Date:25.10.2023

Team ID:4498

Project Title:Assessment of Marginal Workers in Tamil Nadu- A Socioeconomic Analysis

Importing the necessary packages

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

Loading dataset

```
dataset = pd.read_csv("/content/DDW_B06SC_3300_State_TAMIL_NADU-2011.csv")

dataset.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
dataset.head()
  Table Code State Code District Code           Area Name
Total/
Rural/ Urban  \
0    B0806SC        `33          `000  State - TAMIL
NADU
Tota
1    B0806SC        `33          `000  State - TAMIL
NADU
Tota
2    B0806SC        `33          `000  State - TAMIL
NADU
Tota
3    B0806SC        `33          `000  State - TAMIL
NADU
Tota
4    B0806SC        `33          `000  State - TAMIL
NADU
Tota
  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                                                   1412
2                                                 259560
3                                                 251957
4                                                   6283
   Worked for 3 months or more but less than 6 months - Females
\
0                                                 611825
1                                                   1366
2                                                 254780
3                                                 290624
4                                                   5227
   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                                       1
2                                    1754
3                                    1619
4                                     175
   Industrial Category - P to Q - Persons  \
0                                    1108
1                                      12
2                                     753
3                                     320
4                                      21
   Industrial Category - P to Q - Males  \
0                                   401
1                                     7
2                                   271
3                                   113
4                                     9
   Industrial Category - P to Q - Females  \
0                                    7061
1                                       5
2                                    4818
3                                    2074
4                                     118
```

```
   Industrial Category - R to U - HHI - Persons  \
0                                          16833
1                                           42
2                                          834
3                                          659
4                                          145
   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                                          25
2                                         621
3                                         510
4                                          97
   Industrial Category - R to U - Non HHI - Persons  \
0                                             122088
1                                             19305
2                                             68929
3                                             26498
4                                             706
   Industrial Category - R to U - Non HHI - Males  \
0                                         5580
1                                          977
2                                         3280
3                                          967
4                                          339
   Industrial Category - R to U - Non HHI - Females
0                                          66287  1
9531  2                                       36126
3                                          16823  4
3671

[5 rows x 69 columns]
dataset.columns
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') dataset.isnull()

     Table Code  State Code  District Code  Area Name  Total/ Rural/
Urban  \
0         False       False          False      False
False
1         False       False          False      False
False
2         False       False          False      False
False
3         False       False          False      False
False
4         False       False          False      False
False
..          ...         ...            ...        ...
...
589       False       False          False      False
False
590       False       False          False      False
False
591       False       False          False      False
False
592       False       False          False      False
False
593       False       False          False      False
          False

     Age group  Worked for 3 months or more but less than 6 months -
Persons  \
```

0	False	False
1	False	False

```
2         False                                                  False

3         False                                                  False

4        False                                                 False     ..

...                                                      ...

589       False                                                  False

590       False                                                  False

591       False                                                  False

592       False                                                  False

593       False                                                  False
     Worked for 3 months or more but less than 6 months - Males
\
0                                                    False
1                                                    False
2                                                    False
3                                                    False
4                                                    False
..                                                     ..
589                                                  False
590                                                  False
591                                                  False
592                                                  False
593                                                  False
     Worked for 3 months or more but less than 6 months - Females
\
0                                                    False
1                                                    False
2                                                    False
3                                                    False
4                                                    False
..                                                     ..
589                                                  False
590                                                  False
591                                                  False
592                                                  False
593                                                  False
     Worked for less than 3 months - Persons  ...  \
0                                      False  ...
1                                      False  ...
2                                      False  ...
```

```
3                                        False  ...
4                                        False  ...
..                                         ...  ...
589                                      False  ...
590                                      False  ...
591                                      False  ...
592                                      False  ...
593                                      False  ...
     Industrial Category - N to O - Females  \
0                                       False
1                                       False
2                                       False   .
3                                       False
4                                       False
..                                        ..
589                                     False
590                                     False
591                                     False
592                                     False
593                                     False
     Industrial Category - P to Q - Persons  \
0                                       False
1                                       False
2                                       False   .
3                                       False
4                                       False
..                                        ..
589                                     False
590                                     False
```

```
591                                    Fals
                                       e
592                                    Fals
                                       e
593                                    Fals
                                       e




     Industrial Category - P to Q - Males  \
0                                      Fals
1                                      Fals
2                                      Fals
3                                      Fals
4                                      Fals
..                                       ..
589                                    Fals
590                                    Fals
591                                    Fals
592                                    Fals
593                                    Fals
     Industrial Category - P to Q - Females  \
0                                      False
```

```
1     False
2     False
3     False
4     False   ..
...    589
False
590                                    False
591                                    False
592                                    False
593                                    False
     Industrial Category - R to U - HHI - Persons
\
0                                          Fals
1                                          Fals
2                                          Fals
3                                          Fals
4                                          Fals
..                                           ..
589                                        Fals
590                                        Fals
591                                        Fals
592                                        Fals
593                                        Fals
     Industrial Category - R to U - HHI - Males
\
0                                         Fals
                                          e
1                                         Fals
                                          e
2                                         Fals
                                          e
3                                         Fals
                                          e
4                                         Fals
                                          e
..                                          ..
589                                       Fals
                                          e
590                                       Fals
                                          e
591                                       Fals
                                          e
592                                       Fals
                                          e
593                                       Fals
                                          e
```

```
     Industrial Category - R to U - HHI - Females
\
0                                              Fals
1                                              Fals
2                                              Fals
3                                              Fals
4                                              Fals
..                                               ..
589                                            Fals
590                                            Fals
591                                            Fals
592                                            Fals
593                                            Fals
```

```
     Industrial Category - R to U - Non HHI - Persons  \
0                                                 Fals
1                                                 Fals
2                                                 Fals
3                                                 Fals
4                                                 Fals
..                                                  ..
589                                               Fals
590                                               Fals
591                                               Fals
592                                               Fals
593                                               Fals
     Industrial Category - R to U - Non HHI - Males  \
0                                               False
1                                               False
2                                               False
3                                               False
4                                               False  .
..                                                ..
589                                             False
590                                             False
591                                             False
592                                             False
593                                             False
     Industrial Category - R to U - Non HHI - Females
0                                                 False
1     False
2     False
3     False
4     False  ..
...
589                                               False
590                                               False
591                                               False
592                                               False
593                                               False
[594 rows x 69 columns]
```

Data aggregation

```
age_distribution = dataset.groupby('Age group')['Industrial Category -
R to U - Non HHI - Males'].mean()
print(age_distribution)
Age group

15-34             1325.373737
```

```
35-59                390.909091
60+                  137.131313
Age not stated         6.262626
Total               2254.585859
`5-14                394.909091
Name: Industrial Category - R to U - Non HHI - Males, dtype: float64
max_value_by_category = dataset.groupby('Industrial Category - A - Cultivators - Persons')['Industrial Category - A - Agricultural labourers - Persons'].max()
min_value_by_category = dataset.groupby('Worked for 3 months or more but less than 6 months -  Persons')['Worked for less than 3 months - Persons'].min()
dataset.max()
Table Code                                                      B0806SC
State Code                                                          `33
District Code                                                      `633
Area Name                                             State - TAMIL NADU
Total/ Rural/ Urban                                                Urban
                                                                     ...
Industrial Category - R to U - HHI - Males                          4266
Industrial Category - R to U - HHI - Females                       12567
Industrial Category - R to U - Non HHI - Persons                  122088
Industrial Category - R to U - Non HHI - Males                     55801
Industrial Category - R to U - Non HHI - Females                   66287
Length: 69, dtype: object
dataset.min()

Table Code
B0806SC
State Code
`33
District Code
`000
Area Name                                             District -
Ariyalur
Total/ Rural/ Urban
Rural
                                                                     ...

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: object
```

```
median_price_by_category = dataset.groupby('Industrial Category - A - Plantation, Livestock, Forestry, Fishing, Hunting and allied activities - Persons')['Industrial Category - B - Persons'].median()
dataset.median()
```

```
<ipython-input-41-e22d0dc743ec>:1: FutureWarning: The default value of numeric_only in DataFrame.median is deprecated. In a future version, it will default to False. In addition, specifying 'numeric_only=None' is deprecated. Select only valid columns or specify the value of numeric_only to silence this warning.   dataset.median()
```

```
Worked for 3 months or more but less than 6 months -  Persons
2225.5
Worked for 3 months or more but less than 6 months - Males
1147.0
Worked for 3 months or more but less than 6 months - Females
1076.0
Worked for less than 3 months - Persons
430.0
Worked for less than 3 months - Males
198.5
                                                                                ...
Industrial Category - R to U - HHI - Males
7.5
Industrial Category - R to U - HHI - Females
20.0
Industrial Category - R to U - Non HHI - Persons
263.5
Industrial Category - R to U - Non HHI - Males
123.0
Industrial Category - R to U - Non HHI - Females
135.0
Length: 63, dtype: float64
```

```
std_dev_by_category = dataset.groupby('Industrial Category - A - Cultivators - Persons')['Industrial Category - A - Agricultural labourers - Persons'].std() dataset.std()
```

```
<ipython-input-45-d926424df4d9>:1: FutureWarning: The default value of numeric_only in DataFrame.std is deprecated. In a future version, it will default to False. In addition, specifying 'numeric_only=None' is deprecated. Select only valid columns or specify the value of numeric_only to silence this warning.   dataset.std()
```

```
Worked for 3 months or more but less than 6 months -  Persons
76071.715917
Worked for 3 months or more but less than 6 months - Males
36864.822704
Worked for 3 months or more but less than 6 months - Females
39259.545337
Worked for less than 3 months - Persons
13909.621137
Worked for less than 3 months - Males
6127.047670
                                                                    .
..
Industrial Category - R to U - HHI - Males
265.230865
Industrial Category - R to U - HHI - Females
776.206806
Industrial Category - R to U - Non HHI - Persons
7325.241597
Industrial Category - R to U - Non HHI - Males
3352.811737
Industrial Category - R to U - Non HHI - Females
3988.125301
Length: 63, dtype: float64
```

DATA MANIPULATION

```
marginal_workers = dataset[dataset['Industrial Category - A -
Cultivators - Persons'] == 'Industrial Category - A - Agricultural
labourers - Persons'] print(marginal_workers)
```

```
Empty DataFrame
Columns: [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]
Index: []

[0 rows x 69 columns]
```

```
age_distribution = marginal_workers['Industrial Category - A -
Cultivators - Persons'].value_counts().sort_index()

print(age_distribution)
```

```
Series([], Name: Industrial Category - A - Cultivators - Persons,
dtype: int64)
```

```
sex_distribution = marginal_workers['Industrial Category - A -
Agricultural labourers - Persons'].value_counts()

print(sex_distribution)
```

```
Series([], Name: Industrial Category - A - Agricultural labourers -
Persons, dtype: int64)
```

```
x=dataset.drop('District Code',axis=1)
y =dataset['Area Name'] print(x)
    Table Code State Code            Area Name Total/ Rural/ Urban  \
0     B0806SC        `33   State - TAMIL NADU                Total
1     B0806SC        `33   State - TAMIL NADU                Total
2     B0806SC        `33   State - TAMIL NADU                Total
3     B0806SC        `33   State - TAMIL NADU                Total
4     B0806SC        `33   State - TAMIL NADU                 Total..
...       ...                 ...                 ... 589    B0806SC
`33  District - Tiruppur              Urban
590    B0806SC        `33  District - Tiruppur                Urban
591    B0806SC        `33  District - Tiruppur                Urban
592    B0806SC        `33  District - Tiruppur                Urban
593    B0806SC        `33  District - Tiruppur                Urban
          Age group  \
0              Total
1              `5-1
2              15-3
3              35-5
4                60
..               ..      .
589            `5-1    4
590            15-3
591            35-5
592              60
593              Age
                 not
                 stated
     Worked for 3 months or more but less than 6 months -  Persons  \
0                                                  1200828
1                                                    27791
2                                                   514340
3                                                   542581
4                                                   115103
..                                                     ..
589                                                    27
590                                                    3285
591                                                    3672
592                                                    69
593
     Worked for 3 months or more but less than 6 months - Males  \
0                                                  589003
1                                                    14125
2                                                   259560
3                                                   251957
4                                                    62833
```

```
..                                                    ...
589                                                   129
590                                                  1654
591                                                  1769
592                                                   399
593                                                     1
     Worked for 3 months or more but less than 6 months
- Females  \
0                                                  611825
1                                                   13666
2                                                  254780
3                                                  290624
4                                                     52270
..                                                    ..
589                                                   14
590                                                  1631
591                                                  1903
592                                                   29
593
     Worked for less than 3 months - Persons  \
0                                        221386
1                                         244
2                                        9242
3                                        9920
4                                        2716   5
..                                         ..

589                                         1
590                                        47
591                                        52
592                                        11
593
     Worked for less than 3 months - Males  ...  \
0                                       99368  ..
1                                        1247  ..
2                                       43892  ..
3                                       40691  ..
4                                       13465  ..
..                                        ...  ..
589                                         6  ..
590                                       238  ..
591                                       247  ..
592                                        50  ..
593                                         0  ..
```

```
     Industrial Category - N to O - Females  \
0                                        356
1                                          1
2                                        175
```

```
3     1619
4     175   ..
...
589                                      0
590                                     20
591                                     33
592                                      0
593                                      0
     Industrial Category - P to Q - Persons  \
0                                    11080
1                                       12
2                                      753
3                                      320
4                                       21
..                                      ..   .
589                                          0
590                                      4
591                                      3
592
593
     Industrial Category - P to Q - Males  \
0                                     4019
1                                        7
2                                     2718
3                                     1131
4                                        9
..                                     ...
589
590                                      1
591                                      1
592
593
     Industrial Category - P to Q - Females  \
0                                      706
1                                        5
2                                      481
3                                      207
4                                       11
..                                      ..   .
589                                          0
590                                      2
591                                      2
592
593
```

```
     Industrial Category - R to U - HHI - Persons  \
0                                                1683
```

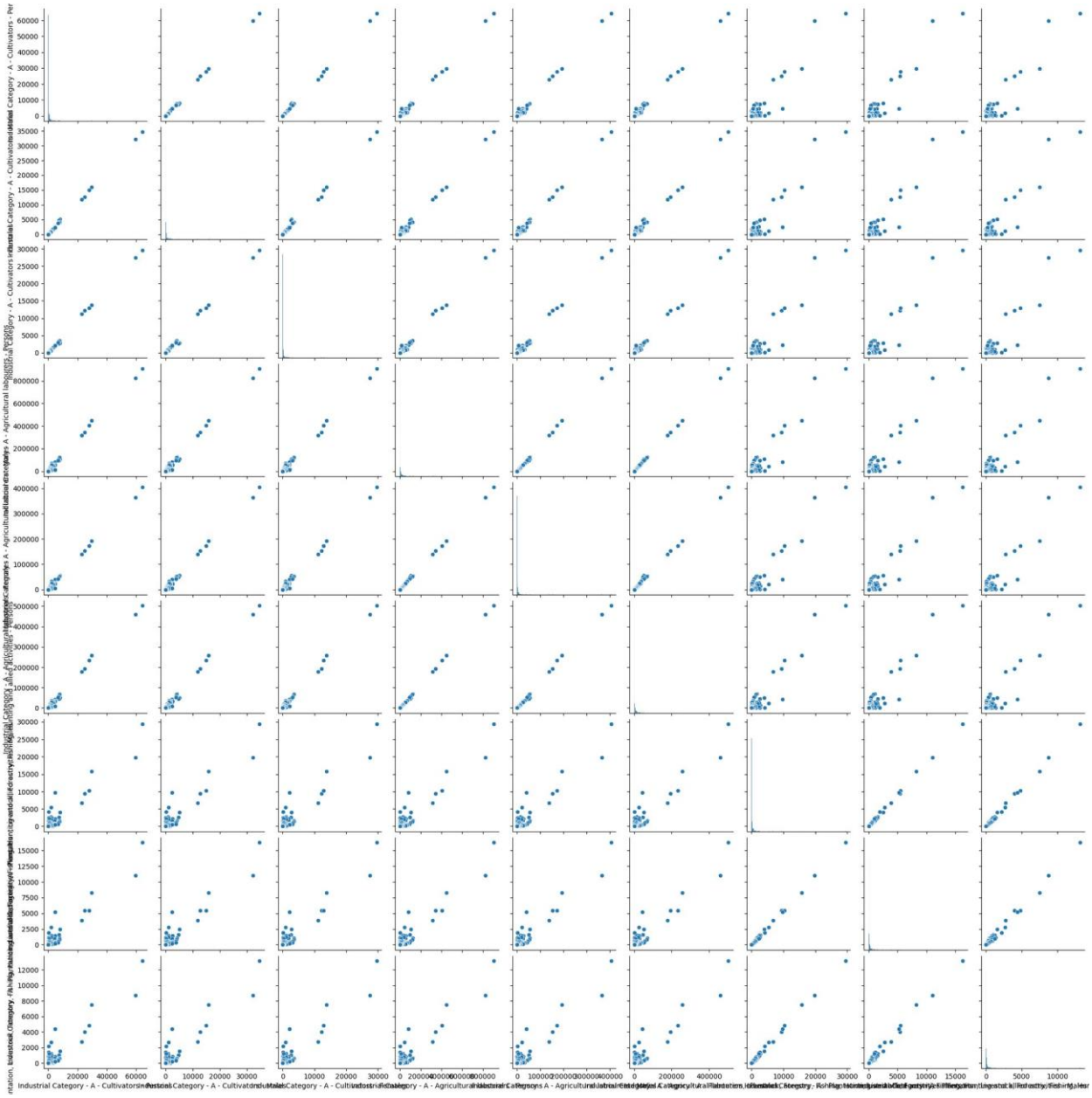
```
1     427
2     8346
3     6591
4     1457   ..
...
589                                                0
590                                               62
591                                               36
592                                               10
593                                                0
     Industrial Category - R to U - HHI - Males  \
0     4266
1     169
2     2127
3     1487
4     483..                                   ...

589                                            0
590                                            6
591                                            9
592                                            3
593                                            0
     Industrial Category - R to U - HHI - Females
\
0                                           1256
1                                             25
2                                            621
3                                            510
4                                             97
..                                            ..
589
590                                            5
591                                            2
592
593
     Industrial  Category  -  R  to  U  -  Non  HHI  -
Persons  \
0                                           12208
1                                            1930
2                                            6892
3                                            2649
4                                             706
..                                             ..
589                                            22
```

```
590                                                    67
591                                                    27
592                                                     8
593
```

```
     Industrial Category - R to U - Non HHI - Males  \
0                                                55801 1
9774 2                                                 32803
3                                                9675
4                                                3394 ..
...
589                                               104
590                                               247
591                                               103

592                                                 35
593                                                 0

     Industrial Category - R to U - Non HHI - Females  0
66287
1     9531
2     36126
3     16823
4     3671  ..
...
589                                                   124
590                                                   428
591                                                   176
592                                                   46
593                                                   0
[594 rows x 68 columns]
print(y)
0       State - TAMIL NADU
1       State - TAMIL NADU
2       State - TAMIL NADU
3       State - TAMIL NADU
4       State - TAMIL NADU
              ..
589    District - Tiruppur
590    District - Tiruppur
591    District - Tiruppur
592    District - Tiruppur
593    District - Tiruppur
Name: Area Name, Length: 594, dtype: object
from sklearn.model_selection import train_test_split

X_train, X_test, y_train, y_test = train_test_split(X, y,
train_size=0.7, random_state=42)
X_train.shape, X_test.shape

((415, 68), (179, 68))
```

INDUSTRAIL CATEGORY A

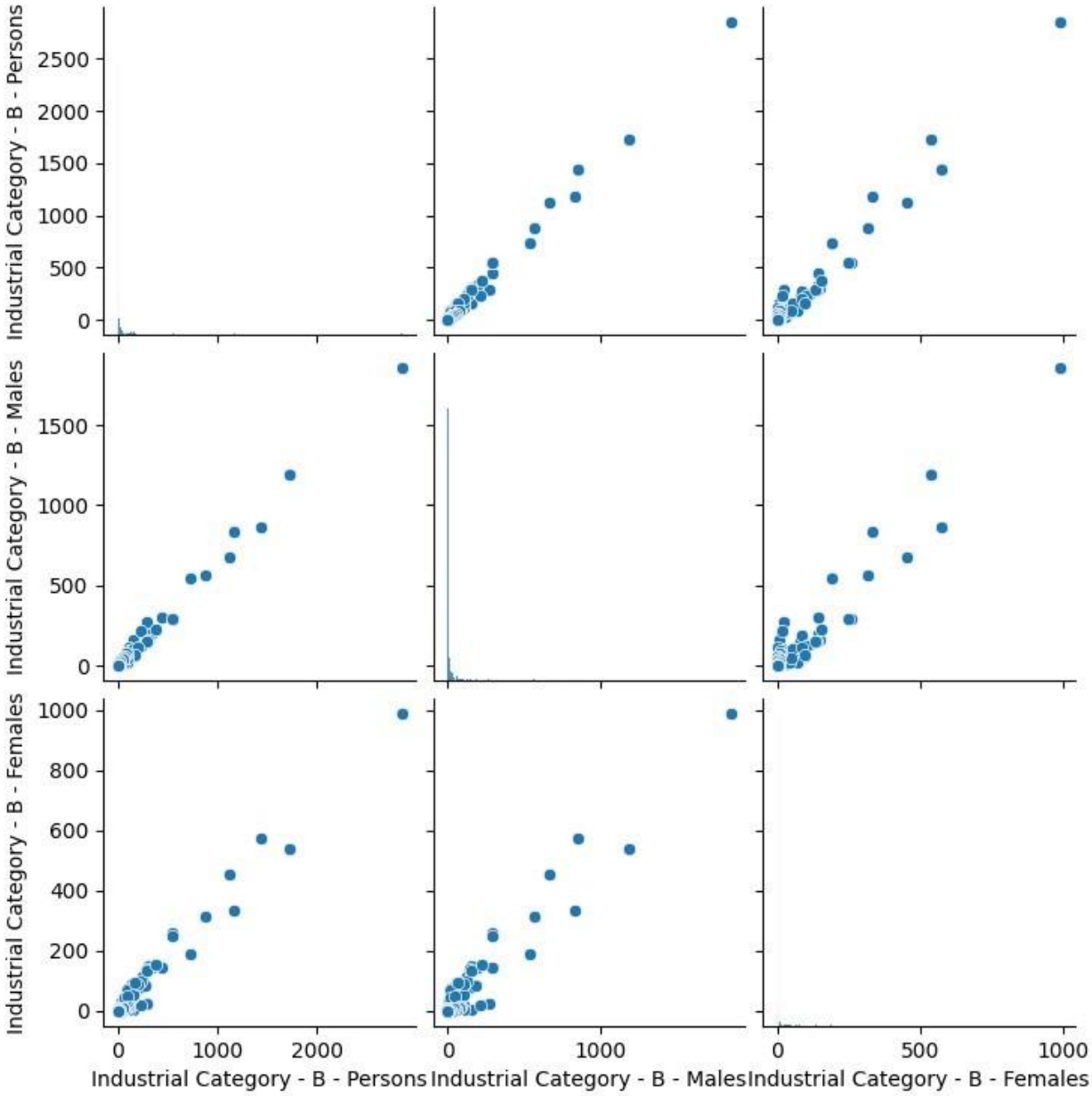
```
IndustrialCategoryA = dataset[['Industrial Category - A - Cultivators
- Persons',
'Industrial Category - A - Cultivators - Males',
'Industrial Category - A - Cultivators - Females',
'Industrial Category - A - Agricultural labourers - Persons',
'Industrial Category - A - Agricultural labourers - Males',
'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']]

plt.figure(figsize=(10,10))
sns.pairplot(IndustrialCategoryA)
<seaborn.axisgrid.PairGrid at 0x7fb694b298a0>
<Figure size 1000x1000 with 0 Axes>
```



INDUSTRAIL CATEGORY B

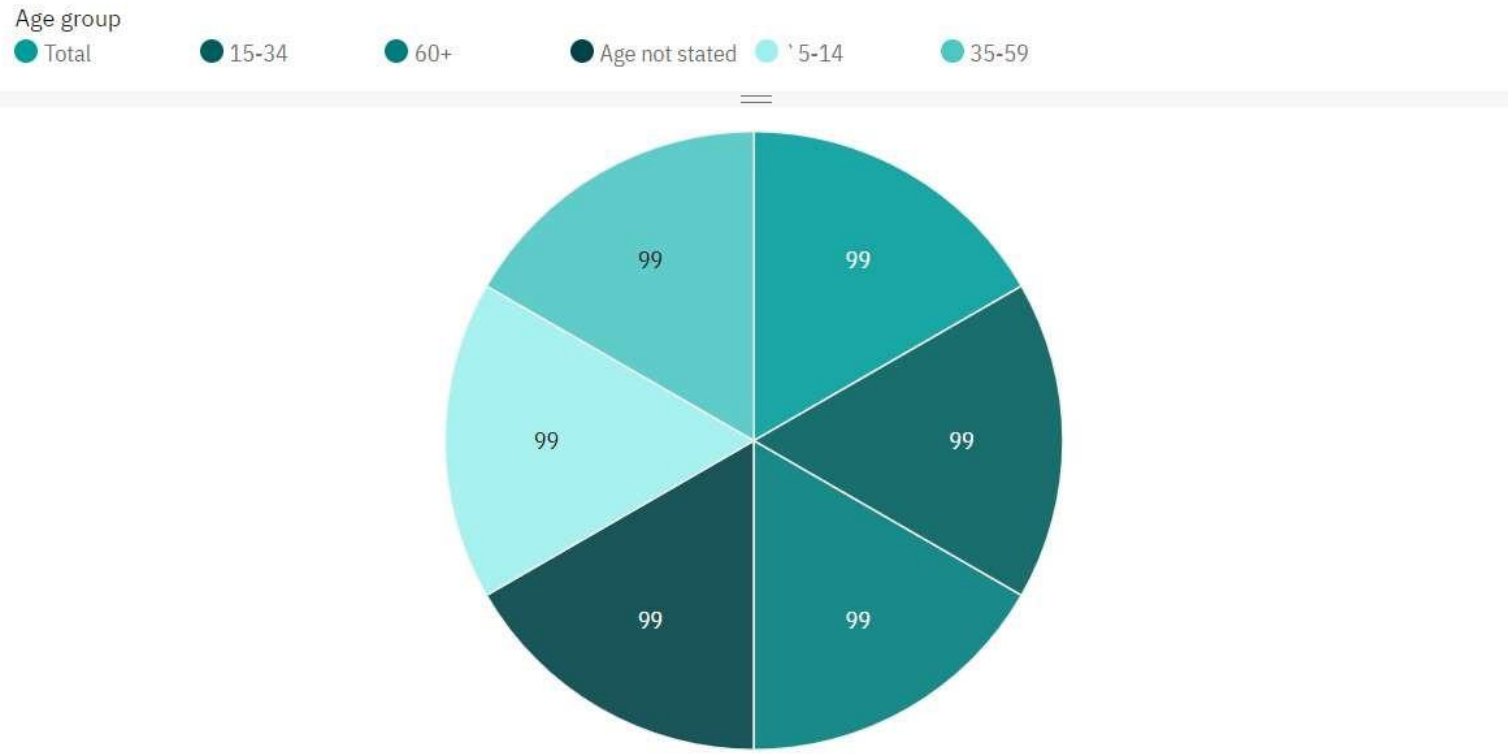
```
IndustrialCategoryB = dataset[['Industrial Category - B - Persons',
'Industrial Category - B - Males',
'Industrial Category - B - Females',]]

sns.pairplot(IndustrialCategoryB)
plt.xticks(rotation=30)

(array([-500.,    0.,  500., 1000., 1500.]),
 [Text(-500.0, 0, '-500'),
  Text(0.0, 0, '0'),
  Text(500.0, 0, '500'),
```

```
 Text(1000.0, 0, '1000'),
 Text(1500.0, 0, '1500')])
```



DATA VISUALIZATION USING COGNOS

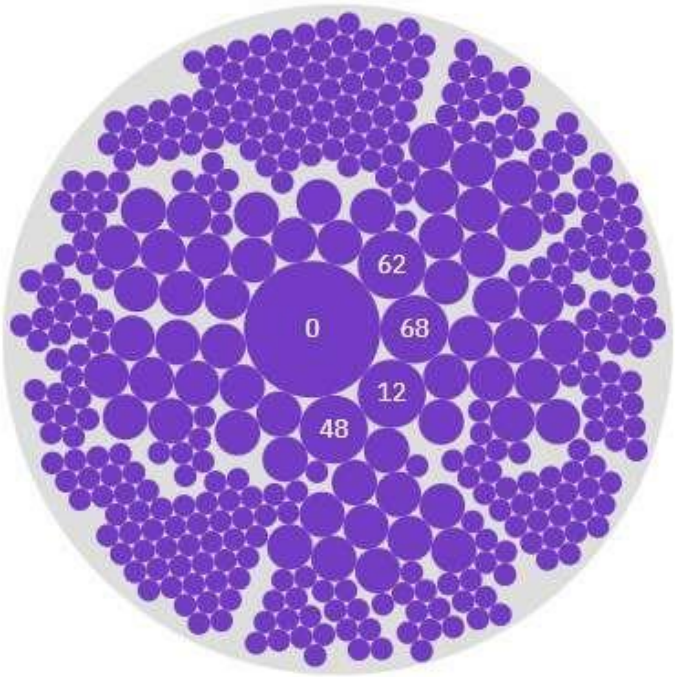
Age group by Age group



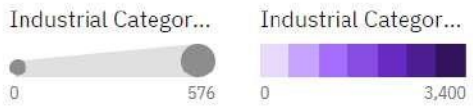
Industrial Category - R to U - Non HHI - Persons, Age group

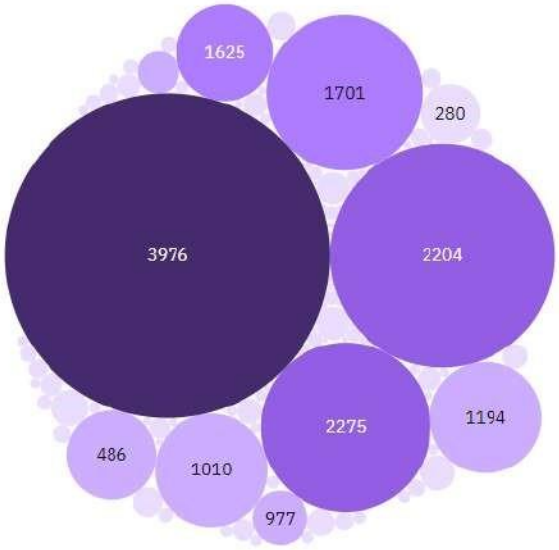
Age group (Count ...

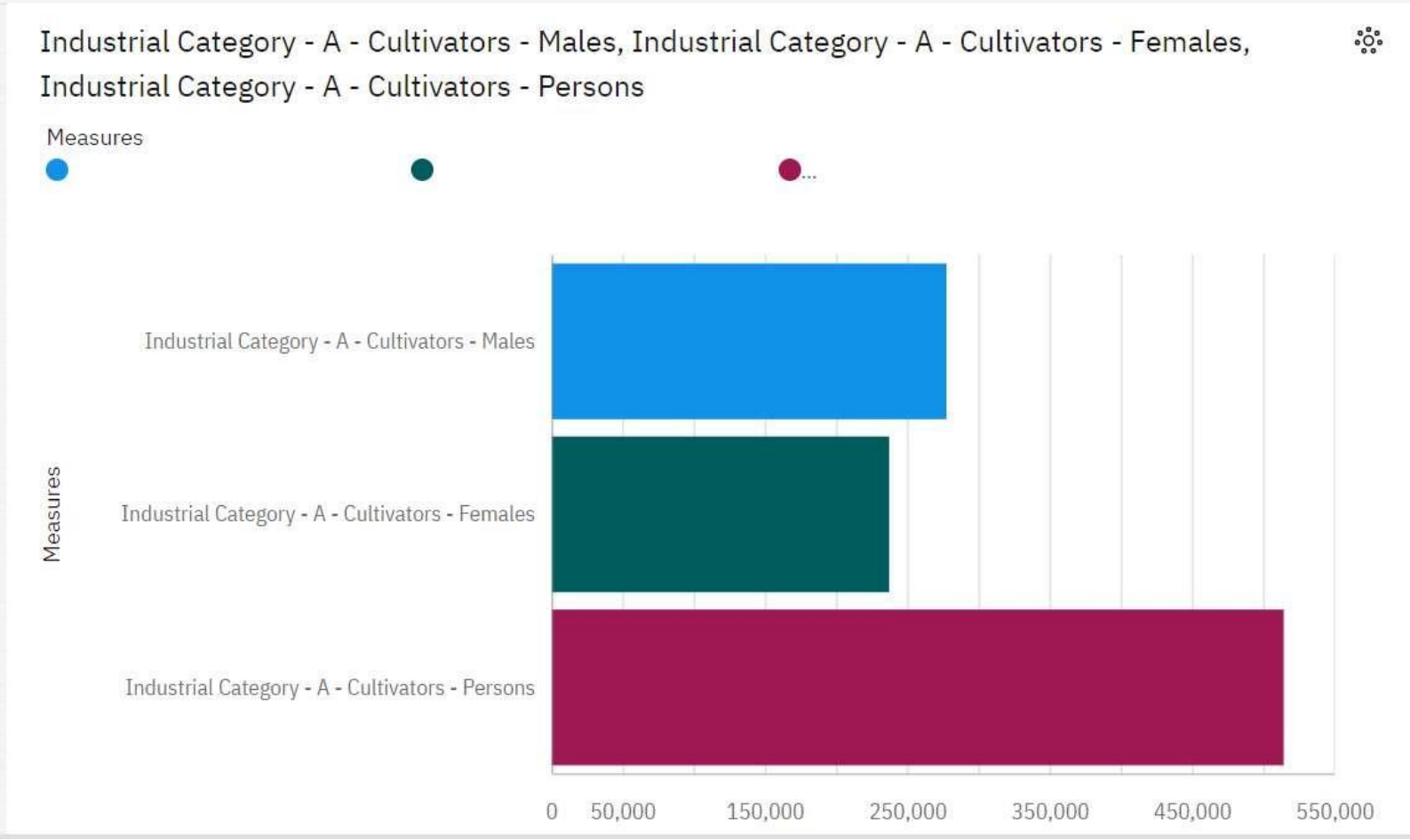
1 6

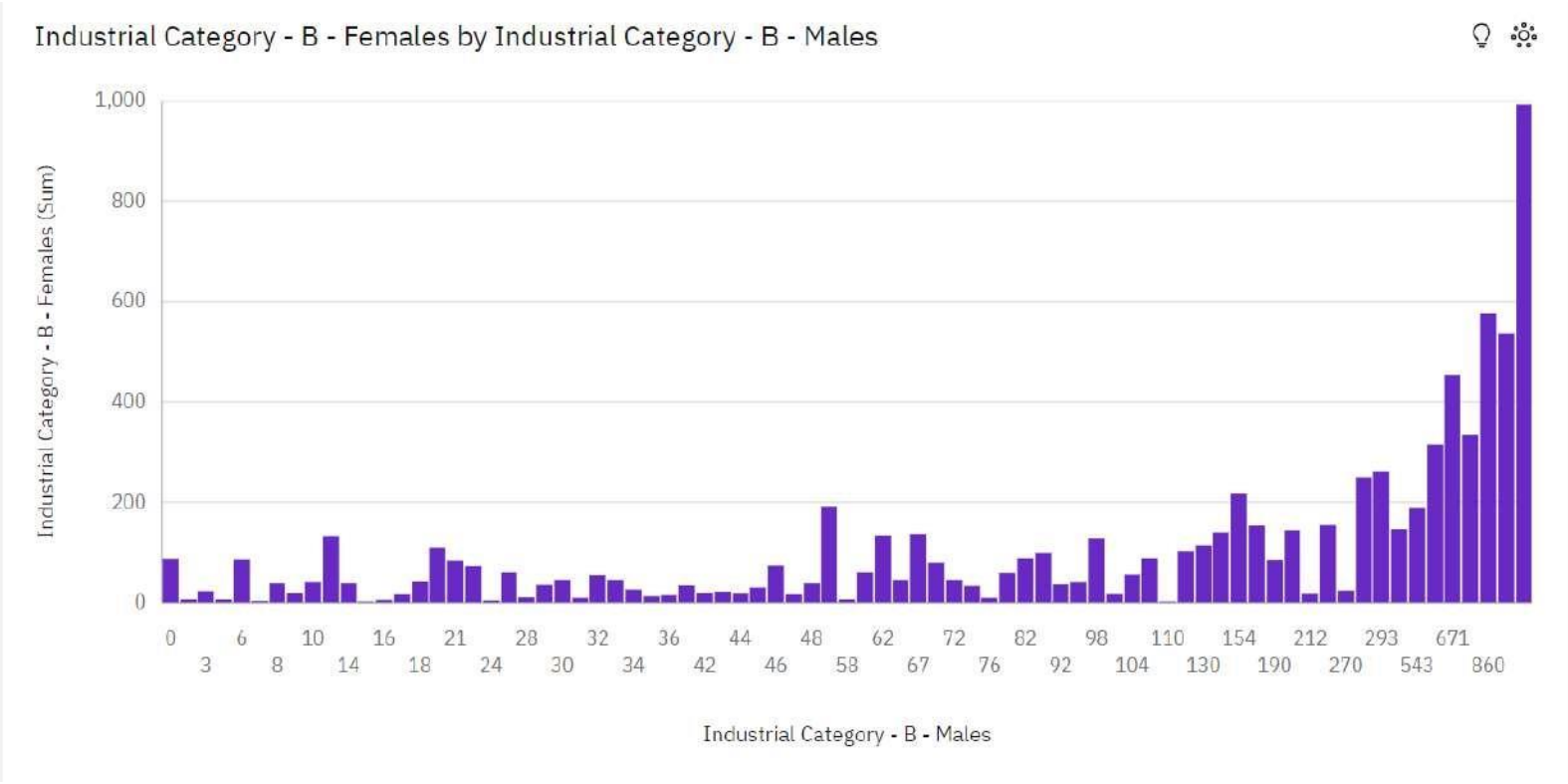


Industrial Category - K to M - Persons colored by Industrial Category - K to M - Males sized by Industrial Category - K to M - Females

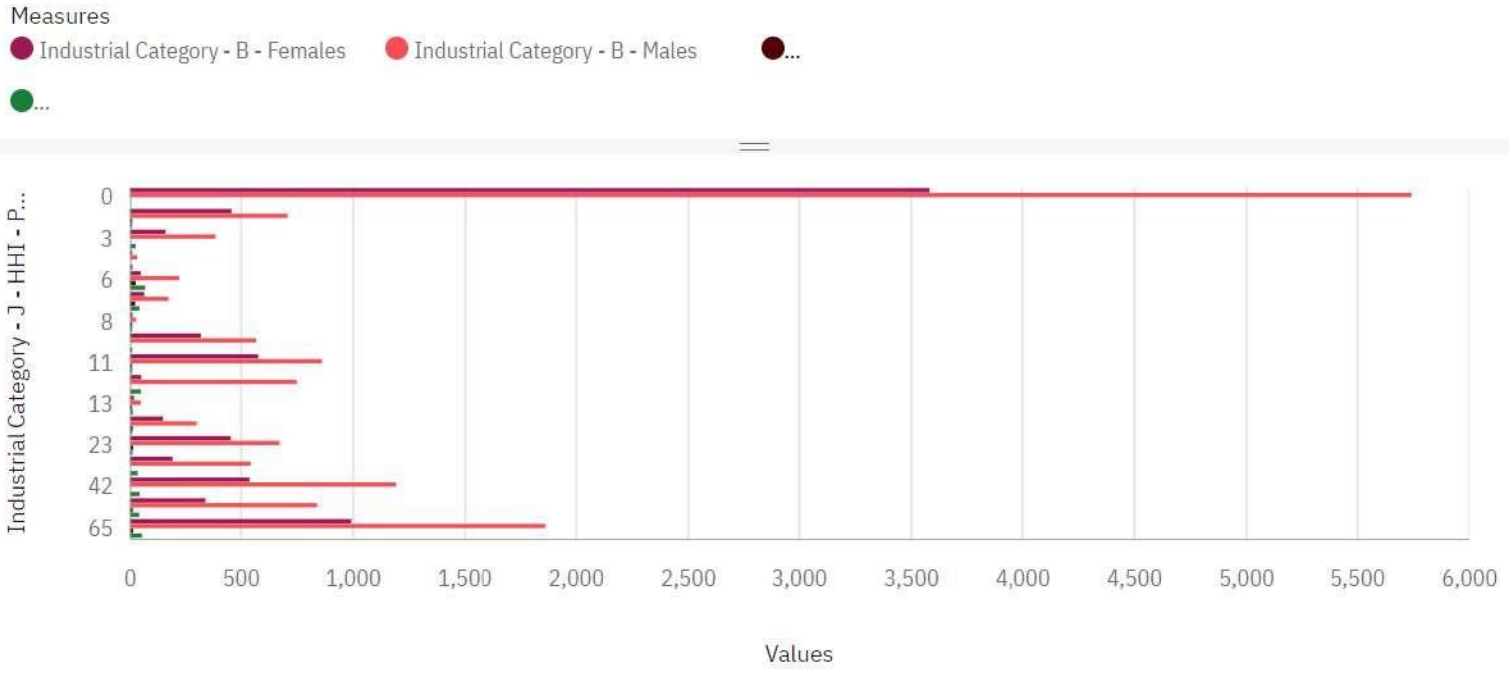





Industrial Category - A - Cultivators - Males, Industrial Category - A - Cultivators - Females, Industrial Category - A - Cultivators - Persons
Measures
Industrial Category - A - Cultivators - Males
Industrial Category - A - Cultivators - Females
Industrial Category - A - Cultivators - Persons
Measures
0
50,000
150,000
250,000
350,000
450,000
550,000


Industrial Category - B - Females by Industrial Category - B - Males
Industrial Category - B - Females (Sum)
1,000
800
600
400
200
0
0 3 6 8 10 14 16 18 21 24 28 30 32 34 36 42 44 46 48 58 62 67 72 76 82 92 98 104 110 130 154 190 212 270 293 543 671 860
Industrial Category - B - Males

Industrial Category - B - Females, Industrial Category - B - Males, Industrial Category - J - HHI - Females and Industrial Category - J - HHI - Males by Industrial Category - J - HHI - Persons



Industrial Category - A - Agricultural labourers - Females by
Industrial Category - A - Agricultural labourers - Males colored by
Industrial Category - A - Agricultural labourers - Persons