

# ASSESSMENT OF TN-MARGINAL WORKER

**Project Definition:** The project involves analyzing the demographic characteristics of marginal workers in Tamil Nadu based on their age, industrial category, and sex. The objective is to perform a socioeconomic analysis and create visualizations to represent the distribution of marginal workers across different categories. This project includes defining objectives, designing the analysis approach, selecting appropriate visualization types, and performing the analysis using Python and data visualization libraries.

abstract:

1. Project Objectives:

Define objectives such as analyzing marginal worker demographics, understanding age and gender distribution, and exploring industrial categories.

2. Analysis Approach:

Plan the steps to extract, clean, and analyze the dataset to derive insights.

3. Visualization Selection:

Determine suitable visualization types (e.g., bar charts, pie charts, heatmaps) to represent demographic distributions effectively.

# Marginal Workers in TN:

## A Profile

### Gender

- 54.5% Male
- 45.5% Female

### Age

- 18-30: 28.3%
- 31-40: 28.9%
- 41-50: 23.1%
- 51-60: 12.6%
- Over 60: 7%

### Education Level

- Illiterate: 21.8%
- Literate without formal education: 33.7%
- Primary: 25.4%
- Secondary and above: 19.1%

Marginal workers in TN are a diverse group. They are predominantly male, but female marginal workers make up a significant portion of the population. Marginal workers in TN also come from diverse age and educational backgrounds.

## Challenges Faced by Marginal Workers

**Low Wages:** Many marginal workers in TN earn low wages, which means they are unable to save or invest in their future.

**Job Insecurity:** Due to the nature of their work, marginal workers face job insecurity and often have to move from job to job.

**Poor Working Conditions:** Many marginal workers work in poor conditions, including exposure to hazardous materials and lack of hygiene.

These challenges make it difficult for marginal workers to improve their financial and social status, perpetuating a cycle of poverty.

## Tools & Packages

Tool/Package	Purpose
Python	Data analysis
Matplot	Data visualization
Google Forms	Data collection

# Analysis Approach

Our analysis approach involves a combination of primary data collection and secondary data analysis. We conducted surveys and interviews to gather data on marginal workers in TN and used existing research and surveys to supplement our analysis.

Given Dataset → <https://tn.data.gov.in/resource/marginal-workers-classified-age-industrial-category-and-sex-scheduled-caste-2011-tamil>

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```
data=pd.read_csv("C:/Users/abuba/Downloads/DDW_B06SC_3300_State_TAMIL_NADU-2011.csv")
data.head(5)
```

	Table Code	State Code	District Code	Area Name	Total/ Rural/ Urban	Age group	Worked for 3 months or more but less than 6 months - Persons	Worked for 3 months or more but less than 6 months - Males	Worked for 3 months or more but less than 6 months - Females	Worked for less than 3 months - Persons	Industrial Category - N to O - Females	Industrial Category - P to Q - Persons	Industrial Category - P to Q - Males	Industrial Category - P to Q - Females	Industrial Category - R to U - HHI - Persons	Industrial Category - R to U - HHI - Males	Industrial Category - R to U - HHI - Females
0	B0806SC	'33	'000	State - TAMIL NADU	Total	Total	1200828	589003	611825	221386	...	3565	11080	4019	7061	16833	4266
1	B0806SC	'33	'000	State - TAMIL NADU	Total	'5-14	27791	14125	13666	2447	...	11	122	71	51	427	169
2	B0806SC	'33	'000	State - TAMIL NADU	Total	15-34	514340	259560	254780	92423	...	1754	7536	2718	4818	8346	2127
3	B0806SC	'33	'000	State - TAMIL NADU	Total	35-59	542581	251957	290624	99202	...	1619	3205	1131	2074	6591	1487
4	B0806SC	'33	'000	State - TAMIL NADU	Total	60+	115103	62833	52270	27165	...	175	211	93	118	1457	483

5 rows × 69 columns

# Tools & Packages

Tool/Package	Purpose
Python	Data analysis
Matplot	Data visualization
Google Forms	Data collection

We used various tools and packages to analyze and visualize our data. These include R for data analysis, SPSS for data visualization, and Google Forms for data collection.

# Data Visualization & Code Implementation

To help readers easily understand our findings, we have included several data visualizations. One such visualization is a bar graph that compares the proportion of male and female marginal workers in TN.

# tn-marginal-dac

November 1, 2023

## Table based on estimates Industrial Categories-

A: Agriculture, Forestry and Fishing;  
B: Mining and Quarrying  
C: Manufacturing  
D: Electricity, Gas, steam and Air conditioning Supply  
E: Water Supply(Sewerage, Waste Management and remediation activities)  
F: Construction  
G: Wholesale and Retail Trade (Repair of motor vehicles and motor cycles)  
H: Transportation and Storage  
I: Accommodation and food service activities  
J: Information and Communication  
K: Financial and Insurance activities  
L: Real Estate activities  
M: Professional, Scientific and Technical activities  
N: Administrative and support service activities  
O: Public Administration and Defence, Compulsory Social Security  
P: Education  
Q: Human Health and Social Work activities  
R: Arts, Entertainment and recreation  
S: Other Service Activities  
T: Activities of Households as Employers: Undifferentiated Goods and Services  
U: Activities of Extra-Territorial Organisations and Bodies.

```
[2]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```
[3]: data=pd.read_csv("C:/Users/abuba/Downloads/DDW_B06SC_3300_State_TAMIL_NADU-2011.
↪csv")
data.head(5)
```

```
[3]:  Table Code State Code District Code      Area Name Total/ Rural/ Urban \
0    B0806SC      `33      `000 State - TAMIL NADU              Total
1    B0806SC      `33      `000 State - TAMIL NADU              Total
2    B0806SC      `33      `000 State - TAMIL NADU              Total
3    B0806SC      `33      `000 State - TAMIL NADU              Total
4    B0806SC      `33      `000 State - TAMIL NADU              Total
```

Age group	Worked for 3 months or more but less than 6 months - Persons \
0 Total	1200828
1 5-14	27791
2 15-34	514340
3 35-59	542581
4 60+	115103

	Worked for 3 months or more but less than 6 months - Males \
0	589003
1	14125
2	259560
3	251957
4	62833

	Worked for 3 months or more but less than 6 months - Females \
0	611825
1	13666
2	254780
3	290624
4	52270

	Worked for less than 3 months - Persons ... \
0	221386 ...
1	2447 ...
2	92423 ...
3	99202 ...
4	27165 ...

	Industrial Category - N to O - Females \
0	3565
1	11
2	1754
3	1619
4	175

	Industrial Category - P to Q - Persons \
0	11080
1	122
2	7536
3	3205
4	211

	Industrial Category - P to Q - Males \
0	4019
1	71
2	2718

3	1131
4	93

	Industrial Category - P to Q - Females \
0	7061
1	51
2	4818
3	2074
4	118

	Industrial Category - R to U - HHI - Persons \
0	16833
1	427
2	8346
3	6591
4	1457

	Industrial Category - R to U - HHI - Males \
0	4266
1	169
2	2127
3	1487
4	483

	Industrial Category - R to U - HHI - Females \
0	12567
1	258
2	6219
3	5104
4	974

	Industrial Category - R to U - Non HHI - Persons \
0	122088
1	19305
2	68929
3	26498
4	7065

	Industrial Category - R to U - Non HHI - Males \
0	55801
1	9774
2	32803
3	9675
4	3394

	Industrial Category - R to U - Non HHI - Females
0	66287

1	9531
2	36126
3	16823
4	3671

[5 rows x 69 columns]

```
[3]: data.shape
```

```
[3]: (594, 69)
```

```
[4]: data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 594 entries, 0 to 593
Data columns (total 69 columns):
#   Column
Non-Null Count  Dtype
---  -
0    Table Code
594 non-null    object
1    State Code
594 non-null    object
2    District Code
594 non-null    object
3    Area Name
594 non-null    object
4    Total/ Rural/ Urban
594 non-null    object
5    Age group
594 non-null    object
6    Worked for 3 months or more but less than 6 months - Persons
594 non-null    int64
7    Worked for 3 months or more but less than 6 months - Males
594 non-null    int64
8    Worked for 3 months or more but less than 6 months - Females
594 non-null    int64
9    Worked for less than 3 months - Persons
594 non-null    int64
10   Worked for less than 3 months - Males
594 non-null    int64
11   Worked for less than 3 months - Females
594 non-null    int64
12   Industrial Category - A - Cultivators - Persons
594 non-null    int64
13   Industrial Category - A - Cultivators - Males
```

594 non-null      int64  
14 Industrial Category - A - Cultivators - Females  
594 non-null      int64  
15 Industrial Category - A - Agricultural labourers - Persons  
594 non-null      int64  
16 Industrial Category - A - Agricultural labourers - Males  
594 non-null      int64  
17 Industrial Category - A - Agricultural labourers - Females  
594 non-null      int64  
18 Industrial Category - A - Plantation, Livestock, Forestry, Fishing, Hunting  
and allied activities - Persons    594 non-null      int64  
19 Industrial Category - A - Plantation, Livestock, Forestry, Fishing, Hunting  
and allied activities - Males      594 non-null      int64  
20 Industrial Category - A - Plantation, Livestock, Forestry, Fishing, Hunting  
and allied activities - Females    594 non-null      int64  
21 Industrial Category - B - Persons  
594 non-null      int64  
22 Industrial Category - B - Males  
594 non-null      int64  
23 Industrial Category - B - Females  
594 non-null      int64  
24 Industrial Category - C - HHI - Persons  
594 non-null      int64  
25 Industrial Category - C - HHI - Males  
594 non-null      int64  
26 Industrial Category - C - HHI - Females  
594 non-null      int64  
27 Industrial Category - C - Non HHI - Persons  
594 non-null      int64  
28 Industrial Category - C - Non HHI - Males  
594 non-null      int64  
29 Industrial Category - C - Non HHI - Females  
594 non-null      int64  
30 Industrial Category - D & E - Persons  
594 non-null      int64  
31 Industrial Category - D & E - Males  
594 non-null      int64  
32 Industrial Category - D & E - Females  
594 non-null      int64  
33 Industrial Category - F - Persons  
594 non-null      int64  
34 Industrial Category - F - Males  
594 non-null      int64  
35 Industrial Category - F - Females  
594 non-null      int64  
36 Industrial Category - G - HHI - Persons  
594 non-null      int64  
37 Industrial Category - G - HHI - Males



594 non-null int64  
38 Industrial Category - G - HHI - Females  
594 non-null int64  
39 Industrial Category - G - Non HHI - Persons  
594 non-null int64  
40 Industrial Category - G - Non HHI - Males  
594 non-null int64  
41 Industrial Category - G - Non HHI - Females  
594 non-null int64  
42 Industrial Category - H - Persons  
594 non-null int64  
43 Industrial Category - H - Males  
594 non-null int64  
44 Industrial Category - H - Females  
594 non-null int64  
45 Industrial Category - I - Persons  
594 non-null int64  
46 Industrial Category - I - Males  
594 non-null int64  
47 Industrial Category - I - Females  
594 non-null int64  
48 Industrial Category - J - HHI - Persons  
594 non-null int64  
49 Industrial Category - J - HHI - Males  
594 non-null int64  
50 Industrial Category - J - HHI - Females  
594 non-null int64  
51 Industrial Category - J - Non HHI - Persons  
594 non-null int64  
52 Industrial Category - J - Non HHI - Males  
594 non-null int64  
53 Industrial Category - J - Non HHI - Females  
594 non-null int64  
54 Industrial Category - K to M - Persons  
594 non-null int64  
55 Industrial Category - K to M - Males  
594 non-null int64  
56 Industrial Category - K to M - Females  
594 non-null int64  
57 Industrial Category - N to O - Persons  
594 non-null int64  
58 Industrial Category - N to O - Males  
594 non-null int64  
59 Industrial Category - N to O - Females  
594 non-null int64  
60 Industrial Category - P to Q - Persons  
594 non-null int64  
61 Industrial Category - P to Q - Males

```

594 non-null      int64
   62 Industrial Category - P to Q - Females
594 non-null      int64
   63 Industrial Category - R to U - HHI - Persons
594 non-null      int64
   64 Industrial Category - R to U - HHI - Males
594 non-null      int64
   65 Industrial Category - R to U - HHI - Females
594 non-null      int64
   66 Industrial Category - R to U - Non HHI - Persons
594 non-null      int64
   67 Industrial Category - R to U - Non HHI - Males
594 non-null      int64
   68 Industrial Category - R to U - Non HHI - Females
594 non-null      int64
dtypes: int64(63), object(6)
memory usage: 320.3+ KB

```

```
[5]: data.columns
```

```

[5]: Index(['Table Code', 'State Code', 'District Code', 'Area Name',
          'Total/ Rural/ Urban', 'Age group',
          'Worked for 3 months or more but less than 6 months - Persons',
          'Worked for 3 months or more but less than 6 months - Males',
          'Worked for 3 months or more but less than 6 months - Females',
          'Worked for less than 3 months - Persons',
          'Worked for less than 3 months - Males',
          'Worked for less than 3 months - Females',
          'Industrial Category - A - Cultivators - Persons',
          'Industrial Category - A - Cultivators - Males',
          'Industrial Category - A - Cultivators - Females',
          'Industrial Category - A - Agricultural labourers - Persons',
          'Industrial Category - A - Agricultural labourers - Males',
          'Industrial Category - A - Agricultural labourers - Females',
          'Industrial Category - A - Plantation, Livestock, Forestry, Fishing,
Hunting and allied activities - Persons',
          'Industrial Category - A - Plantation, Livestock, Forestry, Fishing,
Hunting and allied activities - Males',
          'Industrial Category - A - Plantation, Livestock, Forestry, Fishing,
Hunting and allied activities - Females',
          'Industrial Category - B - Persons', 'Industrial Category - B - Males',
          'Industrial Category - B - Females',
          'Industrial Category - C - HHI - Persons',
          'Industrial Category - C - HHI - Males',
          'Industrial Category - C - HHI - Females',
          'Industrial Category - C - Non HHI - Persons',
          'Industrial Category - C - Non HHI - Males',

```

```

'Industrial Category - C - Non HHI - Females',
'Industrial Category - D & E - Persons',
'Industrial Category - D & E - Males',
'Industrial Category - D & E - Females',
'Industrial Category - F - Persons', 'Industrial Category - F - Males',
'Industrial Category - F - Females',
'Industrial Category - G - HHI - Persons',
'Industrial Category - G - HHI - Males',
'Industrial Category - G - HHI - Females',
'Industrial Category - G - Non HHI - Persons',
'Industrial Category - G - Non HHI - Males',
'Industrial Category - G - Non HHI - Females',
'Industrial Category - H - Persons', 'Industrial Category - H - Males',
'Industrial Category - H - Females',
'Industrial Category - I - Persons', 'Industrial Category - I - Males',
'Industrial Category - I - Females',
'Industrial Category - J - HHI - Persons',
'Industrial Category - J - HHI - Males',
'Industrial Category - J - HHI - Females',
'Industrial Category - J - Non HHI - Persons',
'Industrial Category - J - Non HHI - Males',
'Industrial Category - J - Non HHI - Females',
'Industrial Category - K to M - Persons',
'Industrial Category - K to M - Males',
'Industrial Category - K to M - Females',
'Industrial Category - N to O - Persons',
'Industrial Category - N to O - Males',
'Industrial Category - N to O - Females',
'Industrial Category - P to Q - Persons',
'Industrial Category - P to Q - Males',
'Industrial Category - P to Q - Females',
'Industrial Category - R to U - HHI - Persons',
'Industrial Category - R to U - HHI - Males',
'Industrial Category - R to U - HHI - Females',
'Industrial Category - R to U - Non HHI - Persons',
'Industrial Category - R to U - Non HHI - Males',
'Industrial Category - R to U - Non HHI - Females'],
dtype='object')

```

```
[6]: data.isnull().sum()
```

```

[6]: Table Code          0
     State Code          0
     District Code       0
     Area Name           0
     Total/ Rural/ Urban 0
     ..

```

```

Industrial Category - R to U - HHI - Males      0
Industrial Category - R to U - HHI - Females    0
Industrial Category - R to U - Non HHI - Persons 0
Industrial Category - R to U - Non HHI - Males   0
Industrial Category - R to U - Non HHI - Females 0
Length: 69, dtype: int64

```

```

[7]: dummy=data.copy()
      dummy.head(5)

```

```

[7]:  Table Code State Code District Code      Area Name Total/ Rural/ Urban \
0    B0806SC      `33      `000 State - TAMIL NADU      Total
1    B0806SC      `33      `000 State - TAMIL NADU      Total
2    B0806SC      `33      `000 State - TAMIL NADU      Total
3    B0806SC      `33      `000 State - TAMIL NADU      Total
4    B0806SC      `33      `000 State - TAMIL NADU      Total

```

```

Age group Worked for 3 months or more but less than 6 months - Persons \
0    Total      1200828
1    `5-14      27791
2    15-34      514340
3    35-59      542581
4    60+      115103

```

```

Worked for 3 months or more but less than 6 months - Males \
0      589003
1      14125
2      259560
3      251957
4      62833

```

```

Worked for 3 months or more but less than 6 months - Females \
0      611825
1      13666
2      254780
3      290624
4      52270

```

```

Worked for less than 3 months - Persons ... \
0      221386 ...
1      2447 ...
2      92423 ...
3      99202 ...
4      27165 ...

```

```

Industrial Category - N to O - Females \
0      3565

```

1	11
2	1754
3	1619
4	175

	Industrial Category - P to Q - Persons \
0	11080
1	122
2	7536
3	3205
4	211

	Industrial Category - P to Q - Males \
0	4019
1	71
2	2718
3	1131
4	93

	Industrial Category - P to Q - Females \
0	7061
1	51
2	4818
3	2074
4	118

	Industrial Category - R to U - HHI - Persons \
0	16833
1	427
2	8346
3	6591
4	1457

	Industrial Category - R to U - HHI - Males \
0	4266
1	169
2	2127
3	1487
4	483

	Industrial Category - R to U - HHI - Females \
0	12567
1	258
2	6219
3	5104
4	974

	Industrial Category - R to U - Non HHI - Persons \
0	122088
1	19305
2	68929
3	26498
4	7065

	Industrial Category - R to U - Non HHI - Males \
0	55801
1	9774
2	32803
3	9675
4	3394

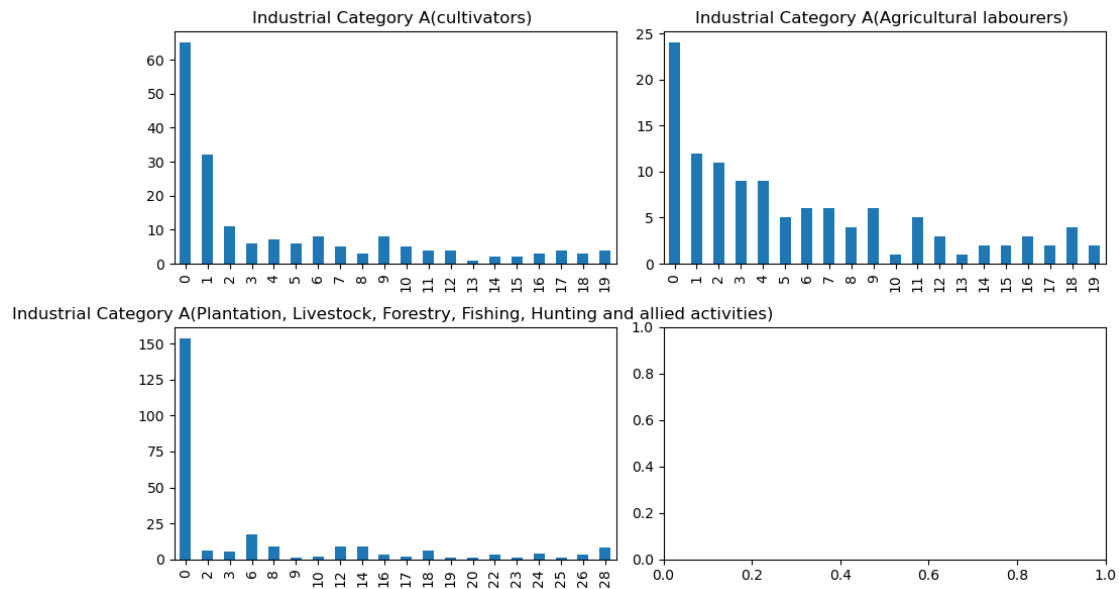
	Industrial Category - R to U - Non HHI - Females
0	66287
1	9531
2	36126
3	16823
4	3671

[5 rows x 69 columns]

```
[8]: fig,axrr=plt.subplots(2,2,figsize=(10,6))
ax=axrr[0][0]
ax.set_title("Industrial Category A(cultivators) ")
dummy['Industrial Category - A - Cultivators - Persons'].value_counts().
    ↪sort_index().head(20).plot.bar(ax=axrr[0][0])

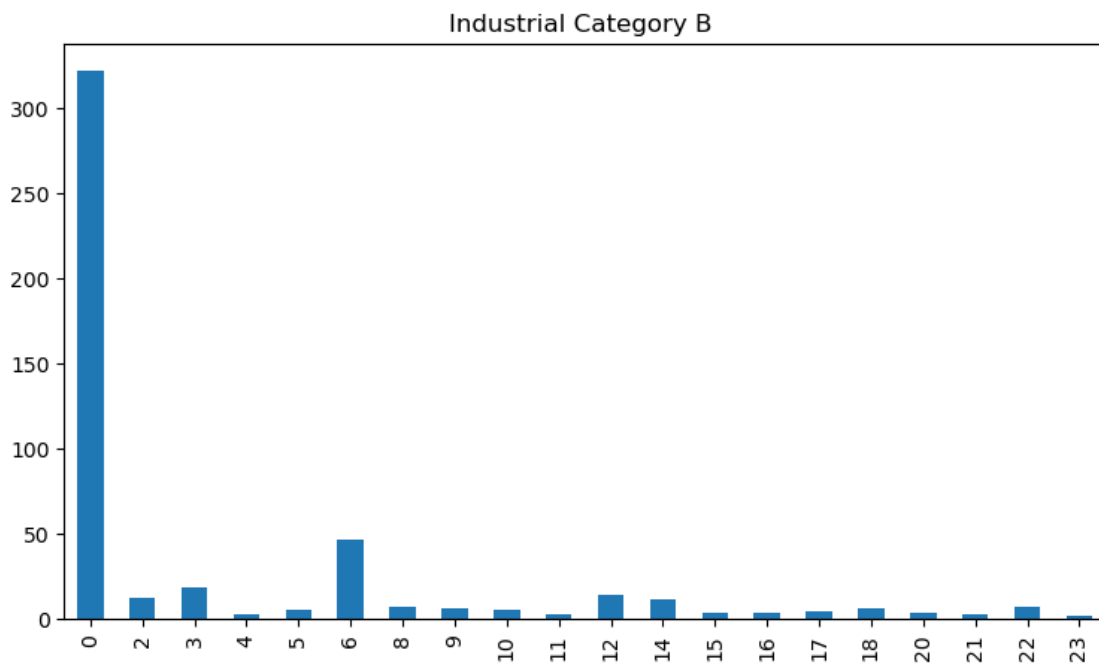
ax=axrr[0][1]
ax.set_title("Industrial Category A(Agricultural labourers) ")
dummy['Industrial Category - A - Agricultural labourers - Persons'].
    ↪value_counts().sort_index().head(20).plot.bar(ax=axrr[0][1])

ax=axrr[1][0]
ax.set_title("Industrial Category A(Plantation, Livestock, Forestry, Fishing,
    ↪Hunting and allied activities) ")
dummy['Industrial Category - A - Plantation, Livestock, Forestry, Fishing,
    ↪Hunting and allied activities - Persons'].value_counts().sort_index().
    ↪head(20).plot.bar(ax=axrr[1][0])
plt.tight_layout()
plt.show()
```



```
[9]: fig,axrr=plt.subplots(1,1,figsize=(9,5))
plt.title("Industrial Category B ")
dummy['Industrial Category - B - Persons'].value_counts().sort_index().head(20).
    plot.bar()
```

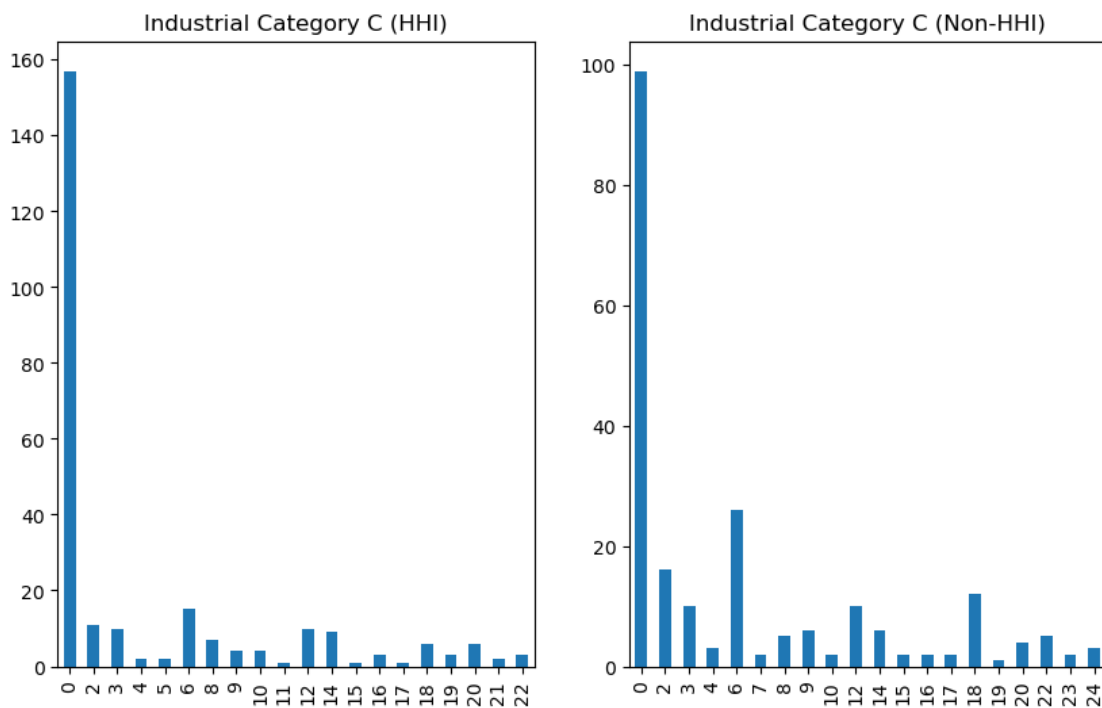
```
[9]: <Axes: title={'center': 'Industrial Category B '}>
```



```
[10]: fig,axrr=plt.subplots(1,2,figsize=(10,6))
ax=axrr[0]
ax.set_title("Industrial Category C (HHI)")
dummy['Industrial Category - C - HHI - Persons'].value_counts().sort_index().
    ↪head(20).plot.bar(ax=axrr[0])

ax=axrr[1]
ax.set_title("Industrial Category C (Non-HHI)")
dummy['Industrial Category - C - Non HHI - Persons'].value_counts().
    ↪sort_index().head(20).plot.bar(ax=axrr[1])
```

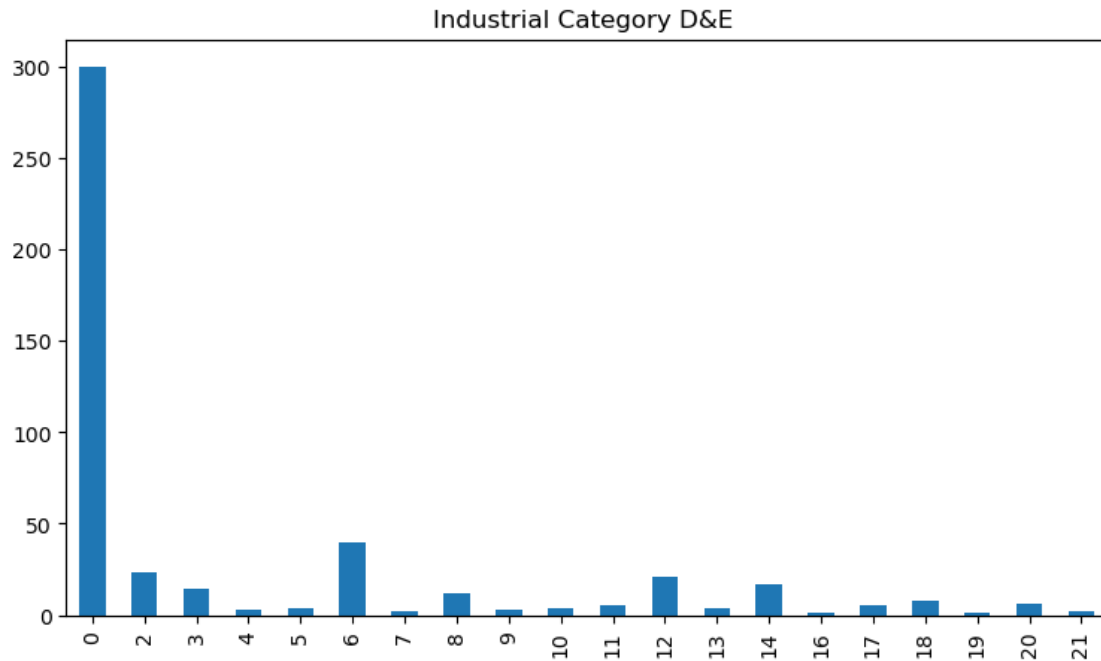
```
[10]: <Axes: title={'center': 'Industrial Category C (Non-HHI)'}>
```



```
[11]: fig,axrr=plt.subplots(1,1,figsize=(9,5))
plt.title("Industrial Category D&E ")
dummy['Industrial Category - D & E - Persons'].value_counts().sort_index().
    ↪head(20).plot.bar()
```

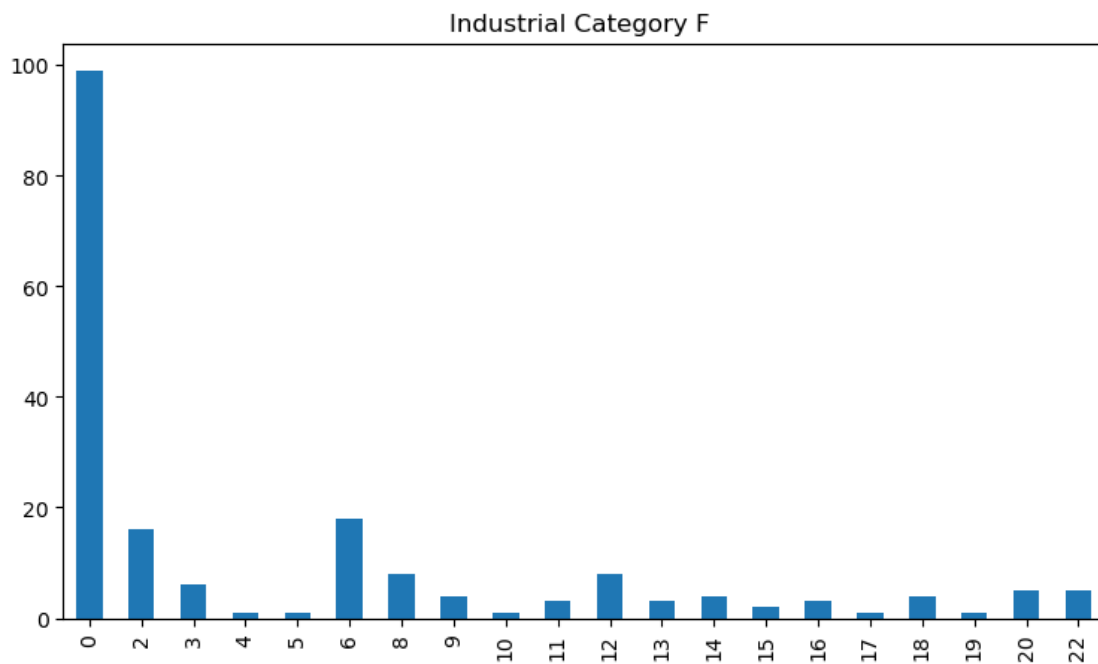
```
[11]: <Axes: title={'center': 'Industrial Category D&E '}>
```





```
[12]: fig,axrr=plt.subplots(1,1,figsize=(9,5))
plt.title("Industrial Category F ")
dummy['Industrial Category - F - Persons'].value_counts().sort_index().head(20).
    plot.bar()
```

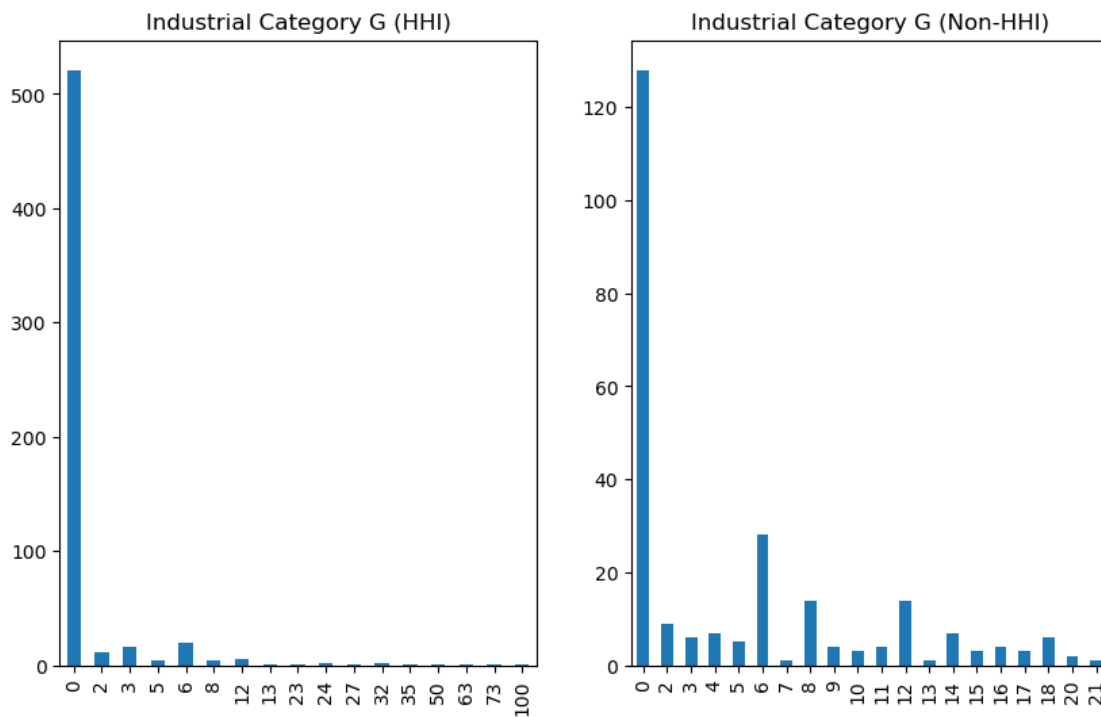
```
[12]: <Axes: title={'center': 'Industrial Category F '}>
```



```
[13]: fig,axrr=plt.subplots(1,2,figsize=(10,6))
ax=axrr[0]
ax.set_title("Industrial Category G (HHI)")
dummy['Industrial Category - G - HHI - Persons'].value_counts().sort_index().
    ↳head(20).plot.bar(ax=axrr[0])

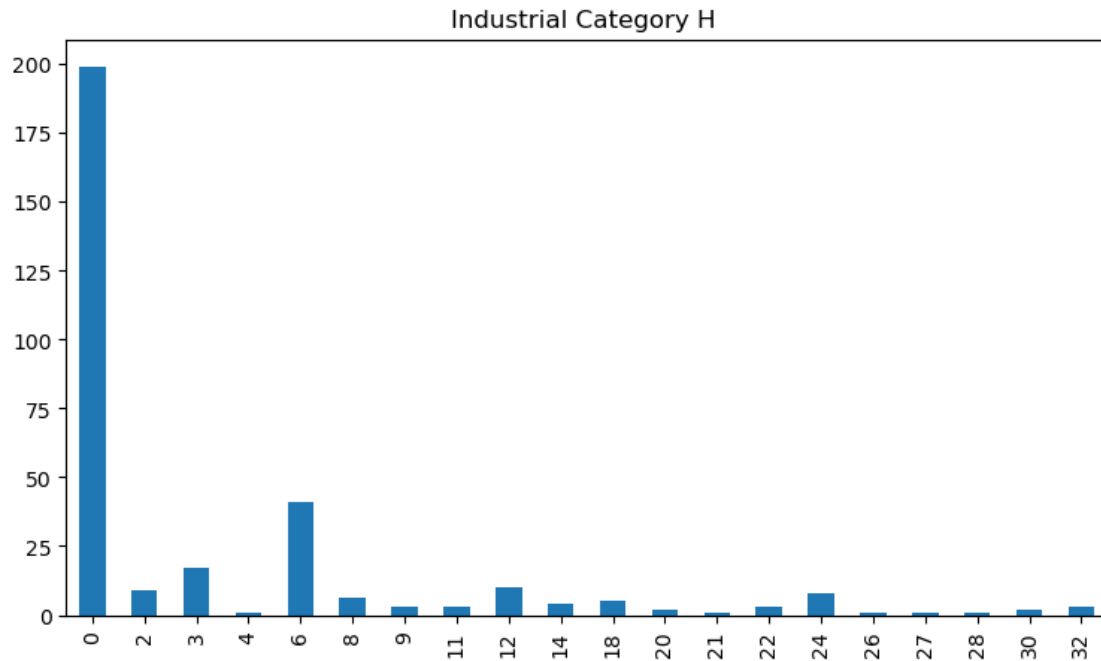
ax=axrr[1]
ax.set_title("Industrial Category G (Non-HHI)")
dummy['Industrial Category - G - Non HHI - Persons'].value_counts().
    ↳sort_index().head(20).plot.bar(ax=axrr[1])
```

```
[13]: <Axes: title={'center': 'Industrial Category G (Non-HHI)'}>
```



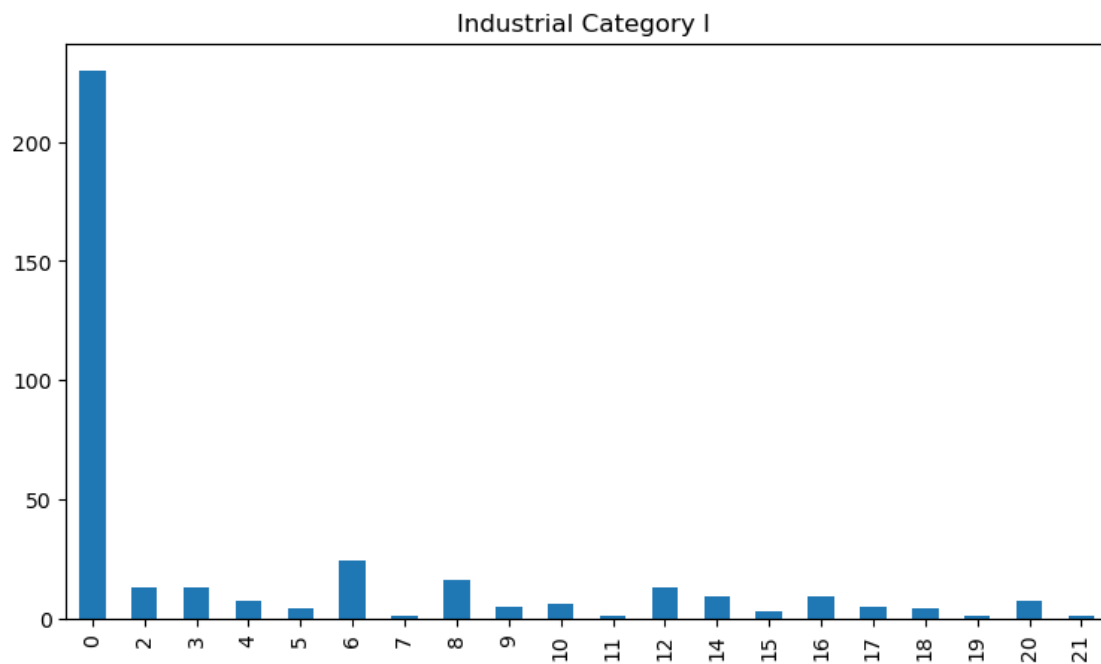
```
[14]: fig,axrr=plt.subplots(1,1,figsize=(9,5))
plt.title("Industrial Category H ")
dummy['Industrial Category - H - Persons'].value_counts().sort_index().head(20).
    ↳plot.bar()
```

```
[14]: <Axes: title={'center': 'Industrial Category H '}>
```



```
[16]: fig,axrr=plt.subplots(1,1,figsize=(9,5))
plt.title("Industrial Category I ")
dummy['Industrial Category - I - Persons'].value_counts().sort_index().head(20).
    ↪plot.bar()
```

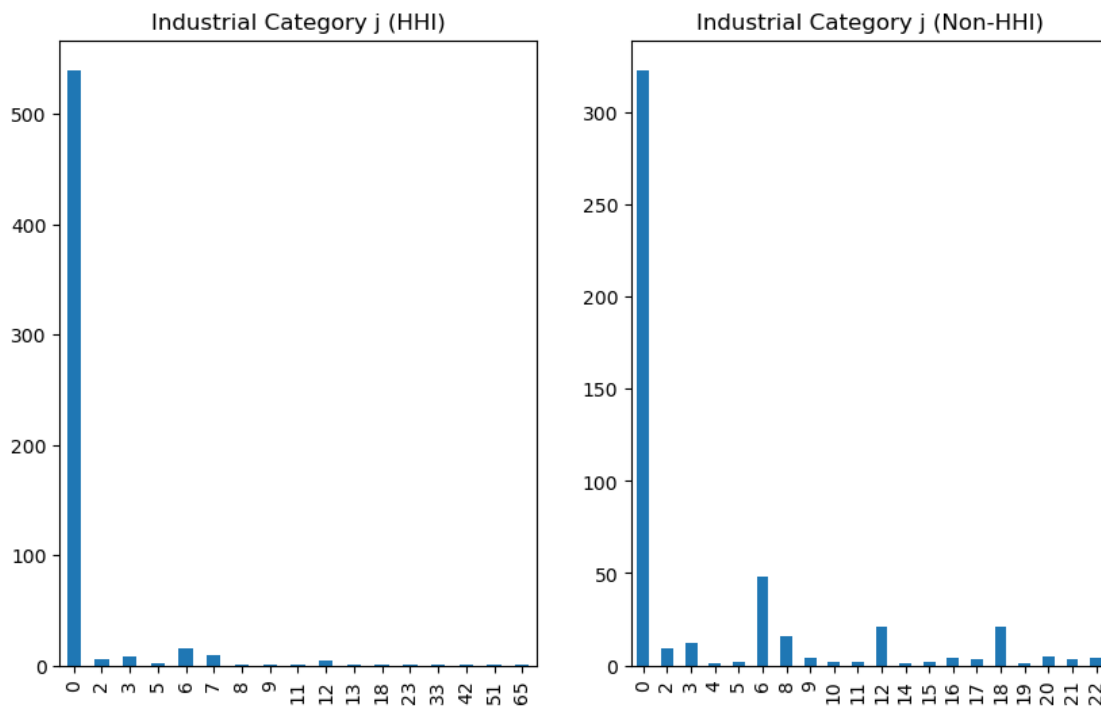
```
[16]: <Axes: title={'center': 'Industrial Category I '}>
```



```
[17]: fig,axrr=plt.subplots(1,2,figsize=(10,6))
ax=axrr[0]
ax.set_title("Industrial Category j (HHI)")
dummy['Industrial Category - J - HHI - Persons'].value_counts().sort_index().
    ↪head(20).plot.bar(ax=axrr[0])

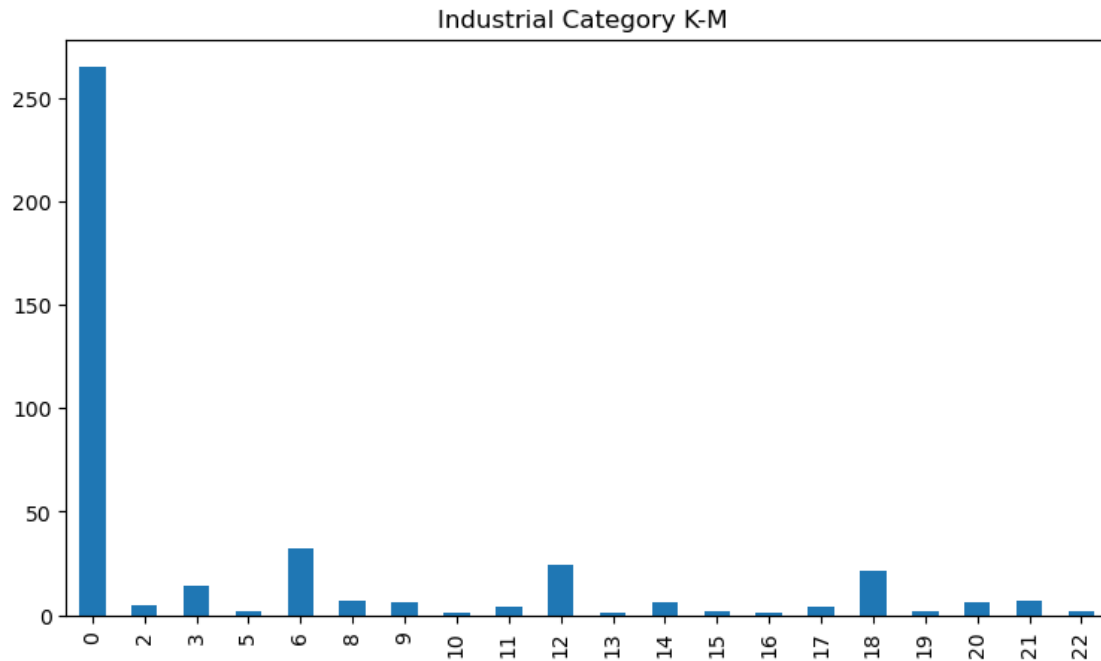
ax=axrr[1]
ax.set_title("Industrial Category j (Non-HHI)")
dummy['Industrial Category - J - Non HHI - Persons'].value_counts().
    ↪sort_index().head(20).plot.bar(ax=axrr[1])
```

```
[17]: <Axes: title={'center': 'Industrial Category j (Non-HHI)'}>
```



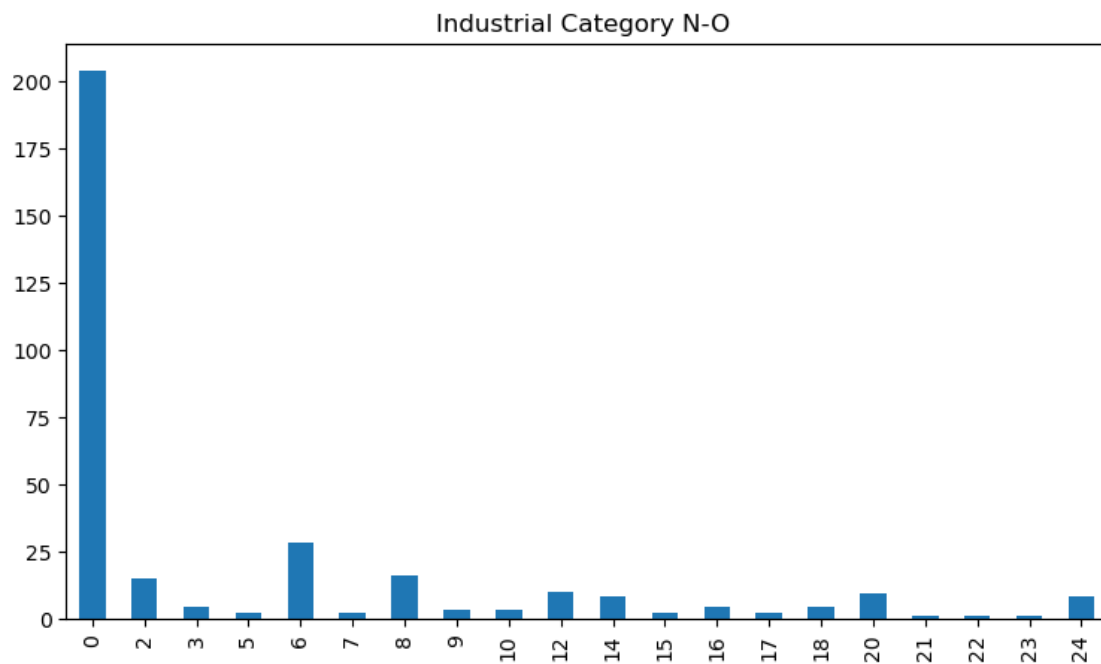
```
[18]: fig,axrr=plt.subplots(1,1,figsize=(9,5))
plt.title("Industrial Category K-M ")
dummy['Industrial Category - K to M - Persons'].value_counts().sort_index().
    ↪head(20).plot.bar()
```

```
[18]: <Axes: title={'center': 'Industrial Category K-M '}>
```



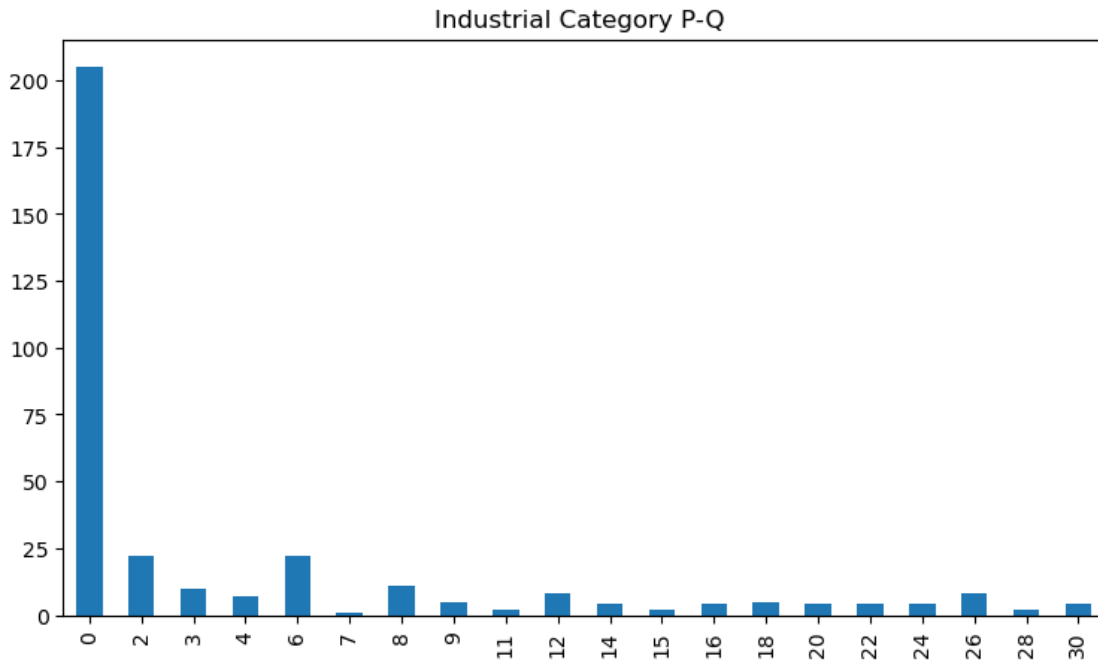
```
[19]: fig,axrr=plt.subplots(1,1,figsize=(9,5))
plt.title("Industrial Category N-0 ")
dummy['Industrial Category - N to 0 - Persons'].value_counts().sort_index().
    head(20).plot.bar()
```

[19]: <Axes: title={'center': 'Industrial Category N-0 '}>



```
[20]: fig,axrr=plt.subplots(1,1,figsize=(9,5))
plt.title("Industrial Category P-Q ")
dummy['Industrial Category - P to Q - Persons'].value_counts().sort_index().
↳head(20).plot.bar()
```

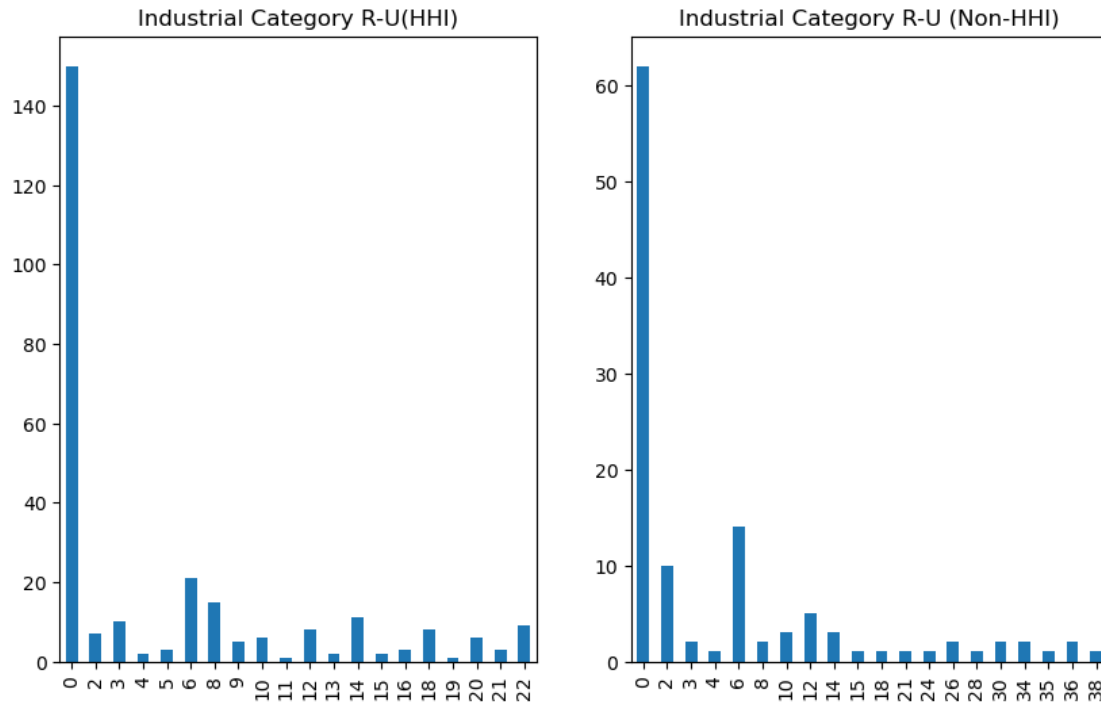
```
[20]: <Axes: title={'center': 'Industrial Category P-Q '}>
```



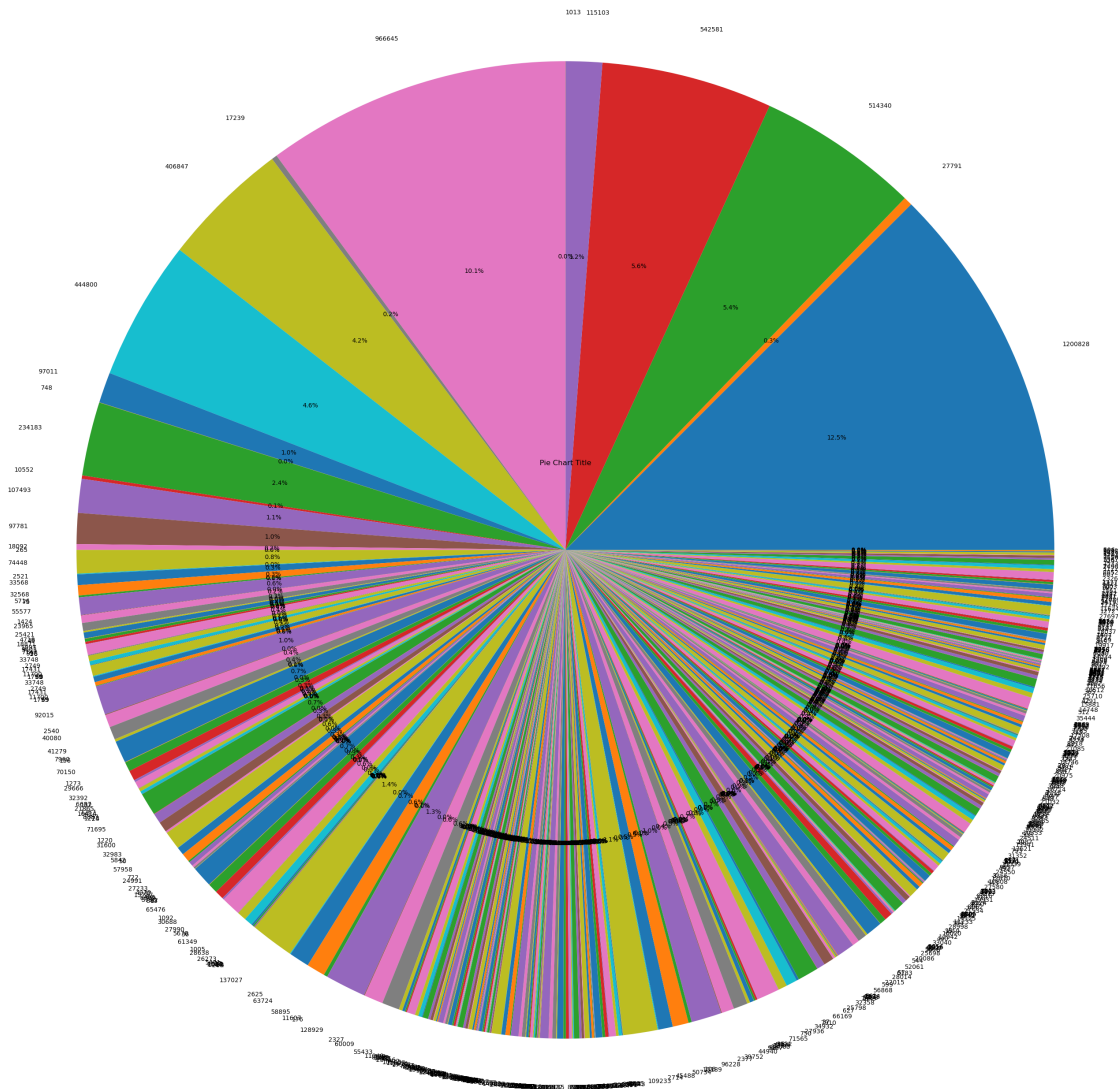
```
[21]: fig,axrr=plt.subplots(1,2,figsize=(10,6))
ax=axrr[0]
ax.set_title("Industrial Category R-U(HHI)")
dummy['Industrial Category - R to U - HHI - Persons'].value_counts().
↳sort_index().head(20).plot.bar(ax=axrr[0])

ax=axrr[1]
ax.set_title("Industrial Category R-U (Non-HHI)")
dummy['Industrial Category - R to U - Non HHI - Persons'].value_counts().
↳sort_index().head(20).plot.bar(ax=axrr[1])
```

```
[21]: <Axes: title={'center': 'Industrial Category R-U (Non-HHI)'}>
```



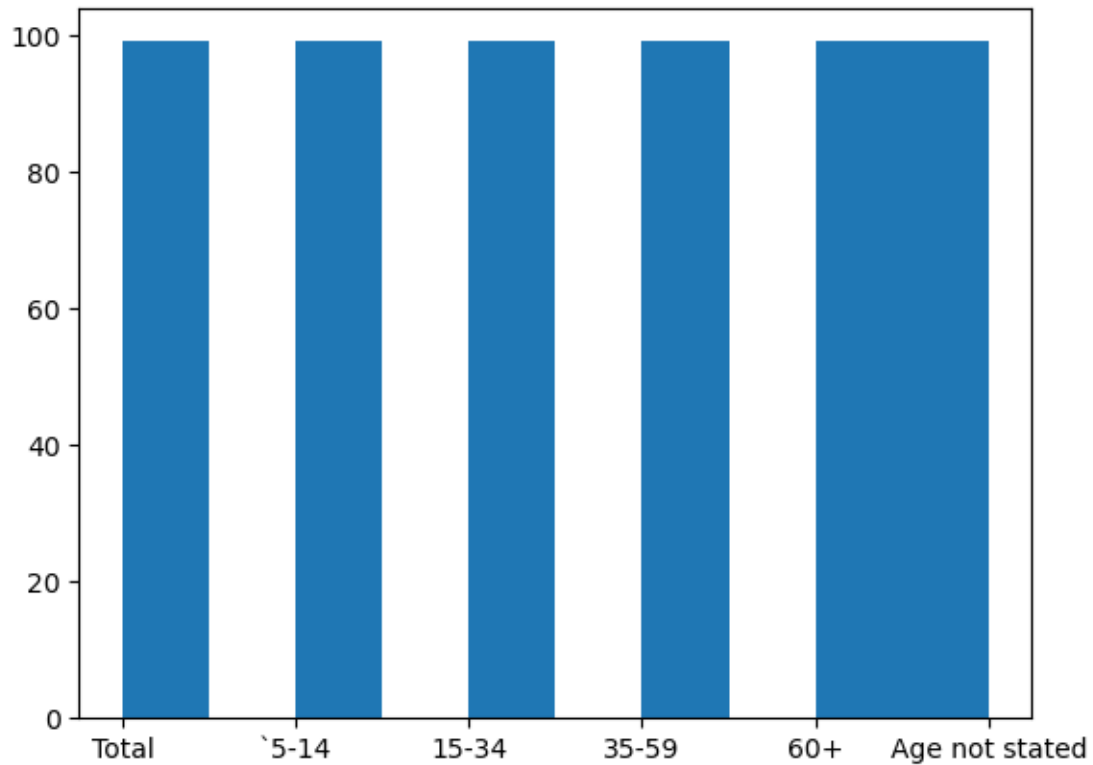
```
[19]: import matplotlib.pyplot as plt
pie_chart_data = data['Worked for 3 months or more but less than 6 months - Persons']
plt.pie(pie_chart_data, labels=data['Worked for 3 months or more but less than 6 months - Persons'], autopct='%1.1f%%',radius=7.5)
plt.title('Pie Chart Title')
plt.show()
```



```
[20]: Age = data["Age group"]
plt.hist(Age)
```

```
[20]: (array([99., 0., 99., 0., 99., 0., 99., 0., 99., 99.]),
array([0. , 0.5, 1. , 1.5, 2. , 2.5, 3. , 3.5, 4. , 4.5, 5. ]),
<BarContainer object of 10 artists>)
```





```
[53]: import matplotlib.pyplot as plt

age_groups = data['Age group'][:5]
agricultural_labourers = data['Industrial Category - A - Agricultural labourers,
    ↳ Persons'][:5]
cultivators = data['Industrial Category - A - Cultivators - Persons'][:5]
other_allied_activites=data['Industrial Category - A - Plantation, Livestock,
    ↳ Forestry, Fishing, Hunting and allied activities - Persons'][:5]

bar_width = 0.35

x = range(len(age_groups))

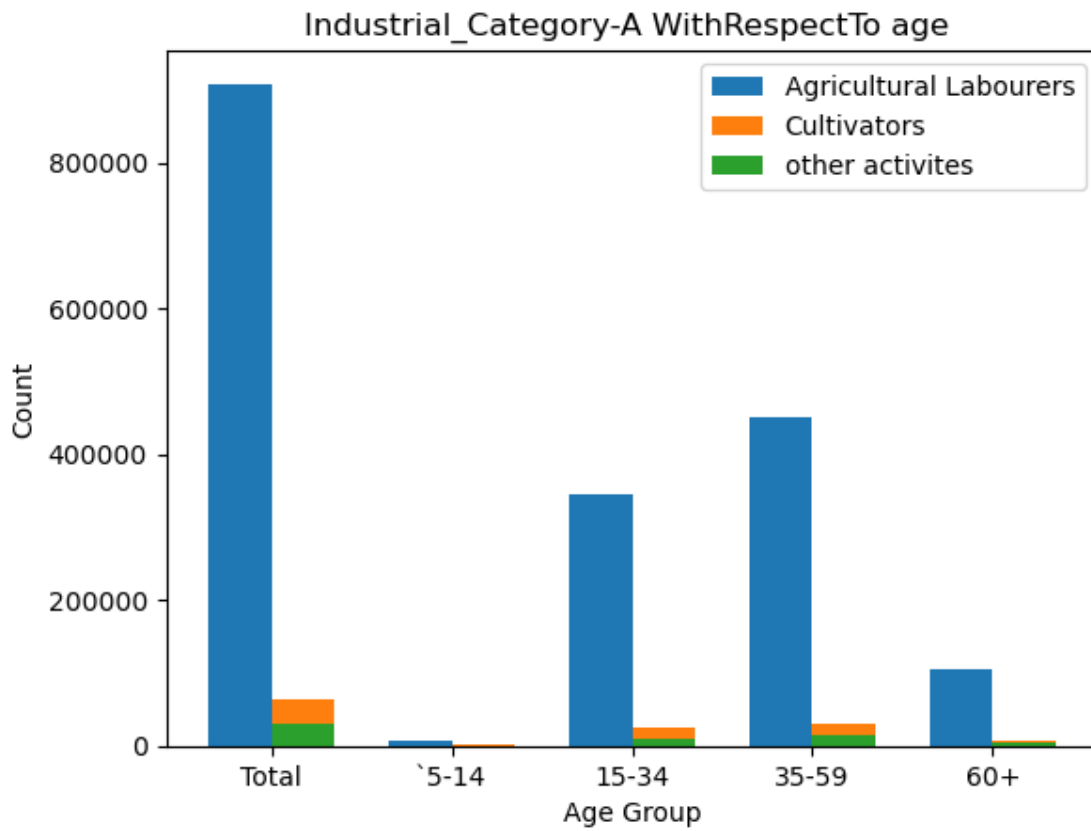
plt.bar(x, agricultural_labourers, width=bar_width, label='Agricultural
    ↳ Labourers')
plt.bar([i + bar_width for i in x], cultivators, width=bar_width,
    ↳ label='Cultivators')
plt.bar([i + bar_width for i in x], other_allied_activites, width=bar_width,
    ↳ label='other activites')
```

```

plt.xticks([i + bar_width/2 for i in x], age_groups)
plt.xlabel('Age Group')
plt.ylabel('Count')
plt.legend()
plt.title('Industrial_Category-A WithRespectTo age ')

plt.show()

```



```

[10]: import pandas as pd
import matplotlib.pyplot as plt
data=pd.read_csv("C:/Users/abuba/Downloads/DDW_B06SC_3300_State_TAMIL_NADU-2011.
↪csv")

age_groups = data['Age group'][:5]
c_HHI = data['Industrial Category - C - HHI - Persons'][:5]
c_nonHHI = data['Industrial Category - C - Non HHI - Persons'][:5]
bar_width = 0.35

x = range(len(age_groups))

```

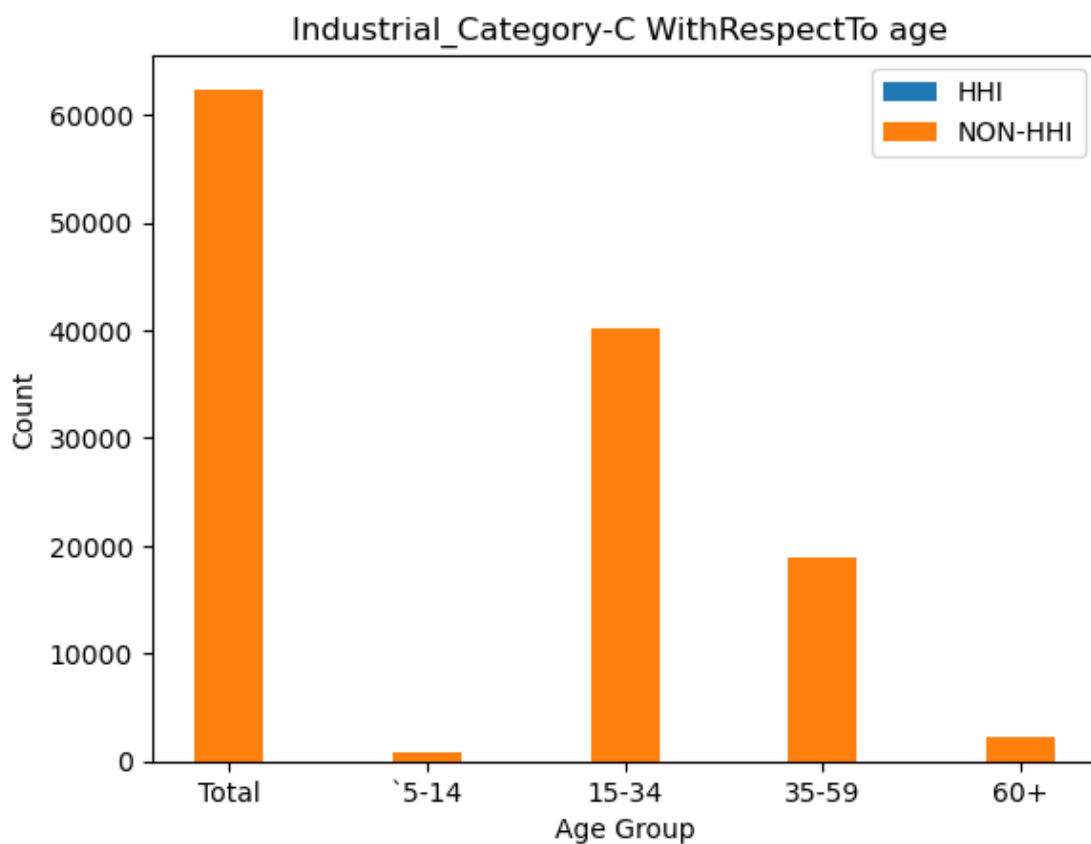
```

plt.bar(x,c_HHI, width=bar_width, label='HHI')
plt.bar(x,c_nonHHI, width=bar_width, label='NON-HHI')

plt.xticks( x, age_groups)
plt.xlabel('Age Group')
plt.ylabel('Count')
plt.legend()
plt.title('Industrial_Category-C WithRespectTo age ')

plt.show()

```



```

[11]: age_groups = data['Age group'][:5]
g_HHI = data['Industrial Category - G - HHI - Persons'][:5]
g_nonHHI = data['Industrial Category - G - Non HHI - Persons'][:5]
bar_width = 0.35

x = range(len(age_groups))

```

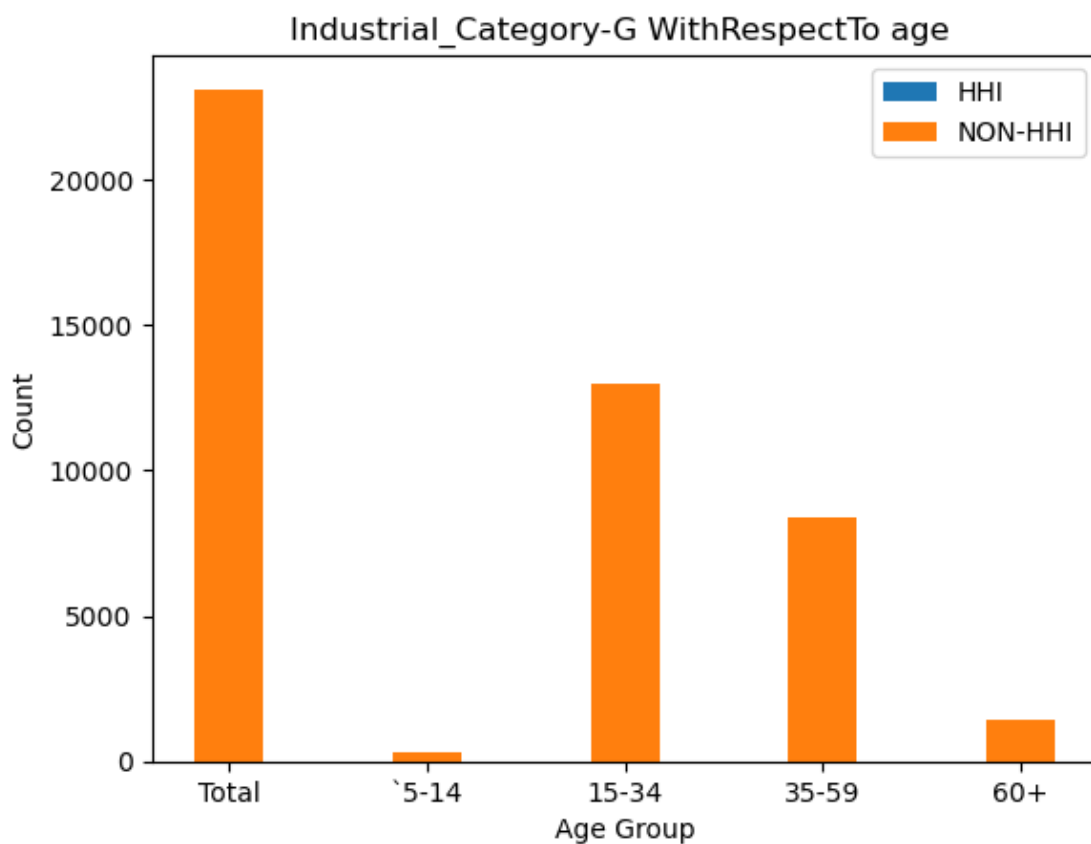
```

plt.bar(x,g_HHI, width=bar_width, label='HHI')
plt.bar(x,g_nonHHI, width=bar_width, label='NON-HHI')

plt.xticks( x, age_groups)
plt.xlabel('Age Group')
plt.ylabel('Count')
plt.legend()
plt.title('Industrial_Category-G WithRespectTo age ')

plt.show()

```



```

[12]: age_groups = data['Age group'][:5]
J_HHI = data['Industrial Category - J - HHI - Persons'][:5]
J_nonHHI = data['Industrial Category - J - Non HHI - Persons'][:5]
bar_width = 0.35

x = range(len(age_groups))

```

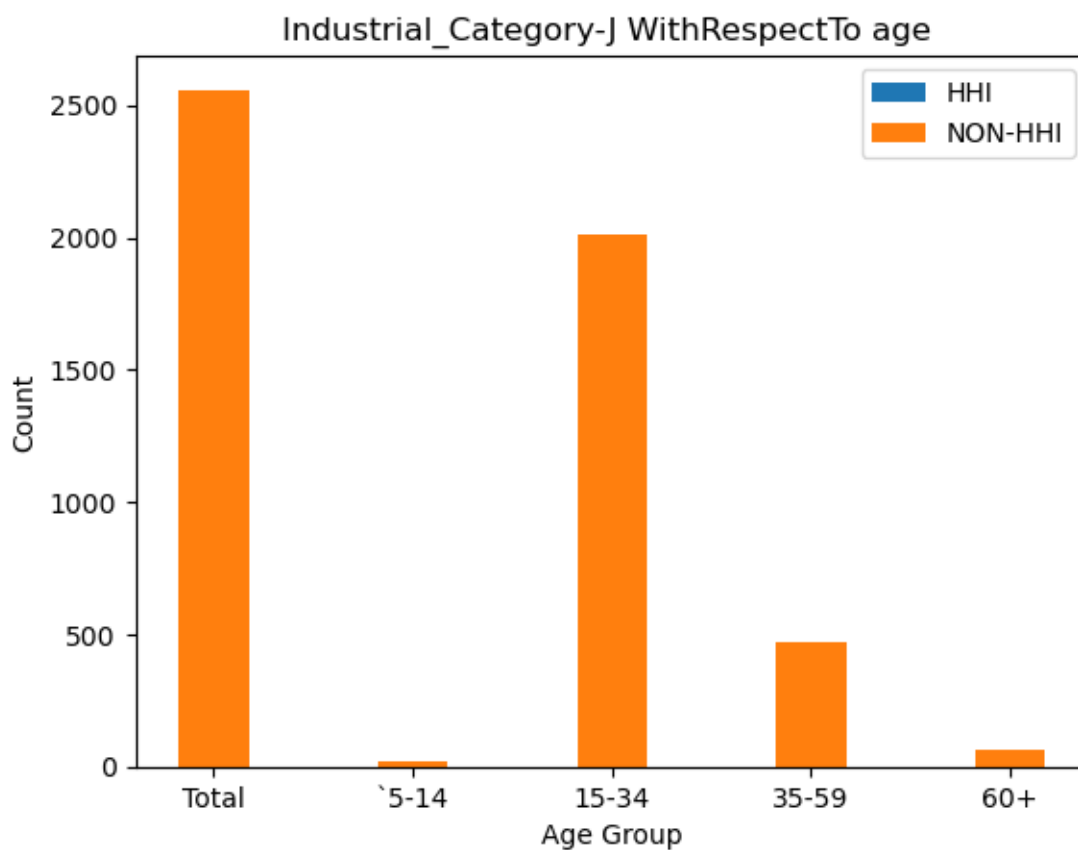
```

plt.bar(x,J_HHI, width=bar_width, label='HHI')
plt.bar(x,J_nonHHI, width=bar_width, label='NON-HHI')

plt.xticks( x, age_groups)
plt.xlabel('Age Group')
plt.ylabel('Count')
plt.legend()
plt.title('Industrial_Category-J WithRespectTo age ')

plt.show()

```



```

[8]: import pandas as pd
import matplotlib.pyplot as plt
data=pd.read_csv("C:/Users/abuba/Downloads/DDW_B06SC_3300_State_TAMIL_NADU-2011.
↪csv")
age_groups = data['Age group'][:5]
B = data['Industrial Category - B - Persons'][:5]
D_and_E = data['Industrial Category - D & E - Persons'][:5]

```

```

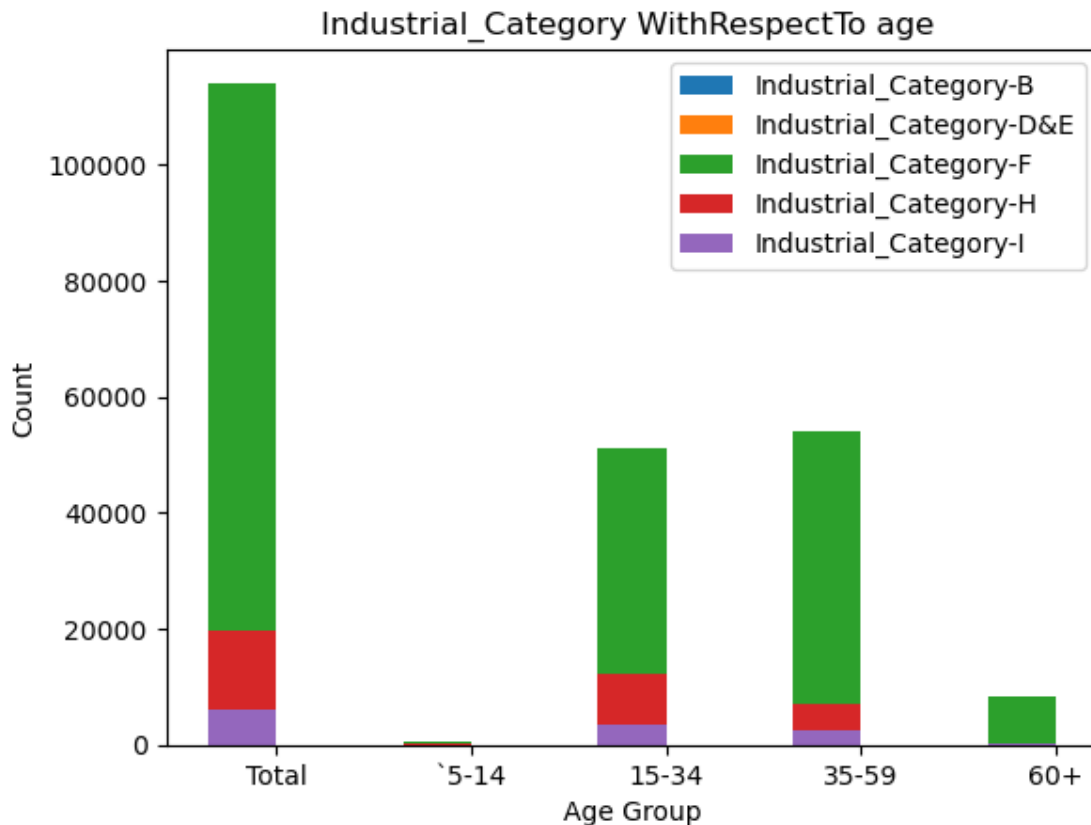
F=data['Industrial Category - F - Persons'][:5]
H=data['Industrial Category - H - Persons'][:5]
I=data['Industrial Category - I - Persons'][:5]
bar_width = 0.35

x = range(len(age_groups))

plt.bar(x,B, width=bar_width, label='Industrial_Category-B')
plt.bar(x,D_and_E, width=bar_width, label='Industrial_Category-D&E')
plt.bar(x,F, width=bar_width, label='Industrial_Category-F')
plt.bar(x,H, width=bar_width, label='Industrial_Category-H')
plt.bar(x,I, width=bar_width, label='Industrial_Category-I')
plt.xticks([i + bar_width/2 for i in x], age_groups)
plt.xlabel('Age Group')
plt.ylabel('Count')
plt.legend()
plt.title('Industrial_Category WithRespectTo age ')

plt.show()

```



## **CONCLUSION**

Marginal workers in TN face several challenges that prevent them from improving their financial and social status. Our analysis approach, which involved primary data collection and secondary data analysis, helped us better understand their situation and identify potential solutions. We hope this document provides valuable insights to stakeholders interested in improving the conditions of marginal workers in TN.