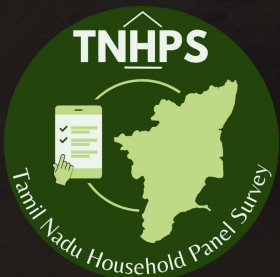


Department of  
Economics  
& Statistics



**Madurai**



Tamil Nadu Household Panel Survey  
**Pre-Baseline District Report 2018-19**



**Tamil Nadu Household Panel Survey (TNHPS)  
Pre-Baseline Survey (PBS) District Report 2018-19**

***Madurai District***

February 2024

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## Summary of PBS Findings

### *Demographic Indicators*

- Madurai had a sample size of 8,751 households, of which 46.42 percent of households were from rural areas and 53.58 percent of households were from urban areas.
- The district had a huge demographic dividend with almost half the population—about 48.45 percent—were aged between 17 and 45 years.
- Hinduism was followed by around 95 percent of the households in the district.
- The BC social group was the largest in the district, constituting close to 60 percent of the total households in the district.

### *Education*

- The district had a literacy rate of 83.45 percent, which was lower than the state estimates of 85.40 percent.
- The gender gap in literacy rate was higher in rural areas at 15.42 percent than in urban areas at 6.8 percent.
- Around 86 percent of its population had formal schooling. Among the population with no formal schooling, around 79 percent did not have functional literacy.

### *Employment*

- The percentage of the employed population in the district was 50.38 percent. Around 3.60 percent were unemployed and 45.98 percent were not in the labour force.
- The percentage of employed population was higher in rural areas of the district than in urban areas.
- Around 71.79 percent of the males were employed and only 29.83 percent of the females were employed, which shows the prevailing gender gap in employment.
- Around 67.33 percent of the females did not participate in the labour force, and among these, around 73 percent were associated with attending to domestic duties as a homemaker.
- Around one-third of the employed population in rural areas were casual labourers in agriculture. The largest number of the urban employed population were salaried workers in the private sector.

- Majority of the employed SC and DNC population in the district were engaged as casual labourers in the agricultural sector at 33.99 percent and 28.45 percent respectively. The General and BC categories were predominantly involved in salaried work in the private sector.

#### *Land Ownership and Assets*

- The percentage of households owning agricultural land at 11.41 percent was lower than the state estimates of 19.41 percent. The MBC and DNC category households were the predominant agricultural landholders.
- More than half the households—about 50.92 percent—that owned agricultural land in the district had access to irrigation sources like canals, tanks and open wells.
- Around 90 percent of the agricultural land-owning households in the district were holding marginal or small agricultural lands (less than 2 hectares).
- Almost all General category households owned at least one household asset. Around 15 percent of the SC households did not own any household asset, including a mobile phone.

#### *Household Income*

- The mean annual household income was ₹1,60,879 in the district; ₹1,94,164 in the urban areas and ₹1,17,620 in rural areas.
- The mean income from salaried work was the highest at ₹2,19,268.
- Income inequality in the district was lower than the state estimate with a Gini coefficient of 0.505.
- Around 60 percent of the General category households expected their income to increase in the five years following 2018. Less than half of the SC, BC, MBC and DNC households expected such an increase.

#### *Housing*

- Around 63.72 percent of the households in the district were living in their own house. Higher percentage of rural households at 82.67 percent lived in their own houses compared to urban households at 49.29 percent.
- Out of the 63.72 percent households that owned houses in the district, 9.41 percent of houses were built under a government scheme. Among the social groups, SC households were the main beneficiaries of the government housing schemes.

Around 71 percent of the households in the district were living in pucca houses, which was higher than the state-level estimate (63.42 percent).

### *Access to Drinking Water*

- Piped water into dwellings was the most commonly used primary source of drinking water in the district at around 40 percent.
- Majority of urban households in the district—about 44.46 percent—used piped water into the dwelling, while around 37.44 percent of rural households used public tap or standpipe as their primary drinking water source.

### *Electricity*

- Around 98.51 percent of households in the district had domestic electricity connection as compared to the state estimate of 97.60 percent.

### *Cooking Fuel*

- Around 88 percent of the households used LPG as primary cooking fuel.
- More than 90 percent of the General and BC category households used LPG as the primary cooking fuel. Around 21.58 percent of the SC households still used firewood as the primary fuel for cooking.

### *Sanitation*

- The percentage of households with latrine within the premises of the house had increased from 59.18 percent in 2011 (Census, 2011) to 84.65 percent in 2018.
- More than 25 percent of the rural households did not have access to a latrine within the house premises.
- Around 32.40 percent of SC households and 20.46 percent of MBC households in the district did not have access to a latrine within the house premises.
- The percentage of total households in the district following open defecation had declined from 35.49 percent in 2011 (Census, 2011) to 13.80 percent in 2018.

## 1. Introduction

### 1.1 Profile of Madurai District

Madurai district in Tamil Nadu was formed in the year 1956. It is in the southern region of the state, with Dindigul and Tiruchirappalli to the north, Sivaganga to the east, Virudhunagar in the south, and Theni to the west.

According to Census (2011), Madurai had a total population of 30.38 lakhs, accounting for approximately 4.21 percent of Tamil Nadu's total population, which was 7.21 crores. The district comprised 7.95 lakh households, with 60.78 percent residing in urban areas. The male population was 50.24 percent, and the female population was 49.76 percent. Madurai demonstrated a child-sex ratio of 932 compared to the state estimate of 943.27. Within the social groups, 13.76 percent of the population belonged to the Scheduled Castes, while 0.37 percent belonged to the Scheduled Tribes. The literacy rate in Madurai district stood at 83.45 percent, compared to the state's average of 80.09 percent. The male literacy rate was 89.72 percent, while the female literacy rate was 77.16 percent.

In the fiscal year 2018-19, Madurai's Net District Domestic Product was ₹54,67,012 lakhs, ranking at tenth among all districts. The district's per capita Net District Domestic Product was recorded at ₹1,60,403, ranking it at sixteenth among districts (Department of Economics and Statistics, 2023). Nonetheless, the per capita Net District Domestic Product of the district was significantly below the Tamil Nadu average of ₹1,83,884 (Department of Economics and Statistics, 2023). In terms of sectoral distribution, the primary sector (agriculture and allied) contributes approximately 5 percent to its domestic income, while the secondary (industry) and tertiary (service) sectors contribute approximately 25 percent and 70 percent, respectively (Department of Economics and Statistics, 2017).

According to the Tamil Nadu State Planning Commission (2017), Madurai ranked fifteenth in terms of the Human Development Index with a score of 0.689, a relatively mediocre score. It ranked twenty ninth in the Gender Inequality Index with a score of 0.112, demanding attention to expanding resources to close the gender divide. In terms of the Child Development Index, the district ranked fifteenth with a score of 0.655, indicative of an average performance in developing the youth. Additionally, Madurai ranked eighth in terms of the Multidimensional Poverty Index with a score of 0.45, pointing to a relatively good performance in the eradication and prevention of poverty.

Madurai district showcases economic diversification towards services and yet struggles with below-average per capita income. Despite strides in poverty reduction, focused action is needed to uplift human development, gender equality, and child welfare.

## 1.2 About the TNHPS and Pre-Baseline Survey (PBS)

The Tamil Nadu Household Panel Survey (TNHPS) has been designed as a longitudinal survey, beginning with a Pre-Baseline Survey or the PBS—an extensive household listing activity—followed by a Baseline Survey (Wave 1) and subsequent periodic surveys (Wave 2, Wave 3 etc.). The TNHPS aims to analyse the patterns of change in various socio-economic indicators, including households' income, occupational structures and living conditions.

The PBS collected data on a comprehensive set of socio-economic indicators for the period 2018-19 with the results providing district-level estimates for these indicators and informing the sampling design and the associated sampling frame for the first wave of the TNHPS. In the absence of Census 2021, the PBS estimates act as a valid benchmark for the Government of Tamil Nadu in terms of socio-economic development since 2011. The PBS surveyed around 2,12,282 households in the erstwhile 32 districts of Tamil Nadu across 1476 Primary Sampling Units—684 rural PSUs and 792 urban PSUs.

This report analyses data from the PBS for the Madurai district and presents the findings. Wherever possible, the report compares the district PBS estimates with the most recent census data of Madurai (Census, 2011) and the state PBS estimates (TNHPS-PBS, 2021) to assess the socio-economic development of Madurai district. The sample size for the district was 8,751 households, among which 4,062 households were from rural areas and 4,689 households were from urban areas. The blocks covered during the survey were: Alanganallur, Chellampatti, Kallikudi, Madurai East, Madurai West, Melur, Sedapatti, T. Kallupatti, Thirumangalam, Thiruparankundram and Vadipatti.

## 2. Survey Response

For the Pre-Baseline Survey (PBS) 2018-19, a total of 8,964 households in Madurai district were selected using a multi-stage stratified sampling design<sup>1</sup>. The final sample size for PBS was 8,751 households, of which 46.42 percent of households were from rural areas and 53.58 percent of households were from urban areas of the district. The area-wise distribution of the total sample as well as the survey response is given in Table 2.1.

*Table 2.1 Distribution of Sample Households – Response-wise*

Response of Households	Area Type					
	Rural		Urban		Madurai	
	Number of HHs	Percentage	Number of HHs	Percentage	Number of HHs	Percentage
Response	4,062	99.22	4,689	96.28	8,751	97.62
Non-Response	27	0.66	109	2.24	136	1.52
Non-sample	5	0.12	72	1.48	77	0.86
<b>Total</b>	<b>4,094</b>	<b>100</b>	<b>4870</b>	<b>100</b>	<b>8,964</b>	<b>100</b>

Madurai district had a higher response rate—willingness of households to participate in the TNHPS-PBS—of 97.62 percent compared to the state response rate of 96.5 percent. Around 1.52 percent of households were not willing to participate in the survey. A mere 0.86 percent of the selected samples were removed as they were not considered as households as per the definition used in the PBS<sup>2</sup>.

<sup>1</sup> Detailed explanation of the Sampling Methodology available in the TNHPS-PBS State Report (see TNHPS-PBS, 2021).

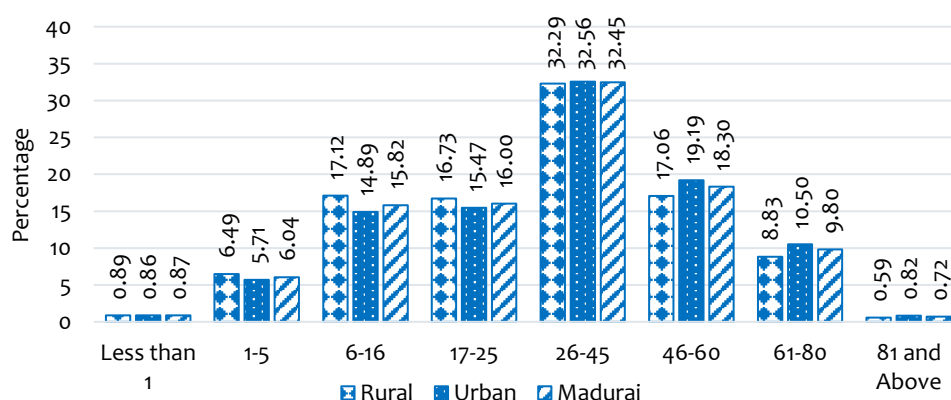
<sup>2</sup> A household is defined as a group of persons normally living together and taking food from a common kitchen. The category called non-sample consisted of institutions, houses of NRIs and other buildings where there was no kitchen.

### 3. Key Findings

#### 3.1 Demographic Indicators

As per the PBS estimates, the average household size<sup>3</sup> in the district had reduced from 3.83 in 2011 (Census, 2011) to 3.49 in 2018. As per the PBS estimates, 50.52 percent of the population in the district were female, and 49.47 percent of the population were male. Around 18.08 percent of the households in the district were headed by females, which was similar to the state estimate of 18.93 percent (TNHPS-PBS, 2021).

Chart 3.1 Age-wise Distribution of Population – Area-wise



As per the PBS estimates in 2018-19, almost one third of the population in the district were in the age group of 26 to 45 years. The population between 17 to 60 years—in the district was 66.75 percent, which was comparatively higher than the state estimate of 66.00 percent (TNHPS-PBS, 2021).

The percentage of the currently married population in the district was 70.63 percent. A higher percentage of males were currently married as compared to females. The widowed female population was notably higher than the widowed male population. The widowed population in rural areas was higher than in the urban areas of the district.

<sup>3</sup> Household size is defined as the number of family members currently living in the household during the PBS survey.

The religion-wise distribution of the households in the district as per the PBS estimates shows that 94.68 percent of the households practiced Hinduism, 3.08 percent practiced Islam and 2.08 percent followed Christianity.

*Table 3.1 Social Group-wise Distribution of Households*

Social Group	Percentage
SC	19.80
ST	0.09
BC	59.41
MBC	9.19
Denotified Communities (DNC)	10.14
General	0.98
DK/RF	0.38
<b>Total</b>	<b>100</b>

As per the PBS estimates, the highest percentage of households in Madurai district belonged to the BC category. The percentages of SC and ST households in the district were 19.80 percent and 0.09 percent respectively in 2018.

The percentage of ST category households in Madurai district was only 0.09 percent and only nine ST households were sampled in the district. Hence, the results pertaining to this social group discussed in the report must be interpreted in this context.

### *3.2 Development Indicators*

In this section, we discuss the PBS estimates on various development indicators such as literacy rate and employment status in Madurai district.

#### *3.2.1 Education*

The change in literacy rate of Madurai district and the state of Tamil Nadu during the period 2011 and 2018 is given in Table 3.2. As per Census 2011, a person aged seven and above who can both read and write with understanding in any language is treated as literate. In the PBS, literacy rate is measured as those that have formal schooling and those that can read and write a simple sentence.



Table 3.2 Literacy Rates between Census (2011) and PBS (2018)

Gender	District - Rural		District - Urban		Madurai		Tamil Nadu	
	2011	2018	2011	2018	2011	2018	2011	2018
Male	83.59	91.05	93.67	96.29	89.72	94.15	86.77	90.97
Female	64.59	75.63	85.15	89.49	77.16	83.64	73.40	80.15
<b>Total</b>	<b>74.14</b>	<b>83.11</b>	<b>89.41</b>	<b>92.88</b>	<b>83.45</b>	<b>88.82</b>	<b>80.09</b>	<b>85.40</b>

\*The represented trend should be understood under the context that Census does 100 percent enumeration whereas in the PBS, a sample is surveyed.

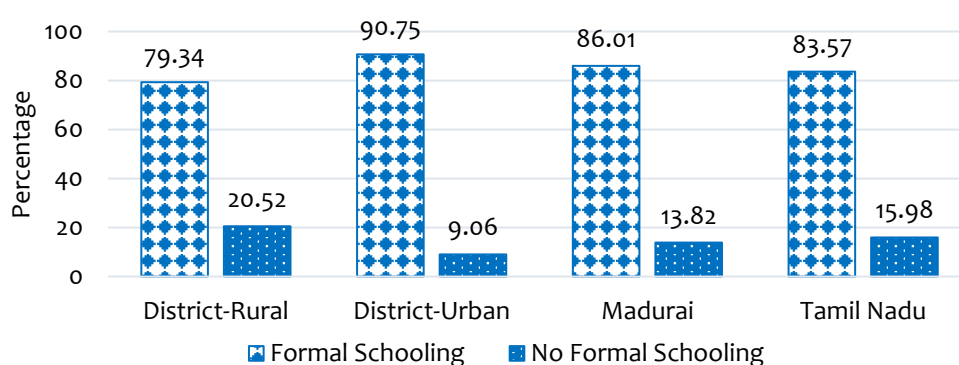
As per Census 2011, the literacy rate in Madurai district at 83.45 percent was higher than the state estimate of 80.09 percent. The PBS estimates show that in the year 2018, the literacy rate in Madurai district had increased to 88.82 percent, which continued to be higher than the state estimate of 85.40 percent. Also, Madurai district had registered a 5.37 percent increase in the literacy rate between 2011 and 2018 while the state had registered a similar 5.31 percent increase. As per the state PBS estimates, Madurai was ranked sixth among the then 32 districts in terms of literacy rate.

Both male and female literacy rates in Madurai district had recorded an increase during the period under consideration, though a wide gender gap still prevailed. The gender gap in literacy rate had declined from 12.56 percent in 2011 to 10.51 percent in 2018. Both rural and urban literacy rates recorded an increase between 2011 and 2018, with the former showing a larger increase. Yet, the rural literacy rate was 9.77 percent lesser than the urban literacy rate in 2018. The gender gap in literacy rate was much higher in rural areas—about 15.42 percent—than in urban areas at 6.8 percent.

### 3.2.2 Education Status of Population (Age 7 and above)

In this section, we discuss the education status of the population aged seven and above in Madurai district.

Chart 3.2 Formal Schooling of the Population – Area-wise



\*Others and Don't Know/Refuse to Answer categories are not included in any chart, unless their value is substantially high. Therefore, the total might not add up to 100 percent.

Chart 3.2 shows that 86.01 percent of the specified population in Madurai district had attended formal schooling, which was higher compared to the state estimate of 83.57 percent. The percentage of population with formal education in urban areas was higher than rural areas of the district.

Chart 3.3 Formal Schooling of the Population – Gender-wise

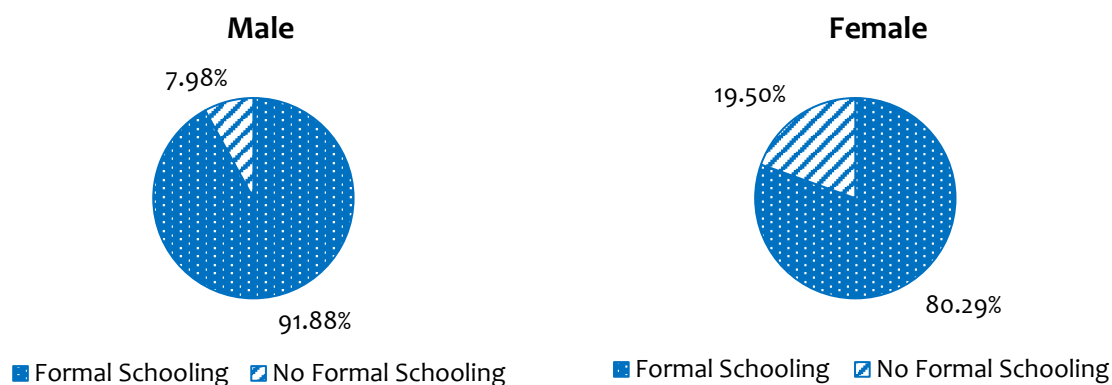


Chart 3.3 shows that the percentage of the population (age 7 and above) that had acquired formal education was much higher among males as compared to females. Less than one tenth of male population did not have formal education compared to 19.50 percent of the female population.

A district level analysis of the PBS on education attainment status of various social groups is shown below.

Table 3.3 Formal Schooling of Population - Social Group-wise Percentages

Education Status	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Formal Schooling	80.66	89.40	89.51	82.90	77.45	97.63	86.01
No Formal Schooling	19.27	10.60	10.32	16.82	22.27	2.33	13.82
Others and DK/RF	0.07	0.00	0.17	0.28	0.29	0.05	0.17
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.3 shows a wide variation across social groups in attainment of formal schooling. A majority of the General population, followed by the BC and ST population in the district had formal education, while a higher percentage of DNC and SC households did not have formal education. The results for the ST category must be interpreted in the context of their sample size, as discussed in Section 3.1.

This analysis does not consider the level of education attained by the population. Table 3.4 shows more precise information on the highest level of formal educational attainment of the specified population.

*Table 3.4 Highest Formal Educational Attainment of Population: Area-wise Percentages*

Educational Attainment	Area Type		
	Rural	Urban	Madurai
Primary (I to V)	24.89	18.97	21.24
Middle School (VI to VIII)	22.30	19.09	20.32
High School (IX to X)	22.41	20.96	21.51
Higher Secondary (XI to XII)	15.38	13.94	14.49
Bachelor's degree	8.14	16.20	13.11
Diploma Degree	4.28	4.06	4.15
Post Graduate Degree	2.42	6.55	4.97
Other Higher Education	0.00	0.02	0.01
Others/DK/RF	0.18	0.21	0.20
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

The PBS estimates show that around 77.56 percent of the district's population—age 7 and above, with formal education—was either pursuing or had completed schooling upto higher secondary level. Around 22.24 percent of the population was either pursuing or had completed tertiary education—such as bachelor's degree, diploma, or post graduate degree and above—compared to lower state estimate of 20.02 percent. The percentage of the stated population who were either pursuing or had completed tertiary education was higher in urban areas at 26.83 percent compared to the rural areas with 14.84 percent.

*Table 3.5 Highest Formal Educational Attainment of Population: Gender-wise Percentages*

Educational Attainment	Gender		
	Male	Female	Madurai
Primary (I to V)	19.78	22.87	21.24
Middle School (VI to VIII)	19.70	21.01	20.32
High School (IX to X)	23.18	19.66	21.51
Higher Secondary (XI to XII)	13.28	15.84	14.49
Bachelor's degree	13.60	12.57	13.11
Diploma Degree	5.44	2.71	4.15
Post Graduate Degree	4.86	5.09	4.97
Other Higher Education	0.02	0.00	0.01
Others/DK/RF	0.15	0.25	0.20
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.5 shows that a higher percentage of males at 23.92 percent were either pursuing or had completed tertiary education as compared to females at 20.37 percent in the district. A higher percentage of females were either pursuing or had completed post-graduate degree compared to males.

To understand the social group-wise disparity in education attainment in the district, the PBS estimated the percentage of population under each category across various education levels. Table 3.6 shows that most of the SC and DNC population—at 83.65 percent and 78.98 percent respectively—in Madurai district were either pursuing or had completed only primary or secondary school. The General category had the highest percentage of the population, who were either pursuing or had completed tertiary education, at 42.61 percent, followed by the BC category at 23.67 percent. But this was low for the SC category at 16.27 percent. The proportion of the MBC and DNC population with tertiary education in the district was higher than their respective state level estimate.

*Table 3.6 Highest Formal Educational Attainment of Population - Social Group-wise Percentages*

Educational Attainment	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Primary (I to V)	22.84	13.60	20.91	21.35	22.00	8.07	21.24
Middle School (VI to VIII)	21.19	16.57	20.05	20.38	21.91	9.64	20.32
High School (IX to X)	24.74	23.16	20.81	20.92	20.24	21.91	21.51
Higher Secondary (XI to XII)	14.88	13.60	14.35	14.03	14.83	17.72	14.49
Bachelor's degree	9.24	25.30	14.12	13.24	11.98	29.08	13.11
Diploma Degree	4.17	0.00	4.11	4.18	4.38	3.93	4.15
Post Graduate Degree	2.86	7.76	5.42	5.58	4.29	9.60	4.97
Other Higher Education	0.00	0.00	0.02	0.00	0.00	0.00	0.01
Others/DK/RF	0.08	0.00	0.19	0.34	0.37	0.05	0.20
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Around 13.82 percent of the population had not received formal education in Madurai district (refer Chart 3.2). The PBS had investigated the ability of those who could read and write a simple sentence with understanding—or functional literacy.

*Table 3.7 Functional Literacy of Population with No Formal Schooling – Area-wise Percentages*

Functional Literacy	Area Type		
	Rural	Urban	Madurai
Yes	18.35	23.57	20.35
No	80.82	76.30	79.08
DK/RF	0.83	0.13	0.57
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.7 shows the functional literacy status of the population with no formal schooling in the district. Only 20.35 percent of the population without formal schooling had functional literacy. The specified population group in urban areas of the district had a better functional literacy rate than the rural areas.

*Table 3.8 Functional Literacy of Population with No Formal Schooling - Social Group-wise Percentages*

Functional Literacy	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Yes	15.35	0.00	24.36	23.95	15.19	77.32	20.35
No	84.46	100	75.00	74.54	84.41	22.68	79.08
DK/RF	0.19	0.00	0.64	1.51	0.40	0.00	0.57
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.8 shows the functional literacy status of the population with no formal schooling, across various social groups. Functional literacy was high among the General category population, but less than 25 percent for the other social groups. None of the four ST respondents without formal schooling surveyed in the district possessed functional literacy.

### 3.2.3 Employment Status

This section looks at the employment status of the household members, types of employment that they are engaged in, the unemployment rate at the district level and comparison of these findings with the state PBS estimates. In the PBS, the population aged 14 years and above has been classified as employed, unemployed and not in the labour force<sup>4</sup>.

The employed category—population aged 14 years and above—includes the following:

- (i) People who are self-employed in agriculture,
- (ii) People who are self-employed in allied agricultural activities,
- (iii) People who are self-employed in non-agricultural activities,
- (iv) People who worked as casual labourers in agriculture,
- (v) People who worked as casual labourers in industry,
- (vi) People who worked as casual labourers in the service sector,
- (vii) People who worked as casual labourers in other domains,
- (viii) People who worked as salaried employees in the government sector,

<sup>4</sup> Percentage of population employed = (Number of employed persons 14 years and above/Total population of the district 14 years and above) \*100

Percentage of population unemployed = (Number of unemployed persons 14 years and above/Total population of the district 14 years and above) \*100

Percentage of population not in the labour force = (Number of persons 14 years and above not in workforce/Total population of the district 14 years and above) \*100

- (ix) People who worked as salaried employees in the private sector,
- (x) People who are involved in multiple occupations, and
- (xi) People who are involved in other types of work.

The unemployed category includes those aged 14 years and above, who did not work but were actively seeking and/or available for work.

The not in the labour force category consists of the following categories:

- (i) People who attended educational institutions,
- (ii) People who attended domestic duties only,
- (iii) Rentiers, pensioners, remittance recipients, etc.,
- (iv) People who are not able to work due to disability and
- (v) Others (including begging, etc.).

Chart 3.4 Employment Status of Population – Area-wise

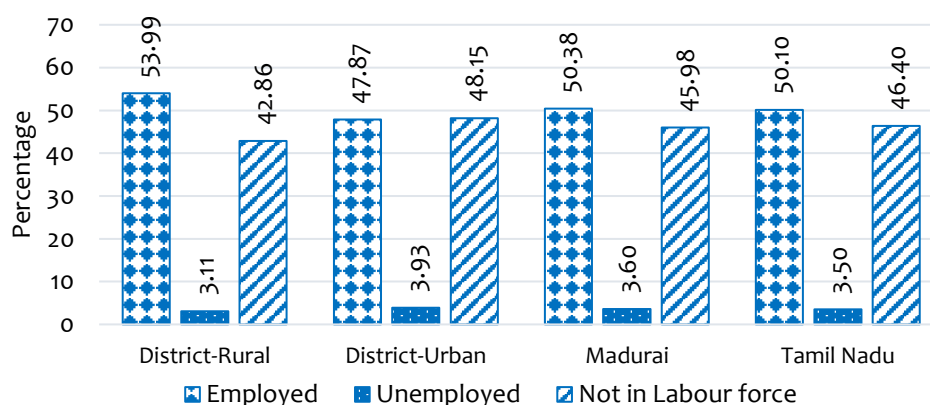


Chart 3.4 shows that the overall percentage of employed population—14 years and above—in the district was slightly higher than the state estimate. The share of unemployed population was higher in the district as compared to the state. The percentage of population that was employed was higher in rural parts of the district than the urban parts. The unemployment status in rural areas of the district—about 3.11 percent—was lower than the state’s rural PBS estimate—about 3.6 percent—while the district urban unemployment status—about 3.93 percent—was higher than the state urban PBS estimate of 3.3 percent. Madurai district was ranked twelfth among all districts in Tamil Nadu in terms of employed population and ranked sixteenth in terms of unemployment status.

Chart 3.5 Employment Status of the Population – Gender-wise

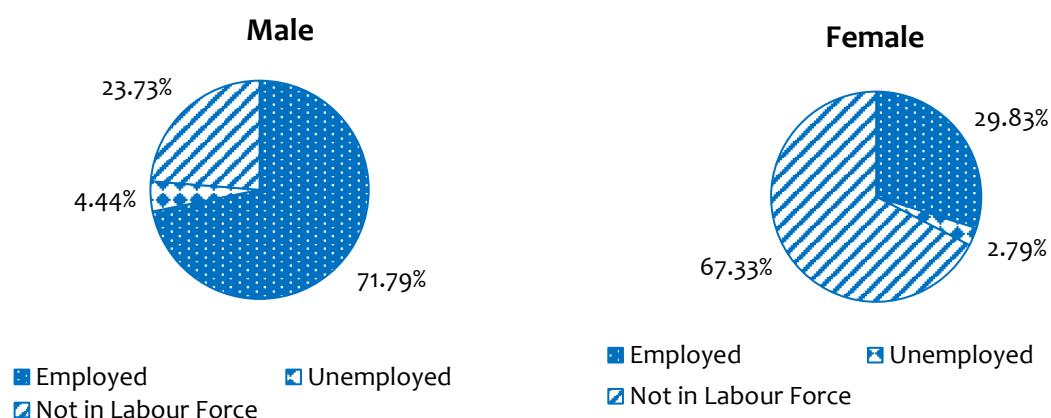


Chart 3.5 shows the gender-wise employment status of the population aged 14 years and above. While 71.79 percent of the specified male population was employed, the female work participation in the district was only 29.83 percent, which was similar to the state estimate of 29.96 percent. Decreased female labour force participation has been well documented at the national level (Das et al., 2015; Desai, 2017; Desai & Joshi, 2019). Still, the female work participation of the district was higher than the national average of 23.3 percent in 2017-18 (National Statistical Office, 2019). A little more than two-thirds of the female population was not in the workforce, and among these, majority of them—about 72.98 percent—were associated with attending to domestic duties as homemakers (see Chart 3.7). As per the state PBS estimates, Madurai district was ranked eighteenth in terms of employed female population and ranked seventh highest in terms of female unemployment.

Table 3.9 Work type of Employed Population – Area-wise Percentages

Work type	Area Type		
	Rural	Urban	Madurai
Self Employed Agriculture	5.36	1.28	3.07
Self Employed Non-Agriculture	13.07	25.61	20.10
Self Employed Allied Agriculture	2.07	0.77	1.34
Casual Labourer Agriculture	32.85	4.18	16.77
Casual Labourer Industry	19.14	12.17	15.23
Casual Labourer Service	9.93	17.49	14.17
Casual Labourer (Others)	0.22	0.27	0.25
Salaried Worker Government	3.96	7.81	6.12
Salaried Worker Private	12.54	29.93	22.29
Other	0.06	0.08	0.07
Multiple Occupation	0.78	0.32	0.53
DK/RF	0.01	0.08	0.05
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.9 shows that the majority of the employed population in Madurai district were salaried workers in the private sector, similar to the state level trend of 21.82 percent (TNHPS-PBS, 2021). Around one-third of the employed population in rural areas were casual labourers in agriculture, whereas majority of the urban employed population were salaried workers in the private sector. The rural parts of Madurai district also had a sizeable proportion of the employed population working as casual labourers in the industrial sector.

*Table 3.10 Percentage of Employed Population Engaged in Different Types of Livelihood Activities – Social Group-wise Percentages*

Work type	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Self Employed Agriculture	1.91	0.00	2.58	5.65	6.17	1.05	3.07
Self Employed Non-Agriculture	8.17	32.26	25.04	20.08	17.58	34.52	20.10
Self Employed Allied Agriculture	1.27	0.00	1.31	0.96	2.11	0.76	1.34
Casual Labourer Agriculture	33.99	7.59	8.49	14.95	28.45	0.00	16.77
Casual Labourer Industry	13.98	0.00	15.59	18.29	13.78	7.81	15.23
Casual Labourer Service	13.29	0.00	15.30	15.21	10.14	2.56	14.17
Casual Labourer (Others)	0.18	0.00	0.21	0.67	0.18	0.00	0.25
Salaried Worker Government	7.52	13.34	5.52	6.40	5.29	9.01	6.12
Salaried Worker Private	19.07	46.81	25.37	16.68	15.72	44.29	22.29
Other	0.04	0.00	0.07	0.17	0.03	0.00	0.07
Multiple Occupation	0.58	0.00	0.45	0.95	0.53	0.00	0.53
DK/RF	0.01	0.00	0.09	0.00	0.00	0.00	0.05
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.10 shows that majority of the employed SC and DNC population in the district were engaged as casual labourers in the agricultural sector at 33.99 percent and 28.45 percent respectively. The General and BC population were predominantly involved in salaried work in the private sector. The state estimates also show that the majority of the population in the SC and DNC category were casual labourers in the agricultural sector, while a higher percentage of BC and General population were salaried workers in the private sector (TNHPS-PBS, 2021). Majority of the MBC category population in the district were self-employed in non-agriculture. The results for the ST category must be interpreted in the context of their sample size, as discussed in Section 3.1.



Chart 3.6 Composition of Population Not in the Labour Force – Area-wise

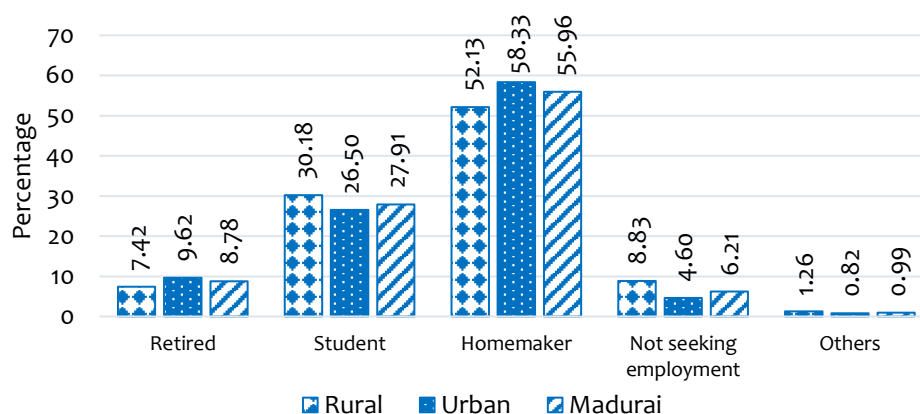


Chart 3.6 shows that, similar to the trend at the state level (TNHPS-PBS, 2021), more than half the population that was not in the labour force in the district comprised homemakers involved in unpaid domestic duties of the household, followed by students. The proportions of the population that were not seeking employment or were students were higher in rural areas than urban areas, whereas the percentages of retired people and homemakers were higher in urban areas than rural areas.

Chart 3.7 Composition of the Population Not in the Labour Force (Age 14 years and above) – Gender-wise

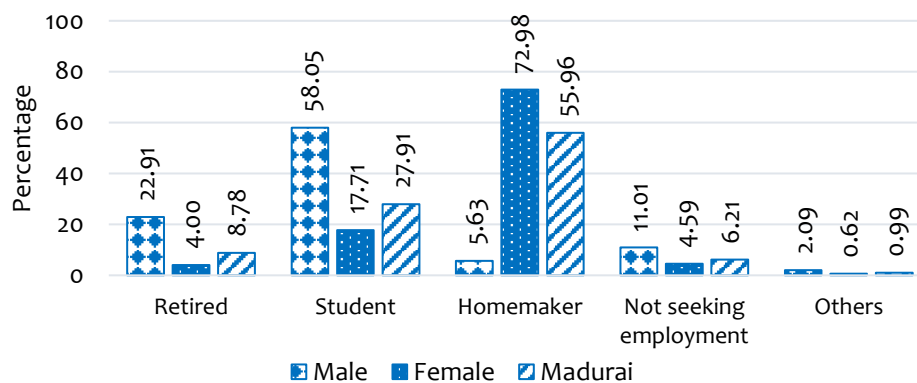


Chart 3.7 shows the gender-wise distribution of the population currently not in the labour force. While Chart 3.3 represents the lower female involvement in formal education, Chart 3.7 shows the staggeringly lower female involvement in higher education compared to male, as only 17.71 percent of the female not-in-labour-force population were students. Similar to the state trend, majority of the male not-in-labour-force population were students, whereas a majority of females were homemakers. It must be noted that the study did not capture unpaid domestic labour or any other form of unpaid labour carried out by women.

Table 3.11 Composition of Population Not in Labour Force - Social Group-wise Percentages

Current Status	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Retired	7.02	0.00	8.95	9.32	8.56	19.65	8.78
Student	34.18	7.58	26.59	28.86	26.81	17.85	27.91
Homemaker	49.61	92.42	57.49	54.16	58.07	59.61	55.96
Not seeking employment	8.59	0.00	5.70	6.17	5.63	2.77	6.21
Others	0.55	0.00	1.10	1.34	0.68	0.12	0.99
DK/RF	0.04	0.00	0.17	0.15	0.24	0.00	0.15
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.11 shows that within all social groups, the percentage of homemakers was highest compared to other categories in the district. The SC category had a higher percentage of not-in-labour-force population as students compared to the other social groups. The results for the ST category must be interpreted in the context of their sample size, as discussed in Section 3.1

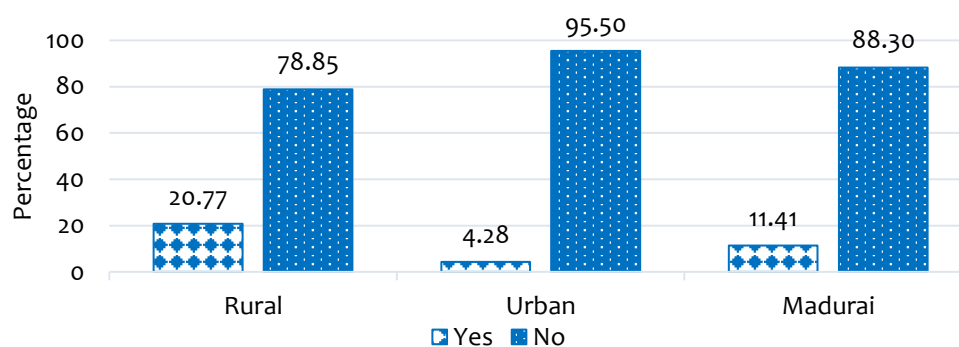
### 3.3 Socio-Economic Indicators

The PBS estimates for various socio-economic indicators of Madurai district such as ownership of agricultural land, household assets and income are discussed in this section.

#### 3.3.1 Ownership of Agricultural Land

The PBS estimates of ownership of agricultural land at the household level in the rural and urban areas of Madurai district is given in Chart 3.8. The TNHPS PBS definition of land ownership does not include leased in land or other forms of holdings. Data were collected on the ownership of agricultural land only. The fourth round of National Family Health Survey (NFHS, 2015-16) was a secondary source of data that followed the same definition for ownership of agricultural land.

Chart 3.8 Ownership of Agricultural Land – Area-wise



In Madurai district, the percentage of households owning agricultural land at 11.41 percent was lower than the state estimates of 19.41 percent. Madurai was ranked twenty seventh

in terms of agricultural land ownership (TNHPS-PBS, 2021). Area-wise comparison shows that a lower proportion of households in rural and urban areas of the district owned agricultural land compared to the state level rural and urban estimates of 29 percent and 8.61 percent respectively.

Table 3.12 shows the percentage of agricultural land-owning households in the district that depended on irrigation or rain.

*Table 3.12 Type of Agricultural Land Owned by the Households – Area-wise Percentages*

Type of Agricultural Land	Area Type		
	Rural	Urban	Madurai
Only Irrigated Agriculture Land	50.03	54.24	50.92
Only Unirrigated Agriculture Land	42.69	33.91	40.83
Both Irrigated and Unirrigated Agriculture Land	6.74	6.17	6.62
DK/RF	0.54	5.68	1.63
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.12 shows that, as per the PBS estimates, more than half the households that owned agricultural land in the district had access to irrigation, which was similar to the state PBS estimate of 50.03 percent. Dug wells, tanks and tube wells are the major sources of irrigation in Madurai district (Department of Economics and Statistics, 2023). A higher percentage of agricultural land-owning households in rural areas depended on rain-fed irrigation alone as compared to the urban areas.

*Table 3.13 Ownership of Agricultural Land - Social Group-wise Percentages*

Agricultural Land Ownership	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Yes	8.02	0.00	10.48	14.35	22.24	0.89	11.41
No	91.90	100	89.12	85.42	77.64	99.11	88.3
DK/RF	0.08	0.00	0.40	0.23	0.12	0.00	0.29
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

An analysis of the social group wise ownership of agricultural land by households in Table 3.13 showed that a relatively higher percentage of the DNC and MBC households owned agricultural land in the district as compared to other social groups. Agricultural land ownership among the General category was very low. Though 25 percent of the ST households in the state-owned agricultural land (TNHPS-PBS, 2021), none of the nine ST households surveyed in the district owned agricultural land.

Based on the size of agricultural land, the PBS classified the land owned by the households into marginal, small, semi-medium, medium and large. Of the households—that owned agricultural land—the percentage of households under each size category is given in Table 3.14.

*Table 3.14 Size of Agricultural Land Owned by the Households – Area-wise Percentages*

Size of Agricultural Land (in hectares)	Area Type		
	Rural	Urban	Madurai
Marginal (0.01 - 0.99)	78.47	57.57	74.31
Small (1 - 1.99)	14.00	21.74	15.54
Semi Medium (2 - 3.99)	5.06	14.18	6.87
Medium (4 - 9.99)	2.09	5.85	2.84
Large (10 and above)	0.37	0.65	0.43
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.14 shows that 89.85 percent of the agricultural land-owning households in the district were holding marginal or small agricultural lands—less than two hectares. This estimate was similar to the state level estimate of 89.33 percent. The share of semi-medium and large landholdings was lesser than that of the state at 7.64 percent and 0.77 percent respectively, while that of medium landholdings was higher than the state estimate of 2.26 percent.

### 3.3.2 Ownership of Agricultural, Allied Agricultural and Fishing Assets

In this section, we discuss the ownership of agricultural, allied agricultural and fishing assets such as tractor, pump set, dairy animals, poultry birds, mechanized and non-mechanized boats, amongst the households of Madurai district.

*Chart 3.9 Ownership of Agricultural, Allied Agricultural and Fishing Assets – Area-wise*

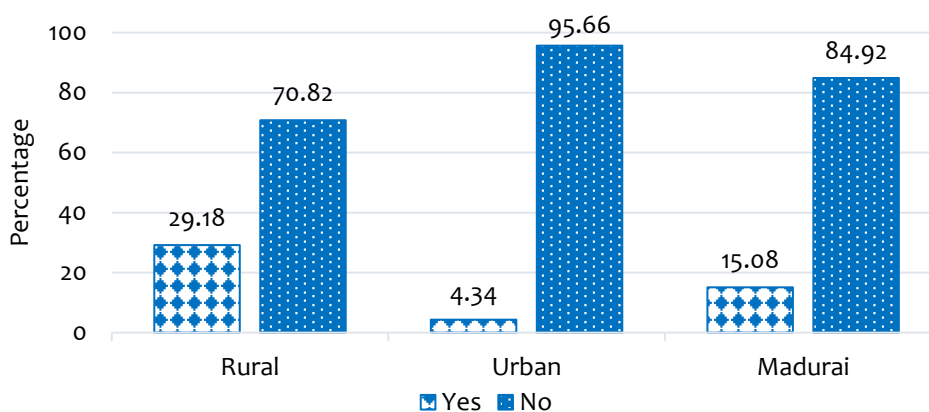


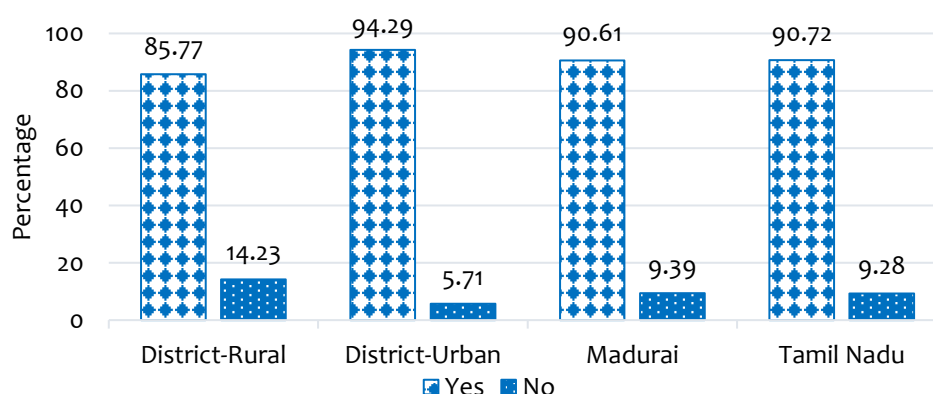
Chart 3.9 shows that only 15.08 percent of the households in Madurai district owned at least one agricultural, allied agricultural or fishing asset. This was lower than the state

estimate of 20.92 percent. The ownership of such assets was higher in rural areas than in urban areas. The ownership pattern was lower in both rural and urban areas of the district compared to the state rural and urban estimates—about 32.69 percent in rural and 7.67 percent in urban areas (TNHPS-PBS, 2021).

### 3.3.3 Presence of Household Assets

This section discusses the percentage of households in Madurai district that owned at least one household asset. Household assets include Air Conditioner (AC), refrigerator, two-wheeler, four-wheeler, and mobile phones. The state PBS estimates found that the combination of mobile phone and two-wheeler were the predominantly owned assets in rural areas whereas a combination of refrigerator, two-wheeler and mobile phone was largely owned in the urban areas.

Chart 3.10 Ownership of at least one Household Asset – Area-wise



The percentage of households owning at least one household asset in Madurai district was at 90.61 percent, which was similar to the state PBS estimate. Within the district, the urban areas had a higher percentage of households owning at least one household asset as compared to the rural areas.

Table 3.15 Presence of at least one Household Asset - Social Group-wise Percentages

Presence of Household Asset	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Yes	84.66	93.42	93.13	88.41	88.72	98.53	90.61
No	15.34	6.58	6.87	11.59	11.28	1.47	9.39
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

The PBS estimates show that while almost all General category households owned at least one household asset, only 84.66 percent of the SC households in Madurai district owned

any such asset. This means that around 15 percent of the SC households in the district did not even own a mobile phone. The results for the ST category must be interpreted in the context of their sample size, as discussed in Section 3.1.

### 3.3.4 Possession of Ration Card

Possession of a ration card can be treated as a determinant of socio-economic status at the household level. It plays a vital role in inclusion—or exclusion—of households from the government welfare schemes such as the availability of subsidized items from the Public Distribution System and subsidized LPG connection. The percentages of households that possessed a ration card in rural and urban areas of Madurai district are given in Chart 3.11.

Chart 3.11 Possession of Ration Card – Area-wise

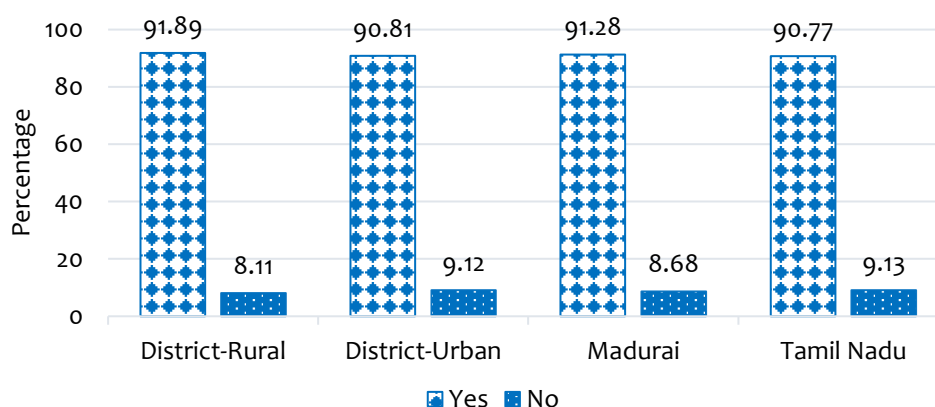


Chart 3.11 shows that the percentage of households that possessed a ration card in the district was higher as compared to the state PBS estimate. Both urban and rural households indicated a high level of possession of ration cards.

Table 3.16 Possession of Ration Card at the Household Level - Social Group-wise Percentages

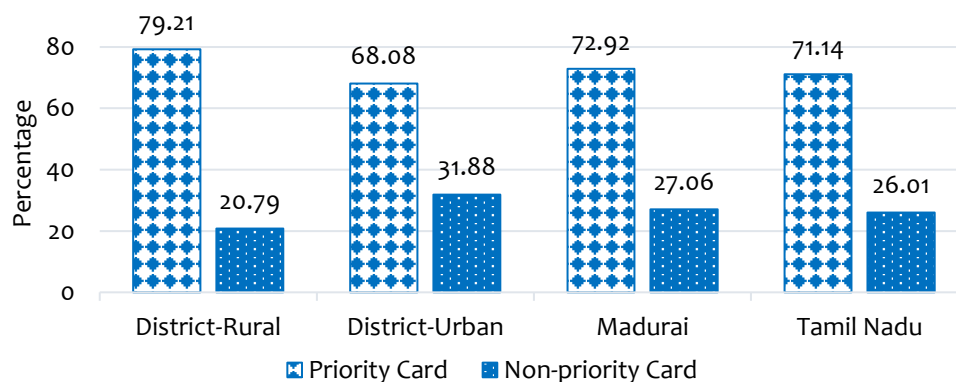
Possession of Ration Card	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Yes	90.26	90.46	91.81	88.58	92.88	91.59	91.28
No	9.74	9.54	8.12	11.42	7.12	8.41	8.68
DK/RF	0.00	0.00	0.06	0.00	0.00	0.00	0.04
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.16 shows that more than 90 percent of households belonging to almost all social groups in the district, except the MBC category, possessed ration cards. The results for the ST category must be interpreted in the context of their sample size, as discussed in Section 3.1.

### 3.3.5 Type of Ration Card

According to the National Food Security Act (NFSA) 2013, ration cards are broadly categorized into Priority Households (PHH) and Non-Priority Households (NPHH). Households with priority ration card are the target group of various social welfare schemes such as Antyodaya Anna Yojana (AAY) among others.

Chart 3.12 Type of Ration Card at the Household Level – Area-wise



The percentages of households possessing priority and non-priority ration cards in rural and urban areas of Madurai district are given in Chart 3.12. The percentage of households possessing priority ration cards in the district was higher than the state PBS estimates. The economic condition of the households in terms of the mean annual household income was higher in the district than the state (see Table 3.17). A higher percentage of rural households possessed priority cards than urban households.

## 3.4 Household Income

### 3.4.1 Annual Household Income from Various Sources in the year 2017-2018

In this section, we analyze the annual income of households in Madurai district from various sources in the financial year 2017-2018. The sources of income include income earned from agriculture, allied agriculture, salaried work, self-employed labour, wage labour and other sources. The category 'other sources' consists of income sources such as pension, remittances, investments, and other mixed categories. Table 3.17 shows the mean income of households that depended on various sources of income in Madurai district.

*Table 3.17 Mean Annual Household Income from Different Sources in the FY 2017-2018 (INR)*

Source	District - Rural	District - Urban	Madurai	Tamil Nadu
Agriculture	94,722	1,14,979	98,315	61,830
Allied Agriculture	44,943	1,61,558	66,518	38,576
Salaried	1,92,234	2,29,371	2,19,268	2,29,857
Self Employed	1,13,302	1,69,123	1,52,488	1,47,403
Wage Labour	58,498	61,232	59,737	47,734
Other Sources	78,443	1,30,348	1,11,533	97,646
<b>Income from all Sources</b>	<b>1,17,620</b>	<b>1,94,164</b>	<b>1,60,879</b>	<b>1,42,752</b>

The mean annual household income of Madurai district was 12.70 percent higher than the state PBS estimate (₹1,42,752). Among the then 32 districts in the state, Madurai was at fifth place in terms of mean annual household income (TNHPS-PBS, 2021). The mean household income was higher among the households with salaried income and lower among the households that depended on wage labour and allied agriculture.

In rural areas of Madurai district, the mean household income was ₹1,17,620, which was higher than the state rural PBS estimate of ₹92,765 (TNHPS-PBS, 2021). The mean household income was higher among the households who depended on salaried income and lower among the households that engaged in allied agriculture activities as a source of income.

In urban areas of Madurai district, the mean household income was ₹1,94,164, which is slightly lower than the state urban estimate of ₹1,99,629 (TNHPS-PBS, 2021). The mean household income was higher among the households that depended on salaried income. Lower mean income was reported among the households that engaged in wage labour.

### *3.4.2 Income Inequality in Madurai District*

The Gini coefficient measures inequality levels in income or wealth where the coefficient value of 0 denotes perfect equality and 1 denotes perfect inequality across households. The income inequality in Madurai district (0.505) was lower than the state PBS estimate (0.563)<sup>5</sup>. The income inequality across households in urban areas of Madurai district was found to be higher than its rural areas, as shown in Table 3.18.

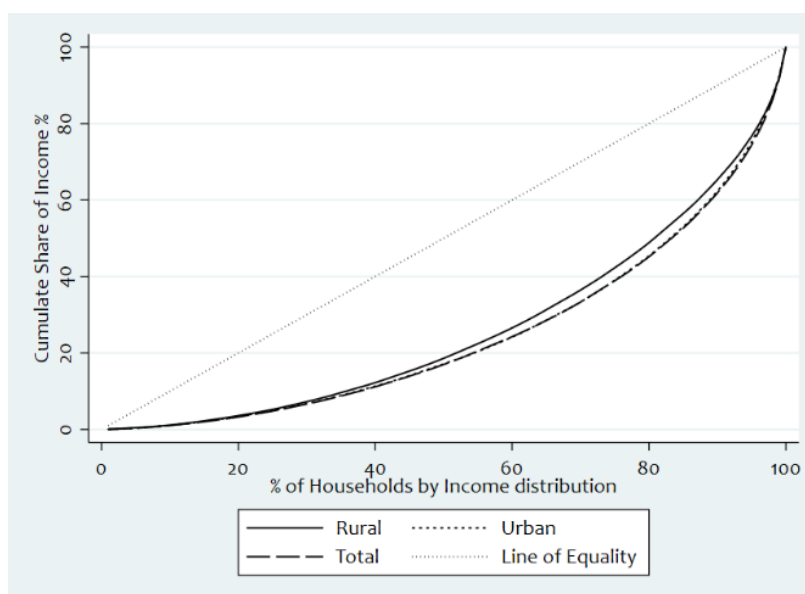
<sup>5</sup> Other studies have estimated the Gini coefficient for Tamil Nadu, for instance - Chandrasekhar et al. (2021) estimated the Gini coefficient of income inequality for Tamil Nadu as 0.378 in 2018-19 using data from the Periodic Labour Force Survey (PLFS) (2018-19).



Table 3.18 Gini Coefficient of Income Inequality- Area-wise

Area	Gini Coefficient
District - Rural	0.472
District - Urban	0.502
Madurai	0.505
<b>Tamil Nadu</b>	<b>0.563</b>

Chart 3.13 Lorenz Curve and Income Inequality



The Lorenz curve is a graphical representation of inequality in the distribution of income or wealth of households. Chart 3.18 shows that the bottom 60 percent of the households had around 25 percent of the total income; the bottom 80 percent of households had around 45 percent of the total income and the top 20 percent of households held around 55 percent of total income. Both Chart 3.13 and Table 3.18 show that income inequality was higher in urban areas compared to the rural areas of the district.

### 3.4.3 Households' Expectation of Change in their Income in the Next 5 Years

Besides the present income of the households in the year 2017-18, the PBS also investigated the households' expectation of change in income in the next five years. The expectation of a household head on the change in the household's income in the future depends on various factors such as probability of a household member's entry (or exit) to (or from) the labour market, expected possession of financial and non-financial assets and so on. These variables can capture the level of optimism—or pessimism—that each household has about their future economic status.

*Table 3.19 Households' Expectation of Change in Income in the Next 5 Years – Area-wise Percentages*

Expectation of Change in Household Income	Area Type			
	District - Rural	District - Urban	Madurai	Tamil Nadu
Higher	41.76	49.68	46.26	50.06
Lower	13.72	8.74	10.89	8.17
About the same	43.80	38.21	40.63	31.66
DK/RF	0.72	3.37	2.22	10.11
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Majority of the households in the district expected their income to increase in the five years following 2018. While maximum percentage of households in urban areas expected their income to increase in the future, majority of rural households—around 43.80 percent—expected their future income to remain the same.

*Table 3.20 Households' Expectation of Change in Income in the Next 5 Years - Social Group-wise Percentages*

Expectation of Change in Household Income	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Higher	45.65	83.87	48.05	40.94	39.60	58.91	46.26
Lower	10.94	0.00	9.69	14.10	15.34	10.80	10.89
About the same	42.49	16.13	39.39	42.45	44.17	28.87	40.63
DK/RF	0.92	0.00	2.87	2.52	0.89	1.42	2.22
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.20 shows that while almost 60 percent of the General category households expected their income to increase in the five years following 2018, less than half of the SC, BC, MBC and DNC households expected such an increase. More than 40 percent of the SC, MBC and DNC households expected their future income to remain the same. The results for the ST category must be interpreted in the context of their sample size, as discussed in Section 3.1.

### 3.5 Basic Infrastructure

In this section, we discuss the PBS estimates for variables such as ownership and type of houses, electrification status, drinking water and sanitation.

### 3.5.1 House Ownership Status

The area-wise percentages of households that live in their own house or stay at a rented house are given below.

Chart 3.14 Ownership Status of the Households' Dwelling/House – Area-wise

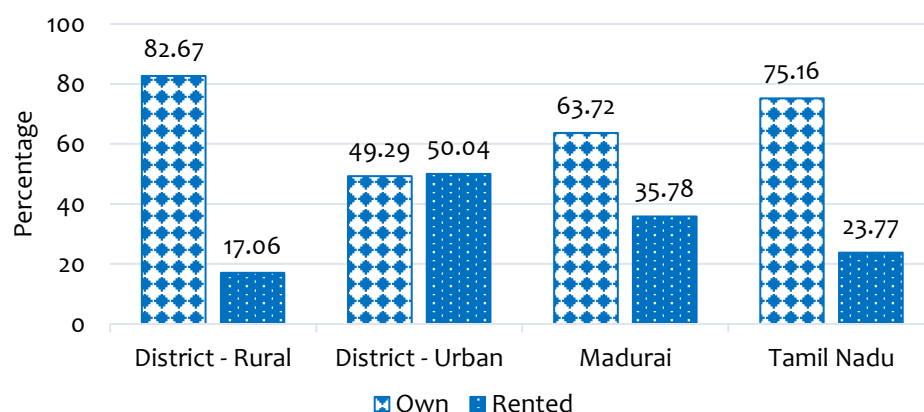


Chart 3.14 shows that the proportion of households living in their own house in the district was lower than the state level estimate. The district was ranked twenty-ninth among Tamil Nadu's then 32 districts in terms of percentage of households living in their own house (TNHPS-PBS, 2021). While most of the rural households lived in their own houses, a large proportion of urban households relied on rented houses for their stay in the urban areas. Only around 0.50 percent of households lived in other houses such as relative's houses, encroachments etc. This data does not capture the ownership of a house in a different geographical location.

Table 3.21 Ownership Status of the Households' Dwelling/House - Social Group-wise Percentages

Ownership Status	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Own	81.58	31.48	55.67	65.13	76.18	52.60	63.72
Rented	17.65	68.52	43.91	34.16	23.49	47.40	35.78
Others	0.75	0.00	0.42	0.71	0.33	0.00	0.50
DK/RF	0.02	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.21 shows that most of the SC households, DNC households and MBC households in the district lived in their own house. The percentage of BC and General category households living in rented houses was higher than the state estimates of BC and General category households—30.62 percent and 36.40 percent respectively (TNHPS-PBS, 2021). The results for the ST category must be interpreted in the context of their sample size, as discussed in Section 3.1.

A detailed analysis of ownership of houses shows that out of the 63.72 percent households that lived in an own house in the district, only 9.41 percent of houses were built under a government scheme (see Table 3.22).

*Table 3.22 House Constructed Under a Government Scheme - Social Group-wise Percentages*

House Constructed Under Government Scheme	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Yes	22.93	0.00	3.91	4.79	8.86	5.60	9.41
No	76.94	100	96.03	95.11	91.06	94.40	90.51
DK/RF	0.13	0.00	0.07	0.10	0.08	0.00	0.09
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Among the owned houses, the percentage of houses constructed under a government scheme was lesser in Madurai district at 9.41 percent compared to the state estimate of 14.12 percent (TNHPS-PBS, 2021). In Madurai district, SC households had the highest percentage of houses built under a government scheme compared to other social groups. Though 34.7 percent of the house-owning ST households in the state of Tamil Nadu had constructed a house under a government scheme (TNHPS-PBS, 2021), none of the three ST households living in own house that were surveyed in the district had constructed a house under a government scheme. However, the results for the ST category must be interpreted in the context of their sample size, as discussed in Section 3.1.

### 3.5.2 House Type

Based on the material used for wall/roof or the quality of the house, the PBS classifies a house as kutccha, pucca or semi-pucca. The percentage of houses that come under each type are given below.

*Chart 3.15 Type of House – Area-wise*

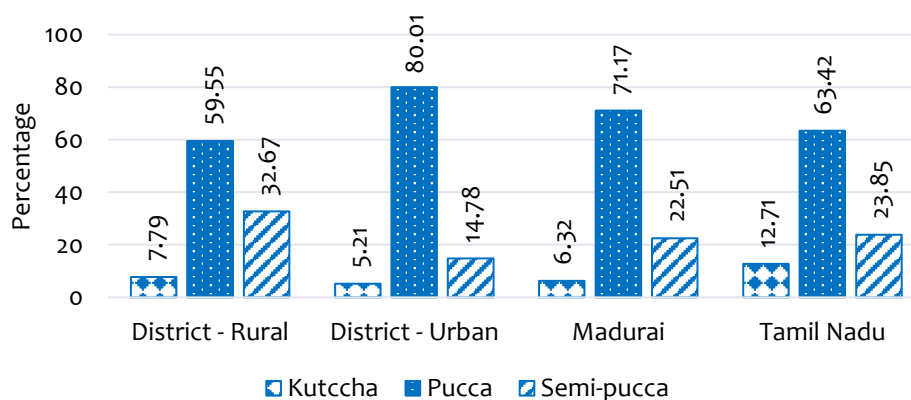


Chart 3.15 shows that majority of households in Madurai district were living in pucca houses, at a proportion higher than the state estimate. The percentage of urban

households living in pucca houses in the district was much higher than rural households. While 75.22 percent of state urban households lived in pucca houses (TNHPS-PBS, 2021), 80.01 percent of urban households in the district lived in pucca houses. The percentage of people living in semi-pucca houses was higher than kutccha houses, similar to the state estimates.

### 3.5.3 Primary Drinking Water Source

In this section, we discuss the PBS findings on the primary source of drinking water of the households in Madurai district. The primary sources<sup>6</sup> of water are: bottled water, piped water into dwelling, piped water to yard or plot, public tap or standpipe and tube well or borehole. Other water sources include protected well, unprotected well, rainwater collection and surface water (tank/pond/river/dam).

Chart 3.16 Primary Source of Drinking Water of Households

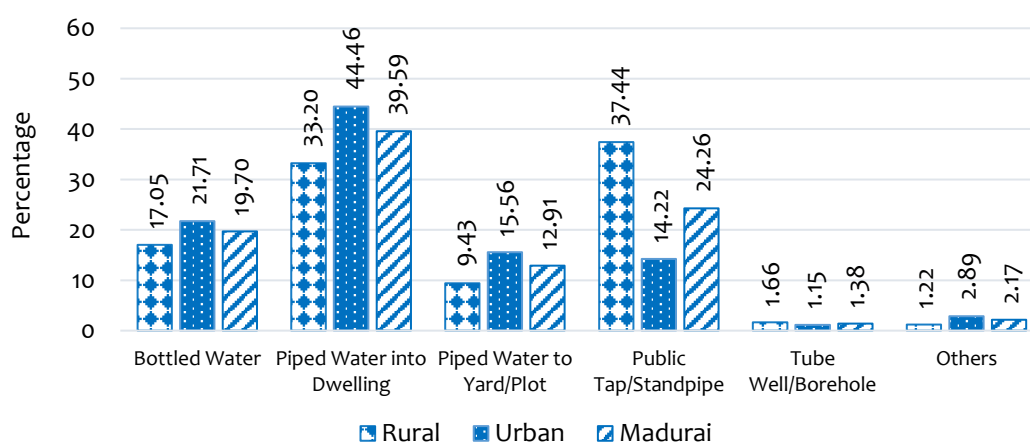


Chart 3.16 shows that 39.59 percentage of households in Madurai district were using piped water into dwelling as their primary source of drinking water, —followed by public tap/standpipe at 24.26 percent—whereas 32.04 percent of households in the state were using piped water into dwelling and, 32.8 percent were using public tap/standpipe. The state estimates showed that piped water into the dwelling in urban areas—about 37.02 percent—and public tap/standpipe in rural areas—about 44.51 percent—were the primary water sources of households (TNHPS-PBS, 2021). Similarly, the majority of urban households in the district—about 44.46 percent—used piped water into the dwelling, the majority of the rural households in the district—about 37.44 percent—used public tap or standpipe as their primary drinking water source.

<sup>6</sup> Primary source - Water that is availed for the greater part of the year

### 3.5.4 Electricity

Tamil Nadu had witnessed mass electrification during the last decade. A comparison of households with an electricity connection between the 2011 Census and 2018 state PBS estimates (TNHPS-PBS, 2021) showed that the state was close to achieving complete electrification. Chart 3.17 shows the electrification status of households in Madurai district, along with a comparison to the electrification status during Census (2011).

Chart 3.17 Comparison of Households with Electricity between Census (2011) and PBS (2018)

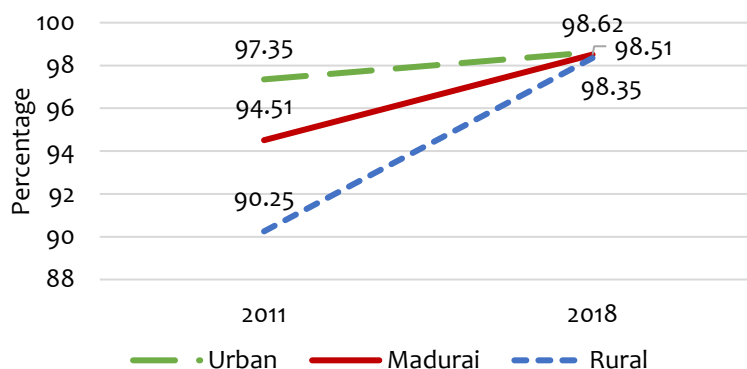
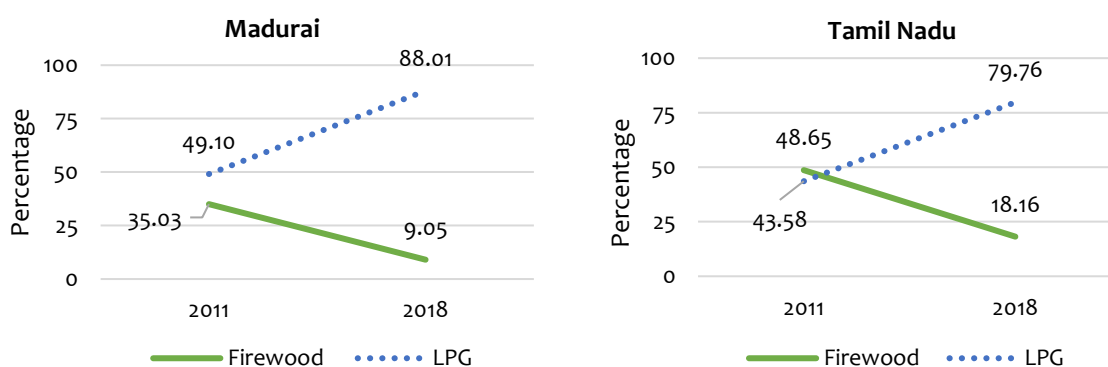


Chart 3.17 shows rapid electrification in rural areas of Madurai district between 2011-2018. The rate of growth of households with electricity was higher in rural areas compared to the urban areas. The district was ranked fifth among the then 32 districts in terms of electrification. Around 98.51 percent of households in the district had domestic electricity connection compared to the state estimate of 97.6 percent (TNHPS-PBS, 2021).

### 3.5.5 Primary Cooking Fuel

A comparison of Census (2011) and the 2018 PBS estimates on the primary fuel<sup>7</sup> used for cooking by the households in the district is given below.

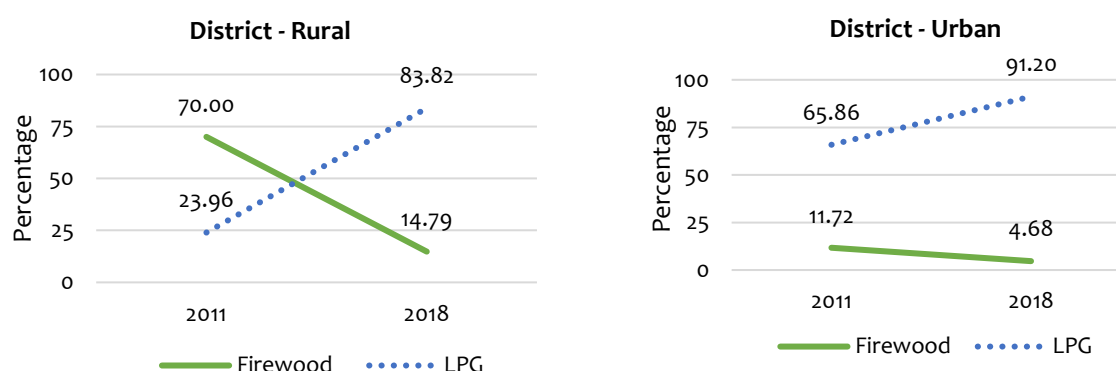
Chart 3.18 Comparison of Primary Fuel used for Cooking – District and State



<sup>7</sup> Primary Cooking Fuel: Fuel that is used for the greater part of the year

Chart 3.18 shows that the use of LPG as the primary cooking fuel had increased tremendously in the district from 49.10 percent in 2011 (Census, 2011) to 88.01 percent in 2018. The percentage of households in the district using LPG as primary fuel was significantly higher than the state estimate in 2018. On the other hand, there was a notable reduction in the use of firewood as primary cooking fuel—from 35.03 percent (Census, 2011) to 9.05 percent in 2018. Compared to other districts of Tamil Nadu, Madurai district was ranked ninth in terms of LPG use and ranked twenty-seventh in terms of firewood use as the primary cooking fuel (TNHPS-PBS, 2021).

Chart 3.19 Comparison of Primary Fuel used for Cooking – Rural and Urban



The majority of the households in both rural and urban areas—at 83.82 percent and 91.20 percent respectively— used LPG as the primary cooking fuel in 2018. The percentage of households using LPG as primary cooking fuel was higher in urban areas compared to rural areas. The usage of firewood reduced drastically and there was notable increase in LPG as primary cooking fuel in both urban and rural areas between 2011 and 2018.

Table 3.23 Primary Fuel for Cooking in Household - Social Group-wise Percentages

Primary Cooking Fuel	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Firewood	21.58	0.00	4.47	8.70	12.87	0.00	9.05
Kerosene	2.33	0.00	2.70	2.02	1.82	2.38	2.48
LPG	75.45	100	92.45	88.49	84.91	97.42	88.01
Others	0.53	0.00	0.30	0.44	0.39	0.00	0.36
DK/RF	0.10	0.00	0.09	0.36	0.00	0.19	0.11
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

\*Others Include Electricity, Gobar Gas, Solar Energy, etc.

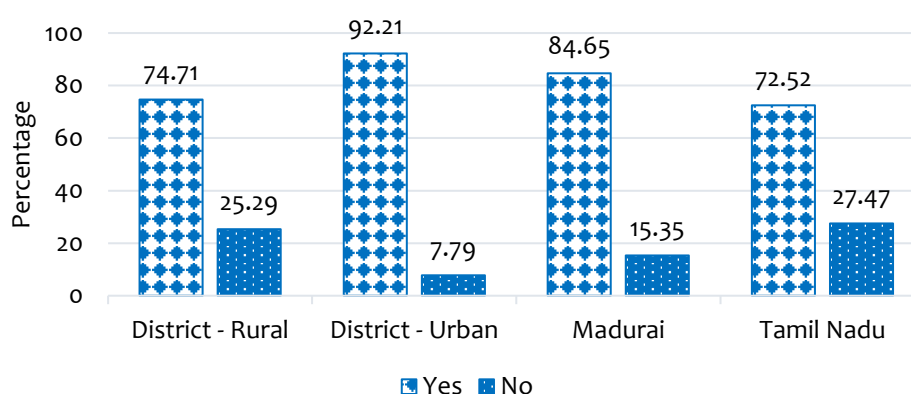
Table 3.23 shows that more than 90 percent of the General and BC category households used LPG as the primary cooking fuel. Large percentage of SC and BC households were using LPG as primary cooking fuel compared to the state estimates of 70.00 percent and

85.9 percent respectively (TNHPS-PBS, 2021). However, around 21.58 percent of the SC households and 12.87 percent of the DNC households still used firewood as the primary cooking fuel. The results for the ST category must be interpreted in the context of their sample size, as discussed in Section 3.1.

### 3.5.6 Sanitation

The PBS estimates on households with and without latrine in the district is given in Chart 3.20.

Chart 3.20 Presence of Latrine within the Premises of the Household – Area-wise



The percentage of households with latrine within the premises of the house had increased from 59.18 percent in 2011 (Census, 2011) to 84.65 percent in 2018. The percentage of households equipped with latrine facilities in the district was higher than the state level estimate. Madurai district was positioned fourth among the 32 districts in terms of the presence of latrine facilities within the house premises (TNHPS-PBS, 2021). A greater percentage of urban households were equipped with latrine facilities as compared to rural households. It is pertinent to note that more than a quarter of the rural households did not have access to a latrine within their house premises.

Table 3.24 Presence of Latrine within the premises of the Household - Social Group-wise Percentages

Latrine within House Premises	Social Group						
	SC	ST	BC	MBC	DNC	General	Madurai
Yes	67.60	100	91.91	79.54	78.12	97.90	84.65
No	32.40	0.00	8.09	20.46	21.88	2.10	15.35
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.24 shows the presence of latrine within the premises of the household across various social groups. The percentages of SC and MBC households with latrine access in the district were higher than their respective state level estimates at 52.2 percent and 67.5



percent respectively (TNHPS-PBS, 2021). Yet, 32.40 percent of SC households and 20.46 percent of MBC households did not have a latrine within the house premises. All the nine ST households surveyed in the district had a latrine within their house premises. However, the results for the ST category must be interpreted in the context of their sample size, as discussed in Section 3.1.

*Chart 3.21 Presence of Latrine in the Premises of Different Types of Houses – Area-wise*

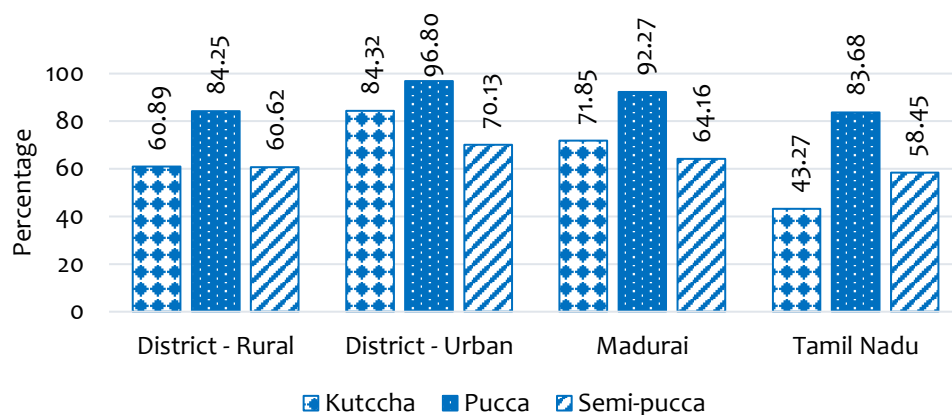
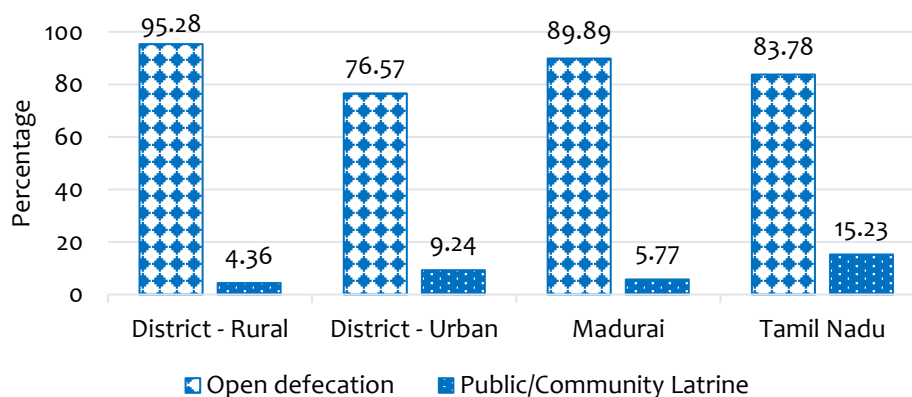


Chart 3.21 shows that the percentage of pucca houses with latrine facilities in the district was higher than for semi-pucca and kutccha houses. The percentages of latrine facilities in kutccha, pucca and semi-pucca houses in the district were higher than their respective state estimates. Latrine facilities in all three types of houses were higher in urban areas than rural areas of the district. Almost all urban pucca houses had latrine within the house premises.

*Chart 3.22 Alternate Practices of Defecation by the Households without Latrine – Area-wise*



The percentage of total households in the district following open defecation had declined from 35.49 percent in 2011 (Census, 2011) to 13.80 percent in 2018. As per the state PBS report, Madurai district was ranked twenty-fifth in terms of the percentage of total households following open defecation.

Chart 3.22 shows that almost 90 percent of the households without latrine within the house premises in the district were following open defecation. This estimate was higher than the state estimate. The practice of open defecation by these households was higher in rural areas compared to urban areas of the district.

## 4. Conclusion and Recommendations

The Pre-Baseline Survey (PBS) 2018-19 of Madurai district was conducted from the sample of 8,751 households in the district who were willing to participate in the survey. The survey focused on five major indicators: i) demographic indicators, ii) development indicators, iii) socio-economic indicators, iv) household income and v) basic infrastructure.

Madurai was ranked sixth among the then 32 districts in 2018 in terms of literacy rate. The district was one among the top 5 districts in terms of mean annual household income, electrification, and the percentage of households with latrine within house premises. The mean annual household income of Madurai district was 12.70 percent higher than the state estimates. Yet, income inequality as measured by the Gini coefficient was lower than the state estimate. The district estimate on the percentage of employed population was higher than that of the state. The female working population of the district was also on par with the state estimate. Compared to other districts of Tamil Nadu, Madurai district was ranked ninth in terms of LPG use.

In the district, around 13.82% lack formal education, of which 80% were lacking functional literacy. A wide gender gap in literacy persists. Policies targeting female education are vital to address this gap. SC and DNC populations are predominantly employed as agricultural labourers, earning lower incomes compared to other groups. Targeted policy interventions are needed to reduce these disparities.

Madurai is one of the districts that's performing well in most of the indicators, with only a slight intervention needed in indicators like female labour force participation, education of females, policies to bridge the gender gap in education and employment will contribute to better performance of the district. Policy intervention towards the reduction of inequalities between rural and urban areas of the district in basic infrastructural and developmental indicators. More than half the population in rural areas are employed as casual labourers in the district, incentives to adopt recent technologies in industries and by providing skill development programmes to the casual labourers might increase their incomes.

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**A collaborative project between  
Department of Economics and Statistics &  
Madras Institute of Development Studies**

The Tamil Nadu Household Panel Survey (TNHPS) is designed as a longitudinal survey where a set of sample households in Tamil Nadu will be surveyed at specific intervals to analyse the change in their socio-economic conditions over time. The TNHPS aims to analyse how individuals, families, communities, and society are transforming in Tamil Nadu. Understanding this transformation is important for informed policy-making and for society in today's modern world where open links with other states and countries lead to enormous movement of people, ideas, technology, capital, and goods and services. The Pre-Baseline Survey (PBS) elicited information from 2,12,282 households across different districts of Tamil Nadu on a comprehensive set of socio-economic indicators. This serves as the sampling frame for the Baseline Survey (BLS) of subsequent rounds of comprehensive surveys of 7,45,653 individuals in the state.

Based on the information collected during the PBS 2018-19, this report provides a baseline on key socio-economic and demographic indicators of the district along with brief notes on the methods and processes followed in collecting, processing and analysis of data. As the first state-level initiative for collecting comprehensive household panel data through digital data collection methods, TNHPS emerges as an important source of information for evidence-based policymaking in the state.



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