

## **Project Phase IV**

### **Topic : Tamil Nadu Marginal Workers - Assessment**

#### **Project Definition:**

##### **Marginal Workers :**

Marginal workers, often referred to as "marginal labourers," are a specific category of the labour force within a country's population. They represent a group of individuals who are engaged in irregular or low-income employment and often face economic and social vulnerability. The concept of marginal workers is commonly used in labour market and employment statistics to categorise a segment of the workforce that is distinct from regular wage/salary workers.

Marginal workers are increasing in tamilnadu as they form a part of the labour force and they work on very low wages which lead to their exploitation, the various industries where marginal workers perform include: Agriculture, Forestry and Fishing; Mining and Quarrying; Manufacturing; Electricity, Gas, steam and Air conditioning Supply; Water Supply; (Sewerage, Waste Management and remediation activities); Construction; Wholesale and Retail Trade (Repair of motor vehicles and motorcycles); Transportation and Storage; Accommodation and food service activities; Information and Communication; Financial and Insurance activities; Real Estate activities; Professional, Scientific and Technical activities; Administrative and support service activities; Public Administration and Defence, Compulsory Social Security; Education; Human Health and Social Work activities; Arts, Entertainment and recreation; Other Service Activities; Activities of Households as Employers: Undifferentiated Goods and Services; Activities of Extraterritorial Organisations and Bodies.

Marginal workers work on various types of jobs which include primary workers fields like Agriculture, Fishing, Mining and to white collar jobs like Public Administration and Defence, Scientific and Technical activities. The workers may also work in both urban or rural area, Their area of work and work type is dependent on their educational qualification which in turn determine their socio-economic status.

The age distribution of marginal workers can vary from one region or country to another, and it can change over time due to economic, social, and

demographic factors. In the context of India, where the concept of marginal workers is commonly used, the age distribution of marginal workers may typically be characterised as follows:

**Child Labour:** Child labour involves the employment of children below the legal working age, which varies from country to country but typically includes those under the age of 14. Child labour is a critical issue among marginal workers in many parts of the world, including India. These children often work in hazardous and exploitative conditions, and their age distribution can encompass a range of ages, from very young children to teenagers.

**Younger Age Groups:** Marginal workers often include a significant proportion of younger individuals, particularly those in the age group of 15-34 years. This is due to several reasons, including entry-level employment opportunities in various sectors, limited access to formal education, and the need for income generation in lower-income households.

**Prime Working-Age Population:** The prime working-age group, which typically spans from 35 to 59 years, also contributes to the age distribution of marginal workers. People in this age group may become marginal workers due to underemployment, seasonal employment, or limited job opportunities, especially in the informal sector.

**Older Workers:** While the majority of marginal workers are relatively younger, there are older individuals, typically aged 60 and above, who engage in marginal employment. This may be due to factors like a lack of retirement benefits, limited pension options, or the need to support themselves and their families.

Gender distribution among marginal workers varies depending on cultural, societal, and economic factors, as well as the specific region and industry in question. Here are some general trends in the gender distribution of marginal workers:

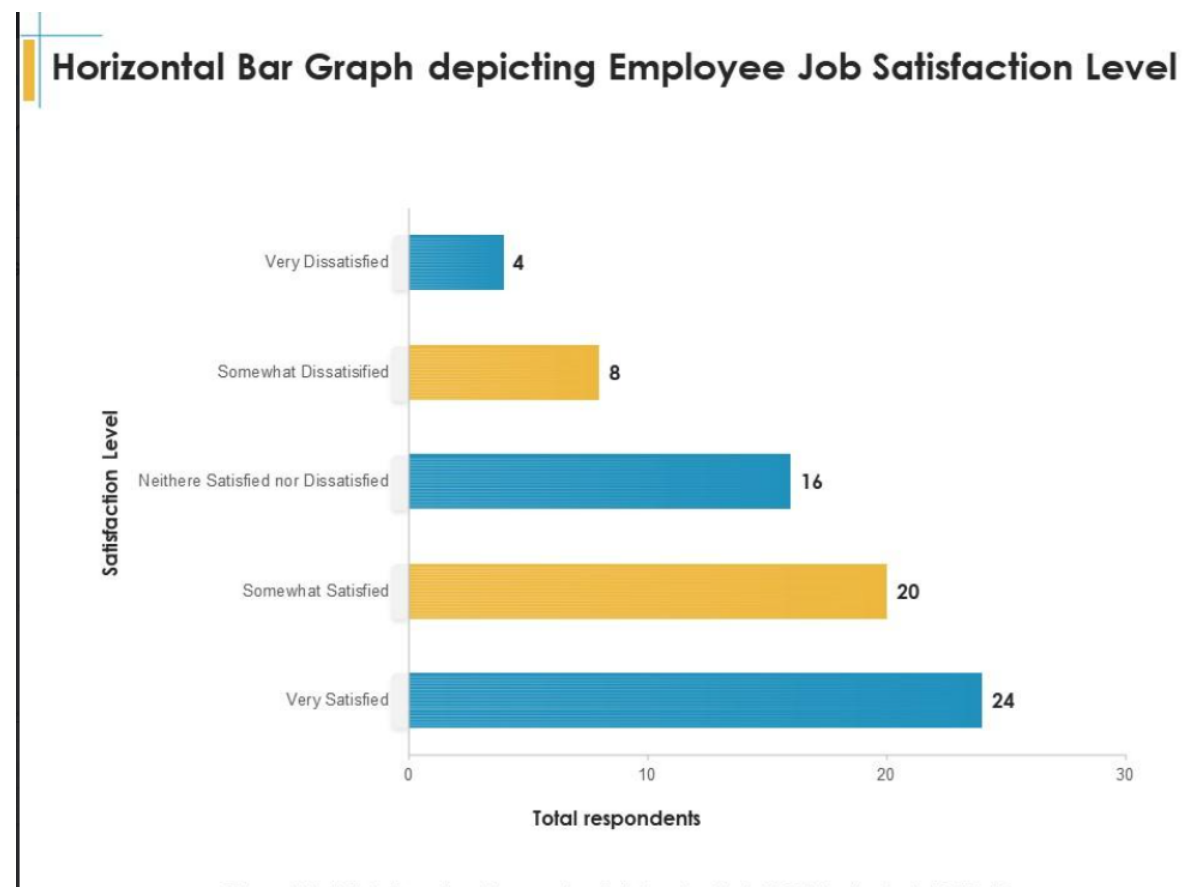
**Gender Disparities:** Gender disparities are often observed among marginal workers. In many parts of the world, including India, you may find more men than women engaged in marginal employment.

**Men as Predominant Marginal Workers:** In certain sectors like agriculture, construction, and transportation, men tend to make up a significant portion of the marginal worker population. They often work as agricultural laborers, construction workers, rickshaw pullers, or in other physically demanding roles.

**Women in Informal and Unpaid Work:** Women are more likely to be engaged in informal, part-time, or unpaid work, such as household and care work. These roles may not be recognized as formal employment, but they are essential to the functioning of households and communities.

Let us look at the problems of marginal workers and solution to be offered

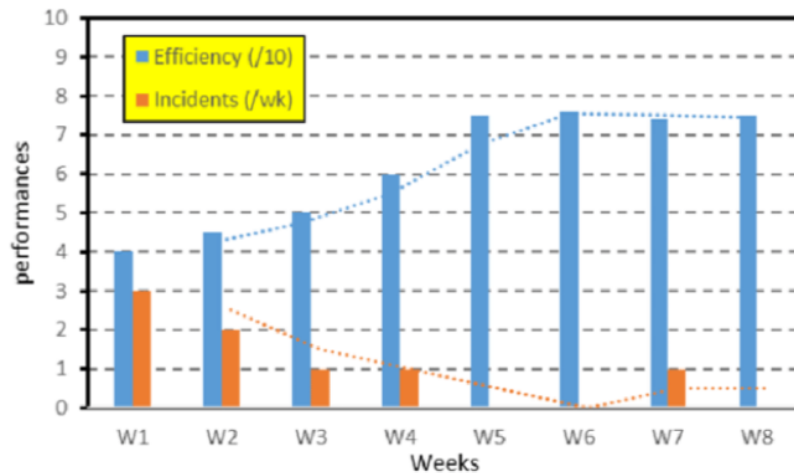
**1. Job Satisfaction based on work duration:** Employee job satisfaction can significantly vary based on the duration of work, particularly among migrant workers. Those who have been employed for less than 6 months may experience lower job satisfaction due to the challenges of adapting to a new environment and job role. However, as they gain more experience and familiarity with their work, those who have been employed for more than 6 months tend to see an improvement in job satisfaction, as they become more settled and skilled in their roles. These improvements can be attributed to the sense of stability and familiarity that develops over time. Migrant workers, in particular, may experience increased job satisfaction as they adapt to their new work environment and overcome initial hurdles. Therefore, the duration of work plays a crucial role in determining the job satisfaction of employees, especially migrant workers, with an upward trend in satisfaction as the duration of employment increases.



**Solution:** To enhance the job satisfaction of migrant workers, it is essential to focus on several key strategies. Firstly, providing comprehensive orientation and training programs can help workers adapt to their new roles and surroundings more effectively. Secondly, fostering a supportive work environment with clear communication channels and opportunities for feedback can address their unique needs and concerns. Additionally, offering benefits like health insurance, access to affordable housing, and support for their families can relieve some of the stress associated with migration. Lastly, recognizing and rewarding their contributions, both financially and through acknowledgment, can motivate and boost their job satisfaction. By implementing these strategies, employers can create a more welcoming and conducive work environment for migrant workers, ultimately leading to higher levels of job satisfaction.

**2. Employee performance analysis:** Analyzing employee performance based on the duration of work, particularly for migrant workers, reveals interesting insights. In the initial 3 months of employment, performance among migrant workers might be slightly below optimal due to the learning curve and adaptation to the new work environment. Those who have worked for less than 6 months may still be in the process of acclimatizing, which can affect their productivity. However, as they accumulate more than 6 months of work experience, performance tends to improve as they become more proficient in their roles and accustomed to the workplace. Migrant workers' performance may demonstrate an upward trajectory as they overcome initial challenges and gain a better understanding of job requirements. Hence, taking into account the duration of work is essential when evaluating and managing the performance of migrant workers, with a focus on providing support and resources during their initial months to maximize their long-term contributions.

Let us look at the performance of employee across various timestamp

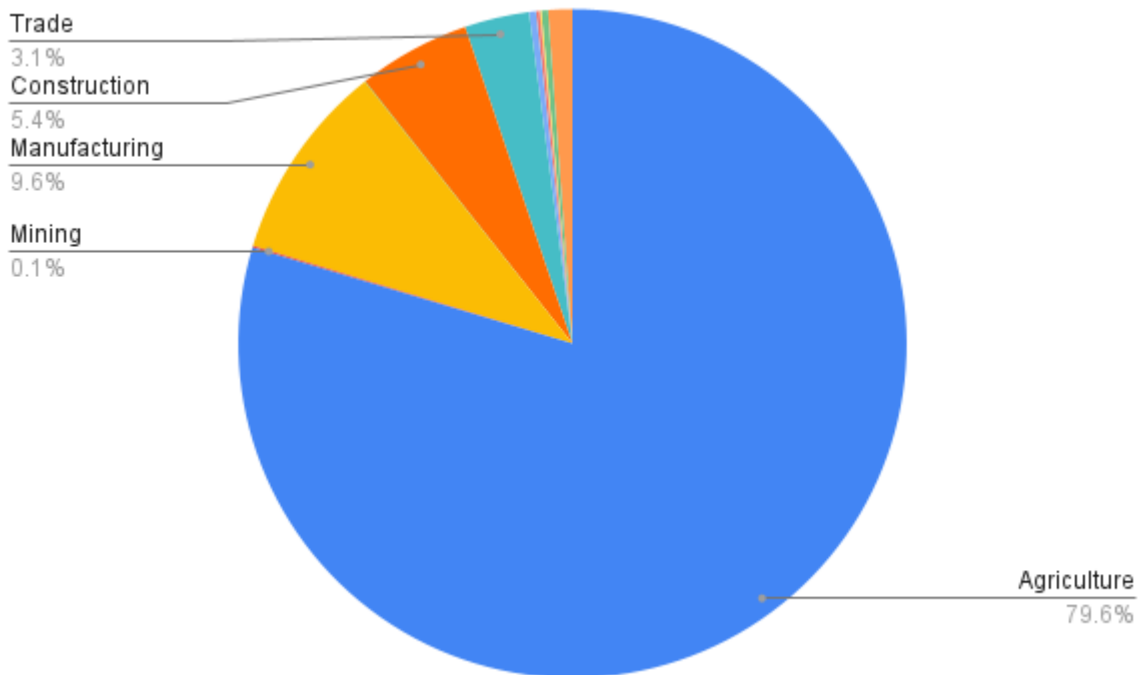


Sample analysis and visualize results for the employee performance analysis.

**Solution:** To enhance the performance of migrant workers, it is crucial to implement a multi-faceted approach. Firstly, comprehensive onboarding and training programs tailored to their needs can accelerate their adaptation to the new work environment. Secondly, creating a supportive workplace culture that promotes inclusivity, open communication, and a sense of belonging can motivate and engage migrant workers. Additionally, providing access to resources such as language courses, cultural sensitivity training, and mentorship programs can further facilitate their integration. Regular feedback and performance evaluations should be conducted to track their progress and provide constructive guidance. Finally, offering incentives, both financial and non-monetary, for high performance can boost motivation and commitment. By combining these strategies, employers can improve the performance of migrant workers, ultimately benefiting both the employees and the organization.

**3. Child Labour:** Child Labour include working of children from the age of 5-14. This age is the age of children to study in school but they are doing physically demanding jobs which may affect physical and mental development of children. Children from marginal worker families are often forced into work at a young age, sometimes engaging in hazardous or exploitative labour to contribute to their family's income. Child labour deprives these children of their right to education, which can have long-term consequences on their future employability and overall well-being. Child labour can perpetuate the cycle of poverty. When children are forced to work instead of attending school, they are more likely to continue in low-paying, unskilled jobs as adults.

Let us look at the various job distribution of young people from 5-14



Children usually work in agriculture which is physical work which is demanding and does not require much intellect. It's very demanding and affects the overall development of children.

**Solution:** Child labour can be avoided by providing quality education to children which lead to increased economic status in future. Child labour can be avoided as follows, Improve access to quality education for children of marginal workers, ensuring schools are affordable, safe, and located within reasonable proximity. Enhance existing child labour laws and regulations and ensure their strict enforcement to prevent children from engaging in harmful work.

### Working Code:

#### Import Data:

```
Work_data = pd.read_csv('C:\Users\hp\OneDrive\Desktop\Data.csv')
```

#### Library:

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
from sklearn.preprocessing import LabelEncoder, StandardScaler
from sklearn.model_selection import train_test_split, GridSearchCV
```

```
from sklearn.metrics import accuracy_score, classification_report, confusion_matrix
import warnings
warnings.filterwarnings('ignore')
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 14,999 entries, 0 to 14,998
Data columns (total 10 columns):
satisfaction_level    14999 non-null float64
last_evaluation       14999 non-null float64
number_project        14999 non-null int64
average_monthly_hours 14999 non-null int64
time_spend_company    14999 non-null int64
Work_accident         14999 non-null int64
left                 14999 non-null int64
promotion_last_5years 14999 non-null int64
Departments           14999 non-null object
salary                14999 non-null object
dtypes: float64(2), int64(6), object(2)
memory usage: 1.1+ MB
```

### Analysis:

```
Data.shape
Data.columns
data.head()
data.info()
data.corr()
```

### Pre-Processing Data:

```
# Import LabelEncoder
from sklearn import preprocessing
#creating labelEncoder
le = preprocessing.LabelEncoder()
# Converting string labels into numbers.
data['salary']=le.fit_transform(data['salary'])
data['Departments ']=le.fit_transform(data['Departments '])

#Splitting data into Feature and
X=data[['satisfaction_level', 'last_evaluation', 'number_project',
```

```

    'average_monthly_hours', 'time_spend_company', 'Work_accident',
    'promotion_last_5years', 'Departments ', 'salary']]
y=data['left']

# Import train_test_split function
from sklearn.model_selection import train_test_split

# Split dataset into training set and test set
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3,
random_state=42) # 70% training and 30% test

```

### Graph Plot:

```

left_count=data.groupby('left').count()
plt.bar(left_count.index.values, left_count['satisfaction_level'])
plt.xlabel('Employees Left Company')
plt.ylabel('Number of Employees')
plt.show()
num_projects=data.groupby('number_project').count()
plt.bar(num_projects.index.values, num_projects['satisfaction_level'])
plt.xlabel('Number of Projects')
plt.ylabel('Number of Employees')
plt.show()
features=['number_project','time_spend_company','Work_accident','left',
'promotion_last_5years','Departments ','salary']
fig=plt.subplots(figsize=(10,15))
for i, j in enumerate(features):
    plt.subplot(4, 2, i+1)
    plt.subplots_adjust(hspace = 1.0)
    sns.countplot(x=j,data = data)
    plt.xticks(rotation=90)
    plt.title("No. of employee")
fig=plt.subplots(figsize=(10,15))
for i, j in enumerate(features):
    plt.subplot(4, 2, i+1)
    plt.subplots_adjust(hspace = 1.0)
    sns.countplot(x=j,data = data, hue='left')
    plt.xticks(rotation=90)
    plt.title("No. of employee")

```



**Conclusion:**

Thus basic valuable insights have been studied with demographics of marginal workers in Tamilnadu. Thus the problem of marginal workers is studied and a solution is provided to them. The dataset is loaded preprocessed in python data science using pandas, matplotlib and we obtain our understanding. The application of technological solutions, such as advanced data analytics, skill development platforms, and blockchain for labor rights, is essential to accurately assess the needs of marginalized workers, ultimately paving the way for more empathetic and effective solutions to improve their well-being and foster social inclusion in Tamil Nadu.

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