undertaken and employers (Guérin, Michiels, and Venkatasubramanian 2014). However, the COVID-19 crisis may have hampered this evolution regarding the labour force.

These categories present remarkable differences in terms of annual incomes. Casual workers in agriculture and NREGA have systematically the lowest individual incomes, far behind other categories. For example, the annual income for agricultural workers was INR 11k per year on average, while the average annual income for regular qualified workers was INR 91k per year in 2020-21 (see Figure 6).

Also, we observe several differences between categories regarding working condi-

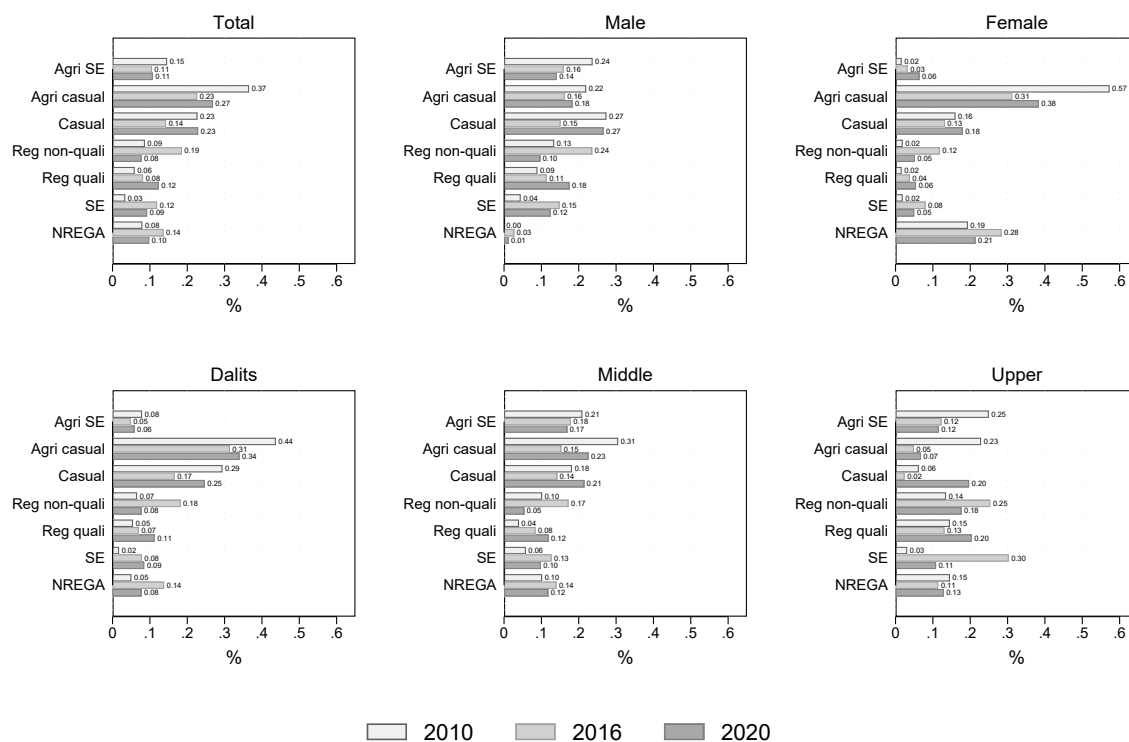


Figure 5: Type of occupation for occupied individuals

Source: RUME (2010), NEEMSIS-1 (2016-17), and NEEMSIS-2 (2020-21); author's calculations.

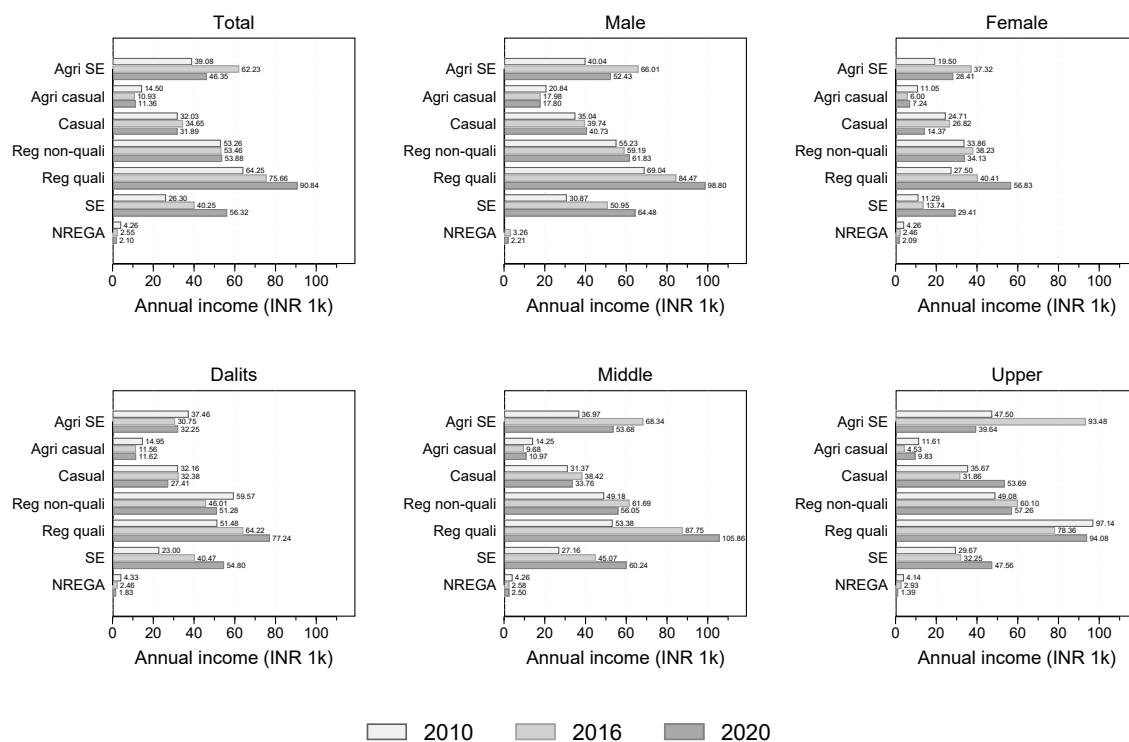


Figure 6: Annual income of occupation for occupied individuals

Source: RUME (2010), NEEMSIS-1 (2016-17), and NEEMSIS-2 (2020-21); author's calculations.

tions and discrimination at work. For instance, casual work, agricultural or not, are systematically associated with the worst working conditions in terms of execution (standing, posture, walking or carrying heavy loads, for instance), problem (dirtiness, humidity or bad smells, for instance), and exposition (traffic accidents or risk of being injured for instance).⁷ They are also associated with a higher level of discrimination experienced (based on religion and caste, among others).⁸ By contrast, regular occupations (qualified or not) are associated with better working conditions and a lower level of experienced discrimination.

As far as job satisfaction is concerned,⁹ once again, it is the regular (mainly qualified) occupations for which a higher level of satisfaction is observed in terms of salary, “well-being” at work, and motivating factors (mobilisation of one’s knowledge and skills, satisfactory objective, and autonomy among others) unlike casual and self-employment in the agricultural sector.

Finally, NREGA-type public jobs are associated with a high level of obligation (financial and social).¹⁰ In other words, these jobs are undertaken in response to budgetary constraints and/or social pressures from family or community. As such, the self-employed appear to be relatively freer to undertake their work activity.

Gender differences Most females are working, but systematically less than their male peers (see Figure 4). Nevertheless, the employment rate focuses on paid employment part of the production sphere and does not consider the importance of non-paid work,

7. Scores are calculated by averaging nine binary questions for “execution” (for instance, do you have to stand for long periods of time as part of your job?), ten for “problem” (for instance, is dirtiness problematic in your work?), and five for “exposition” (for instance, are you exposed to smokes and dusts). The score obtained is between zero and one.

8. The 2020-21 individual questionnaire has three questions about discrimination in the labour market. The first relates to workplace discrimination based on gender, religion, caste, sexual orientation, disability, political orientation, or place of residence. The second question refers to discrimination in a job search based on caste, religion, or gender. The last question relates to discrimination experienced when seeking employment for beneficiaries of affirmative action policies based on caste or religion. For each of these three questions, an individual is considered discriminated against if he/she indicates that he/she has experienced at least one form of discrimination.

9. NEEMSIS-2 wave has questions about motivating factors and well-being at the individual level. Regarding motivating factors, the mobilisation of skills and/or knowledge, having a good work objective, being motivated to give one’s best at work, and having autonomy in one’s work are considered. Since individuals can answer each of these questions in a graded manner (from 1 to 4, with 4 being the best possible level), an indicator is created. It is calculated by dividing the sum of the scores of the four questions mentioned above by 16. For well-being at work, the indicator considers the following questions: willingness to change anything in one’s job, happiness in one’s job, and satisfaction with one’s salary. For the first question, the categories (0 for “No” and 1 for “Yes”) have been reversed to create a coherent indicator that the higher it is, the greater the well-being at work.

10. In terms of obligations, four questions are mobilised for the creation of the indicator. These questions relate to working only for financial needs, being forced to work by the spouse, community, or social organisations, working for the approval of others under penalty of blame, and working because it is personally meaningful. For the last question, the categories are reversed (1 “Strongly disagree”, 2 for “Disagree”, 3 for “Agree”, and 4 for “Strongly agree”) to create a coherent indicator which, the higher it is, the more it reflects an obligation (financial or social) to work.

including domestic work in the reproduction sphere. Three-quarters of male individuals had at least a remunerated occupation on the labour market in 2010 like in 2016-17 or 2020-21 (see Figure 4). On the contrary, the employment rate of female workers reached its maximum in 2016-17, with 59% of females having a remunerated occupation. In 2020-21, the proportion of females regarded as employed knew a downturn. No matter the year, the female employment rate has never exceeded 60% for the previous decade and lags between 16 and 24 percentage points behind the male employment rate. Looking at the occupational categories, females are overwhelmingly over-represented as agricultural casual workers and NREGA workers, the lowest and less time-consuming forms of paid employment (see Figure 5).

Gender differences are outstanding regarding income level, and the gender gap has been increasing over the decade. On an annual basis, females were paid three times less than males in 2010, 3.5 times less in 2016-17 and 3.6 times less in 2020-21 (see Table 4). Females also tend to work fewer hours than males. On average, females worked 1 061 hours a year in 2016-17, while males worked 1 743 hours a year. The gap is also on the rise for 2020-21, females and males working, respectively, 1 159 hours and 2 018 hours a year.

As for decision-making power concerning the choice to work and the use of wages, the 2020-2021 data show that only 37% (of the individuals interviewed via the individual questionnaire and having worked in the year preceding the survey) decided to work themselves. Of these, only 34% are women, 60% of whom are Dalits. And when it comes to the choice of wage mobilisation, only 42% of these individuals choose alone, and this figure reaches 77% if we consider that the decision was taken jointly with another person (spouse, parents or in-laws, and child). Of these, less than 40% are women, of whom more than 55% are Dalits. Regarding social norms, and more specifically, the opinion of individuals regarding a woman's decision to work, few individuals in our survey field have a negative opinion (8%). Of these, 60% are men, mainly Dalits (41%). Thus, the decision to work and to use income is taken at the family level, not individually. This is particularly striking for women, even though the individuals interviewed via the individual questionnaire favored women deciding to work.

Caste differences Caste group differences are another main dividing line in the labour market, although employment rates are almost similar across group castes over the decade. Discrepancies appear through other lenses. The previous section reported inequalities between upper-, middle- and lower-caste households regarding household incomes. Income inequalities are mainly driven by differences in job allocation in the labour market that we can observe at an individual level. On average, Dalits' hourly earnings were INR 21 per hour in 2016-17 and INR 22 per hour in 2020-21, while middle-caste hourly earnings were INR 31 per hour and INR 32 per hour, upper-caste

Table 4: Employment characteristics for occupied individuals

	Total				Male				Female			
	2010	2016-17	2020-21		2010	2016-17	2020-21		2010	2016-17	2020-21	
	n=875	n=1221	n=1572		n=514	n=700	n=900		n=361	n=521	n=672	
Elementary occupation (%)	48.57	52.33	46.76		29.38	34.57	30.11		75.90	76.20	69.05	
Sector of activity												
<i>Agriculture</i>	51.66	33.58	37.85		46.5	32.57	32.67		59	34.93	44.79	
<i>Industry</i>	30.86	32.6	28.63		39.69	37.86	34.33		18.28	25.53	20.98	
<i>Services</i>	17.49	33.82	33.52		13.81	29.57	33		22.71	39.54	34.23	
Annual hours worked* (mean)	-	1451.77	1651.04		-	1743.32	2018.39		-	1060.06	1159.04	
Annual income* (mean, INR 1k)	31.70	38.38	40.99		43.92	55.20	59.62		14.29	15.78	16.03	
Dalits												
	2010	2016-17	2020-21		2010	2016-17	2020-21		2010	2016-17	2020-21	
	n=455	n=636	n=797		n=324	n=463	n=628		n=96	n=122	n=147	
Elementary occupation (%)	56.48	63.99	54.58		40.43	45.14	42.36		38.54	18.85	23.13	
Sector of activity												
<i>Agriculture</i>	52.09	36.48	40.03		52.16	33.91	39.65		47.92	17.21	18.37	
<i>Industry</i>	34.29	31.6	29.86		27.78	30.67	26.27		25	45.08	31.97	
<i>Services</i>	13.63	31.92	30.11		20.06	35.42	34.08		27.08	37.7	49.66	
Annual hours worked* (mean)	-	1350.82	1629.56		-	1495.13	1604.44		-	1813.49	1966.59	
Annual income* (mean, INR 1k)	30.05	29.86	34.98		30.87	46.42	46.05		42.30	52.27	51.95	

Source: RUME (2010), NEEMESIS-1 (2016-17), and NEEMESIS-2 (2020-21); author's calculations.

Note: *For all occupations of an individual.

hourly earnings INR 29 per hour and INR 35 per hour respectively.¹¹

These figures do not take into account categories of occupation. Here also, we observe dividing lines. Dalits are over-represented among less qualified jobs categorised as elementary occupations according to the indicator for employment by occupation developed by the International Labour Organization (ILO) based on the International Classification of Occupations (ISCO) and its last revision, ISCO-08 in 2008 (see Table 4). Elementary occupations involve the performance of simple and routine tasks which may require the use of hand-held tools and considerable physical effort. The majority of Dalits are systematically working in low-paid elementary occupations. The trend is on the rise, but there is no clear indication regarding the pace of such an increase. In 2010, 56% of Dalits individuals were concerned, 64% in 2016-17 and 55% in 2020-21.

However, it should be noted that Dalits can benefit from reserved public jobs as part of affirmative action policies. This is the case for almost 50% of whom 53% are men.

4.3 Migration

Regarding recent evolutions in the employment structure in India, circular migration is on the rise for both agricultural and non-agricultural occupations (Guérin, Michiels, and Venkatasubramanian 2014). In the study area, migration is mainly for sugarcane cutting in other parts of Tamil Nadu, Kerala, or in the suburbs of Chennai and other industrial towns to work in brick kilns. However, migration for employment is far from being a homogenous process. Migrants tend to work away from their native village for many reasons ranging from the no-other option to a free choice based on better job opportunities. Michiels (2016) identified five categories of migration using the RUME (2010) database: daily migrations outside agriculture, migrations of the highly-qualified youth, complementary migrations outside agriculture, complementary migrations in agriculture, and seasonal migrations outside agriculture.

Notwithstanding, as a general trend, migrations for job purposes are decreasing. Between 2010 and 2020-21, the share of households having at least a member migrating for work is down-turning (see Table 2). In 2020-21, only 20% of households experienced migration, while 44% were concerned ten years before. The COVID-19 crisis probably reinforced the trend and its dismal consequences on migrants in the impossibility of neither working nor returning home (Picherit 2020). As for now, a minority of household members are migrating for work, and migration is defined as a job outside a local place where people must stay for more than one day.

The NEEMIS migrant tracking data provide information to analyse the migration process, especially for work-related reasons. Migrants mainly go to Chennai, Chengalpattu, Tiruchirappalli, Viluppuram, Bengaluru and Panruti for a non-agricultural

11. INR 21=0.35 EUR (1 EUR=INR 60.6238 on average in 2010).

salaried jobs (80% of migration in 2019), often working in brick kilns (24% of occupation in 2019). More precisely, in 2019, the main reason to migrate was the better opportunity in the migration place (90%), followed by the lack of jobs in the local area (54%). However, in 2022, the lack of jobs was the main reason (62%), followed by the desire to get a better status (41%). In addition, more than 8 out of 10 migration processes are beneficial, i.e. migrants declare being in a better situation. Migration is predominantly familial (69% of migration in 2019, 54% in 2022) and decided by the migrant (48% of migration in 2019, 85% in 2022) or the close family (31% in 2019, 15% in 2022). Regarding the help received to migrate, the tendency is reverse: while in 2019 the majority of the migration process received help from a third party (71%), only 38% received help in 2022.¹²

4.4 Indebtedness

In India, the debt “organises social life, and therefore the life of man as a social being: it makes his presence in the world a network of links, a net that imprisons him at the same time as it supports him” (Malamoud 1988, p.14). In other words, in India, debt is the structuring element of human existence, and is the first form of risk management in rural South India (Roesch and Hélies 2008).

Household indebtedness The first striking result with the RUME-NEEMSIS datasets concerns the incidence of debt. While the nationwide All India Debt and Investment Survey (AIDIS) estimate that 30% of the rural households from Tamil Nadu are indebted, our result shows that the recourse to debt is almost systematic for all castes over the last decade: 100% of households in 2010, 99% in 2016-17, and 99% in 2020-21 (see Figure 7).

In terms of debt intensity, the average amount of debt is around INR 150K, representing more than one year of income, and the amount has increased by 64% between 2010 and 2020-21. The increase is even greater for the upper castes. However, the latter also have much higher incomes than the Dalits. Thus, the financial situation is even more critical for Dalits (Guérin, D’Espallier, and Venkatasubramanian 2013).

At the individual level, females are predominantly the ones who shoulder the responsibility for debt settlement, a task that requires skills, time, and involvement in a range of secondary activities aiming at ensuring repayment capacity and creditworthiness (Reboul et al. 2019), and thus the reputation of the household in the village (Guérin et al. 2014).

12. For more analytical work using the NEEMSIS migrant tracking data, see Michiels, Nordman, and Seetahul (2021).

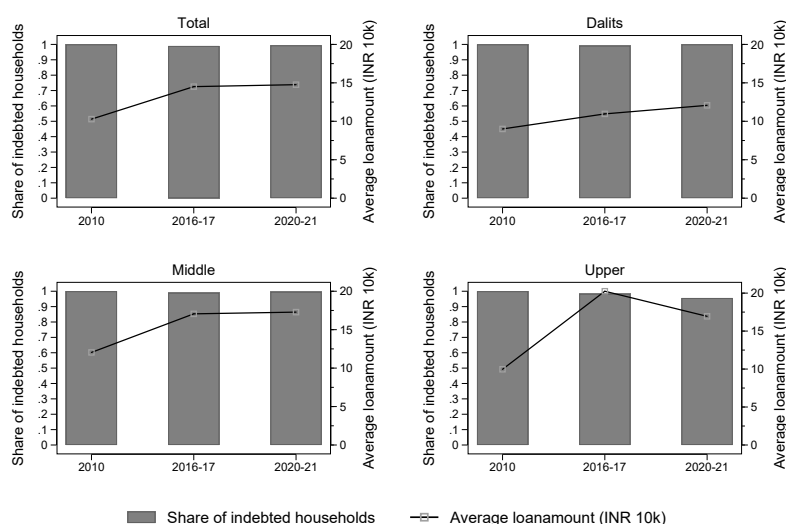


Figure 7: Indebtedness trends between 2010 and 2021

Source: RUME (2010), NEEMSIS-1 (2016-17), and NEEMSIS-2 (2020-21); author's calculations.

Debt for what? In terms of use, the first purpose is to finance current expenses, such as daily consumption smoothing or family expenses (see Table 5). With 37% of the loans in 2010, this share rises to 56% in 2020-21, with an average amount between INR 11k and INR 18k. These amounts are largely below the average amount of loans contracted for economic reasons (INR 28k in 2010, INR 62k in 2016-17, and INR 45k in 2020-21), but the latter represent less than one-quarter of the total loans and are on a declining trend (14% in 2016-17, and 12% in 2020-21). Also, housing-related reasons remain stable over time in terms of share of loans (around 10%) and amount (around INR 30k). However, human capital purpose (education, health) and social purpose (festivals, marriage) are facing a sharp decline: from 16% of loans to 11% for human capital purpose, and from 23% to 11% for social reasons. In rural India, marriage is a key element in everyday life of households, and the decline of debt for social purpose coupled with a rise in debt for current expenses reflect the deterioration of living conditions, which is well documented in the socio-geo-anthropological literature (Lerche 2011).

Regarding caste, the economic purpose is a more frequent practice for non-Dalits, while current expenses are more frequent for Dalits (Guérin, D'Espallier, and Venkata-subramanian 2013).

By disaggregating at the individual level (Reboul, Guérin, and Nordman 2021), it appears that economic purpose loans are largely a male practice: 10% of female debtors took out at least one of their outstanding loans for business purposes, as opposed to 27% of males. Ensuring family subsistence weighs particularly heavily on female debt:

53% of female debtors took out at least one of their outstanding loans to meet daily consumption expenses, as opposed to 35% of males.

Debt from whom? Informal finance remains a crucial feature of the rural financial landscape (Nair 2017), as the two third of debt is informal in 2010, and 99.8% of the households are indebted to at least one informal lender (see Table 5). However, in terms of dynamics, informal debt is declining, contrary to formal debt. While in 2010, 44% of households were indebted to at least one formal lender, they were 72% in 2020-21. Formal debt is also the type of debt with the highest amount compared to informal and semi-formal: in 2020-21, an informal loan is on average at INR 12k, while informal is on average INR 19k, and formal INR 35k. The rising of formal debt is consistent with the trend observed in national surveys (Rajakumar 2019). Also, it seriously threatens household assets (Guérin et al. 2022) by pledging them to secure financial transactions, contrary to informal debt, which is based on creditworthiness, reputation, and trust (the three terms are equivalent in Tamil: *nampikkai*) (Guérin et al. 2014).

Regarding caste, it is an essential factor in borrowing behaviour. Indeed, Dalits borrow more than others groups, but in smaller amounts and more frequently from informal ambulant lenders (Guérin, D’Espallier, and Venkatasubramanian 2013). Also, debt is mainly “endogamous”, i.e., Dalits borrow more from other Dalits, middle castes from middle castes, upper castes from upper castes. For some upper castes, debt to Dalits is degrading, both to oneself and to one’s own caste, as it reflects the group’s inability to help its members (Guérin et al. 2014; Guérin, D’Espallier, and Venkatasubramanian 2013). Using the longitudinal dimension of RUME and NEEMSIS-1, Guérin et al. (2022) show that this “debt endogamy” increases over time, especially for Dalits.

At the individual level, compared to males, females are heavily indebted in relative terms, first and foremost to informal sources, alongside microcredit (Reboul, Guérin, and Nordman 2021). Indeed, while women have always been excluded from formal finance, this is something genuinely new, partly due to the development of Self-Help-Group (SHG) that targets females. However, the specific targeting of women by microcredit policies likely strengthens the association between debt and poverty for women, particularly exacerbating female responsibilities for managing scarcity (Reboul, Guérin, and Nordman 2021).

5 Conclusion

Several projects aim to collect longitudinal data in India. This article presents the original first-hand longitudinal quantitative household survey NEEMSIS (*Networks, Employment, dEBt, Mobilities, and Skills in India Survey*) which consists of a baseline

Table 5: Sources and uses of debt

	%			Average amount (INR 1k)			% of households using it		
	2010	2016-17	2020-21	2010	2016-17	2020-21	2010	2016-17	2020-21
	n=1957	n=2031	n=4801	n=1957	n=2031	n=4801	n=405	n=487	n=622
Debt from whom?									
<i>Informal</i>	66.53	61.30	56.43	21.13	35.54	12.14	99.75	90.97	92.44
<i>Semi formal</i>	20.44	18.91	18.58	11.66	19.73	18.65	68.40	65.91	78.30
<i>Formal</i>	13.03	19.79	24.99	37.09	46.88	35.25	44.20	49.69	72.03
Debt for what?									
<i>Economic</i>	24.43	14.08	11.73	28.51	61.74	44.54	56.54	30.39	36.17
<i>Current</i>	36.64	32.00	55.82	11.67	18.24	11.50	80.49	65.30	93.57
<i>Human capital</i>	17.94	15.95	11.46	24.19	28.04	14.66	53.33	37.78	50.00
<i>Social</i>	11.39	23.14	11.25	25.52	40.29	27.51	39.51	44.76	39.71
<i>Housing</i>	9.61	13.34	9.48	29.08	37.85	26.98	29.38	28.13	39.55
<i>No reason</i>	0.00	0.15	0.04	0.00	33.97	28.53	0.00	0.62	0.32
<i>Other</i>	0.00	1.33	0.23	0.00	102.79	62.01	0.00	4.31	1.61

Source: RUME (2010), NEEMESIS-1 (2016-17), and NEEMESIS-2 (2020-21); author's calculations.

survey, RUME (*RUral Microfinance and Employment*), carried out in 2010 (Guérin, Roesch, Venkatasubramanian, et al. 2023), and two follow-up surveys, NEEMSIS-1 implemented in 2016-17 (Nordman et al. 2017), and NEEMSIS-2 conducted in 2020-21 (Nordman et al. 2021). All three datasets build a three-year panel of households and individuals.

NEEMSIS survey, and its baseline survey RUME, are original by many aspects: not only do the data cover a broad spectrum of household and individual information over a reasonably long period (10 years), but also, they benefit from a relatively homogeneous population coverage because the interviews were conducted in ten nearby localities in rural Tamil Nadu. Hence, NEEMSIS cannot compete with large scale national surveys, but do reveal what they miss by exploring finer socioeconomic processes, such as household financial practices, the transformation of labour, individuals' access and use of social networks and cognition, together with social mobility trajectories.

In this paper, after a presentation of the survey methodology and spirit, we have provided a general picture of a decade of dynamics regarding socio-economic characteristics (including education), labour, agriculture transition, migration and indebtedness. From exploratory and statistical analysis (other research papers cited in this document provide more thoughtful and econometric results on specific aspects of the data), here are a few take away results:

- Educational attainments are continuously increasing over the decade: for instance, one-fifth of our sample had completed tertiary education in 2020-21, while this proportion was only 5% in 2010.
- Annual household incomes are on the rise from 2010, despite the Indian demonetisation of November 2016 (Guérin et al. 2017) and the COVID-19 crisis in 2020-21, and so are inequalities between caste groups: Dalits have the lowest income growth rates, and middle castes have the highest. As a result, the gap between Dalits and non-Dalits is widening in terms of annual income, and the middle castes tend to catch up with the upper castes.
- Data on land ownership fit with the generalisation of the nationwide trend of miniaturisation of landholding, and persistent inequalities along caste groups: landholding is still a bastion of pending historical inequalities with assets.
- On average, the monetary value of assets has increased over the last decade, especially for Dalits, who benefited from different national housing schemes programmes. Trends in terms of consumption (food, health) can also be documented with the data, and still describe growing inequalities across castes.
- In terms of labour, two-thirds of the sample participate in the labour market, i.e. paid employment. The employment rate is stable over the decade, slightly

oscillating between 66% and 67%. There is a relative decline of agriculture which is counterbalanced by a rise in jobs in the services ranging from 17% at the beginning of the decade to 34% in 2020-21.

- The proportion of agricultural casual workers tends to decrease over the decade, as agricultural employment increasingly competes with jobs in other sectors and agricultural returns were declining. By contrast, regular workers were on the rise, suggesting potential improvements in employment forms. However, casual work, whether it is agricultural or not, are systematically associated with the worst working conditions and self-declared discrimination based on caste and religion. The majority of Dalits are systematically working in low-paid elementary occupations, and this trend is on the rise. As in other parts of the world, higher job satisfaction levels are found for the regular (mainly qualified) jobs.
- No matter the year, the female employment rate has never exceeded 60% over the considered decade and lags between 16 and 24 percentage points behind the male employment rate. Females are overwhelmingly over-represented in the lowest paid and less time-consuming forms of employment. Gender differences are outstanding regarding income level, and the gender gap has been increasing over the decade. Besides, the decision to work and to use income appears to be taken at the family level, not individually.
- As a general trend, migrations for job purposes are decreasing. Between 2010 and 2020-21, the share of households having at least a member migrating for work is down-turning. In 2020-21, only 20% of households experienced migration, while 44% were concerned ten years before.
- The recourse to debt is systematic for all castes over the last decade, with average amounts representing more than one year of income. Over the decade, this private debt increase exceeds 60%, with greater incidence for upper castes, while the financial situation of Dalits still remains critical. A decline of debt for social purpose (marriage) coupled with a rise in debt for current expenses reflect the deterioration of living conditions in this South Indian area. Data also reveal that debt practices are gendered (Reboul, Guérin, and Nordman 2021), endogamous within castes, and as such reinforce pre-existing caste-based social hierarchy (Guérin et al. 2022).

Finally, beyond the scientific and policy interests of the results presented in this article, we would like to recap here the interest of the form of collection constituted by NEEMSIS data within a local observatory, such as the *Observatory of Rural Dynamics and Inequalities in South India* (ODRIIS). Over the last few decades, the standardisation of

survey methods, the pre-eminence given to international databases and the weakness of many national statistical institutes (due to lack of resources or authoritarian regimes) have impoverished capacities for measuring and analysing inequalities. At the same time, the rapid transformation of societies, including rural ones (urbanisation, financialisation, social reconfigurations, environmental degradation, etc.) calls for ongoing, contextualised adaptation of measurement tools. Long-term local and regional surveys, such as NEEMSIS, have a central role to play in helping to adequately measure and analyse inequalities and their evolution.

In the Indian context, it is impossible to understand the progression of inequalities without studying in detail the radical transformation of agriculture and employment (due to urban migration), financial practices (due to the explosion of financial markets), social networks and knowledge (due to the radical transformation of modes of kinship and socialisation) and local ecosystems (unequally affected by climate disruption). These realities (or their complexity) escape existing surveys (national or international). Without claiming to replace these surveys, one may like to complement them. The use of an “integrated” survey at several levels of analysis (households, individuals, networks, migrants), with the possibility of spatially identifying population movements, is an innovation that ODRIS (and its quantitative survey, NEEMSIS) intends to perpetuate in the future: to accumulate original, multi-faceted data on the same region over time; to share the results with various local players (populations, decision-makers, civil society) with a view to accountability; and to share the data with the academic community (open-access data, with a pedagogical user manual; cf NEEMSIS and ODRIS websites). These data, on a small scale but with a “home-made” form of collection allowing total control over the quality of the information gathered, also offer the possibility of documenting crises in near-real time (demonetisation in 2016, COVID pandemic in 2020), studying structural changes in South India over a longer period of time, while contributing to theoretical reflections on certain key issues. The stakes are high. India has a long tradition of “village studies”, which have played a decisive role in understanding the complexity of Indian rural dynamics (Himanshu, Jha, and Rodgers 2016; Harriss 2016). Many of these initiatives have fallen into disuse for reasons already mentioned, notably the craze for standardised international databases, which still remain insufficiently and repeatedly collected on a large scale and all over India.

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Appendix

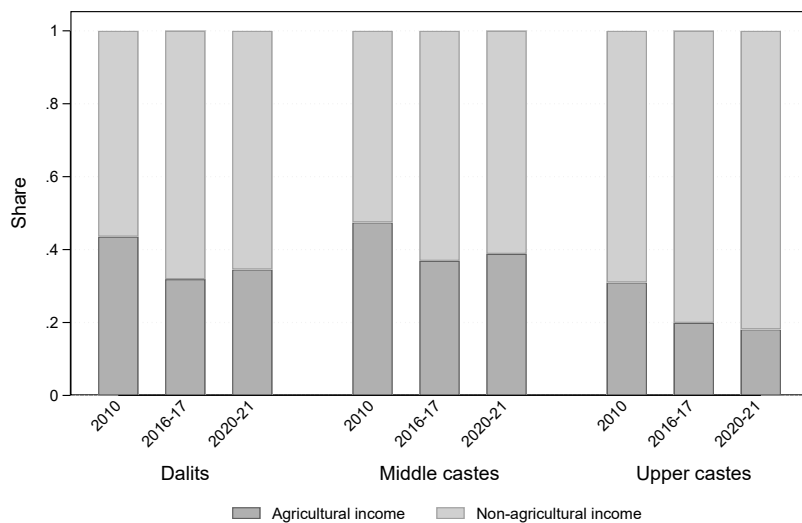


Figure 8: Share of agricultural income between 2010 and 2020-21
Source: RUME (2010), NEEMSIS-1 (2016-17), and NEEMSIS-2 (2020-21); author's calculations.

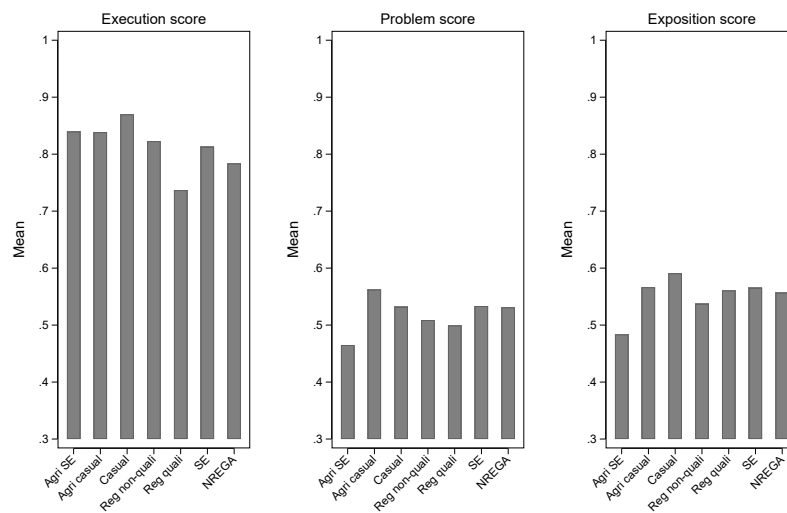


Figure 9: Working conditions for occupied individuals
Source: NEEMIS-2 (2020-21); author's calculations.

Table 6: Individual characteristics

	Total				Male				Female			
	2010	2016-17	2020-21		2010	2016-17	2020-21		2010	2016-17	2020-21	
Total number of individuals	n=1928	n=2301	n=2979		n=1008	n=1199	n=1533		n=920	n=1102	n=1446	
Age (mean)	29.30	31.77	32.71		29.81	31.96	32.58		28.74	31.57	32.85	
Individuals aged 15 and over	n=1481	n=1831	n=2403		n=769	n=937	n=1216		n=712	n=894	n=1187	
Marital status												
<i>Married</i>	-	64.83	67.04		-	63.29	65.87		-	66.44	68.24	
<i>Unmarried</i>	-	29.22	25.47		-	35.01	31.74		-	23.15	19.04	
<i>Widowed</i>	-	5.35	7.03		-	1.07	2.06		-	9.84	12.13	
<i>Separated/divorced</i>	-	0.60	0.46		-	0.64	0.33		-	0.56	0.59	

Source: RUME (2010), NEEMESIS-1 (2016-17), and NEEMESIS-2 (2020-21); author's calculations.

Table 7: Level and growth rates of income and assets by caste

	Annual income			Assets without land		
	Level	Growth rate (2010=100)		Level	Growth rate (2010=100)	
	2010 n=405	2016-17 n=492	2020-21 n=626	2010 n=405	2016-17 n=492	2020-21 n=626
Total sample	81.3	118	130	24.0	116	126
Dalits sample	78.7	103	120	19.6	97	137
Middle castes sample	79.5	138	144	26.0	132	130
Upper castes sample	94.2	115	128	33.2	122	94

Source: RUME (2010), NEEMESIS-1 (2016-17), and NEEMESIS-2 (2020-21); author's calculations.

Table 8: Characteristics of labour migration

	2019	2022
	n=59	n=39
Details reason		
<i>Not enough work in local area</i>	54.24	61.54
<i>Get advance</i>	3.39	7.69
<i>Job assurance</i>	6.78	20.51
<i>Have to repay previous advance</i>	11.86	0.00
<i>Better opportunity in the migration place</i>	89.83	30.77
<i>More interesting job in the migration place</i>	50.85	0.00
<i>Can earn more money than local place</i>	5.08	15.38
<i>Diversify activities</i>	0.00	5.13
<i>Get better status</i>	5.08	41.03
<i>Know someone in migration place who can help me</i>	1.69	2.56
<i>Other</i>	5.08	2.56
Satisfaction		
<i>In a better situation</i>	81.36	89.74
<i>In the same situation</i>	18.64	10.26
<i>In a worst situation</i>	0.00	0.00
Type		
<i>Individual</i>	30.51	46.15
<i>Familial</i>	69.49	53.85
Help		
<i>No</i>	28.81	61.54
<i>Yes</i>	71.19	38.46
Decision		
<i>Yourself</i>	47.46	84.62
<i>Close family</i>	30.51	15.38
<i>Member of the kinship</i>	22.03	0.00
<i>Someone else</i>	0.00	0.00

Source: NEEMSIS-1 migrant tracking (2019), and NEEMSIS-2 migrant tracking (2022); author's calculations.