Department of Economics & Statistics

Madras Institute of Development Studies

Virudhunagar

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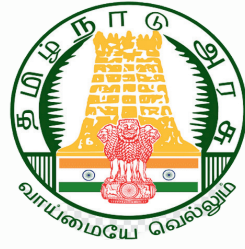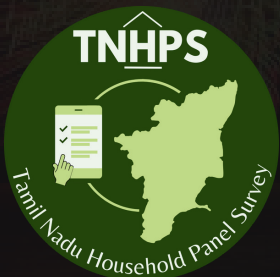
Tamil Nadu Household Panel Survey
Pre-Baseline District Report 2018-19

Tamil Nadu Household Panel Survey (TNHPS)

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

Virudhunagar District

February 2024

**Principal Investigator
& Project Coordinator**   **Prof. Kripa Ananthpur**

Principal Investigator   **Prof. L. Venkatachalam**

Principal Investigator   **Dr. K. Jafar**

Cover page image source: http://tinyurl.com/4u6v5zwx

Table of Contents

List of Tables

List of Figures

Acknowledgements

Summary of PBS Findings

Demographic Indicators

- Virudhunagar had a sample size was 6,257 households, of which 54.71 percent of households were from rural areas and 45.29 percent of households were from urban areas.

- The district had a huge demographic dividend with 44.30 percent of the population aged between 17 and 45 years.

- The BC category was the largest in the district, constituting 53.91 percent of the total households in the district.

Education

- The literacy rate in the district had increased from 80.15 percent (Census, 2011) to 85.58 percent in 2018. Virudhunagar was ranked fourteenth among the then 32 districts in terms of this indicator.

- Both rural and urban literacy rates recorded an increase between 2011 and 2018, though the rural literacy rate was still 8.67 percent lower than the urban literacy rate in 2018. The gender gap in literacy rate was much higher in rural areas at 15.82 percent than in urban areas at 10.09 percent in 2018.

- While more than 90 percent of the General category population in the district had received formal education, only around 73 percent of the SC population had done so.

Employment

- The percentage of employed population in the district at 56.27 percent was higher than the state estimate of 50.10 percent. The share of unemployed population at 2.63 percent was lower compared to the state's 3.50 percent. The rest were not in the labour force at 41.09 percent.

- The percentage of employed population was higher in rural parts of the district than the urban areas.

- While 73.66 percent of the male population aged 14 and above was employed, the female work participation in the district was 41.00 percent. Virudhunagar district was ranked first in terms of employed female population in the state.

- Around 57.43 percent of the female population aged 14 and above was not in the labour force, and among these, majority of them at 70.93 percent were associated with attending to domestic duties as a homemaker.

- While casual labour in the agricultural sector was predominant in rural areas of the district, salaried work in the private sector was most common in urban areas. The share of casual labour in industry was high in rural and urban areas, indicating a strong presence of the industrial sector in the district.

- Casual labour in industry was the largest employer for the SC, BC, and MBC groups. More than half of the General category population was employed in salaried work either in the private sector or in the government.

Land Ownership and Assets

- Virudhunagar district was ranked twentieth in the state in terms of agricultural land ownership. A higher percentage of DNC and MBC category households owned agricultural land in the district compared to the other social groups.

- A majority of the households at 55.90 percent that owned agricultural land in the district depended on rain-fed irrigation alone.

- Around 87.19 percent of the agricultural land-owning households in the district were holding marginal or small agricultural lands—less than two hectares.

- The percentage of households owning at least one household asset in the district at 88.65 percent was lower than the state estimate of 90.72 percent. Ownership of such assets was least among SC households, where around 14 percent of them did not even own a mobile phone.

- The percentage of households possessing priority ration cards in the district at 91.01 percent was much higher compared to the state level estimate of 71.14 percent.

Household Income

- The mean annual household income of Virudhunagar district was 24.85 percent lesser (₹1,07,278) than the state PBS estimate (₹1,42,752); in the urban areas it was ₹1,30,129 and in rural areas it was ₹77,595. The district was ranked twenty-first out of 32 districts with respect to this parameter.

- The mean income from salaried work (₹1,70,946) was the highest, while that from allied agricultural activities was the lowest (₹45,531).

- The Gini coefficient measuring income inequality across households in the district (0.517) was lower than the state PBS estimate (0.563).

Housing

- Virudhunagar district was ranked twenty-fifth among all the districts of Tamil Nadu in terms of percentage of households living in their own house.

- Out of the households that lived in own house in the district, 9.49 percent of houses were built under a government scheme. SC households had a higher percentage of houses built under a government scheme in the district compared to other social groups.

- Around 72.03 percent of the households in the district were living in pucca houses, which was higher than the state level estimate of 63.42 percent.

Drinking Water, Electricity, and Cooking Fuel

- The primary source of drinking water of households in the district was piped water into the dwelling at 34.55 percent. While this source was principally used in urban areas of the district, public tap/standpipe was predominantly used in the rural areas.

- The district witnessed increase in electrification in both rural and urban areas between 2011-2018. Virudhunagar district was ranked fourth among the then 32 districts in terms of electrification.

- Although the use of LPG as the primary cooking fuel had increased in the district from 43.51 percent in 2011 to 76.81 percent in 2018, firewood was still used by 18.69 percent of the households.

- While almost all General category households in the district used LPG as the primary cooking fuel, more than 30 percent of the DNC and SC households still used firewood as the primary cooking fuel.

Sanitation

- The percentage of households in the district with latrine present within the house premises had increased from 30.92 percent in 2011 to 57.89 percent in 2018. Virudhunagar was ranked twenty-sixth among the 32 districts in the state in terms of this parameter.

- While more than 95 percent of the General category households had a latrine within the house premises, less than half the SC, MBC and DNC households did so.

- The percentage of total households in the district following open defecation declined from 52.44 percent in 2011 to 29.13 percent in 2018.

1. Introduction

1.1 Profile of Virudhunagar District

Virudhunagar district in Tamil Nadu was formed in the year 1985 from the trifurcation of Ramanathapuram district into Ramanathapuram, Virudhunagar and Sivaganga districts. It is situated in the southern region of the state, bordering Madurai and Sivaganga districts in the north, Ramanathapuram district in the east, Thoothukudi and Tirunelveli districts in the south, and Theni district and the state of Kerala in the west.

According to Census (2011), Virudhunagar had a total population of 19.42 lakhs, accounting for approximately 2.69 percent of Tamil Nadu's population, which was 7.21 crores. The district comprised 5.37 lakh households, with 50.47 percent residing in urban areas and 49.53 percent residing in rural areas. The male population was 49.82 percent, and the female population was 50.18 percent. Virudhunagar demonstrated a child-sex ratio of 955.17, which is higher compared to the state average of 943.27. Within the social groups, 20.59 percent of the population belonged to the Scheduled Castes, while 0.12 percent belonged to the Scheduled Tribes. The literacy rate in Virudhunagar district stood at 80.15 percent, which is similarly to the state's average of 80.09 percent. The male literacy rate was reported to be 87.71 percent, while the female literacy rate was reported to be 72.69 percent, highlighting the potential to improve women's education.

In the fiscal year 2018-19, Virudhunagar's Net District Domestic Product was ₹42,48,133 lakhs, ranking fourteenth among all districts. However, the district's per capita Net District Domestic Product was recorded at ₹2,03,431, ranking ninth among all districts and surpassing 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 5 percent to its domestic income, while the secondary (industry) and tertiary (service) sectors contribute approximately 51 percent and 44 percent, respectively (Department of Economics and Statistics, 2017).

According to the Tamil Nadu State Planning Commission (2017a), Virudhunagar ranked second in terms of the Human Development Index with a score of 0.855, pointing towards relatively high levels of overall development in the district. It ranked second in the Gender Inequality Index with a score of 0.048, indicating that it is the one of the most gender-neutral district in the State. In terms of the Child Development Index, the district ranked eleventh with a score of 0.672, indicating that there is a scope to improve health, nutrition, and education of children, however the district performs relatively better than the other districts. However, Virudhunagar ranked twenty-ninth in terms of the Multidimensional

Poverty Index with a score of 0.62, indicating that a significant portion of the district's population face multiple deprivations in various aspects of life and there is a need for comprehensive interventions to address poverty and improve well-being.

Overall, Virudhunagar is one of the developed districts of Tamil Nadu with relatively higher levels of domestic income and overall human development. Nevertheless, there exists a requirement for the district to confront issues related to multidimensional poverty.

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 1476 Primary Sampling Units—684 rural PSUs and 792 urban PSUs.

This report analyses data from the PBS for the Virudhunagar district and presents the findings. Wherever possible, the report compares the district PBS estimates with the most recent census data of Virudhunagar (Census, 2011) and the state PBS estimates (TNHPS-PBS, 2021) to assess the socio-economic development of Virudhunagar district. The sample size for the district was 6,257 households, among which 3,423 households were from rural areas and 2,834 households were from urban areas. The blocks covered during the survey were: Aruppukottai, Kariapatti, Narikudi, Rajapalayam, Sattur, Tiruchuli, and Virudhunagar.

2. Survey Response

For the Pre-Baseline Survey (PBS) 2018-19, a total of 7,284 households in Virudhunagar district were selected using a multi-stage stratified sampling design[1]. The final sample size was 6,257 households, of which 54.71 percent of households were from rural areas and 45.29 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		Virudhunagar	
	Number of HHs	Percentage	Number of HHs	Percentage	Number of HHs	Percentage
Response	3,423	84.17	2,834	88.09	6,257	85.90
Non-Response	131	3.22	129	4.01	260	3.57
Non-sample	513	12.61	254	7.90	767	10.53
Total	4,067	100	3,217	100	7,284	100

Virudhunagar district had a lower response rate—willingness of households to participate in the TNHPS-PBS—of 85.90 percent compared to the state response rate of 96.5 percent. Around 3.57 percent of households were not willing to participate in the survey. About 10.53 percent of the selected samples were removed as they were not considered as households as per the definition used in the PBS[2].

---

[1] Detailed explanation of the Sampling Methodology is 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 3.62 in 2011 (Census, 2011) to 3.23 in 2018. Around 52.16 percent of the population in the district were female, and 47.83 percent of the population were male. Around 21.83 percent of the households in the district were headed by females, which was higher than the state estimate of 18.93 percent (TNHPS-PBS, 2021).

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

Chart 3.1 Age-wise Distribution of Population
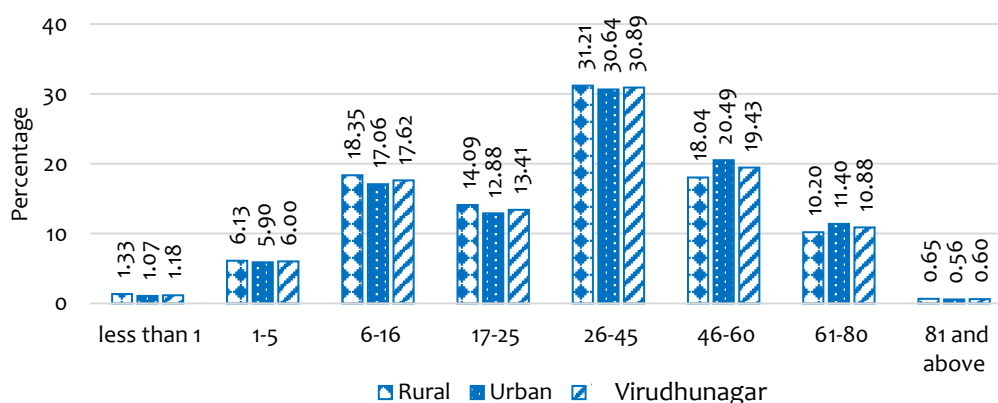
As per the PBS estimates, around 30.89 percent of the population in the district were in the age group of 26 to 45 years. The age group—17-60 years—in the district was 63.73 percent, which was comparatively lower than the state estimate of 66.00 percent. The proportion of senior citizens—above 60 years—in the district's population at 11.48 percent was higher than that at the state level estimate of 11 percent (TNHPS-PBS, 2021).

The percentage of currently married population in the district was 75.66 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.

The religion-wise distribution of the households in the district as per the PBS estimates shows that 87.53 percent of the households practiced Hinduism, 8.18 percent practiced Islam and 4.22 percent followed Christianity. Table 3.1 shows the social group-wise distribution of the households in the district.

---

[3] Household size is defined as the number of family members currently living in the household during the PBS survey.

Table 3.1 Social Group-wise Distribution of Households

Social Group	Percentage
SC	13.34
ST	0.09
BC	53.91
MBC	15.57
Denotified Communities (DNC)	14.53
General	2.44
DK/RF	0.12
Total	**100**

As per the PBS estimates, the highest percentage of households in Virudhunagar district belonged to the BC category. The percentage of SC and ST households in the district were 13.34 percent and 0.09 percent in 2018.

It is important to note that the percentage of ST category households in Virudhunagar district was only 0.09 percent and only five ST households were sampled in the district. Hence, the results pertaining ST category 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 Virudhunagar district.

3.2.1 Education

The change in literacy rate of Virudhunagar 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 the Census (2011) and the PBS (2018)

Gender	Rural		Urban		Virudhunagar		Tamil Nadu	
	2011	**2018**	**2011**	**2018**	**2011**	**2018**	**2011**	**2018**
Male	84.90	89.09	90.47	94.60	87.71	92.25	86.77	90.97
Female	66.95	73.27	78.25	84.51	72.69	79.60	73.40	80.15
Total	**75.88**	**80.66**	**84.31**	**89.33**	**80.15**	**85.58**	**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 Virudhunagar district at 80.15 percent was slightly higher than the state estimate of 80.09 percent. The PBS estimates show that in the year 2018, the literacy rate in Virudhunagar district had increased to 85.58 percent, which

continued to be slightly higher than the state estimate of 85.40 percent. The district registered a 5.43 percent increase in literacy rate in this period while the state registered a 5.31 percent increase. In terms of literacy rate, Virudhunagar was ranked fourteenth among the then 32 districts in 2018 (TNHPS-PBS, 2021).

Both male and female literacy rates in Virudhunagar district recorded an increase during the period under consideration, though a wide gender gap still prevailed. The gender gap in literacy rate had declined from 15.02 percent in 2011 (Census, 2011) to 12.65 percent in 2018, which was still higher than the state gender gap of 10.82 percent in 2018.

Both rural and urban literacy rates recorded an increase between 2011 and 2018, though the rural literacy rate was still 8.67 percent lower than the urban literacy rate in 2018. The gender gap in literacy rate was much higher in rural areas at 15.82 percent than in urban areas at 10.09 percent.

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

In this section, we discuss the education status of the population aged seven and above in Virudhunagar district. The area-wise formal schooling of the population in the district is given in Chart 3.2.

Chart 3.2 Formal Schooling of the Population – Area-wise Percentages
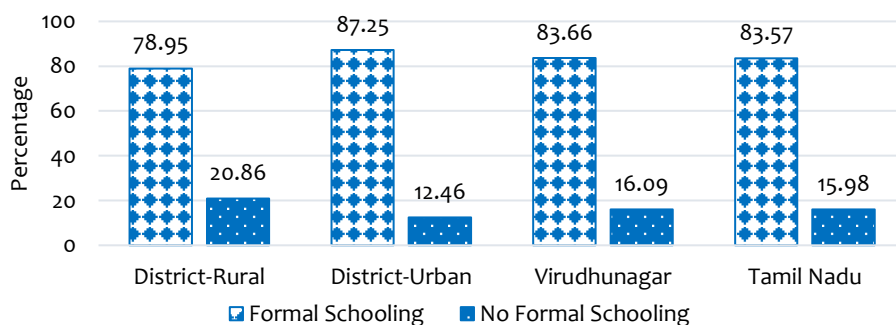
*Others and Don't Know/Refuse to Answer categories are not included in any chart, unless their value is substantially high. Therefore, the total might not add up to 100 percent.

Chart 3.2 shows that 83.66 percent of the specified population in the district attended formal schooling, which was similar to the state aggregate at 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 Percentages

Male

9.52%

90.23%

☐ Formal Schooling ☐ No Formal Schooling

Female

21.99%

77.77%

☐ Formal Schooling ☐ No Formal Schooling
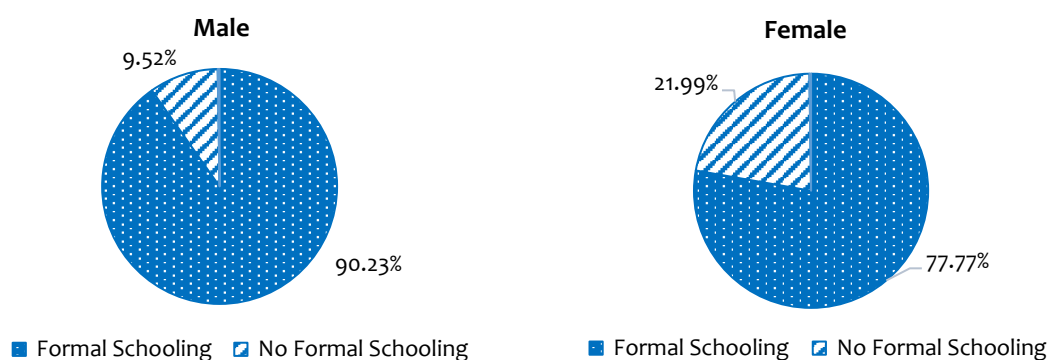
Chart 3.3 shows that the percentage of the population that had acquired formal education in the district was much higher among males compared to females, again denoting a wide gender gap, like in literacy. A district level analysis of the PBS on formal schooling status of various social groups is shown below.

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

Education Status	Social Group						
	SC	ST	BC	MBC	DNC	General	Virudhunagar
Formal Schooling	72.75	57.87	88.06	81.30	79.31	93.80	83.66
No Formal Schooling	27.24	42.13	11.64	18.68	20.28	5.43	16.09
Others and DK/RF	0.01	0.00	0.31	0.02	0.41	0.78	0.25
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table 3.3 shows a wide variation across social groups in attainment of formal schooling. While more than 90 percent of the General category population in the district had received formal education, only 72.75 percent of the SC population had done so. The results for the ST 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 current 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	Virudhunagar
Primary (I to V)	36.03	27.68	31.09
Middle School (VI to VIII)	22.93	23.83	23.46
High School (IX to X)	16.84	18.71	17.95
Higher Secondary (XI to XII)	14.57	12.14	13.13
Bachelor's degree	4.71	9.09	7.3
Diploma Degree	3.36	4.24	3.88
Post Graduate Degree	1.31	3.99	2.9
Other Higher Education	0	0.01	0
Others/DK/RF	0.25	0.32	0.29
Total	**100**	**100**	**100**

Around 85.63 percent of the district's population had completed schooling up to higher secondary level. The percentage of population that had completed tertiary education—such as bachelor's degree, diploma, or post graduate degree and above—was 14.08 percent, which was considerably 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	Virudhunagar
Primary (I to V)	30.00	32.22	31.09
Middle School (VI to VIII)	23.37	23.55	23.46
High School (IX to X)	19.30	16.55	17.95
Higher Secondary (XI to XII)	11.71	14.61	13.13
Bachelor's degree	7.16	7.45	7.30
Diploma Degree	5.74	1.94	3.88
Post Graduate Degree	2.44	3.37	2.90
Other Higher Education	0.00	0.00	0.00
Others/DK/RF	0.28	0.30	0.29
Total	**100**	**100**	**100**

Table 3.5 shows that a higher percentage of females at 86.93 percent in the specified population were either pursuing or had completed schooling up to higher secondary level, compared to males at 84.38 percent. In tertiary education, a higher percentage of females were either pursuing or had completed bachelor's or post-graduate degree compared to males, whereas the case with respect to diploma degree percentages was the reverse.

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

Educational Attainment	Social Group						
	SC	ST	BC	MBC	DNC	General	Virudhunagar
Primary (I to V)	32.73	13.13	29.20	34.16	35.33	20.28	31.09
Middle School (VI to VIII)	23.00	21.87	23.61	22.11	24.23	26.34	23.46
High School (IX to X)	19.73	49.93	17.77	17.96	16.65	21.12	17.95
Higher Secondary (XI to XII)	13.25	4.29	13.77	12.55	11.79	9.94	13.13
Bachelor's degree	6.08	4.29	7.92	6.60	5.83	12.69	7.30
Diploma Degree	3.30	4.29	3.97	4.80	2.88	4.50	3.88
Post Graduate Degree	1.88	2.20	3.40	1.79	2.78	4.31	2.90
Other Higher Education	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Others/DK/RF	0.02	0.00	0.35	0.02	0.51	0.82	0.29
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

The social group-wise analysis in Table 3.6 shows that more than 80 percent of the population in each social group, except the General category, had completed schooling only up to higher secondary level. The proportion of population that had completed tertiary education within each social group in the district was substantially lower than the corresponding state level estimates.

About 16.09 percent of the population had not received formal education in Virudhunagar 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	Virudhunagar
Yes	8.20	16.65	11.91
No	86.71	77.44	82.63
DK/RF	5.10	5.91	5.45
Total	**100**	**100**	**100**

Table 3.7 shows the functional literacy status of the population with no formal schooling in the district. Only 11.91 percent of the population without formal schooling had functional literacy. The specified population group in urban areas of the district had 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	Virudhunagar
Yes	8.55	0.00	15.27	13.75	7.58	8.29	11.91
No	88.95	100	78.89	83.19	81.54	91.71	82.63
DK/RF	2.50	0.00	5.84	3.06	10.88	0.00	5.45
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table 3.8 shows the functional literacy status of the population with no formal schooling, across various social groups. Functional literacy was relatively higher among the BC category and lower among the DNC category. None of the five ST respondents surveyed in the district in the specified population (aged 7 and above, without formal education) 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[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 to 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.).

---

[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 Population (Age 14 years and above) – Area-wise Percentages
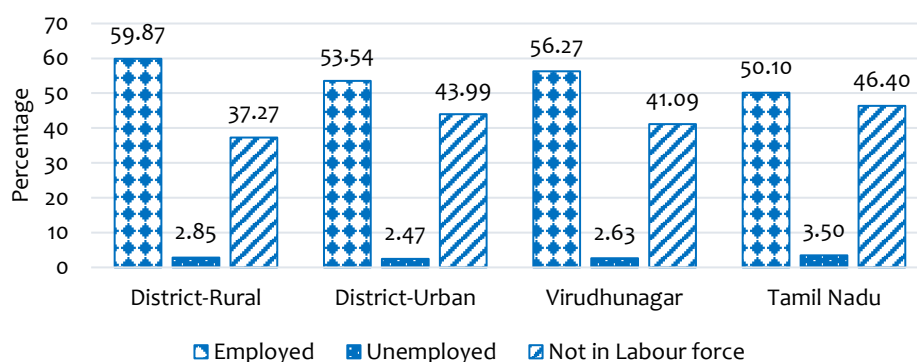
Chart 3.4 shows that the overall percentage of employed population—14 years and above—in the district was higher than the state estimate. The share of unemployed population was lower in the district compared to the state. The percentage of employed population was higher in rural parts of the district than the urban. The unemployment status in rural areas of the district at 2.85 percent was lower than the state's rural PBS estimate of 3.6 percent, and the district urban unemployment status at 2.47 percent was also lower than the state urban PBS estimate of 3.3 percent. Virudhunagar district was ranked second among all districts in Tamil Nadu in terms of employed population and ranked twenty-seventh in terms of the unemployed population.

Chart 3.5 Employment Status of the Population – Gender-wise Percentages
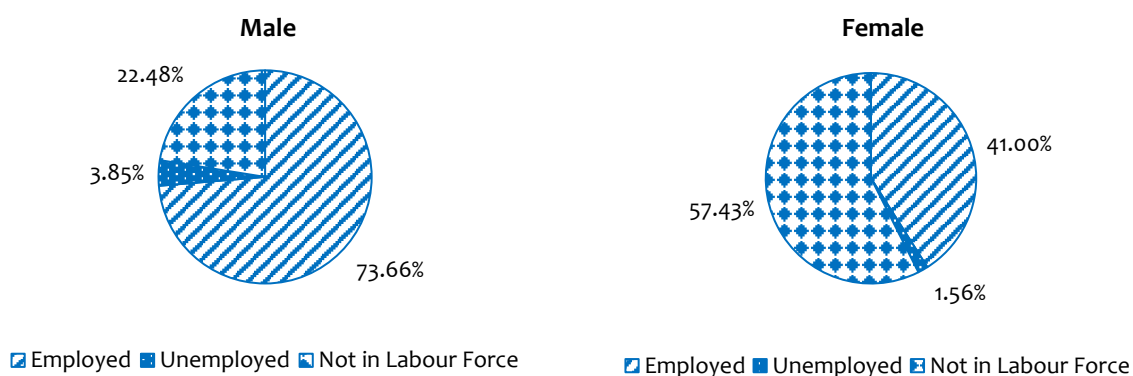
Chart 3.5 shows the gender-wise employment status of the population aged 14 years and above. While 73.66 percent of the male population was employed, the female work participation was at 41.00 percent. Decreased female labour force participation has been well documented at the national level (Das et al., 2015; Desai, 2017; Desai & Joshi, 2019). The district female work participation at 41.00 percent was higher than the national average of 23.3 percent in 2017-18 (National Statistical Office, 2019), and the state PBS estimate of 29.96 percent. Around 57.43 percent of the female population was not in the workforce, and among these, majority of them at 70.93 percent were associated with attending to domestic duties as homemakers (see Chart 3.7). As per the state PBS

estimates, Virudhunagar district was ranked first in terms of employed female population and ranked twenty-ninth in terms of female unemployment.

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

Work Type	Area Type		
	Rural	Urban	Virudhunagar
Self Employed Agriculture	5.67	3.05	4.26
Self Employed Non-Agriculture	10.47	16.65	13.81
Self Employed Allied Agriculture	2.04	0.59	1.26
Casual Labourer Agriculture	19.10	7.45	12.80
Casual Labourer Industry	19.07	21.05	20.14
Casual Labourer Service	9.71	15.80	13.01
Casual Labourer (Others)	5.96	6.06	6.01
Salaried Worker Government	3.43	5.05	4.30
Salaried Worker Private	8.99	21.26	15.63
Multiple Occupations	15.25	2.77	8.50
Other	0.23	0.25	0.24
DK/RF	0.08	0.01	0.04
Total	**100**	**100**	**100**

While the greatest proportion of the working population in the state were salaried workers in private sector at 21.82 percent (TNHPS-PBS, 2021), majority of the working population in Virudhunagar district were casual labourers in the industrial sector at 20.14 percent. While casual labour in the agricultural and industrial sectors was predominant in rural areas of the district, salaried work in private sector and casual labour in the industrial sector were most common in urban areas. The share of casual labour in industry was high in rural and urban areas, indicating a strong presence of the industrial sector in 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	Virudhunagar
Self Employed Agriculture	2.78	0.00	2.77	6.51	7.69	1.61	4.26
Self Employed Non-Agriculture	5.29	0.00	19.85	8.33	8.86	25.02	13.81
Self Employed Allied Agriculture	2.66	0.00	1.08	1.00	0.89	0.37	1.26
Casual Labourer Agriculture	23.48	0.00	6.23	18.58	16.97	4.78	12.80
Casual Labourer Industry	23.48	22.15	20.65	19.91	16.71	11.72	20.14
Casual Labourer Service	12.08	27.98	14.29	11.47	12.66	2.66	13.01
Casual Labourer (Others)	3.17	0.00	6.31	8.86	4.82	0.09	6.01
Salaried Worker Government	5.23	0.00	4.53	3.05	4.01	6.97	4.30
Salaried Worker Private	8.86	49.87	17.81	13.92	14.50	45.08	15.63
Multiple Occupation	12.78	0.00	6.10	8.09	12.83	1.42	8.50
Other	0.18	0.00	0.31	0.26	0.06	0.28	0.24
DK/RF	0.00	0.00	0.08	0.00	0.00	0.00	0.04
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table 3.10 shows that more than half of the employed population within the SC, MBC and DNC categories in the district were casual labourers. Specifically, casual labour in industry was the highest employer for the SC, BC, and MBC groups. More than half of the General category population at 52.05 percent was employed in salaried work either in the private sector or the government. There were only seven ST respondents in the specified population surveyed in the district, and hence their results must be interpreted in this context, as discussed in Section 3.1.

Chart 3.6 Composition of Population Not in the Labour Force – Area-wise Percentages
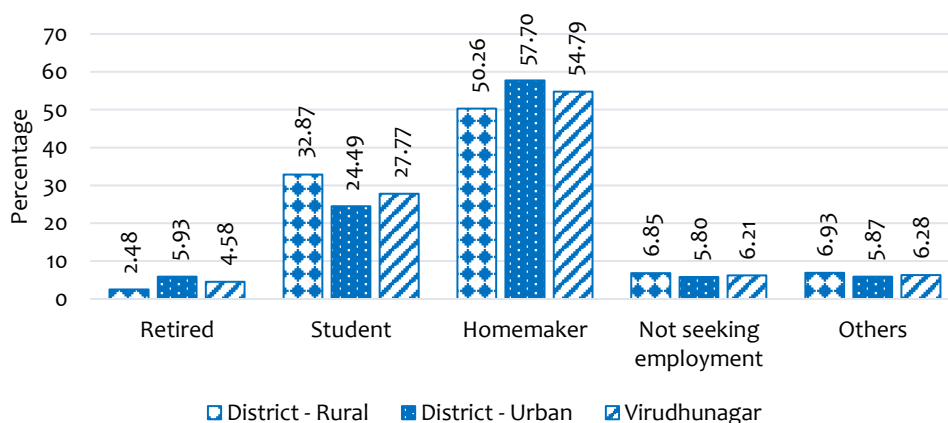
Chart 3.6 shows that, similar to the trend at the state level, more than half the population that was not in the labour force in the district comprised homemakers involved in unpaid domestic duties of the household, followed by students. The proportions of the population that were not seeking employment 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 – Gender-wise Percentages
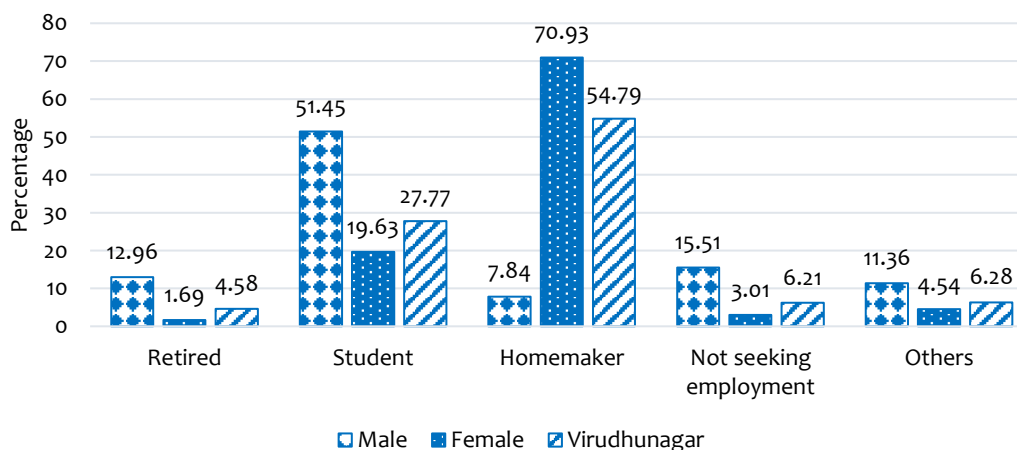
The gender-wise distribution of the population currently not in the labour force aged 14 and above is given in Chart 3.7. While Chart 3.3 represents the lower female involvement in formal education, Chart 3.7 shows the staggeringly lower female involvement in higher education compared to men as only 19.63 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	Virudhunagar
Retired	3.79	3.11	5.02	2.37	3.65	12.05	4.58
Student	35.46	2.97	27.98	28.88	23.02	12.17	27.77
Homemaker	45.92	24.70	55.38	54.18	57.96	65.19	54.79
Not seeking employment	7.99	0.00	5.50	5.22	9.03	6.02	6.21
Others	5.46	69.22	5.83	8.99	6.31	4.57	6.28
DK/RF	1.38	0.00	0.28	0.36	0.03	0.00	0.38
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table 3.11 shows that within all social groups, except ST, the percentage of homemakers was the largest category in the district. The SC 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 employed as casual labourers in the district (see Table 3.10), the not-working population belonging to the student category was high for these two social groups. There were only eight not-working ST respondents surveyed in the district, and hence their results must be interpreted in this context, as discussed in Section 3.1.

3.3 Socio-Economic Indicators

The PBS estimates for various socio-economic indicators of Virudhunagar 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 Virudhunagar 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 Percentages
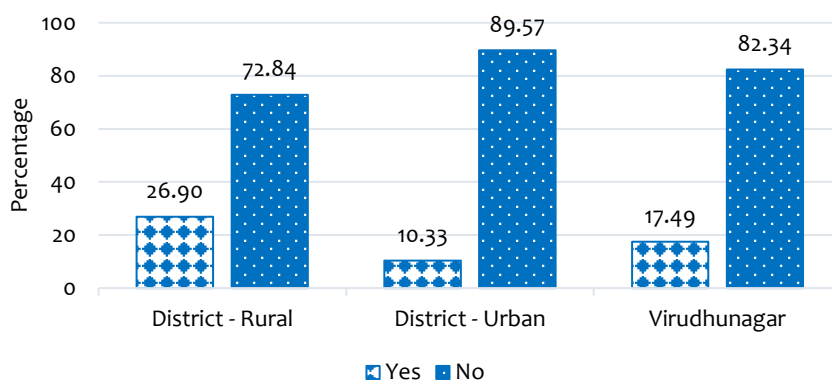
The percentage of households owning agricultural land in the district was lower than the state level estimate of 9.41 percent. The district was ranked twentieth in the state in terms of agricultural land ownership. A lower proportion of rural households in the district owned agricultural land compared to the state rural estimate of 29.00 percent while the percentage of urban land ownership in the district was higher than the state urban estimate of 8.61 percent (TNHPS-PBS, 2021).

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

Type of Agricultural Land	Area Type		
	Rural	**Urban**	**Virudhunagar**
Only Irrigated Agricultural Land	26.98	44.51	32.88
Only Unirrigated Agricultural Land	62.53	42.81	55.90
Both Irrigated and Unirrigated Agriculture Land	10.27	12.25	10.94
DK/RF	0.22	0.44	0.29
Total	**100**	**100**	**100**

Table 3.12 shows that, more than half the households that owned agricultural land in Virudhunagar district depended on rain-fed irrigation alone. A higher percentage of urban households owned irrigated agricultural land compared to the rural households in the district. Tanks and dug wells are the major sources of irrigation in Virudhunagar district (Tamil Nadu State Planning Commission, 2017b). The proportion of households having irrigated agricultural land was lower in the district at 32.88 percent compared to the state PBS estimate at 50.03 percent.

An analysis of the social group-wise ownership of agricultural land by households in Table 3.13 shows that a relatively higher percentage of the DNC and MBC households owned

agricultural land in the district compared to other social groups. Though 25.00 percent of the ST households in the state-owned agricultural land, none of the five ST households surveyed in the district owned agricultural land.

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

Ownership of Agricultural Land	Social Group						
	SC	ST	BC	MBC	DNC	General	Virudhunagar
Yes	13.47	0.00	13.99	23.40	30.30	4.15	17.49
No	86.46	100	85.87	76.47	69.25	95.85	82.34
DK/RF	0.07	0.00	0.14	0.14	0.45	0.00	0.17
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

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 Households – Area-wise Percentages

Size of Agricultural Land (in Hectares)	Area Type		
	Rural	Urban	Virudhunagar
Marginal (0.01 - 0.99)	74.59	57.23	68.97
Small (1 - 1.99)	16.18	22.46	18.22
Semi Medium (2 - 3.99)	7.39	11.24	8.63
Medium (4 - 9.99)	1.68	6.34	3.19
Large (10 and above)	0.16	2.73	1.00
Total	**100**	**100**	**100**

Table 3.14 shows that 87.19 percent of the agricultural land-owning households in the district were holding marginal or small agricultural lands—less than two hectares. This figure was lower than the state level estimate of 89.33 percent. The shares of semi-medium, medium, and large landholdings were higher than that of the state estimates of 7.64 percent, 2.26 percent and 0.77 percent respectively.

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, mechanised and non-mechanised boats, amongst the households of Virudhunagar district.

Chart 3.9 shows the ownership percentages for District - Rural, District - Urban, and Virudhunagar.

- District - Rural: Yes 27.24, No 72.76
- District - Urban: Yes 9.98, No 90.02
- Virudhunagar: Yes 17.44, No 82.56

Legend: Yes, No
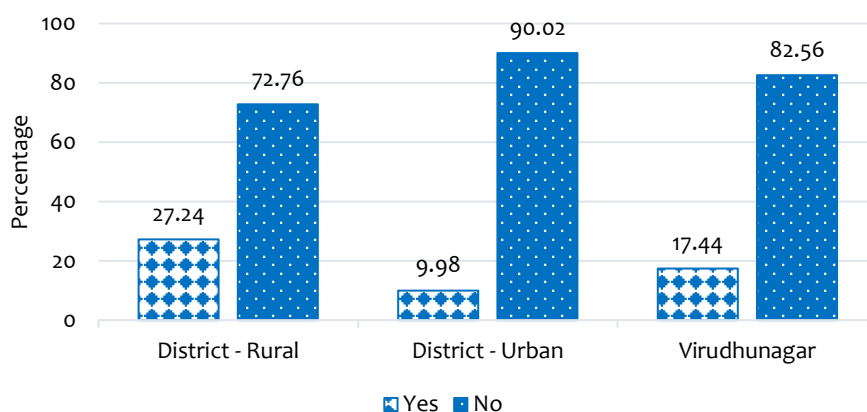
Chart 3.9 shows that 17.44 percent of the households in Virudhunagar district owned at least one agricultural, allied agricultural or fishing asset. This estimate was lower than the state PBS estimate of 20.92 percent. The ownership of such assets was higher in rural areas than urban areas. The ownership pattern in rural areas was lower than the state rural estimate of 32.69 percent, while the district urban estimate was higher than the state urban estimate of 7.67 percent (TNHPS-PBS, 2021).

3.3.3 Presence of Household Assets

Chart 3.10 shows the percentage of households in Virudhunagar 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 was the predominantly owned asset group 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

Chart 3.10 shows the ownership percentages for District - Rural, District - Urban, Virudhunagar, and Tamil Nadu.

- District - Rural: Yes 87.21, No 12.79
- District - Urban: Yes 89.75, No 10.25
- Virudhunagar: Yes 88.65, No 11.35
- Tamil Nadu: Yes 90.72, No 9.28

Legend: Yes, No
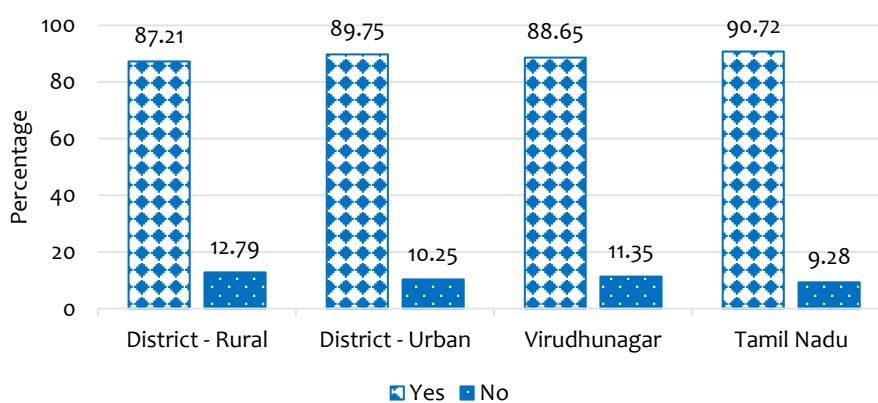
The percentage of households owning at least one household asset in Virudhunagar district was lower than the state estimate. Within the district, the urban areas had a slightly higher percentage of households owning at least one household asset compared to the rural areas.

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	Virudhunagar
Yes	86.10	58.86	89.29	89.56	87.01	93.17	88.65
No	13.90	41.14	10.71	10.44	12.99	6.83	11.35
Total	100	100	100	100	100	100	100

The social group-wise ownership of household assets in Virudhunagar district is given in Table 3.15. While more than 90 percent of General category households owned at least one household asset, only 86.10 percent of the SC households in the district owned any such asset. This means that around 13.90 percent of the SC households did not even own a mobile phone. The results for the ST category must be interpreted in the context of their sample size of five households surveyed in the district, 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 the Public Distribution System and subsidised LPG connection, for instance. The percentages of households that possessed a ration card in rural and urban areas of Virudhunagar district are given in Chart 3.11.

Chart 3.11 Possession of Ration Card – Area-wise Percentages

Chart 3.11 shows that the percentage of households that possessed a ration card in the district was higher than the state estimate. Within the district, a slightly 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	Virudhunagar
Yes	91.63	16.53	91.05	92.16	92.26	97.31	91.49
No	8.37	83.47	8.92	7.84	7.74	2.69	8.49
DK/RF	0.00	0.00	0.03	0.00	0.00	0.00	0.02
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Social group-wise estimates on the possession of ration card at the household level is shown in Table 3.16. More than 90 percent of households belonging to all social groups, except ST, possessed ration cards in the district. The results for the ST category must be interpreted in the context of their sample size of five households surveyed in the district, 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 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 percentages of households possessing priority and non-priority ration cards in rural and urban areas of Virudhunagar district are given in Chart 3.12.
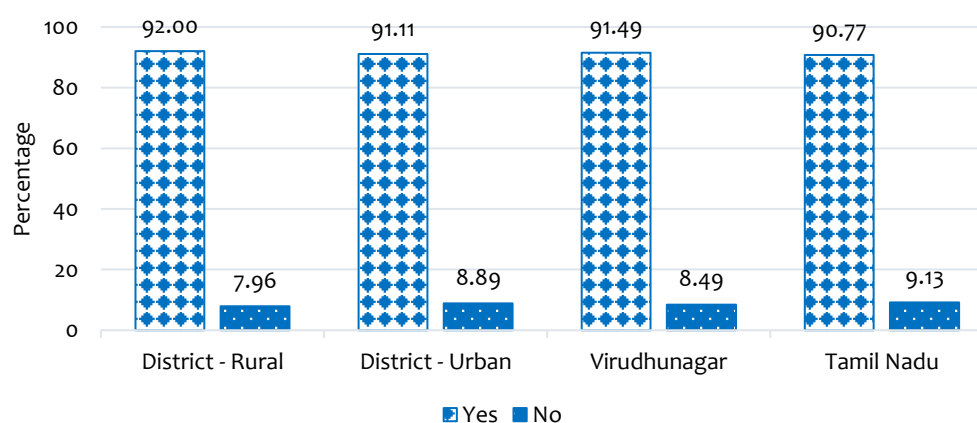
Chart 3.12 Type of Ration Card at the Household Level – Area-wise Percentages
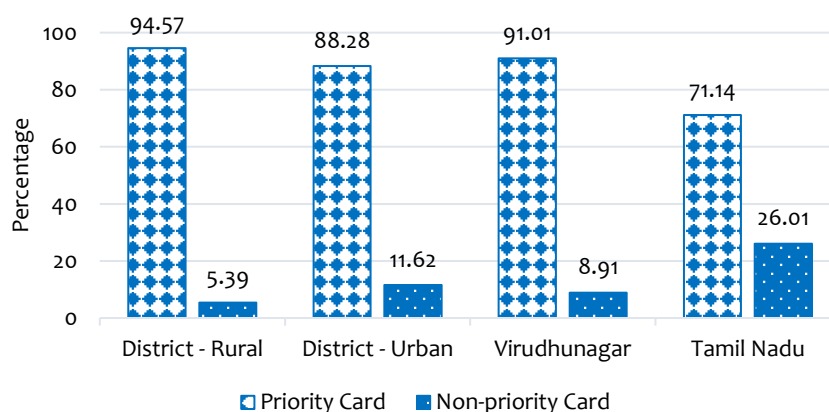
The percentage of households possessing priority ration cards in the district was much higher compared to the state level estimate. A higher percentage of rural households possessed priority cards than urban households in the dstrict.

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 Virudhunagar district from various sources in the financial year (FY) 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 Virudhunagar district.

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

Source	Rural	Urban	Virudhunagar	Tamil Nadu
Agriculture	29,589	91,659	55,265	61,830
Allied Agriculture	37,747	65,240	45,531	38,576
Salaried	1,39,056	1,85,370	1,70,946	2,29,857
Self Employed	84,166	1,05,721	97,644	1,47,403
Wage Labour	40,181	59,121	49,086	47,734
Other Sources	42,602	1,02,219	74,680	97,646
Income from all Sources	**77,595**	**1,30,129**	**1,07,278**	**1,42,752**

The mean annual household income of Virudhunagar district was 24.85 percent lower than the state PBS estimate of ₹1,42,752. Among the then 32 districts, Virudhunagar was ranked twenty-first 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 allied agricultural activities.

In rural areas of Virudhunagar district, the mean household income was ₹77,595, which was lower than the state rural estimate of ₹92,765 (TNHPS-PBS, 2021). The mean rural household income was higher among the households that depended on salaried income. Lower mean income was reported among the households that engaged in agriculture.

In urban areas of Virudhunagar district, the mean household income was ₹1,30,129, which was lower than the state urban estimate of ₹1,99,629 (TNHPS-PBS, 2021). The mean urban

household income was higher among the households that depended on salaried income. Lower mean income was reported among the households that depended on wage labour.

3.4.2 Income Inequality in Virudhunagar 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 Virudhunagar district (0.517) was lower than the state estimate (0.563)[5]. Income inequality across households in urban areas of the district was found to be higher than the rural areas.

Table 3.18 Gini Coefficient of Income Inequality

Area	Gini coefficient
Rural	0.487
Urban	0.510
Virudhunagar	0.517
Tamil Nadu	**0.563**

Chart 3.13 Lorenz Curve and Income Inequality
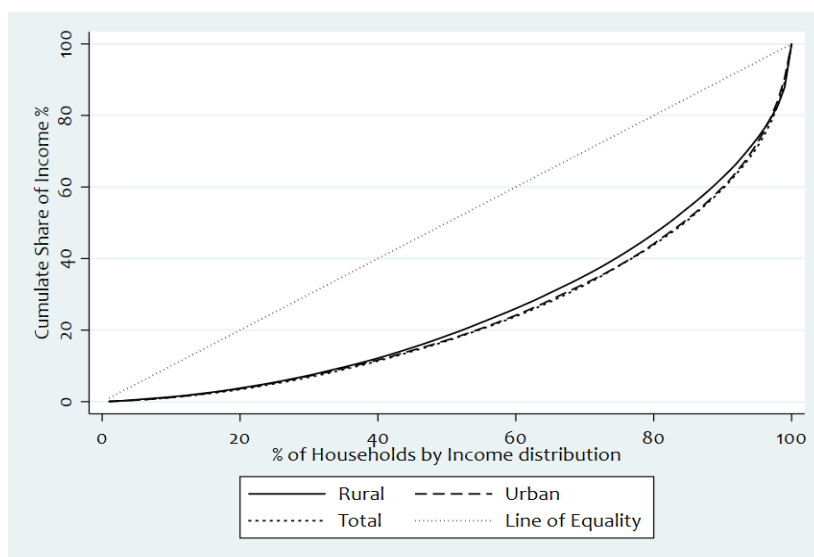
The Lorenz curve is a graphical representation of inequality in the distribution of income or wealth of households. Chart 3.13 shows that in Virudhunagar district, the bottom 60 percent of the households held around 25 percent of the total income; the bottom 80

---

[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).

percent of households held around 45 percent of the total income and the top 20 percent of households held around 55 percent of total income.

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 had about their future economic status.

Table 3.19 shows the area-wise percentage of households expecting an increase, decrease or no change in income in Virudhunagar 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	Virudhunagar	Tamil Nadu
Higher	54.49	57.55	56.23	50.06
Lower	8.99	8.01	8.44	8.17
About the same	31.77	28.67	30.01	31.66
DK/RF	4.75	5.76	5.33	10.11
Total	**100**	**100**	**100**	**100**

While a majority of the urban households in the district expected their income to increase in the following five years, the percentages of households expecting their future income to decline or to remain the same were higher in rural areas compared to urban areas.

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	Virudhunagar
Higher	57.78	100	56.04	57.28	54.10	58.75	56.23
Lower	9.05	0.00	8.24	9.67	8.08	1.51	8.44
About the same	30.53	0.00	28.57	29.41	35.64	31.61	30.01
DK/RF	2.65	0.00	7.15	3.65	2.18	8.13	5.33
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

More than half the households within each social group expected an increase in their future incomes. A lower percentage of General category households expected a fall in

future income 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.

3.5 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 in Chart 3.14.

Chart 3.14 Ownership Status of the Households' Dwelling/House – Area-wise Percentages
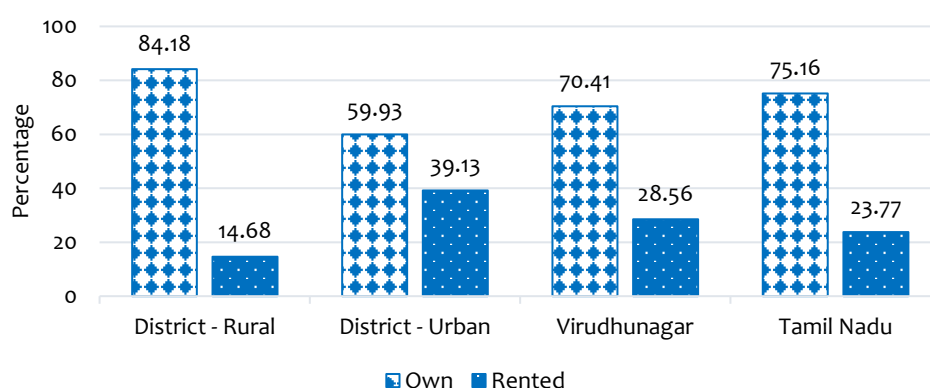
The proportion of households living in their own house in the district was lower than the state level estimate. Virudhunagar district was ranked twenty-fifth among the then 32 districts of Tamil Nadu in terms of percentage of households living in their own house (TNHPS-PBS, 2021). While most of the households in rural areas lived in their own house, a relatively higher proportion of urban households were relying on rented houses for their stay. Around one percent of households were living 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						
	SC	ST	BC	MBC	DNC	General	Virudhunagar
Own	81.52	53.01	63.67	74.43	79.00	85.75	70.41
Rented	17.86	46.99	35.29	25.16	19.07	12.54	28.56
Others	0.62	0.00	1.03	0.41	1.30	1.71	0.93
DK/RF	0.00	0.00	0.01	0.00	0.63	0.00	0.10
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table 3.21 shows the social group-wise house ownership status of the respondents. Majority of the households in every social group were living in their own house. A higher percentage of General category households at 85.75 percent were living in an own house in the district, contrary to the state level estimate for General category at 62.55 percent (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 70.41 percent households (see Chart 3.14) that lived in own house in the district, only 9.49 percent of houses were built under a government scheme, which was lower than the state estimate of 14.12 percent (TNHPS-PBS, 2021). The social group-wise analysis of this parameter is given below.

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	Virudhunagar
Yes	30.38	0.00	6.05	5.83	5.38	0.29	9.49
No	69.62	100	93.95	94.17	93.91	99.71	90.40
DK/RF	0.00	0.00	0.00	0.00	0.71	0.00	0.12
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Among the social groups, the SC population had the highest percentage of houses built under a government scheme. About 35 percent of the house-owning ST households in the state had constructed a house under a government scheme, but neither of the two house-owning ST households in the district had done so.

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.

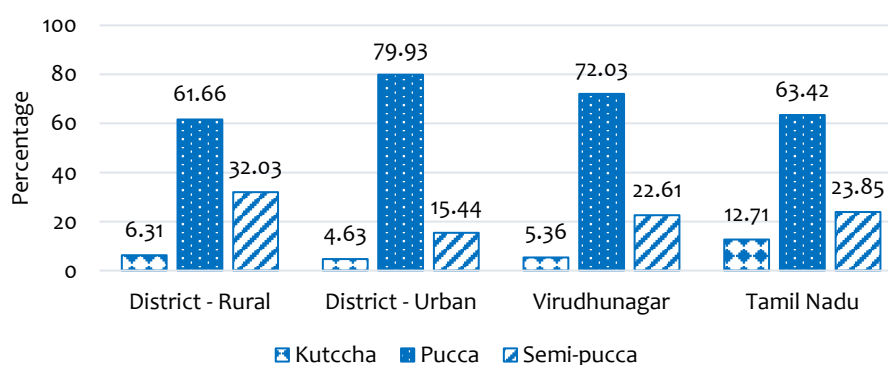*Chart 3.15 Type of House – Area-wise Percentages*

Chart 3.15 shows that majority of households in Virudhunagar district were living in pucca houses. The district estimates on the percentage of households living in pucca houses was higher than the state estimate. The percentage of urban households living in pucca houses in the district was higher than rural households. The percentages of rural and urban households living in pucca houses in the district were higher than their corresponding state rural and state urban estimates at 52.93 percent and 75.22 percent respectively (TNHPS-PBS, 2021).

3.5.3 Primary Drinking Water Source

In this section, we discuss the PBS findings on the primary drinking water source of the households in Virudhunagar district. The primary sources[6] 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).

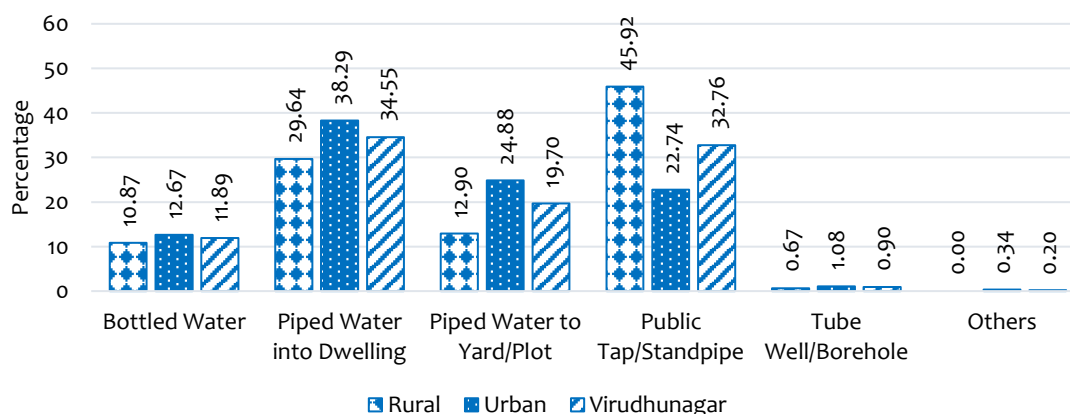### Chart 3.16 Primary Drinking Water Source of Households

Chart 3.16 shows that 34.55 percent of households in Virudhunagar district were using piped water into the dwelling as their primary source of drinking water, which was higher than the state estimate of 32.04 percent. The state PBS 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). A similar pattern was observed in Virudhunagar district too.

3.5.4 Electricity

Tamil Nadu witnessed mass electrification during the last decade. A comparison of households with an electricity connection between Census (2011) and the state PBS

---

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

estimates in 2018 (TNHPS-PBS, 2021) show that the state was close to achieving complete electrification in case of urban areas. The electrification status improved in rural areas as well.

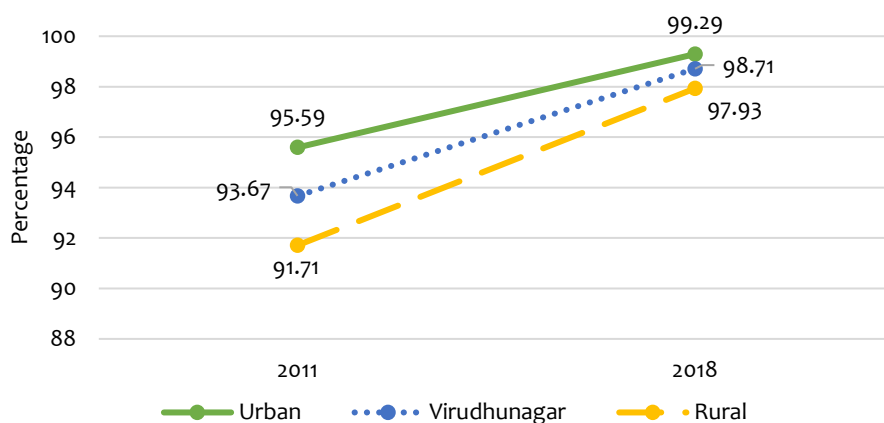*Chart 3.17 Comparison of Households with Electricity between Census (2011) and PBS (2018)*

Chart 3.17 shows that the percentage of households with electricity connection had increased in both rural and urban areas of Virudhunagar district during the period 2011 to 2018, with the rate of growth of electrification being higher in rural areas. Electricity penetration was higher in urban areas of the district than the rural areas. Virudhunagar district was ranked fourth among the then 32 districts in terms of electrification, after Kanniyakumari, Chennai and Tiruvallur districts (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.

Chart 3.18 Comparison of Primary Cooking Fuel – Virudhunagar and Tamil Nadu

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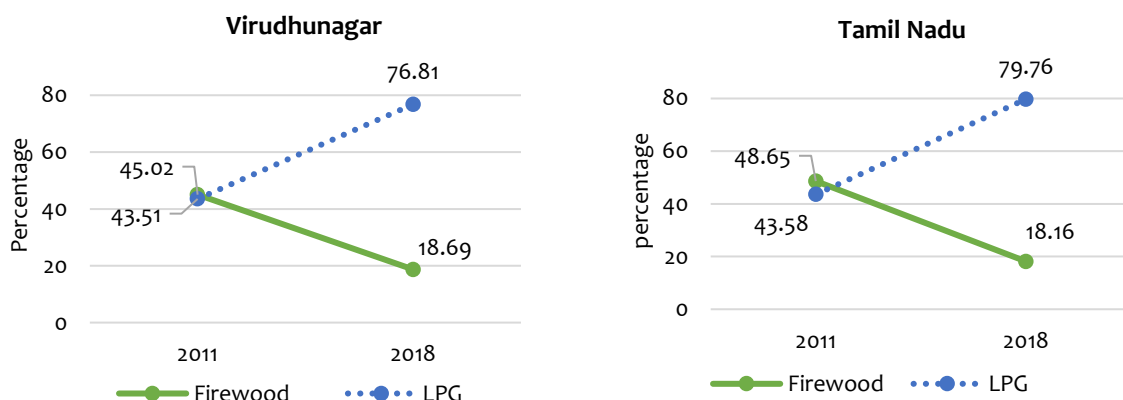
[7] Primary Cooking Fuel: Fuel that is used for the greater part of the year

Chart 3.18 shows that the use of LPG as the primary cooking fuel in the district increased tremendously between 2011 to 2018, and the use of firewood too declined considerably in the same period. But firewood was still used by 18.69 percent of the households as the primary cooking fuel. Compared to other districts of Tamil Nadu, Virudhunagar was ranked seventeenth in terms of LPG use and sixteenth in terms of firewood use as the primary cooking fuel (TNHPS-PBS, 2021).

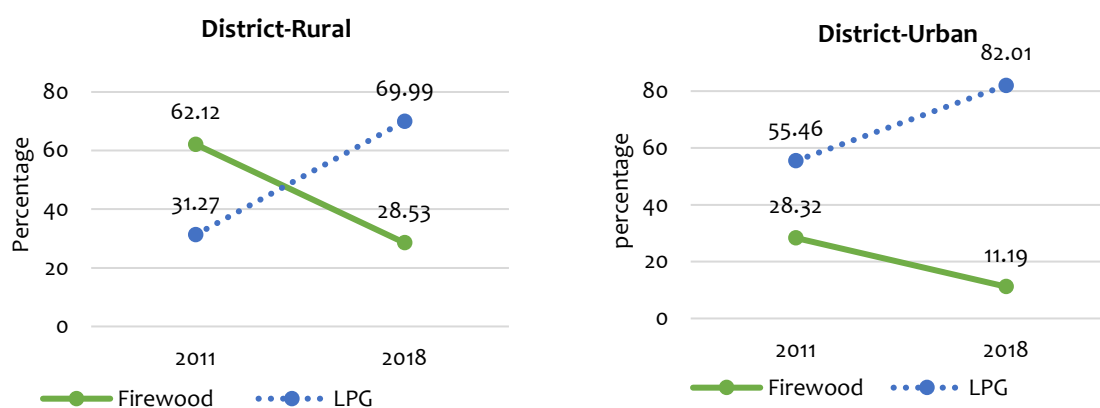*Chart 3.19 Comparison of Primary Cooking Fuel – Rural and Urban*

Chart 3.19 shows that the predominant cooking fuel in rural areas of the district had changed drastically from firewood to LPG in the period 2011-18, but firewood was still being used by 28.53 percent of the rural households. LPG uptake had increased further in urban areas, and that of firewood had dropped to 11.19 percent during the same period.

Table 3.23 shows the use of various fuels for cooking among households of different social groups in the district.

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

| Primary Cooking Fuel	Social Group						
	SC	ST	BC	MBC	DNC	General	Virudhunagar
Firewood	30.89	53.01	10.41	26.34	32.99	0.46	18.69
Kerosene	4.23	0.00	4.20	4.90	1.46	0.99	3.83
LPG	64.75	46.99	84.60	68.36	64.87	98.55	76.81
Others	0.13	0.00	0.77	0.40	0.35	0.00	0.62
DK/RF	0.00	0.00	0.02	0.00	0.32	0.00	0.06
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

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

While almost all General category households in the district used LPG as the primary cooking fuel, more than 30 percent of the DNC and SC 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 of five households, 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 Percentages
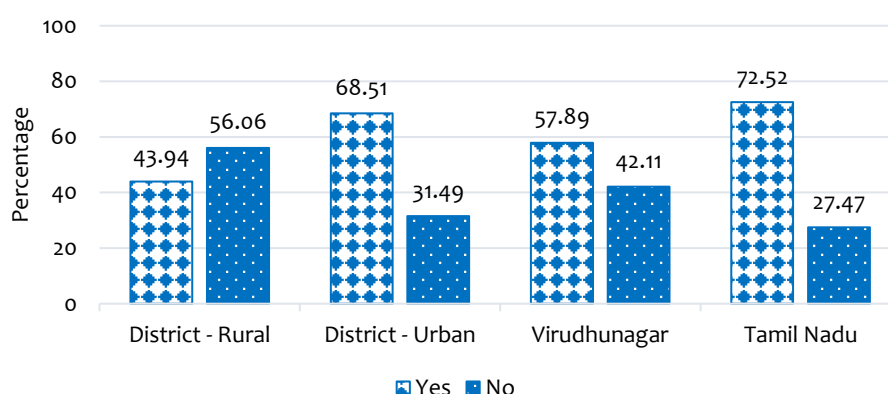
The percentage of households in the district with latrine present within the house premises had increased from 30.92 percent in 2011 (Census, 2011) to 57.89 percent in 2018. Virudhunagar district was positioned twenty-sixth in the state among the 32 districts in terms of this indicator (TNHPS-PBS, 2021). The percentage of households equipped with latrine facilities in the district was considerably lower than the state level estimate. A significantly higher percentage of urban households had latrine within the house premises compared to the rural households in the district. It is pertinent to note that more than half the rural households in the district 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	Virudhunagar
Yes	45.29	56.59	65.01	46.50	48.80	96.95	57.89
No	54.71	43.41	34.99	53.50	51.20	3.05	42.11
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table 3.24 shows the wide disparity in presence of latrine within the premises of the household across various social groups. While more than 95 percent of the General category households had a latrine within the house premises, less than half the SC, MBC and DNC households did so. The percentages of SC, BC, MBC, and DNC households with latrine access within the house premises in the district were considerably lower than their respective state level estimates of 52.2 percent, 84.5 percent, 67.5 percent and 65.2 percent respectively (TNHPS-PBS, 2021).

The presence of latrine facilities in the premises of households residing in different types of houses in rural and urban areas of Virudhunagar district is compared in Chart 3.21.

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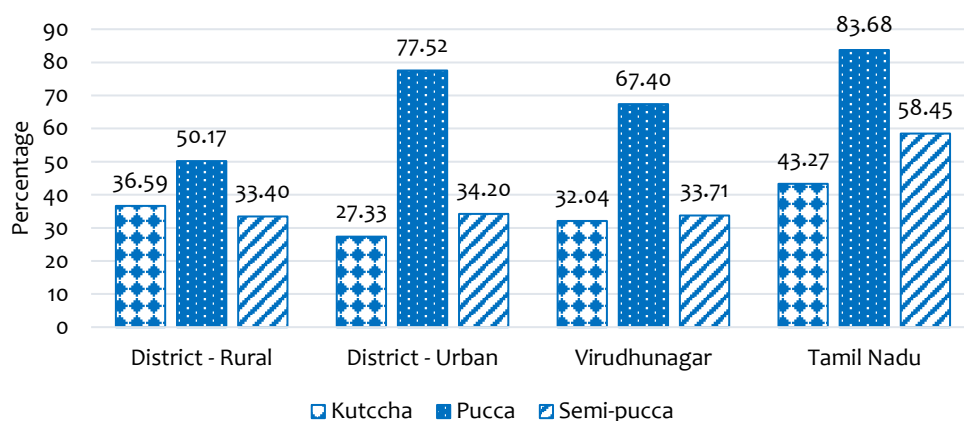

Chart 3.21 shows that the percentage of pucca houses with latrine facilities was higher than for semi-pucca and kutccha houses in the district. The percentages of latrine facilities in kutccha, pucca and semi-pucca houses in the district were lower than their respective state estimates. A higher percentage of pucca houses in urban areas of the district had latrine facilities than rural areas, but interestingly, the percentage of kutccha houses with a latrine was higher in rural areas than urban areas of the district.

The percentage of total households in the district following open defecation declined from 52.44 percent in 2011 (Census, 2011) to 29.13 percent in 2018. The alternative practices of defecation followed by 42.11 percent of the district's households (see Chart 3.20) that did not have a latrine within the house premises is shown in Chart 3.22.

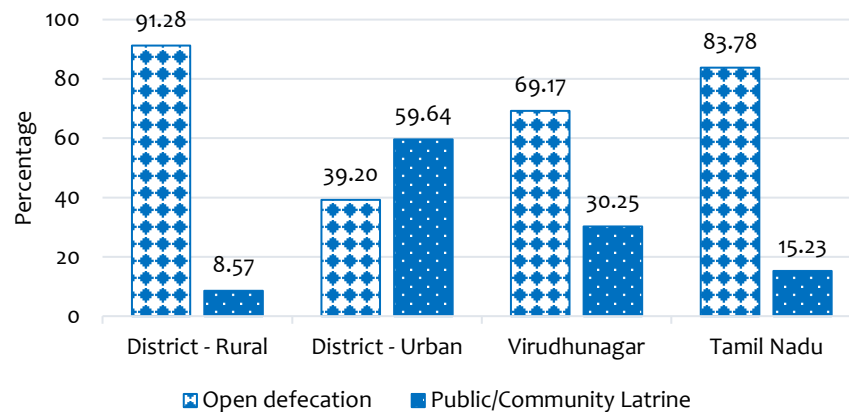*Chart 3.22 Alternate Practices of Defecation by the Households without Latrine – Area-wise Percentages*

Chart 3.22 shows that 69.17 percent of the households without latrine within the house premises in the district were following open defecation, which was lower than the state level estimate. The practice of open defecation by these households was substantially higher in rural areas than the urban areas of the district. As per the state PBS report, Virudhunagar district was ranked ninth in terms of the percentage of total households following open defecation.

4. Conclusion and Recommendations

The Pre-Baseline Survey (PBS) 2018-19 of Virudhunagar district was conducted from a sample of 6,257 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.

As per the PBS estimates, Virudhunagar district performed better than the state in terms of literacy, employment, availability of improved drinking water source and electricity connection. The literacy rate of the district was marginally higher than the state estimates. Virudhunagar was ranked second in terms of the percentage of employed population, next only to Tirupur district, and was ranked first in terms of female work participation. Fireworks, printing, and match industries offer employment opportunities to the population, especially females, in the district. The district performs better in terms of access to piped drinking water as around 99 percent of the households in the district used piped and bottled drinking water sources. Virudhunagar district was ranked fourth among the then 32 districts in terms of electrification. Almost all households in urban areas (99.29 percent) were equipped with an electricity connection.

Education is not a prerequisite for females to be employed as casual labour in agricultural and industrial sectors. In Virudhunagar district, a wide gender gap in literacy rate - 15.82 percent in rural areas and 10.09 percent in urban areas - was found. Policies targeted at improving the education status of women will be crucial at this juncture along with providing them better employment opportunities that do not have negative health implications such as match and fireworks industries. A social group-wise analysis observed that the SC, BC, and MBC populations were largely employed as casual labourers, which yielded lower incomes. The mean annual household income of the district was 24.85 percent lesser than the state estimate. Upskilling and creating better employment opportunities for all social groups with the help of Micro, Small and Medium Enterprises (MSME) will bridge the gap in social group disparity in income levels and will also increase the mean annual household income of the district.

The district estimates on the percentages of households with house ownership, households using LPG as primary cooking fuel, and households equipped with latrine within house premises were lesser than the state estimates. Around 28.53 percent of the rural households, and more than 30 percent of the DNC households (32.99 percent) and SC households (30.89 percent) in the district still used firewood as the primary fuel for cooking. More than half of the SC households (54.71 percent), MBC households (53.50

percent) and DNC households (51.20 percent) did not have latrine within their house premises. On the whole, 29.13 percent of the households in the district followed open defecation in 2018. The region-wise and social group-wise policy intervention on increasing the provisions of LPG and latrine facilities will be beneficial in eliminating firewood use and open defecation.

References

Census. (2011). *District Census Handbook - Series-34 - Part XII-B -Virudhunagar*. Directorate of Census Operations. Government of Tamil Nadu. https://censusindia.gov.in/nada/index.php/catalog/1135

Chandrasekhar, S., Naraparaju, K., & Sharma, A. (2021). Spatial Disparities in Household Earnings in India: Role of Urbanization, Sectoral Inequalities, and Rural-Urban Differences. *Indira Gandhi Institute of Development Research*, WP-2021-009. http://www.igidr.ac.in/pdf/publication/WP-2021-009.pdf

Das, S., Jain-Chandra, S., Kochhar, K., & Kumar, N. (2015). Women Workers in India: Why So Few Among So Many? *International Monetary Fund*, WP/15/55. https://www.imf.org/external/pubs/ft/wp/2015/wp1555.pdf

Department of Economics and Statistics. (2017). *Statistical Handbook of Tamil Nadu-2016-17*. Government of Tamil Nadu.

Department of Economics and Statistics. (2023). *Statistical Handbook of Tamil Nadu-2020-21*. Government of Tamil Nadu.

Desai, S. (2017, March 7). *Declining female labour force participation in rural India: The demand side*. Ideas for India. https://www.ideasforindia.in/topics/social-identity/declining-female-labour-force-participation-in-rural-india-the-demand-side.html

Desai, S., & Joshi, O. (2019). The Paradox of Declining Female Work Participation in an Era of Economic Growth. *The Indian Journal of Labour Economics*, 62, 55–71. https://doi.org/10.1007/s41027-019-00162-z

National Statistical Office. (2019). *Annual Report, Periodic Labour Force Survey, July 2017-June 2018*. https://mospi.gov.in/sites/default/files/publication_reports/Annual%20Report%2C%20PLFS%202017-18_31052019.pdf?download=1

Tamil Nadu State Planning Commission. (2017a). *Tamil Nadu Human Development Report - 2017*. Government of Tamil Nadu. https://spc.tn.gov.in/tnhdr2017.html

Tamil Nadu State Planning Commission. (2017b). *District Human Development Report – 2017, Virudhunagar District*. https://spc.tn.gov.in/DHDR/virudhunagar.pdf

TNHPS-PBS. (2021). *Tamil Nadu Household Panel Survey- Pre-Baseline Survey: 2018-19*. Draft report submitted to the Government of Tamil Nadu.

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.