**Department of Economics & Statistics**

Madras
Institute of
Development
Studies

# Tiruvallur
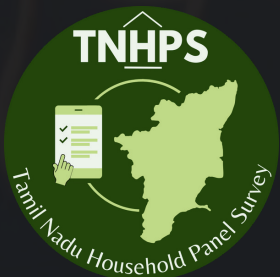
**Tamil Nadu Household Panel Survey (TNHPS)**

*Pre-Baseline Survey (PBS) District Report 2018-19*

# Tiruvallur District

# February 2024

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# Table of Contents

## List of Tables

## List of Figures

## Acknowledgements

## Summary of PBS Findings

*Demographic Indicators*

- Tiruvallur had a sample size of 4,381 households, of which 77.88 percent of households were from rural areas and 22.12 percent of households were from urban areas.

- The district had a huge demographic dividend with around two-thirds of the population aged between 6 and 45 years. Around one-third of the population was between 26-45 years of age.

- The BC and SC social groups were the largest in number, together constituting around 70 percent of the total households in the district.

*Education*

- The PBS estimates showed that the literacy rate in the district had declined from 84.03 percent (Census, 2011) to 83.73 percent in 2018 and was lesser than the state average of 85.40 percent.

- A wide gender gap in literacy rate at 11.73 percent prevailed in the district in 2018, which was higher than the state gender gap at 10.82 percent. The gender gap was wider in rural areas at 14.47 percent than in urban areas at 9.11 percent.

- While more than 95 percent of the General category population in the district had received formal education, only around 56 percent of the ST population had done so.

*Employment*

- The share of unemployed population at 2.80 percent was lower in the district compared to the state estimate of 3.50 percent. Almost half the population at about 49.30 percent was employed and the rest at 47.88 percent were not in the labour force.

- While almost three quarters—about 72.56 percent—of the male population were employed, the female work participation was only a little over a quarter at 26.48 percent.

- Around 71 percent of the female population was not in the workforce, and among these, majority of them at 77.57 percent were associated with attending to domestic duties as a homemaker.

- Around one-third of the employed population were employed as salaried workers in the private sector. More than one-third of the employed population in the BC category, and almost two-third of the General category working population were employed as salaried worker in private sector.

- While salaried work in the private sector was predominant in urban areas, a significant fraction of the rural population was engaged as both casual labourers in the agricultural sector and salaried workers in the private sector.

*Land Ownership and Assets*

- The percentage of households owning agricultural land in the district at 12.36 percent was much lesser than the state level estimate of 19.41 percent. MBC category households were predominant agricultural landholders in the district.

- Around 38.04 percent of the households that owned agricultural land in the district depended on rain-fed irrigation alone.

- Around 94.49 percent of the agricultural land-owning households in the district were holding either marginal or small agricultural lands—less than two hectares.

- About 17.25 percent of the households in Tiruvallur district owned at least one agricultural, allied agricultural or fishing asset. This was lower than the state PBS estimate of 20.92 percent.

- While all General category households owned at least one household asset, around 38 percent of ST, 11 percent of SC and 10 percent of MBC households did not own any household asset, including a mobile phone.

*Household Income*

- The mean annual household income of Tiruvallur district was ₹1,46,976, which was higher than the state PBS estimate of ₹1,42,752; in the urban areas it was ₹1,93,250 and in rural areas it was ₹1,05,239. Tiruvallur was ranked sixth out of 32 districts with respect to this parameter.

- The mean household income from salaried work (₹1,98,743) was the highest, followed by self-employment (₹1,48,275).

- The Gini coefficient for income inequality in Tiruvallur district (0.495) was lower than the state estimate (0.563). Contrary to other districts' estimates, the income inequality across households in rural areas of the district (0.514) was higher than the urban areas (0.437).

- While close to two-thirds of the General and ST category households in the district expected an increase in income in the next five years, around half the SC category households and less than half the BC and MBC category households expected the same.

*Housing and Drinking Water*

- Around 79 percent of the households in the district were living in their own house, which was higher than the state level estimate of 75.16 percent. In rural areas, around 91 percent of households lived in own house whereas in urban areas it was only around 66 percent.

- Out of the households that lived in own house in the district, 26.83 percent of houses were built under a government scheme. ST and SC category households had the highest percentage of houses built under a government scheme in the district compared to other social groups.

- Around 74.66 percent of the households in the district were living in pucca houses, which was higher than the state level estimate of 63.42 percent.

- The primary source of water for households in the state was piped water into the dwelling in urban areas and public tap/standpipe in rural areas, but in Tiruvallur district, piped water into the dwelling was predominant in rural areas and piped water to the yard or plot was predominant in urban areas.

*Electricity and Cooking Fuel*

- Tiruvallur district witnessed an incline in electrification in its rural areas between 2011 and 2018, with an increase from 94.15 percent in 2011 to 98.44 percent in 2018.

- In 2011, LPG was the primary cooking fuel used by households in the district at 66.24 percent and firewood was being used by about 22 percent of the households. In 2018, LPG was being used by almost 90 percent of the households in the district in 2018.

- Around 16.57 percent of the SC households and almost one-third of the ST households in the district still used firewood as the primary cooking fuel.

*Sanitation*

- The percentage of households with latrine within the premises of the house had increased from 67.85 percent in 2011 (Census, 2011) to 70.84 percent in 2018 in the district. Tiruvallur district was ranked eighteenth in the state among the 32 districts in terms of this indicator.

- Almost half the SC households and around 70 percent of ST households did not have access to a latrine within the house premises.

- The proportion of total households in the district following open defecation had declined from 29.93 percent in 2011 to 26.31 percent in 2018.

# 1. Introduction

*1.1 Profile of Tiruvallur District*

Tiruvallur district in Tamil Nadu was formed in the year 1997 by splitting the erstwhile Chengalpattu district into Kancheepuram and Tiruvallur districts. It is in the northern region of the state, with borders of Andhra Pradesh in the north, Bay of Bengal and Chennai in the east, Kancheepuram and Vellore in the south, and borders of Andhra Pradesh in the west.

According to Census (2011), Tiruvallur had a total population of 37.28 lakhs, accounting for approximately 5.17 percent of Tamil Nadu's total population, which was 7.21 crores. The district comprised 9.47 lakh households, with 65.14 percent residing in urban areas. The male population was 50.32 percent, and the female population was 49.68 percent. Tiruvallur demonstrated a child-sex ratio of 946.13 compared to the state average of 943.27. Within the social groups, 22.04 percent of the population belonged to the Scheduled Castes, while 1.27 percent belonged to the Scheduled Tribes. The literacy rate in Tiruvallur district stood at 84.03 percent, compared to the state's average of 80.09 percent. The male literacy rate was reported to be 89.69 percent, while the female literacy rate was reported to be 78.32 percent.

In the fiscal year 2018-19, Tiruvallur's Net District Domestic Product was ₹1,30,55,237 lakh, ranking first amongst districts. The district's per capita Net District Domestic Product was recorded at ₹2,83,344, ranking first among districts and surpassed Tamil Nadu's average of ₹1,83,884 (Department of Economics and Statistics, 2023). In terms of sectoral distribution, the primary sector (agriculture and allied) contributes approximately three percent to its domestic income, while the secondary (industry) and tertiary (service) sectors contribute approximately 34 percent and 63 percent, respectively (Department of Economics and Statistics, 2017).

According to the Tamil Nadu State Planning Commission (2017a), Tiruvallur ranked eighth in terms of the Human Development Index with a score of 0.801, pointing to an above-average performance in overall development. It ranked ninth in the Gender Inequality Index with a score of 0.064, highlighting good performance in closing the gender divide. In terms of the Child Development Index, the district ranked fourteenth with a score of 0.656, indicative of an average performance in developing the youth. Additionally, Tiruvallur ranked ninth in terms of the Multidimensional Poverty Index with a score of 0.46, pointing to a relatively good performance in the eradication and prevention of poverty.

Tiruvallur district leads in economic prosperity with top Net District Domestic Product and per capita income rankings. The district excels in human development, gender equality, and poverty reduction, emphasizing its comprehensive progress and positive indicators.

## 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. As Census (2021) has not yet commenced, 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 1,476 Primary Sampling Units—684 rural PSUs and 792 urban PSUs.

This report analyses data from the PBS for the Tiruvallur district and presents the findings. Wherever possible, the report compares the district PBS estimates with the most recent census data of Tiruvallur (Census, 2011) and the state PBS estimates (TNHPS-PBS, 2021) to assess the socio-economic development of Tiruvallur district. The sample size for the district was 4,381 households, among which 3,756 households were from rural areas and 965 households were from urban areas. The blocks covered during the survey were: Gummidipoondi, Kadambattur, Minjur, Pallipattu, Poonamallee, Poondi, Puzhal, Sholavaram, Tiruvallur, Tiruttani, Tiruvelangadu and Villivakkam.

## 2. Survey Response

For the Pre-Baseline Survey (PBS) 2018-19, a total of 4,947 households in Tiruvallur district were selected using a multi-stage stratified sampling design[1]. The final sample size was 4,381 households for PBS, among which 77.88 percent of households were from rural areas and 22.12 percent 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 | | Tiruvallur | |
| | Number of HHs | Percentage | Number of HHs | Percentage | Number of HHs | Percentage |
| Response | 3,416 | 90.95 | 965 | 81.02 | 4,381 | 88.56 |
| Non-Response | 273 | 7.27 | 184 | 15.45 | 457 | 9.24 |
| Non-sample | 67 | 1.78 | 42 | 3.53 | 109 | 2.20 |
| **Total** | **3,756** | **100** | **1,191** | **100** | **4,947** | **100** |

Tiruvallur district had a lower response rate—willingness of households to participate in the TNHPS-PBS—of 88.56 percent compared to the state response rate of 96.5 percent (TNHPS-PBS, 2021). Rural areas had a higher response rate compared to the urban areas. Around 9.24 percent of households were not willing to participate in the survey. About 2.20 percent of the selected samples were removed as they were not considered as households as per the definition used in the PBS[2].

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[1] Detailed explanation of the Sampling Methodology available in the TNHPS-PBS State Report (see TNHPS-PBS, 2021).

[2] 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[3] in the district had reduced from 3.94 in 2011 (Census, 2011) to 3.76 in 2018. Around 50.30 percent of the population in the district were female, and 49.70 percent of the population were male. Around 15.26 percent of the households in the district were headed by females, which was lower than the state estimate of 18.93 percent (TNHPS-PBS, 2021).

Chart 3.1 shows the age-wise distribution of the population in Tiruvallur district.

*Chart 3.1 Age-wise Distribution of Population*
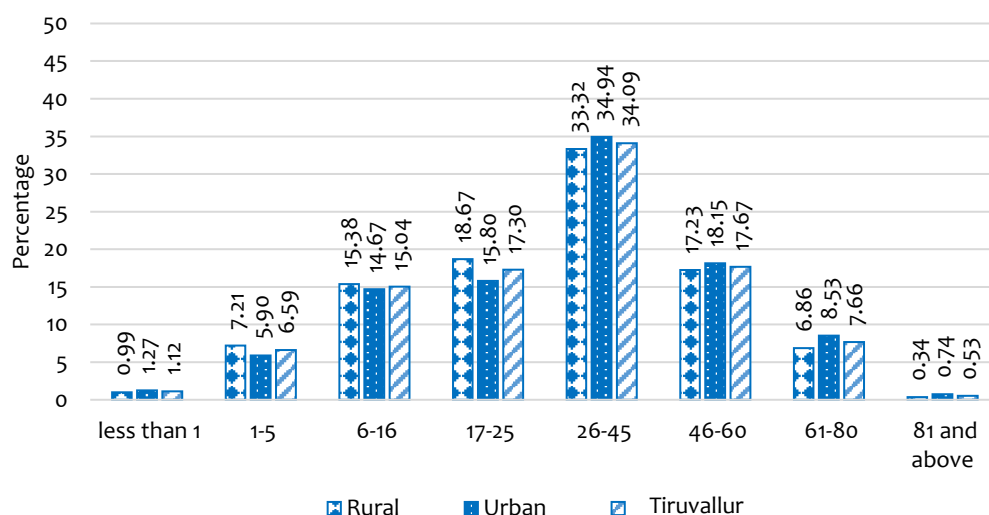


As per the PBS estimates, more than one-third of the population in the district were in the age group of 26 to 45 years. The age group of 17 to 60 years in the district was 69.06 percent, which was comparatively higher than the state estimate of 66.00 percent (TNHPS-PBS, 2021). The proportion of senior citizens—above 60 years—in Tiruvallur district's population at 8.19 percent was lower than that at the state level estimate of 11 percent (TNHPS-PBS, 2021).

The percentage of currently married population in the district was 70.42 percent in 2018. A higher percentage of males were currently married 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.

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[3] 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 90.60 percent of the households practiced Hinduism, 2.19 percent practiced Islam and 7.06 percent followed Christianity.

Table 3.1 shows the social group-wise distribution of the households in the district.

*Table 3.1 Social Group-wise Distribution of Households*

| Social Group | Percentage |
|---|---|
| SC | 32.68 |
| ST | 2.24 |
| BC | 38.14 |
| MBC | 23.25 |
| Denotified Communities (DNC) | 0.09 |
| General | 2.66 |
| DK/RF | 0.94 |
| **Total** | **100** |

As per the PBS estimates, the highest percentage of households in Tiruvallur district belonged to the BC category, followed by the SC category. The percentages of SC and ST households in the district were 32.68 percent and 2.24 percent in 2018.

It is important to note that the percentage of DNC category in the total population of Tiruvallur district was only 0.09 percent and only three DNC households were surveyed in the district. Hence, the results pertaining to the DNC category discussed in this 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 Tiruvallur district.

### 3.2.1 Education

The change in literacy rate of Tiruvallur district 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 including those that have formal schooling and those that can read and write a simple sentence.

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

| Gender | Rural | | Urban | | Tiruvallur | | Tamil Nadu | |
|---|---|---|---|---|---|---|---|---|
| | 2011 | 2018 | 2011 | 2018 | 2011 | 2018 | 2011 | 2018 |
| Male | 82.45 | 84.95 | 93.53 | 94.93 | 89.69 | 89.67 | 86.77 | 90.97 |
| Female | 66.09 | 70.48 | 84.92 | 85.82 | 78.32 | 77.94 | 73.40 | 80.15 |
| Total | 74.25 | 77.72 | 89.25 | 90.26 | 84.03 | 83.73 | 80.09 | 85.40 |

*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 Tiruvallur district at 84.03 percent was higher than the state average of 80.09 percent. The PBS estimates show that in the year 2018, the literacy rate in Tiruvallur district decreased to 83.73 percent, which became lesser than the state average of 85.4 percent. Tiruvallur district registered a decline of 0.3 percent in literacy rate between 2011 and 2018, while the state registered a growth rate of 5.31 percent. In terms of literacy rate, Tiruvallur was ranked eighteenth among the then 32 districts in 2018 (TNHPS-PBS, 2021).

The female and male literacy rates in Tiruvallur district recorded a slight decrease in 2018 compared to the district estimate in 2011 (Census, 2011), with a wide gender gap in 2018. The gender gap in literacy rate inclined from 11.37 percent in 2011 to 11.73 percent in 2018, which was higher than the state gender gap of 10.82 percent in 2018 (TNHPS-PBS, 2021).

Both rural and urban literacy rates recorded an increase between 2011 and 2018, though the rural literacy rate was still 12.54 percent lower than the urban literacy rate in 2018. The gender gap in literacy rate was much higher in rural areas at 14.47 percent than in urban areas at 9.11 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 Tiruvallur district.

*Chart 3.2 Formal Schooling of the Population (Age 7 and above) – Area-wise Percentages*
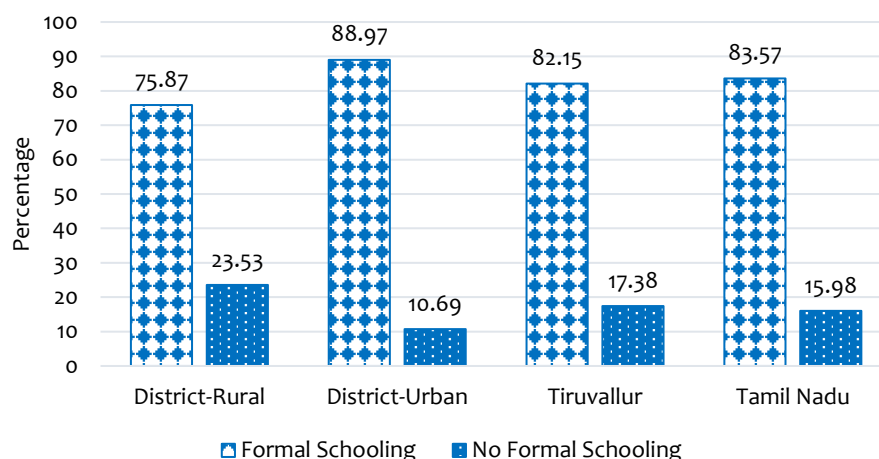


*Others and Don't Know/Refuse to Answer categories are not included in any chart, unless their value is substantially high. Therefore, the total might not add up to 100 percent.

Chart 3.2 shows that around 82.15 percent of the specified population in the district attended formal schooling, which was lower compared to the state estimate. The percentage of population with formal education in urban areas was much higher than in the rural areas of the district.

*Chart 3.3 Formal Schooling of the Population – Gender-wise Percentages*
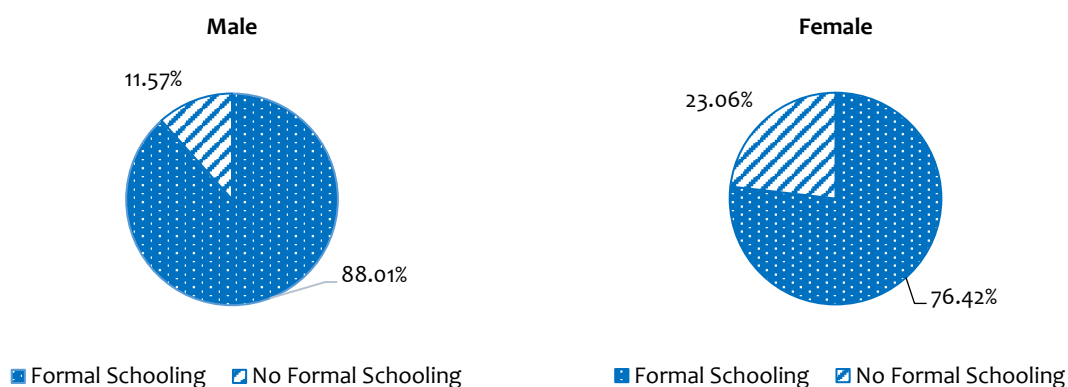


Chart 3.3 shows that the percentage of the population that had acquired formal education in the district was much higher among males compared to females, again denoting a wide gender gap, like in literacy.

A district level analysis of the PBS on formal schooling 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 | Tiruvallur |
| Formal Schooling | 77.88 | 56.68 | 88.37 | 78.78 | 60.10 | 96.23 | 82.15 |
| No Formal Schooling | 21.55 | 42.11 | 11.32 | 20.83 | 39.90 | 1.85 | 17.38 |
| Others and DK/RF | 0.57 | 1.20 | 0.31 | 0.39 | 0.00 | 1.92 | 0.47 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |

While more than 90 percent of the General category population in the district received formal education, around 42 percent of the ST population had not done so. The results for the DNC category must be interpreted in the context of their sample size, as discussed in Section 3.1.

To take this analysis further, Table 3.4 gives detailed information on the highest level of educational attainment of the population that received formal education.

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

| Educational Attainment | Area Type | | |
|---|---|---|---|
| | Rural | Urban | Tiruvallur |
| Primary (I to V) | 20.82 | 17.49 | 19.10 |
| Middle School (VI to VIII) | 20.72 | 18.88 | 19.76 |
| High School (IX to X) | 26.22 | 26.43 | 26.33 |
| Higher Secondary (XI to XII) | 16.45 | 13.98 | 15.17 |
| Bachelor's degree | 8.21 | 14.34 | 11.39 |
| Diploma Degree | 4.99 | 4.05 | 4.50 |
| Post Graduate Degree | 1.80 | 4.46 | 3.18 |
| DK/RF | 0.79 | 0.37 | 0.57 |
| **Total** | **100** | **100** | **100** |

The percentage of population that had completed tertiary education—such as bachelor's degree, diploma, or post graduate degree and above—was 19.07 percent, which was slightly lower than the state estimate of 20.02 percent. Also, this figure was higher for urban areas than rural areas of the district.

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

| Educational Attainment | Gender | | |
|---|---|---|---|
| | Male | Female | Tiruvallur |
| Primary (I to V) | 16.98 | 21.47 | 19.10 |
| Middle School (VI to VIII) | 18.86 | 20.78 | 19.76 |
| High School (IX to X) | 28.80 | 23.55 | 26.33 |
| Higher Secondary (XI to XII) | 13.82 | 16.69 | 15.17 |
| Bachelor's degree | 12.10 | 10.59 | 11.39 |
| Diploma Degree | 6.16 | 2.64 | 4.50 |
| Post Graduate Degree | 2.80 | 3.60 | 3.18 |
| DK/RF | 0.47 | 0.68 | 0.57 |
| **Total** | **100** | **100** | **100** |

Table 3.5 shows a largely similar pattern of schooling levels completed by males and females in the specified population in the district. In tertiary education, a higher percentage of females completed post-graduate degree compared to males.

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

| Educational Attainment | Social Group | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC | ST | BC | MBC | DNC | General | Tiruvallur |
| Primary (I to V) | 18.55 | 41.64 | 18.07 | 22.01 | 12.60 | 7.67 | 19.10 |
| Middle School (VI to VIII) | 19.22 | 32.97 | 20.62 | 19.42 | 8.40 | 9.96 | 19.76 |
| High School (IX to X) | 27.02 | 15.13 | 26.07 | 26.64 | 4.20 | 27.29 | 26.33 |
| Higher Secondary (XI to XII) | 17.92 | 2.50 | 13.65 | 15.21 | 4.20 | 12.37 | 15.17 |
| Bachelor's degree | 9.25 | 1.00 | 13.01 | 10.01 | 4.20 | 27.39 | 11.39 |
| Diploma Degree | 4.70 | 4.31 | 4.47 | 4.30 | 0.00 | 3.44 | 4.50 |
| Post Graduate Degree | 2.62 | 0.37 | 3.76 | 1.92 | 66.39 | 9.93 | 3.18 |
| DK/RF | 0.73 | 2.08 | 0.35 | 0.49 | 0.00 | 1.96 | 0.57 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |

The social group-wise analysis in Table 3.6 shows that most of the SC and ST population in the district completed only primary and secondary school. The percentage of population with tertiary education—bachelor's degree and above—was quite high among the General category at 40.76 percent, followed by the BC category at 21.24 percent. Similar to the national and state level trend, the percentage of population with higher educational qualification in the district was lower among SC and ST categories. The results for the DNC category must be interpreted in the context of their sample size, as discussed in Section 3.1.

About 17.38 percent of the population had not received formal education in Tiruvallur district (refer Chart 3.2). The PBS 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 | Tiruvallur |
| Yes | 7.89 | 12.07 | 9.12 |
| No | 91.99 | 87.93 | 90.80 |
| DK/RF | 0.12 | 0.00 | 0.08 |
| **Total** | **100** | **100** | **100** |

Table 3.7 shows the functional literacy status of the population with no formal schooling. Only 9.12 percent of the population without formal schooling had functional literacy. The specified population group in urban areas of the district had a slightly better functional literacy 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 | Tiruvallur |
| Yes | 10.59 | 2.53 | 7.93 | 8.07 | 100.00 | 55.30 | 9.12 |
| No | 89.41 | 97.47 | 92.00 | 91.75 | 0.00 | 44.70 | 90.80 |
| DK/RF | 0.00 | 0.00 | 0.07 | 0.17 | 0.00 | 0.00 | 0.08 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |

Table 3.8 shows the functional literacy status of population with no formal schooling, across various social group categories. Functional literacy was low across all social groups, except General category. The results for the DNC category must be interpreted in the context of their sample size, as discussed in Section 3.1.

### 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 status 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[4].

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,

(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:

(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.).

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[4] 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

*Chart 3.4 Employment Status of the Population (Age 14 years and above) – Area-wise Percentages*
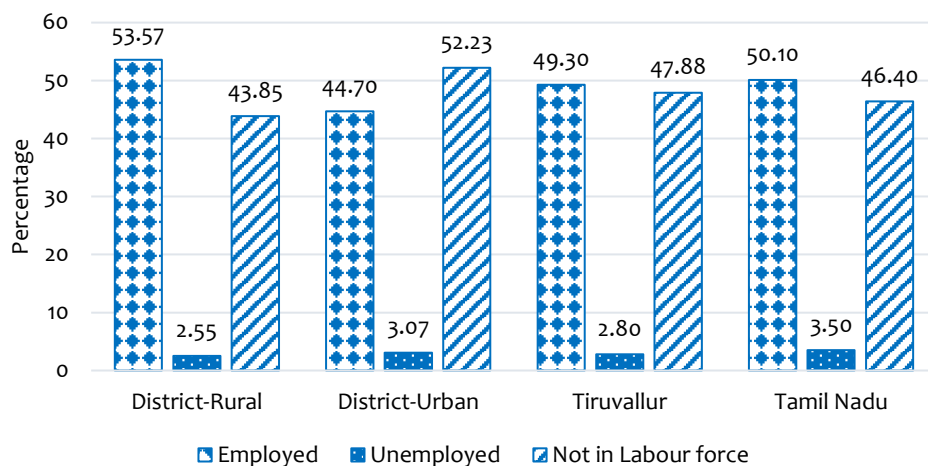


Chart 3.4 shows that the overall percentage of employed population—14 years and above—in the district was lesser than the state estimate. Also, the share of unemployed population was lower in the district compared to the state. The percentage of population that was employed was higher in the rural parts of the district than the urban. The unemployment status in rural areas of the district at 2.55 percent and the district urban unemployment status at 3.07 percent were lower than the state's rural and state's urban estimates of 3.6 percent and 3.3 percent respectively. Tiruvallur district was ranked nineteenth among all districts in Tamil Nadu in terms of employed population and ranked eighth lowest in terms of the unemployed population.

*Chart 3.5 Employment Status of the Population – Gender-wise Percentages*
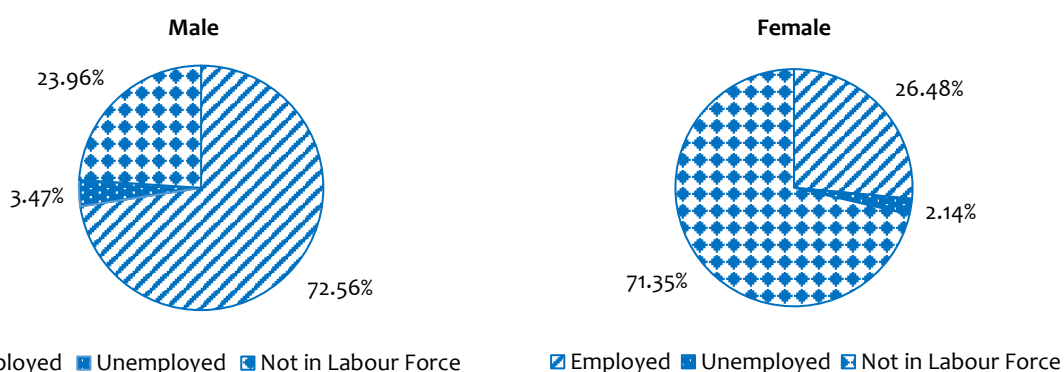


Chart 3.5 shows the gender-wise employment status of the population aged 14 years and above. While almost three quarters of the male population was employed, the female work participation was only a little over a quarter. Decreased female labour force participation has been well documented at the national level (Das et al., 2015; Desai, 2017; Desai & Joshi, 2019). While the district female work participation was higher than the

national average of 23.3 percent in 2017-18 (National Statistical Office, 2019), it was lesser than the state estimate of 29.96 percent. Around 71.35 percent of the female population was not in the workforce, and among these, majority of them at about 77.57 percent were associated with attending to domestic duties as homemakers (see Chart 3.7). As per the state PBS estimates, Tiruvallur district was ranked twenty-fifth in terms of employed female population and ranked fifteenth lowest in terms of female unemployment.

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

| Work Type | Area Type | | |
|---|---|---|---|
| | Rural | Urban | Tiruvallur |
| Self Employed Agriculture | 4.07 | 0.80 | 2.65 |
| Self Employed Non-Agriculture | 7.86 | 16.82 | 11.77 |
| Self Employed Allied Agriculture | 1.33 | 0.70 | 1.05 |
| Casual Laborer Agriculture | 28.90 | 1.42 | 16.90 |
| Casual Labourer Industry | 6.03 | 5.16 | 5.65 |
| Casual Labourer Service | 18.34 | 24.21 | 20.90 |
| Casual Labourer (Others) | 1.06 | 0.00 | 0.59 |
| Salaried Worker Government | 3.29 | 7.35 | 5.06 |
| Salaried Worker Private | 27.54 | 42.88 | 34.24 |
| Multiple Occupation | 1.31 | 0.46 | 0.94 |
| Other | 0.19 | 0.20 | 0.19 |
| DK/RF | 0.08 | 0.00 | 0.05 |
| **Total** | **100** | **100** | **100** |

Around one-third of the employed population in the district were salaried workers in private sector, similar to the trend at state level where majority of working population were salaried workers in private sector at 21.82 percent (TNHPS-PBS, 2021). While salaried workers in private sector were predominant in urban areas, casual labourers in the agricultural sector were most common in rural areas of the district.

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

| Work Type | Social Group | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC | ST | BC | MBC | DNC | General | Tiruvallur |
| Self Employed Agriculture | 1.35 | 0.49 | 2.16 | 5.76 | 0.00 | 1.87 | 2.65 |
| Self Employed Non-Agriculture | 7.77 | 5.82 | 17.06 | 9.97 | 11.23 | 19.69 | 11.77 |
| Self Employed Allied Agriculture | 0.91 | 0.00 | 1.13 | 1.34 | 0.00 | 0.71 | 1.05 |
| Casual Labourer Agriculture | 29.03 | 33.32 | 6.22 | 14.50 | 0.00 | 0.00 | 16.90 |
| Casual Labourer Industry | 5.01 | 4.62 | 5.49 | 7.71 | 0.00 | 0.71 | 5.65 |
| Casual Labourer Service | 15.48 | 38.20 | 21.42 | 28.01 | 0.00 | 2.30 | 20.90 |
| Casual Labourer (Others) | 1.22 | 0.00 | 0.19 | 0.32 | 0.00 | 0.36 | 0.59 |
| Salaried Worker Government | 5.61 | 2.24 | 5.28 | 3.75 | 0.00 | 11.17 | 5.06 |
| Salaried Worker Private | 32.17 | 14.47 | 40.37 | 26.92 | 88.77 | 63.18 | 34.24 |
| Multiple Occupation | 1.03 | 0.85 | 0.60 | 1.43 | 0.00 | 0.00 | 0.94 |
| Other | 0.32 | 0.00 | 0.04 | 0.27 | 0.00 | 0.00 | 0.19 |
| DK/RF | 0.09 | 0.00 | 0.02 | 0.03 | 0.00 | 0.00 | 0.05 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |

Majority of the social categories, except the ST and MBC population, were involved in salaried private work. The proportion of the SC and ST population involved as casual labourers in agriculture sector was lower than the respective state estimate of 33.33 percent and 41.32 percent. The results for the DNC category must be interpreted in the context of their sample size, as discussed in Section 3.1.

The PBS also enquired about the composition of the population that was not in the labour force aged 14 and above, which is discussed below.

*Chart 3.6 Composition of the population not in the Labour Force – Area-wise Percentages*
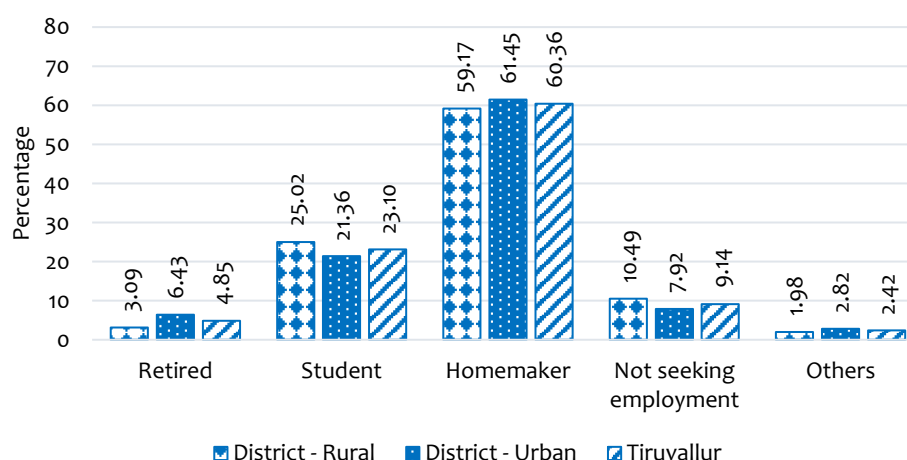
Chart 3.6 shows that similar to the trend at the state level (TNHPS-PBS, 2021), more than half the population that was not in the labour force in the district comprised homemakers involved in unpaid domestic duties of the household, followed by students. The proportion of the population that was not 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 – Gender-wise Percentages*
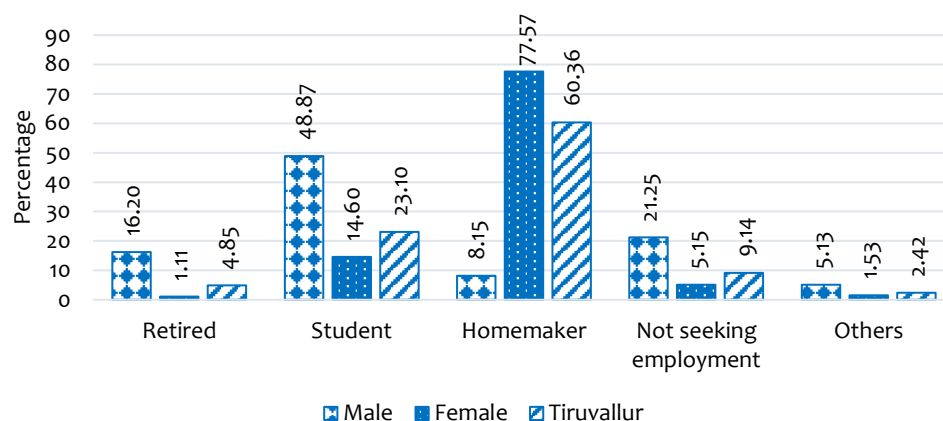


The gender-wise distribution of the population currently not in the labour force aged 14 and above is given in Chart 3.7. While Chart 3.3 represents the lower female involvement in formal education, Chart 3.7 shows the staggeringly lower female involvement in higher education compared to men as only 14.60 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 the Labour Force - Social Group-wise Percentages*

| Current Status | Social Group | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC | ST | BC | MBC | DNC | General | Tiruvallur |
| Retired | 4.25 | 1.13 | 5.05 | 3.09 | 0.00 | 21.43 | 4.85 |
| Student | 26.43 | 6.32 | 21.36 | 24.03 | 0.00 | 15.13 | 23.10 |
| Homemaker | 59.27 | 78.00 | 62.10 | 58.10 | 100.00 | 56.80 | 60.36 |
| Not seeking employment | 8.20 | 14.55 | 8.57 | 11.92 | 0.00 | 4.67 | 9.14 |
| Others | 1.62 | 0.00 | 2.81 | 2.81 | 0.00 | 1.97 | 2.42 |
| DK/RF | 0.23 | 0.00 | 0.11 | 0.05 | 0.00 | 0.00 | 0.13 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |

Table 3.11 shows that within all social groups, the percentage of homemakers was the largest amongst ST category households compared to other categories in the district. The SC and MBC category had a higher percentage of not-working population as students compared to the other social groups. Although majority of the employed SC and MBC population were casual labourers (see Table 3.10), the not-working population belonging to the student category was high for these two social groups. The results for the DNC 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 Tiruvallur district such as ownership of agricultural land, household assets and income are shown 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 Tiruvallur 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 only on the ownership of agricultural land. 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 Percentages*
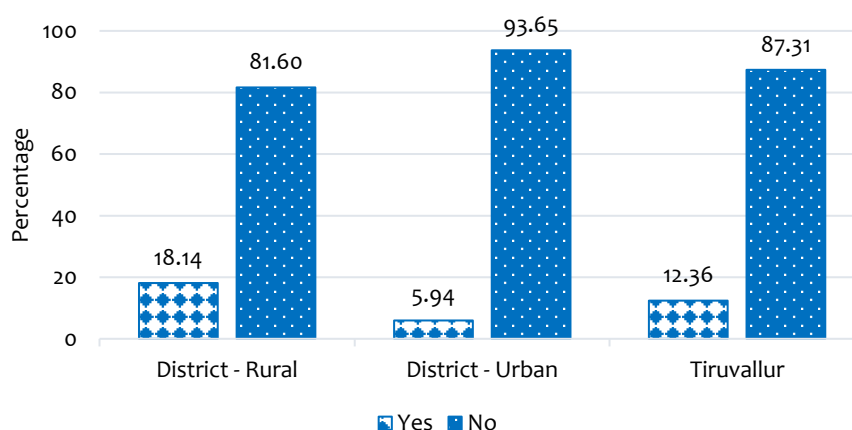


As per the state estimates, the percentage of total households owning agricultural land in Tamil Nadu was 19.41 percent. Tiruvallur district was ranked twenty-sixth on the percentage of total households owning agricultural land (TNHPS-PBS, 2021). Chart 3.8 shows that 87.31 percent of the households in the Tiruvallur district did not own agricultural land and only around 12 percent of the households in the district owned

agricultural land. The percentage of households owing agricultural land was higher in rural areas than urban areas of the district.

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

| Type of Agricultural Land | Area Type | | |
|---|---|---|---|
| | Rural | Urban | Tiruvallur |
| Only Irrigated Agriculture Land | 56.68 | 46.13 | 54.31 |
| Only Unirrigated Agriculture Land | 35.72 | 46.01 | 38.04 |
| Both Irrigated and Unirrigated Agriculture Land | 7.31 | 2.84 | 6.31 |
| DK/RF | 0.29 | 5.02 | 1.35 |
| **Total** | **100** | **100** | **100** |

Table 3.12 shows that, majority of the households who own agricultural land in Tiruvallur district—about 54.31 percent—depended on various irrigation sources. Canals, tanks, dug wells and tube wells are the major sources of irrigation in Tiruvallur district (Tamil Nadu State Planning Commission, 2017b). Around 35.72 percent of agricultural land-owning households in rural areas and 46.01 percent of agricultural land-owning households in urban areas depended on rainfed irrigation alone. Among the total agricultural land-holding households, the households having irrigated agricultural land was higher in the district at 54.31 percent compared to the state estimate of 50.03 percent.

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

| Agricultural Land Ownership | Social Group | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC | ST | BC | MBC | DNC | General | Tiruvallur |
| Yes | 10.96 | 0.38 | 8.89 | 22.39 | 0.00 | 6.02 | 12.36 |
| No | 88.88 | 99.62 | 90.89 | 76.77 | 100 | 93.98 | 87.31 |
| DK/RF | 0.16 | 0.00 | 0.22 | 0.84 | 0.00 | 0.00 | 0.33 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |

Table 3.13 shows the analysis of the social group wise ownership of agricultural land at the household level. MBC category households at 22.39 percent and SC category households at 10.96 percent were predominant landholders in Tiruvallur district compared to other social groups. Only 0.38 percent of ST category households owned agricultural land in the district. The results for the DNC category must be interpreted in the context of their sample size, as discussed in Section 3.1.

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

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

| Size of Agricultural Land (in Hectares) | Area Type | | |
|---|---|---|---|
| | Rural | Urban | Tiruvallur |
| Marginal (0.01 - 0.99) | 89.71 | 70.92 | 86.55 |
| Small (1 - 1.99) | 6.24 | 16.32 | 7.94 |
| Semi Medium (2 - 3.99) | 2.56 | 12.76 | 4.28 |
| Medium (4 - 9.99) | 0.78 | 0.00 | 0.65 |
| Large (10 and above) | 0.71 | 0.00 | 0.59 |
| **Total** | **100** | **100** | **100** |

Table 3.14 shows that 94.49 percent of the agricultural land-owning households in the district were holding marginal or small agricultural lands—less than two hectares. This estimate is higher than the state level estimate of 89.33 percent. The shares of semi-medium, medium, and large landholdings were lower than that of the state estimates of 7.64 percent, 2.26 percent and 0.77 percent respectively.

### 3.3.2 Ownership of Agriculture, Allied 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, mechanised and non-mechanised boats, amongst the households of Tiruvallur district.

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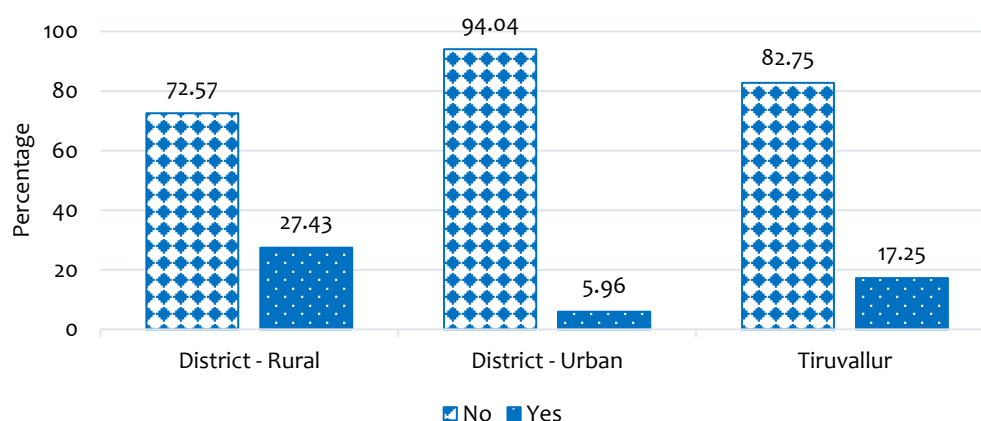


Chart 3.9 shows that 17.25 percent of the households in Tiruvallur district owned at least one agricultural, allied agricultural and fishing assets. The estimate was lower than the state estimate of 20.92 percent (TNHPS-PBS, 2021). The proportion of households owning at least one agricultural, allied agricultural and fishing assets were higher in rural areas of the district at 27.43 percent than in urban areas at 5.96 percent.

### 3.3.3 Presence of Household Assets

Chart 3.10 shows the percentage of households in Tiruvallur district that owned at least one household asset. Household assets include Air Conditioner (AC), refrigerator, two-wheeler, four-wheeler, and mobile phones. The 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 Percentages*
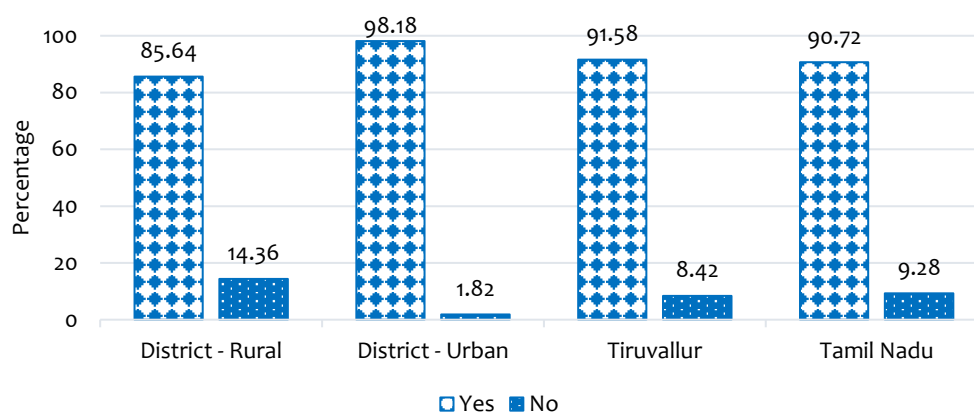


The percentage of households owning at least one household asset in Tiruvallur district at 91.58 percent was higher than the state estimate of 90.72 percent. Within the district, the urban areas had higher percentage of households owning at least one household asset than the rural areas.

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

| Presence of Household Assets | Social Group | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC | ST | BC | MBC | DNC | General | Tiruvallur |
| Yes | 88.83 | 62.39 | 96.21 | 90.09 | 100.00 | 100.00 | 91.58 |
| No | 11.17 | 37.61 | 3.79 | 9.91 | 0.00 | 0.00 | 8.42 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

The social group wise ownership of household assets in Tiruvallur district is given in Table 3.15. The estimates show that around 90 percent of households belonging to each social groups, except ST category, owned at least one household asset. ST category had the lowest percentage of households owning at least one household asset at 62.39 percent compared to other social groups in the district. Around 37.61 percent of the ST households did not even own a mobile phone. The results for the DNC 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 subsidised items from public distribution system and subsidised LPG connection, for instance. The percentage of households that possessed ration card in rural and urban areas of Tiruvallur district are given in Chart 3.11.

*Chart 3.11 Possession of Ration Card – Area-wise Percentages*
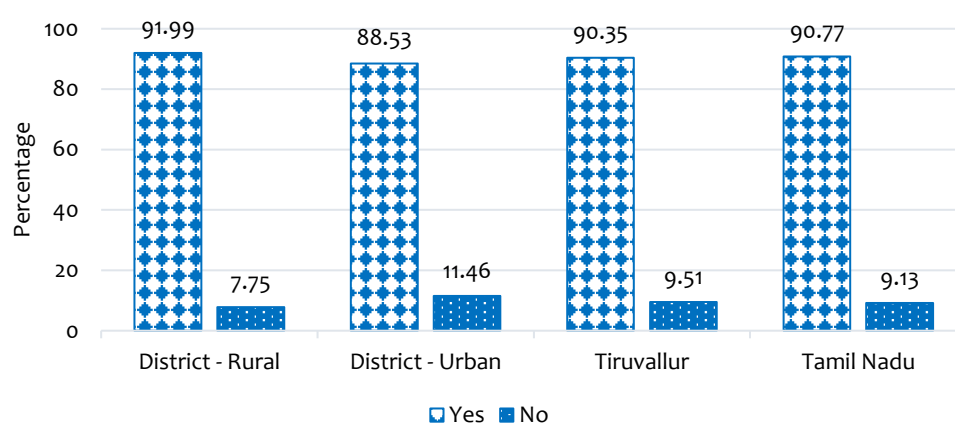


Chart 3.11 show that the percentage of households in Tiruvallur district that possess ration card was similar to the state estimate. Higher percentage of rural households possessed ration cards compared to the urban households in the district.

*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 | Tiruvallur |
| Yes | 89.22 | 81.78 | 91.26 | 90.96 | 89.90 | 95.84 | 90.35 |
| No | 10.43 | 18.22 | 8.74 | 8.97 | 10.10 | 4.16 | 9.51 |
| DK/RF | 0.35 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | 0.14 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |

The social group-wise ownership of household assets in Tiruvallur district is given in Table 3.16. Around 90 percent of households belonging to almost all social groups, except ST category, possessed ration card. Possession of ration card was highest among the General category households at 95.84 percent and lowest among ST category households at 81.78 percent. The results for the DNC 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 National Food Security Act (NFSA) 2013, ration cards are broadly categorised 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. The percentage of households possessing priority and non-priority ration cards in rural and urban areas of Tiruvallur district are given in Chart 3.12.

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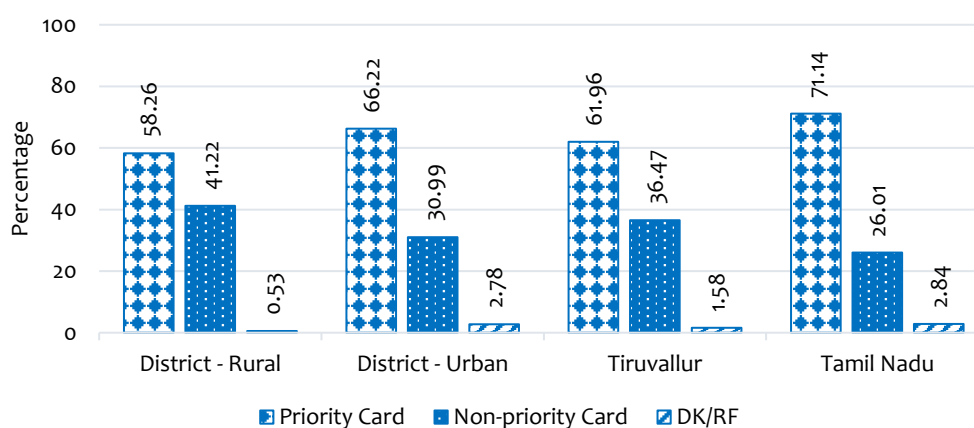


The percentage of households possessing priority ration cards in the district was lower than the state estimates. Higher percentage of urban households possessed priority ration cards than rural households of the district.

### 3.4 Household Income

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

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

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

| Source | Rural | Urban | Tiruvallur | Tamil Nadu |
|---|---|---|---|---|
| Agriculture | 46,217 | 75,422 | 49,507 | 61,830 |
| Allied Agriculture | 32,277 | 1,17,988 | 43,914 | 38,576 |
| Salaried | 1,57,607 | 2,30,660 | 1,98,743 | 2,29,857 |
| Self Employed | 1,12,476 | 1,69,619 | 1,48,275 | 1,47,403 |
| Wage Labour | 39,293 | 57,133 | 45,738 | 47,734 |
| Other Sources | 42,048 | 1,22,220 | 77,975 | 97,646 |
| **Income from all Sources** | **1,05,239** | **1,93,250** | **1,46,976** | **1,42,752** |

The mean household income was higher among the households with salaried income and lower among the households that depended on allied agriculture. Overall, the mean annual household income of Tiruvallur district was 2.96 percent higher than the state estimates. There are a few high-income outliers that inflate the mean income level. Among the then 32 districts, Tiruvallur was ranked sixth in terms of mean annual household income (TNHPS-PBS, 2021).

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

In urban areas of the district, the mean household income was lower compared to the urban state estimate of ₹1,99,629 (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 wage labour.

*3.4.2 Income Inequality in Tiruvallur 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 Tiruvallur district (0.495) was lower than the state estimate (0.563)[5]. Contrary to other districts' estimates, the income inequality across households in rural areas of the district (0.514) was found to be higher than the urban areas (0.437).

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[5] 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 | Gini Coefficient |
|---|---|
| Rural | 0.514 |
| Urban | 0.437 |
| Tiruvallur | 0.495 |
| **Tamil Nadu** | **0.563** |

*Chart 3.13 Lorenz Curve and Income Inequality*
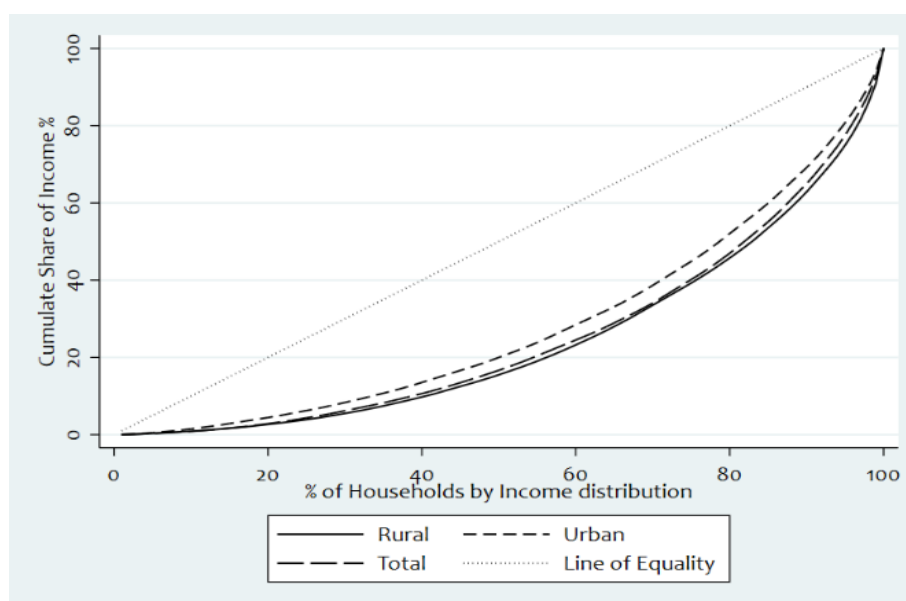


The Lorenz curve is a graphical representation of inequality in the distribution of income or wealth of the population. Chart 3.13 shows that the bottom 60 percent of the households have around 20 percent of total income; the bottom 80 percent of households have around 40 percent of total income and the top 20 percent of households have around 60 percent of total income. Chart 3.13 and Table 3.18 show that income inequality was higher in rural areas compared to the urban 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 had investigated the household's expectation of change in household income in the following five years. The expectation of a household head on the change in household income in future depends highly 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 have about their future economic status. Table 3.19 shows the areas-wise percentage of households expecting increase, decrease or no change in their income in the district.

*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 | | | |
|---|---|---|---|---|
| | Rural | Urban | Tiruvallur | Tamil Nadu |
| Higher | 43.07 | 44.51 | 43.75 | 50.06 |
| Lower | 13.89 | 11.84 | 12.91 | 8.17 |
| About the same | 25.13 | 25.53 | 25.32 | 31.66 |
| DK/RF | 17.91 | 18.13 | 18.02 | 10.11 |
| Total | 100 | 100 | 100 | 100 |

While majority of the households in urban areas at 44.51 percent and rural areas at 43.07 percent expected that their household income will increase in the coming five years, 25.32 percent of the households in the district foresaw that their future income would remain same. About one-tenth of the households expected that their income will decrease in the next five years.

*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 | Tiruvallur |
| Higher | 50.38 | 63.30 | 42.72 | 32.89 | 89.90 | 62.02 | 43.75 |
| Lower | 16.32 | 8.03 | 10.33 | 13.89 | 0.00 | 5.91 | 12.91 |
| About the same | 19.46 | 17.89 | 24.11 | 36.82 | 0.00 | 18.47 | 25.32 |
| DK/RF | 13.84 | 10.78 | 22.84 | 16.40 | 10.10 | 13.60 | 18.02 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

While 63.30 percent of the ST households in Tiruvallur district were expecting an increase in income in the next five years since 2018, the percentage of MBC households that expected an increase in the future income was only 32.89 percent. The percentage of households expecting a decline in future income was higher among SC households at 16.32 percent compared to the other social groups. The results for the DNC 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 of variables such as ownership and type of houses, electrification status, drinking water and sanitation.

### 3.5.1 House Ownership Status

The area wise percentage of households that live in their own house or stay at rented house are given in Chart 3.14.

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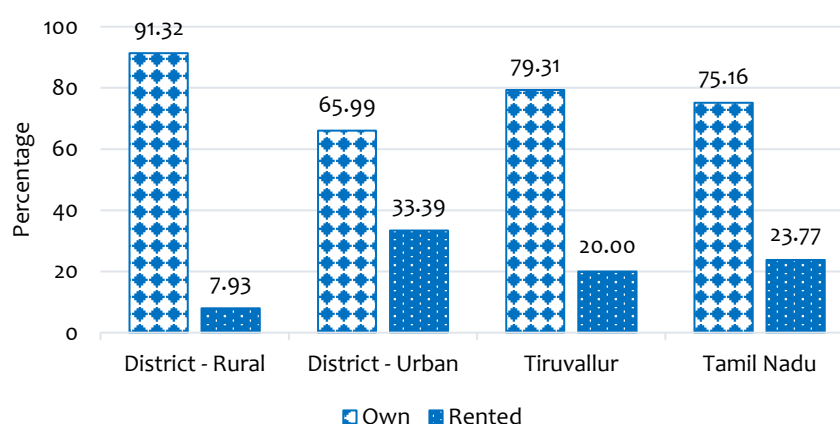


Around 79.31 percent of the households were living in their own houses and one-fifth of the households were living in rented houses in Tiruvallur district. The percentage of households living in their own houses in the district was higher than the state estimates. The district was ranked seventeenth among all districts of Tamil Nadu in terms of percentage of households living in their own houses (TNHPS-PBS, 2021). There existed a wide range of disparity between the ownership of houses in rural and urban areas. Less than one percent of households lived in other houses such as relative's house, 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 | | | | | | Tiruvallur |
|---|---|---|---|---|---|---|---|
| | SC | ST | BC | MBC | DNC | General | |
| Own | 85.03 | 92.15 | 73.27 | 83.47 | 0.00 | 57.26 | 79.31 |
| Rented | 14.62 | 7.85 | 26.02 | 15.63 | 100.00 | 41.81 | 20.00 |
| Others | 0.35 | 0.00 | 0.72 | 0.86 | 0.00 | 0.93 | 0.68 |
| DK/RF | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.01 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |

Table 3.21 shows the social group wise house ownership status of the households. Around 92.15 percent of the ST category households in Tiruvallur district were living in their own houses. The percentage of BC households living in their own houses in the district was 73.27 percent compared to the state estimates of 68.29 percent. Around 41.82 percent of General category households in the district lived in rented houses, the estimates were higher compared to the state estimates for General category households at 36.40 percent. The percentage of ST, BC and MBC households that lived in rented houses were lower than the state estimates of respective social groups (TNHPS-PBS, 2021). None of the surveyed DNC households surveyed were living in their own houses. The results for the DNC category must be interpreted in the context of their sample size, as discussed in Section 3.1.

A detailed analysis of ownership of houses showed that out of 79.31 percent households that owned houses in Tiruvallur district, 26.83 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 | General | Tiruvallur |
| Yes | 41.34 | 70.76 | 17.37 | 17.02 | 1.31 | 26.83 |
| No | 58.43 | 29.24 | 82.54 | 82.93 | 98.04 | 73.03 |
| DK/RF | 0.24 | 0.00 | 0.08 | 0.05 | 0.65 | 0.14 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** |

Among the owned houses, the percentage of houses constructed under a government scheme were higher in Tiruvallur district at 26.83 percent compared to the state estimate of 14.12 percent (TNHPS-PBS, 2021). In Tiruvallur, ST households at 70.76 percent had the higher percentage of houses built under a government scheme compared to other social groups.

### 3.5.2 House Type

Based on the material used for wall/roof or quality of houses, the PBS classify the houses as Kutccha, Pucca and Semi-pucca. The percentage of houses that come under each type of houses are as follows.

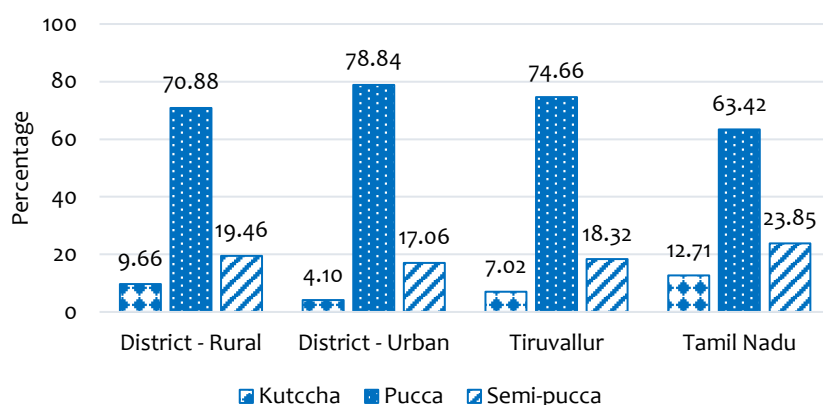*Chart 3.15 Type of House – Area-wise Percentages*

Chart 3.15 shows that majority of households at about 74.66 percent in Tiruvallur district were living in pucca houses. The percentage of households living in pucca houses were higher than the state estimates of 63.42 percent. The percentage of people living in pucca houses was higher in urban areas compared to the rural areas of the district. While 75.22 percent of state urban households and 52.93 percent of state rural households lived in pucca houses (TNHPS-PBS, 2021), 78.84 percent of district urban households and 70.88 percent of district rural households lived in pucca houses. The percentage of people living in semi-pucca and kutccha house in the district were lower than the state estimates. Higher percentage of people lived in semi-pucca and kutccha houses in rural areas of the district.

### 3.5.3 Primary Drinking Water Source

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

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[6] Primary source - Water that is availed for the greater part of the year

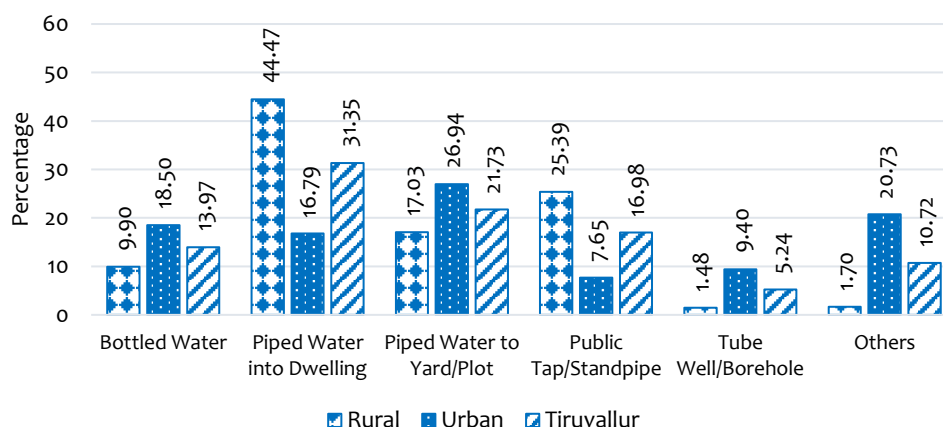*Chart 3.16 Primary Drinking Water Source of Households*



Chart 3.16 show that 31.35 percent of households in Tiruvallur district were using piped water into dwelling as their primary source of drinking water followed by piped water into yard/plot, whereas 32.04 percent of households in the state were using piped water into dwelling and, 17.13 percent using piped water into yard/plot (TNHPS-PBS, 2021). The state estimates show that piped water into the dwelling in urban areas at 37.02 percent and public tap/standpipe in rural areas at 44.51 percent were the primary water sources of households (TNHPS-PBS, 2021). In Tiruvallur district, piped water into the dwelling was predominantly used in rural households at 44.47 percent and piped water into yard/plot was mostly used in urban households at 26.94 percent.

### 3.5.4 Electricity

The state had witnessed a mass electrification during the last decade. A comparison of households with electricity connection between Census (2011) and the state PBS estimates in 2018 (TNHPS-PBS, 2021) shows that state was close to the status of complete electrification in case of urban areas. The electrification status has improved in rural areas as well. Chart 3.17 shows the electrification status of households in Tiruvallur 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)*
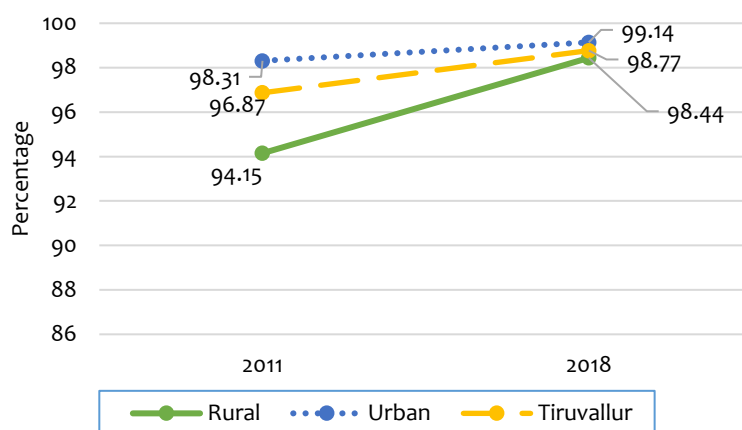


Chart 3.17 shows that a mass electrification had happened in both rural and urban areas of Tiruvallur district during the period from 2011 to 2018 where the rate of growth of households with electricity was higher in rural areas. Tiruvallur was ranked third among the then 32 districts in terms of electrification (TNHPS-PBS, 2021). Around 98.77 percent of households in the district had domestic electricity connection compared to the state estimate of 97.60 percent (TNHPS-PBS, 2021).

### 3.5.5 Primary Cooking Fuel

A comparison of Census (2011) and the PBS (2018) estimates on the primary cooking fuel[7] used by the households in the district is given in Chart 3.18 and 3.19.

*Chart 3.18 Comparison of Primary Cooking Fuel– Tiruvallur and Tamil Nadu*
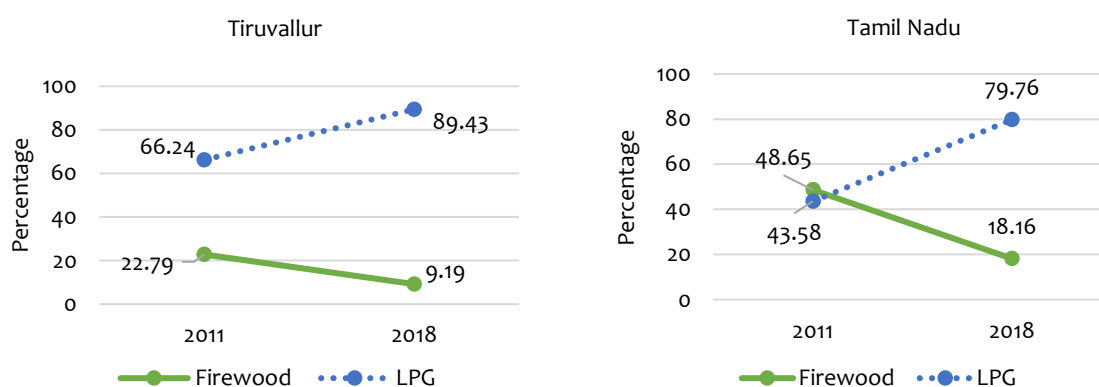


Chart 3.18 shows that, although the use of LPG as primary cooking fuel in Tiruvallur district had increased from 66.24 percent in 2011 (Census, 2011) to 89.43 percent in 2018, firewood

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[7] Primary Cooking Fuel:  Fuel that is used for the greater part of the year

was still used in 9.19 percent of households in 2018. Compared to other districts of Tamil Nadu, Tiruvallur was ranked fifth in terms of LPG use and ranked twenty-sixth in terms of firewood use (TNHPS-PBS, 2021).

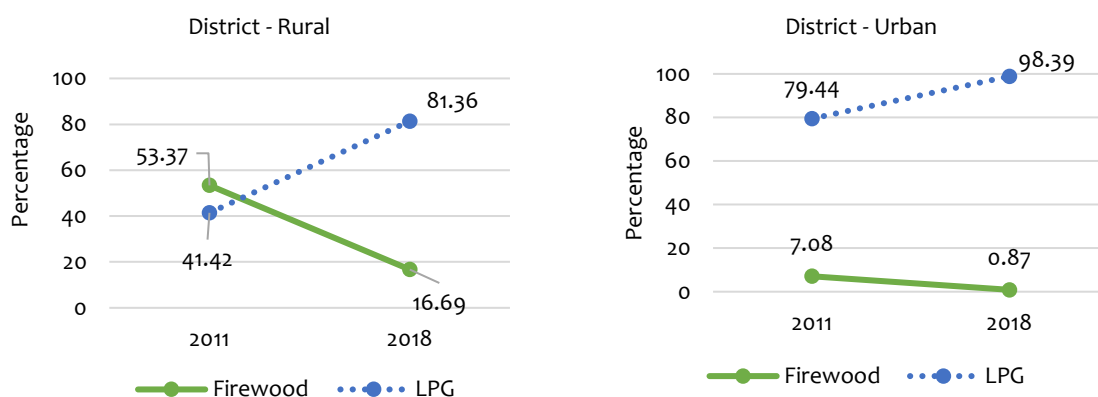*Chart 3.19 Comparison of Primary Cooking Fuel– Rural and Urban*



Chart 3.19 indicates that majority of the households in both rural and urban areas at 81.36 percent and 98.39 percent respectively used LPG as the primary cooking fuel. The percentage of households using LPG as primary cooking fuel was significantly higher in urban areas of the district compared to rural areas. Nevertheless, around 16.69 percent of households in rural areas of Tiruvallur district were still using firewood as primary cooking fuel. The usage of firewood had reduced and there was increase in LPG as primary cooking fuel in both urban and rural areas.

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

| Primary Cooking Fuel | Social Group | | | | | | |
|---|---|---|---|---|---|---|---|
| | SC | ST | BC | MBC | DNC | General | Tiruvallur |
| Firewood | 16.57 | 32.20 | 1.81 | 9.94 | 0.00 | 0.00 | 9.19 |
| Kerosene | 0.75 | 3.48 | 0.96 | 0.91 | 0.00 | 0.00 | 0.91 |
| LPG | 82.24 | 64.32 | 96.83 | 88.61 | 100.00 | 99.20 | 89.43 |
| Others | 0.44 | 0.00 | 0.34 | 0.51 | 0.00 | 0.80 | 0.43 |
| DK/RF | 0.00 | 0.00 | 0.06 | 0.04 | 0.00 | 0.00 | 0.03 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |

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

Table 3.23 shows that while most of the General category households—about 99.20 percent—and BC category—about 96.83 percent—of households used LPG as primary cooking fuel, firewood was highly used by ST category households at 32.20 percent and SC category households at 16.57 percent, compared to the state estimates of 45.40 percent

and 27.60 percent respectively (TNHPS-PBS, 2021). The results for the DNC 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 is given in Chart 3.20.

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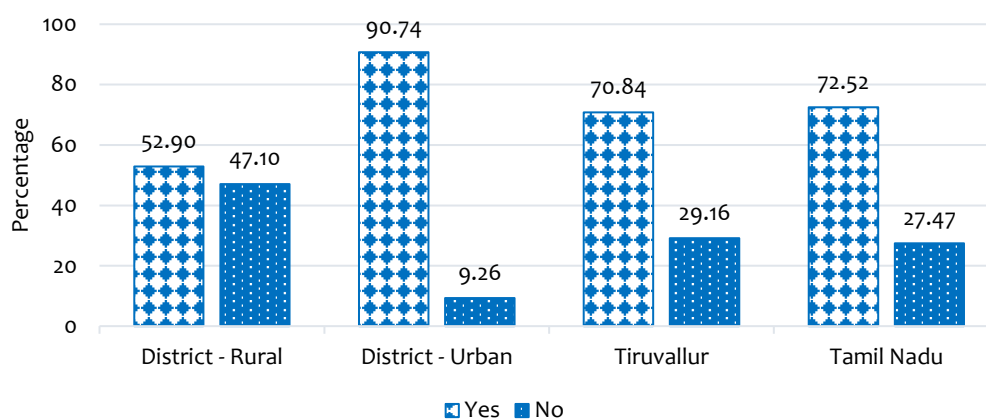


The percentage of households with latrine within house premises had increased from 67.85 percent in 2011 (Census, 2011) to 70.84 percent in 2018. Tiruvallur district was positioned eighteenth among the 32 districts in terms of the presence of latrine facilities within the premise of the household (TNHPS-PBS, 2021). The households equipped with latrine facilities in the district were lower than the state estimate. Significantly higher percentage of the households in urban areas had latrine within the premises than rural areas of the district.

*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 | Tiruvallur |
| Yes | 50.62 | 30.34 | 87.90 | 71.69 | 100.00 | 99.63 | 70.84 |
| No | 49.38 | 69.66 | 12.10 | 28.31 | 0.00 | 0.37 | 29.16 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

The estimates show that majority of General, BC and MBC households had latrine within the premises of the household in the district, the percentages were higher than the state estimates for the respective categories. Around half of the SC households did not have latrine within the premises, compared to the state estimates for SC households at 47.70 percent. Less than one third of ST households had latrine within the premises compared

to the state estimates for ST households at 56.00 percent (TNHPS-PBS, 2021). The results for the DNC 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 Percentages*
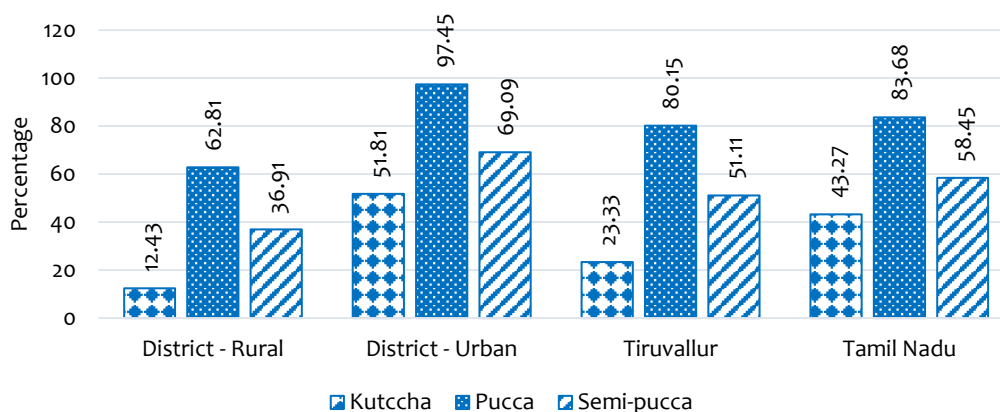


Chart 3.21 depicts the presence of latrine in the premises of different types of houses. Majority of the pucca houses had latrine facilities within the premises of the house. The percentages of semi-pucca and kutccha houses with latrine facilities within the premises of the house were lower compared to the pucca houses of the district. The percentage of households with latrine facilities in kutccha, pucca and semi-pucca houses were higher in urban areas compared to rural areas of the district. The estimates of the district were significantly lower than the state estimates.

The alternative practices followed by the households without latrine within the premises of the house is shown in the Chart 3.22.

*Chart 3.22 Alternate Practices of Defecation by the Households without Latrine – Area-wise Percentages*
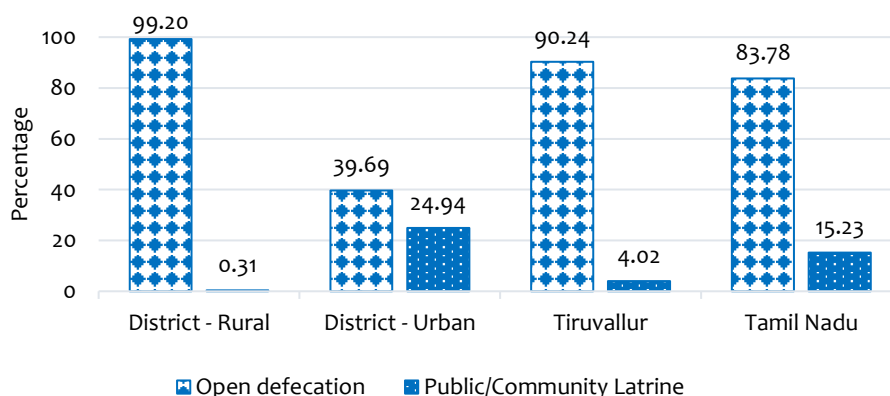
The percentage of total households in the district following open defecation had declined from 29.93 percent in 2011 (Census, 2011) to 26.31 percent in 2018. Chart 3.22 shows that 90.24 percent of households without latrine within the house premises in Tiruvallur district were following open defecation. The practice of open defecation was significantly higher in rural areas compared to urban areas of the district. The percentage of households without latrine within the house premises following open defection was significantly higher than the state estimates. Compared to other districts of Tamil Nadu, Tiruvallur district was positioned thirteenth in terms of percentage of total households following open defection.

# 4. Conclusion and Recommendations

The Pre-Baseline Survey (PBS) 2018-19 of Tiruvallur district was conducted from the sample of 4,381 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.

The PBS estimates reveal that Tiruvallur performed better than the state in terms of higher annual household income and reduced income inequality. The mean annual household income of the district was 2.96 percent higher than the state estimate. Income inequality in the district, as per the Gini coefficient and Lorenz curve estimates, was lower compared to the state estimates. The district also surpassed the state in most of the infrastructure indicators, such as house ownership, electrification, and improved sources of drinking water and primary cooking fuel. The district estimates on the percentages of households with owned houses and the households owning at least one household assets were higher than the state estimates. The district was ranked third among the then 32 districts in terms of electrification. Almost all households in urban areas (99.14 percent) were equipped with electricity connection.

While majority of the households in the state were using public tap or standpipe as the primary source of drinking water, in contrast, majority of the households in the district were using piped water into dwelling as their primary drinking water source in 2018. The district was ranked fifth in terms of LPG use as the primary cooking fuel. Since the percentage of households using LPG was higher, the percentage of households using firewood as the primary cooking fuel was lesser than the state estimate. However, around 16.69 percent of the rural households, especially around one-third of the of ST households in the district used firewood as the primary fuel for cooking.

The estimates on development indicators such as education and employment in Tiruvallur exhibit a weaker trend. Among the then 32 districts, Tiruvallur was ranked eighteenth in terms of literacy rate. Around 17.38 percent of the population in the district had not received formal education and around 90 percent of the specified population—among the 17.38 percent of the population without formal education—did not have functional literacy. The percentage of employed population and the female work participation rate of the district was also lesser than the state estimate. However, it is to be noted that the district estimates may be biased towards the estimates of rural households as the sample size of the PBS was higher in rural areas compared to the urban areas of the district.

The households equipped with latrine facilities within house premises in the district was lesser than the state estimate. Consequently, the district estimates on the percentage of total households following open defecation was higher than the state estimate. Having climate change adaptation and mitigation, pollution control and natural resource conservation as the focal points, the government should emphasis on implementing incentive mechanisms to ensure that i) all households are equipped with LPG connection; which will curtail the quantity of firewood extracted and used for cooking, and ii) latrine facilities are available at the household level; which, to a great extent, will minimise open defecation.

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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.