

Assessment of Marginal Workers in Tamil Nadu

Phase 3: Development Part 1

In Phase 3, we will commence the TN Marginal Workers Assessment project. This phase focuses on acquiring and preprocessing the dataset, setting analysis goals, and employing data manipulation techniques for comprehensive insights.

Objective:

Phase 3 of the TN Marginal Workers Assessment project aims to achieve three key objectives. Firstly, it seeks to develop a robust methodology for accurately identifying and categorizing marginal workers based on defined criteria. Secondly, the phase focuses on analyzing temporal trends in marginal employment over a specified period, aiming to discern patterns and fluctuations. Finally, it endeavors to formulate actionable policy recommendations aimed at improving opportunities and working conditions for marginal workers in Tamil Nadu. These objectives collectively form the foundation for comprehensive data-driven insights and policy guidance in support of this vulnerable segment of the workforce.

Given Data Set:

	A	2	3	D	5	6	7	8	9	10	11	12	M	N	O	P	Q	R	S	T	U
1	Table	State	District	Area	Total	B-1 Main workers, Marginal workers, Non-workers and those marginal workers, non-workers seeking/available for work classified by age and sex															
2					Age-Group	Population				Marginal workers											
3						Main workers				Worked for less than 3 months											
4	Name	Code	Code	Name	Rural/Urban	Total				Worked for 3 to 6 months											
5						Persons				Total											
6						Males				Females											
7	1	2	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
8																					
9	B0101	33	000	State - TAMIL NADU (33)	Total	Total	7.2E+07	3.0E+07	3.0E+07	2.8E+07	1.9E+07	8900967	723155	330563	380592	4219345	2137221	2082124	1625417	912704	71205
10	B0101	33	000	State - TAMIL NADU (33)	Total	5-9	5551255	2851293	2699902	30130	20941	17189	2005	1032	1003	48205	24306	23897	13046	6748	629
11	B0101	33	000	State - TAMIL NADU (33)	Total	10-14	6177547	3188990	2988557	113307	68073	45234	7041	3687	3354	75544	38900	36644	23724	12653	1107
12	B0101	33	000	State - TAMIL NADU (33)	Total	15-19	6253792	3229638	3023954	985249	626247	356002	42309	23617	16692	257365	141320	116045	138431	79996	5843
13	B0101	33	000	State - TAMIL NADU (33)	Total	20-24	6411543	3154804	3256739	2521619	1694728	826891	80944	42645	30299	478961	257836	221125	267022	168222	11960
14	B0101	33	000	State - TAMIL NADU (33)	Total	25-29	6663746	3237374	3426372	3054423	2525627	1128796	91176	42931	48245	555294	283636	271658	291694	164029	12766
15	B0101	33	000	State - TAMIL NADU (33)	Total	30-34	5815560	2968749	2906811	3601634	2493985	1107449	79166	34875	44291	463266	239824	243442	210073	117408	9266
16	B0101	33	000	State - TAMIL NADU (33)	Total	35-39	5836456	2815205	3021251	3771104	2469105	1301999	84116	33904	50212	503423	238854	272569	198542	104730	9381
17	B0101	33	000	State - TAMIL NADU (33)	Total	40-49	9777265	4924761	4852504	6406380	4320443	2085937	138316	60179	78137	824017	399102	424915	256132	142609	11352
18	B0101	33	000	State - TAMIL NADU (33)	Total	50-59	6804602	3416487	3388115	4104097	2829619	1274478	96862	42922	53940	538360	269120	269240	125921	70056	5586
19	B0101	33	000	State - TAMIL NADU (33)	Total	60-69	4650978	2274451	2376527	2002579	1369663	632916	70040	33119	36921	325389	173953	151436	60603	34453	2615
20	B0101	33	000	State - TAMIL NADU (33)	Total	70-79	2116770	1046913	1059857	605683	443008	162675	25090	14092	10998	103011	62618	40393	15151	9410	574
21	B0101	33	000	State - TAMIL NADU (33)	Total	80+	742010	339662	402148	121139	88676	32463	5658	3381	2277	22969	13926	9063	3247	1900	134
22	B0101	33	000	State - TAMIL NADU (33)	Total	Age not stated	66805	34670	32135	10637	11079	5758	432	209	223	3521	1824	1697	1031	550	48
23	B0101	33	000	State - TAMIL NADU (33)	Total	16-59	4.8E+07	2.4E+07	2.4E+07	2.5E+07	1.7E+07	8084752	612889	281073	331816	3640086	1821692	1818994	1508015	847050	66156
24	B0101	33	000	State - TAMIL NADU (33)	Total	60+	7509758	3661226	3848532	2729401	1901347	828054	100788	50592	50196	451389	250497	200892	79001	45763	3323
25	B0101	33	000	State - TAMIL NADU (33)	Rural	Total	3.7E+07	1.9E+07	1.9E+07	1.5E+07	9552474	5786642	511440	217196	294244	3010774	1444865	1565909	1153686	628601	52500
26	B0101	33	000	State - TAMIL NADU (33)	Rural	5-9	2968536	1528954	1439582	22187	11926	10281	1450	722	728	21072	10595	10477	6180	3213	294
27	B0101	33	000	State - TAMIL NADU (33)	Rural	10-14	3325160	1728166	1598994	69636	40360	29276	5349	2723	2626	38054	19640	18114	12693	6845	584
28	B0101	33	000	State - TAMIL NADU (33)	Rural	15-19	3373098	1765233	1607865	624268	383963	240305	30563	16297	14296	172691	93734	78957	91835	52849	3696
29	B0101	33	000	State - TAMIL NADU (33)	Rural	20-24	3315234	1658770	1656464	1437974	921940	516034	55431	26931	28500	327488	170184	157304	169977	109269	8070
30	B0101	33	000	State - TAMIL NADU (33)	Rural	25-29	3360498	1652498	1708000	1969078	1259618	709460	64292	27350	36942	392505	189249	203256	202512	110589	9192
31	B0101	33	000	State - TAMIL NADU (33)	Rural	30-34	2825218	1419512	1405706	1803153	1177906	685247	54714	21671	33043	343266	159703	183563	149623	81208	6841
32	B0101	33	000	State - TAMIL NADU (33)	Rural	35-39	2894635	1375375	1519260	1981030	1164915	816715	58587	20983	37604	366212	155838	210374	145374	73325	7204

Step 1: Dataset Acquisition

- Access the dataset from the designated source, which might be a government database or an authorized research repository.
- Download the dataset to your local working directory or a preferred location.

Step 2: Loading the Dataset

- Import the necessary data processing libraries, such as Pandas, for effective data manipulation.

- Load the dataset into a Pandas DataFrame for further analysis.
- Present the initial few rows of the dataset for an overview of its structure.

Step 3: Exploratory Data Analysis

- Conduct an initial exploration of the dataset to grasp its composition and features.
- Check for any missing values, confirm data types, and compute basic statistics.
- Identify potential relationships or correlations among features and the target variable of interest.

Step 4: Define Analysis Objectives

Define the specific objectives for this analysis phase, encompassing:

- **Marginal Worker Identification:** Develop a methodology to identify and categorize marginal workers.
- **Employment Trends:** Analyze trends in marginal employment over a specified period.
- **Policy Recommendations:** Propose recommendations for enhancing opportunities and conditions for marginal workers.

Step 5: Data Cleaning and Preprocessing

Clean and preprocess the data to ensure its suitability and reliability for analysis:

- Address missing values through imputation or removal based on data exploration.
- Encode categorical variables if required for analysis.
- Perform any necessary feature engineering, such as creating new variables.
- Divide the data into distinct sets for training and testing to facilitate model development and evaluation.

Step 6: Data Manipulation Techniques

Apply data manipulation techniques to extract meaningful insights from the dataset:

- Conduct aggregation and summarization to derive key statistics and trends.
- Implement filtering and transformation operations to focus on relevant information.
- Utilize advanced data manipulation functions for specific analysis objectives.

Step 7: Data Validation

Validate the processed data to confirm its accuracy and integrity:

- Execute data validation checks to ensure data consistency and precision.
- Address any potential data quality concerns that may arise during validation.

Step 8: Documentation

Maintain a comprehensive record of the activities carried out in this phase:

- Document the steps taken for data preprocessing, encompassing any transformations or cleaning procedures.
- Record the specific objectives established for this phase of the TN Marginal Workers Assessment project.
- Document any noteworthy observations, challenges, or discoveries made during this phase.

This documentation provides a detailed outline of the essential steps and activities to be executed in Phase 3 of the TN Marginal Workers Assessment project. It serves as a guiding framework for dataset preparation, development, and the implementation of data manipulation techniques.

Analysis:

```
print('The total number of person in Tamil Nadu who are working more than 3 Months and less than 6 months')
data = pd.read_csv('dataset1.csv')
persons=data['Persons'].sum()
print(persons)
print('The total number of Male Workers in Tamil Nadu who are working more than 3 Months and less than 6 months')
Male=data['Males'].sum()
print(Male)
print('The total number of Female Workers in Tamil Nadu who are working more than 3 Months and less than 6 months')
Female=data['Females'].sum()
print(Female)
```

```
↳ The total number of person in Tamil Nadu who are working more than 3 Months and less than 6 months
9606631.0
The total number of Male Workers in Tamil Nadu who are working more than 3 Months and less than 6 months
4712032.0
The total number of Female Workers in Tamil Nadu who are working more than 3 Months and less than 6 months
4894609.0
```

Workers working more than 3 months and less than 6 months:

➞ Total number of male workers in each district of Tamil Nadu who are working more than 3 months and less than 6 months

state	male
District - Ariyalur	9926.0
District - Chennai	19313.0
District - Coimbatore	13530.0
District - Cuddalore	52389.0
District - Dharmapuri	7357.0
District - Dindigul	14174.0
District - Erode	7765.0
District - Kancheepuram	47269.0
District - Kanniyakumari	2886.0
District - Karur	3308.0
District - Krishnagiri	10275.0
District - Madurai	15115.0
District - Nagapattinam	36360.0
District - Namakkal	6808.0
District - Perambalur	7835.0
District - Pudukkottai	9903.0
District - Ramanathapuram	9824.0
District - Salem	11407.0
District - Sivaganga	13618.0
District - Thanjavur	16607.0
District - The Nilgiris	5400.0
District - Theni	7357.0
District - Thiruvallur	39295.0
District - Thiruvarur	28159.0
District - Thoothukkudi	9746.0
District - Tiruchirappalli	12793.0
District - Tirunelveli	17240.0
District - Tiruppur	11040.0
District - Tiruvannamalai	31028.0
District - Vellore	36863.0
District - Viluppuram	65063.0
District - Virudhunagar	9350.0
State - TAMIL NADU	589003.0



Total number of female workers in each district of Tamil Nadu
who are working more than 3 months and less than 6 months

state	female
District - Ariyalur	11787.0
District - Chennai	14435.0
District - Coimbatore	14167.0
District - Cuddalore	56844.0
District - Dharmapuri	7735.0
District - Dindigul	16353.0
District - Erode	9116.0
District - Kancheepuram	44746.0
District - Kanniyakumari	2036.0
District - Karur	4264.0
District - Krishnagiri	9642.0
District - Madurai	16237.0
District - Nagapattinam	35205.0
District - Namakkal	8859.0
District - Perambalur	8962.0
District - Pudukkottai	11631.0
District - Ramanathapuram	11151.0
District - Salem	14009.0
District - Sivaganga	13962.0
District - Thanjavur	16433.0
District - The Nilgiris	4571.0
District - Theni	7108.0
District - Thiruvallur	35153.0
District - Thiruvarur	28709.0
District - Thoothukkudi	11339.0
District - Tiruchirappalli	14017.0
District - Tirunelveli	18204.0
District - Tiruppur	12224.0
District - Tiruvannamalai	34448.0
District - Vellore	34832.0
District - Viluppuram	71964.0
District - Virudhunagar	11682.0
State - TAMIL NADU	611825.0

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Total number of workers in each district of Tamil Nadu who are working more than 3 months and less than 6 months

state	person
District - Ariyalur	21713.0
District - Chennai	33748.0
District - Coimbatore	27697.0
District - Cuddalore	109233.0
District - Dharmapuri	15092.0
District - Dindigul	30527.0
District - Erode	16881.0
District - Kancheepuram	92015.0
District - Kanniyakumari	4922.0
District - Karur	7572.0
District - Krishnagiri	19917.0
District - Madurai	31352.0
District - Nagapattinam	71565.0
District - Namakkal	15667.0
District - Perambalur	16797.0
District - Pudukkottai	21534.0
District - Ramanathapuram	20975.0
District - Salem	25416.0
District - Sivaganga	27580.0
District - Thanjavur	33040.0
District - The Nilgiris	9971.0
District - Theni	14465.0
District - Thiruvallur	74448.0
District - Thiruvarur	56868.0
District - Thoothukkudi	21085.0
District - Tiruchirappalli	26810.0
District - Tirunelveli	35444.0
District - Tiruppur	23264.0
District - Tiruvannamalai	65476.0
District - Vellore	71695.0
District - Viluppuram	137027.0
District - Virudhunagar	21032.0
State - TAMIL NADU	1200828.0

Workers working less than 3 months:

➡ Total number of male workers in each district of Tamil Nadu who are working less than 3 months

state	male1
District - Ariyalur	1770.0
District - Chennai	3954.0
District - Coimbatore	2058.0
District - Cuddalore	9994.0
District - Dharmapuri	1104.0
District - Dindigul	2186.0
District - Erode	1419.0
District - Kancheepuram	8655.0
District - Kanniyakumari	636.0
District - Karur	642.0
District - Krishnagiri	2053.0
District - Madurai	2891.0
District - Nagapattinam	4923.0
District - Namakkal	547.0
District - Perambalur	613.0
District - Pudukkottai	1412.0
District - Ramanathapuram	1671.0
District - Salem	1937.0
District - Sivaganga	1893.0
District - Thanjavur	2782.0
District - The Nilgiris	849.0
District - Theni	1365.0
District - Thiruvallur	8004.0
District - Thiruvarur	3405.0
District - Thoothukkudi	979.0
District - Tiruchirappalli	1915.0
District - Tirunelveli	3131.0
District - Tiruppur	1474.0
District - Tiruvannamalai	5832.0
District - Vellore	7753.0
District - Viluppuram	9800.0
District - Virudhunagar	1721.0
State - TAMIL NADU	99368.0

Total number of female workers in each district of Tamil Nadu
who are working less than 3 months

state	female1
District - Ariyalur	2709.0
District - Chennai	2397.0
District - Coimbatore	2585.0
District - Cuddalore	12445.0
District - Dharmapuri	1676.0
District - Dindigul	3309.0
District - Erode	1838.0
District - Kancheepuram	9037.0
District - Kanniyakumari	612.0
District - Karur	930.0
District - Krishnagiri	2046.0
District - Madurai	3330.0
District - Nagapattinam	6897.0
District - Namakkal	1154.0
District - Perambalur	1128.0
District - Pudukkottai	2155.0
District - Ramanathapuram	1898.0
District - Salem	2587.0
District - Sivaganga	2658.0
District - Thanjavur	3174.0
District - The Nilgiris	754.0
District - Theni	1553.0
District - Thiruvallur	7862.0
District - Thiruvarur	5110.0
District - Thoothukkudi	1410.0
District - Tiruchirappalli	2527.0
District - Tirunelveli	3647.0
District - Tiruppur	1836.0
District - Tiruvannamalai	7871.0
District - Vellore	9093.0
District - Viluppuram	13387.0
District - Virudhunagar	2403.0
State - TAMIL NADU	122018.0

Male and Female Cultivators:

➞ Total number of male cultivators in each district of Tamil Nadu

state	cultivator_male
District - Ariyalur	760.0
District - Chennai	327.0
District - Coimbatore	242.0
District - Cuddalore	3886.0
District - Dharmapuri	356.0
District - Dindigul	443.0
District - Erode	169.0
District - Kancheepuram	2578.0
District - Kanniyakumari	60.0
District - Karur	96.0
District - Krishnagiri	871.0
District - Madurai	739.0
District - Nagapattinam	1313.0
District - Namakkal	276.0
District - Perambalur	1707.0
District - Pudukkottai	1305.0
District - Ramanathapuram	2463.0
District - Salem	338.0
District - Sivaganga	1779.0
District - Thanjavur	821.0
District - The Nilgiris	117.0
District - Theni	205.0
District - Thiruvallur	1663.0
District - Thiruvarur	1366.0
District - Thoothukkudi	393.0
District - Tiruchirappalli	607.0
District - Tirunelveli	916.0
District - Tiruppur	314.0
District - Tiruvannamalai	2582.0
District - Vellore	1163.0
District - Viluppuram	4182.0
District - Virudhunagar	595.0
State - TAMIL NADU	34632.0

Total number of female cultivators in each district of Tamil Nadu

state	cultivator_female
District - Ariyalur	688.0
District - Chennai	413.0
District - Coimbatore	334.0
District - Cuddalore	3192.0
District - Dharmapuri	361.0
District - Dindigul	473.0
District - Erode	180.0
District - Kancheepuram	1890.0
District - Kanniyakumari	47.0
District - Karur	81.0
District - Krishnagiri	584.0
District - Madurai	741.0
District - Nagapattinam	944.0
District - Namakkal	363.0
District - Perambalur	1275.0
District - Pudukkottai	1172.0
District - Ramanathapuram	2281.0
District - Salem	410.0
District - Sivaganga	1522.0
District - Thanjavur	583.0
District - The Nilgiris	108.0
District - Theni	195.0
District - Thiruvallur	1403.0
District - Thiruvarur	865.0
District - Thoothukkudi	410.0
District - Tiruchirappalli	687.0
District - Tirunelveli	849.0
District - Tiruppur	307.0
District - Tiruvannamalai	2089.0
District - Vellore	1026.0
District - Viluppuram	3560.0
District - Virudhunagar	570.0
State - TAMIL NADU	29603.0