TALUKA ASSIGNMENT

TEAM MEMBERS :

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Talukas assigned:

RURAL : VADA

URBAN : KALYAN

Data Set used

- Census Data of Thane District
- Some information from the Internet.

- In the following slides we will take a look at the present situation in Vada and Kalyan
- We will discuss the various problems in urban areas of Kalyan and rural areas of Vada namely
    - Literacy Rate
    - Increasing Population
    - Unemployment
    - Societal Exclusion
    - Distribution of work among males and females
- We will also propose some possible solutions to these problems

Analysis of problems in wards of Kalyan and possible solutions.

Kalyan

- The following slides contain an analysis of the major problems in the Kalyan talluka, Thane district , Maharshtra.
- Facts about Kalyan

  Type- Urban Taluka

  No of wards – 96

  Area – 710 km square

  Population of wards- 1193512

  Mean SC %- 5.6%

  Mean ST % - 1.8%

  Sex Ratio – 893 females per 1000 males

  Sex ratio for children under 6- 914 girls per 1000 boys

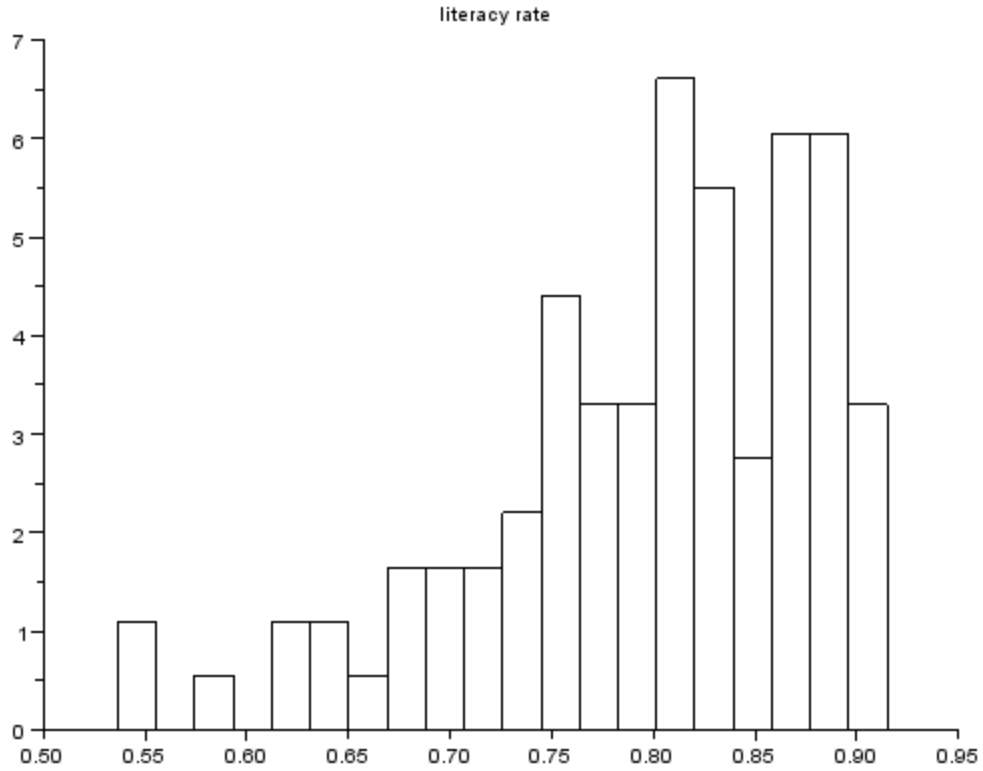
  Literacy Rate – 79.6%

  % of working population – 33.8%

  Population under 6- 11.7%

Literacy Scenario

- Literacy is one of the largest problem in the area.
- Mean of percentages of literacy in the wards is 79.6% which is far below the national literacy rate of 68%
- Range of literacy ranges from 7% in the small town of Dhamtan to a maximum of 71% in Raye.
- Let us first take a look at the no of wards in each range of literacy rate



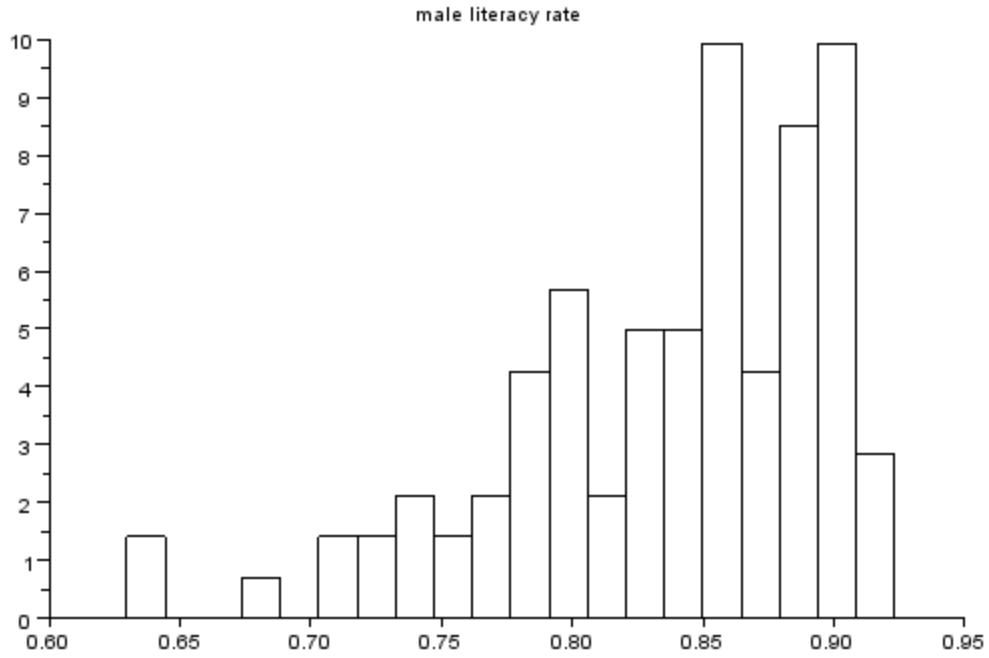
Mean 0.7969
Standard Deviation -0.083

The histplot shows that only one of the ward has a very low literacy rate and mostly data is clustered around the mean and therefore standard deviation comes out to be 0.09 only.

This is a good observation since there is not much inequality in terms of oppurtunity of getting education which proves that we can easily improve the scenario.

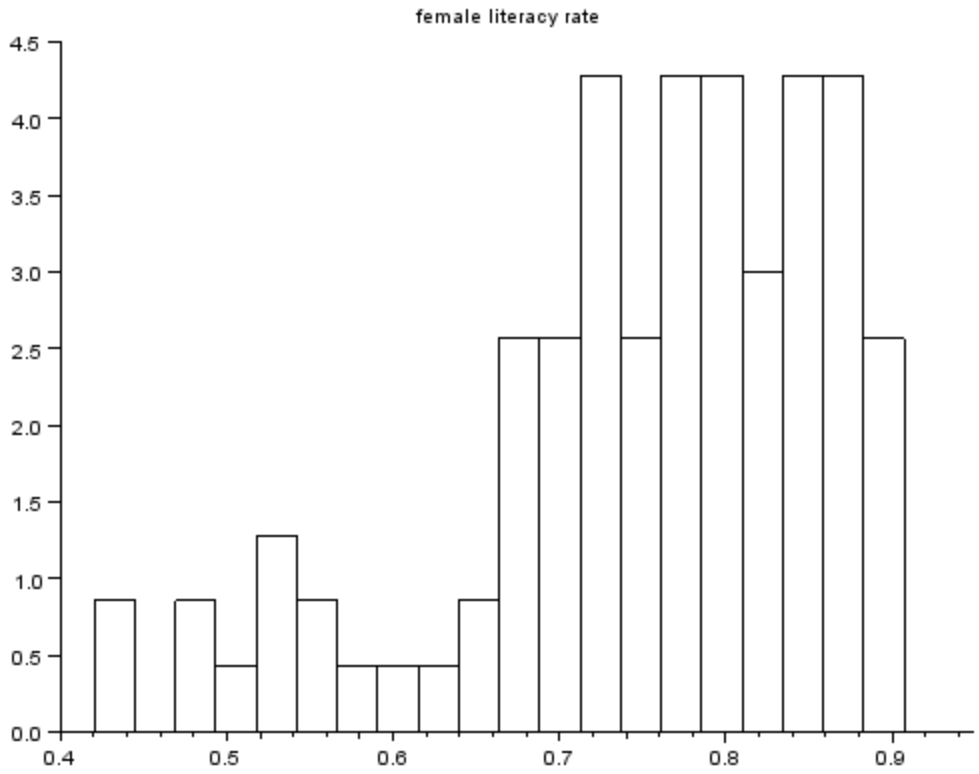
We believe that literacy rate is one of the biggest problems in this area and needs to be sorted urgently

- In the following slides we will try to prove why literacy rate is an urgent problem.
- Before that lets take a look at the difference in male and female literacy rates.



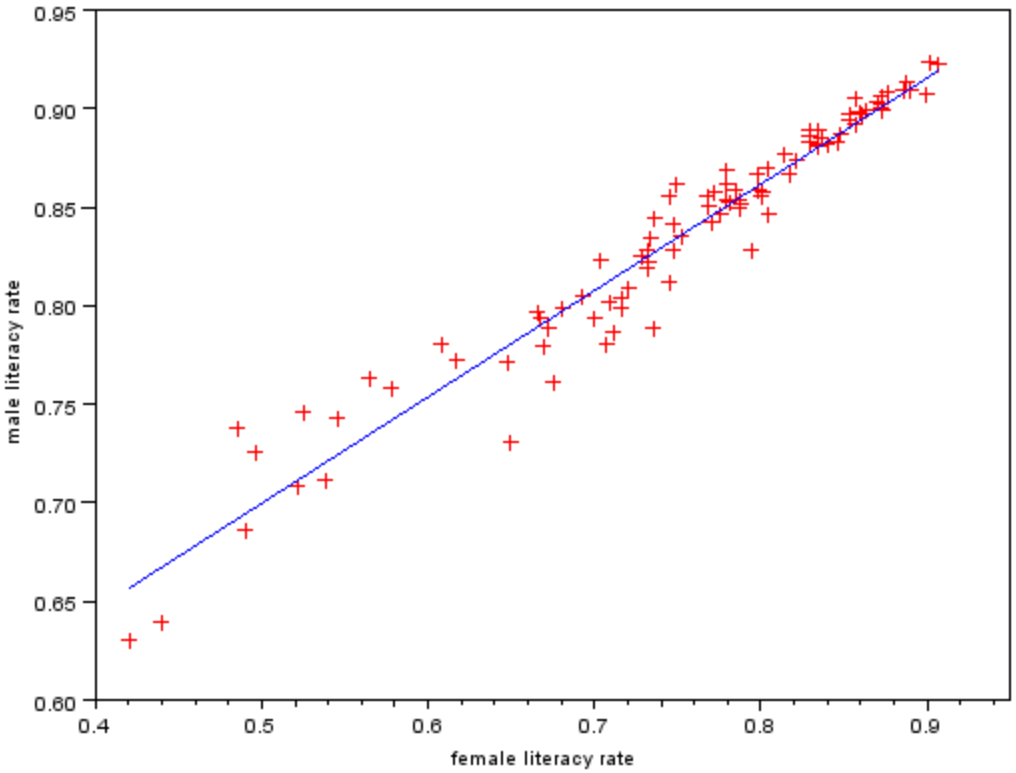
Mean % – 83.55%
Std Deviation- 0.062

The literacy rata among males is higher than avg literacy % of wards by 10%.
This goes well with the general trends in India where males have a higher literacy rate than females



Mean% -75%
Std Deviation-0.11

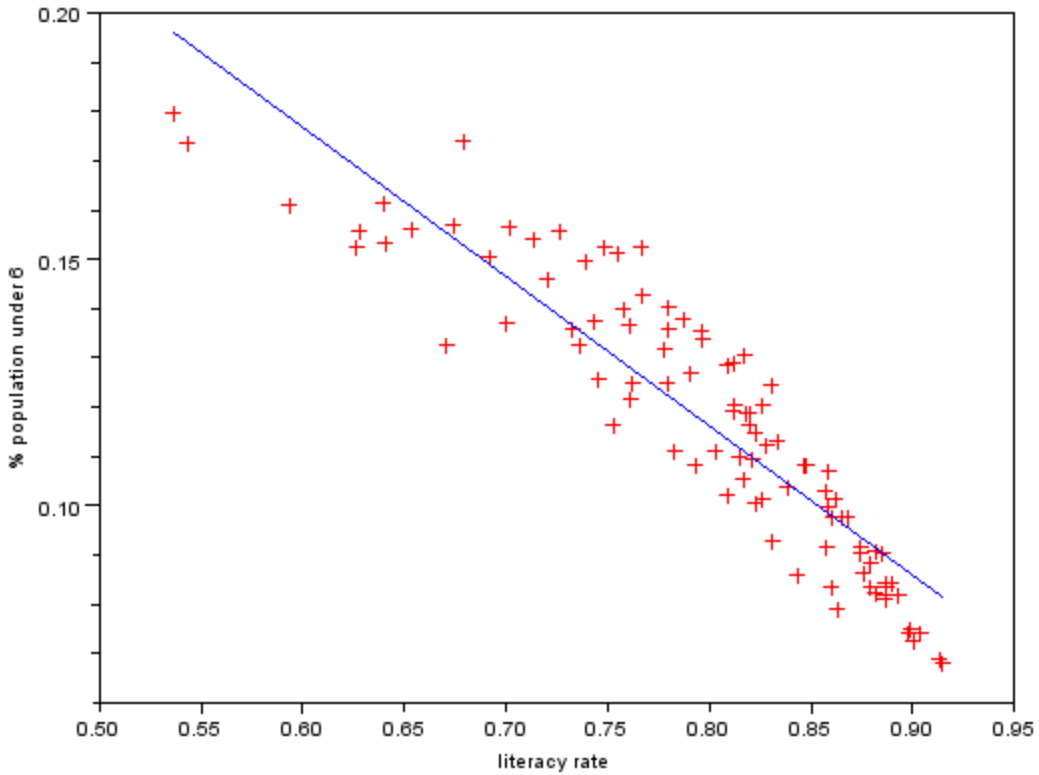
- The literacy rate among females is 47% which is about 20% lower than male literacy rate and is an important problem which requires special attention
- Morover the data looks like a normal distribution



Correl 0.97
Regression Line
Slope 0.53
y-intercept 0.43
Sig 0.014

- The graph has a good correlation which shows that wards where males are literate in general also have high female literacy which says that perhaps educated females marry educated male only which is obvious and reasonable.
- The slope 0.97 of the regression line again shows that females are less educated than males

- Let us try and see the effect of literacy rates on various parameters.
- One of the important issues that we may like to see is the relation between population and literacy rate considering that population is one of the most important concerns of our country.
- But even more important is the rate at which the population is rising because that will have major recursions on our future
- But the problem is how to estimate rate of rise of population
- One of the simplest and elegant way to estimate the rate of increase is to see the percentage of people under 6.
- If the ratio of population of people under 6 to the entire population is higher than some other area then definitely this area will have a greater population after some time even if the wards started with the same number of people.
- Thus percentage of population under 6 is a good estimator



Correl - -0.91
Regression line
slope -0.30
y-intercept 0.36
sig 0.011

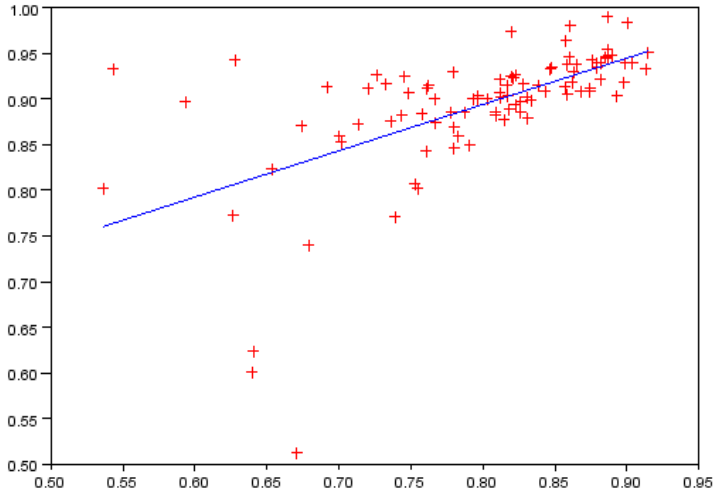
- There is a clear relation between Literacy Rate and % of population under 6
- The correlation is -0.91 which means that the data depends on each other to a great extent.
- The general trend is as expected.
- As the percentage of literate people increases the fraction of population under 6 falls down

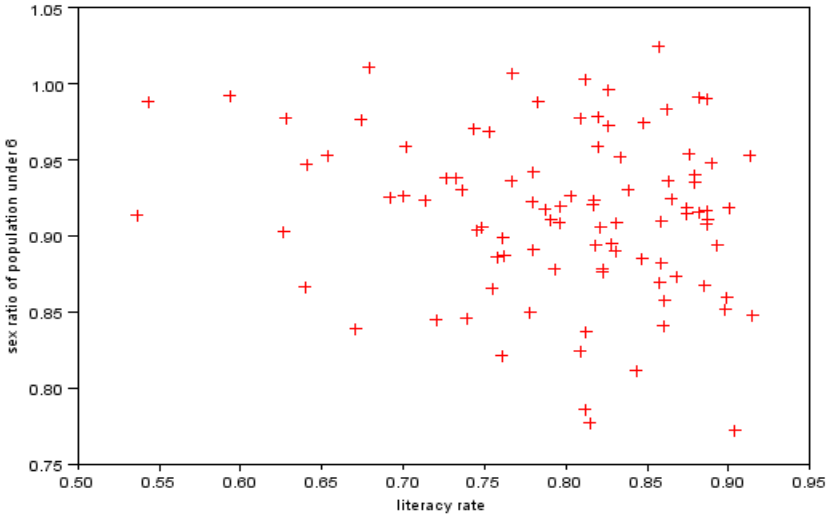
- There can be two reasons for this..

  1. The overall life expectancy is lower in literate people as compared to illiterate people. But this is highly unlikely because literate people are more likely to earn more,eat better and lead healthy lifestyles.

  2. The number of children taking birth in literate families is lesser than the number of children taking birth in a illiterate family of same size and composition. This also looks reasonable because literate people are more likely to understand the benefits of a small family

- Also we suspect that the sex ratio under 6 might be influenced by the literacy rate of a particular ward





Sex Ratio vs Litercy rate

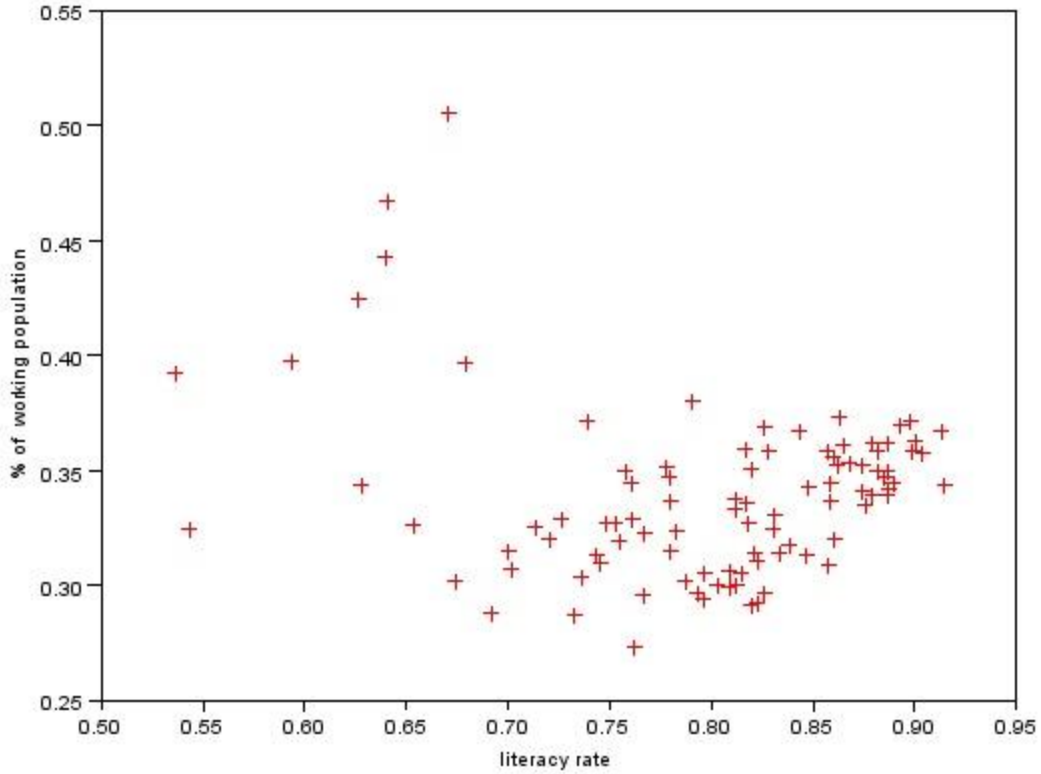
Correlation 0.58

Sex Ratio for children under 6 vs Litercy rate

Correlation -0.18

The low values of correlation tell us that the sex ratio for niether the current generation nor the generation that is coming up is better for wards with higher literacy.

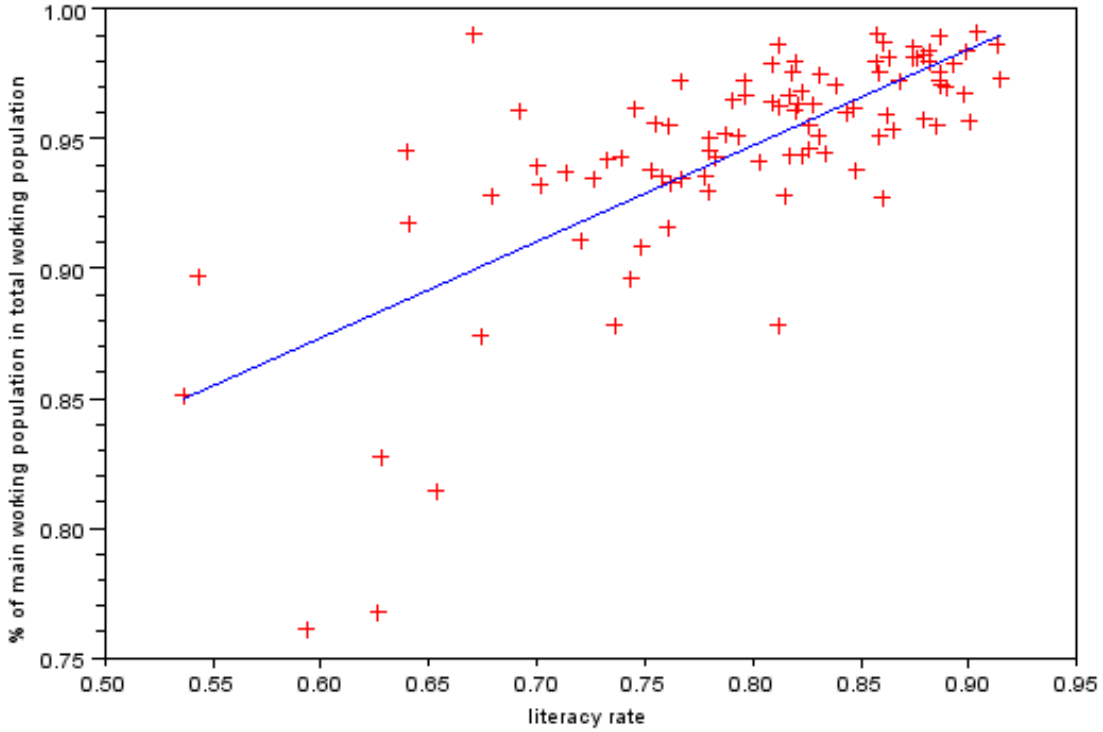
- There might be a relationship between literacy and working population



Correl -0.18

However the correlation between the percentage of working people and the literacy rate is just -0.18 and therefore there is no strong relationship between there two parameters.
This is because even people who are illiterate can find jobs even though it might be true that literate people will perhaps find better and well-paid jobs.

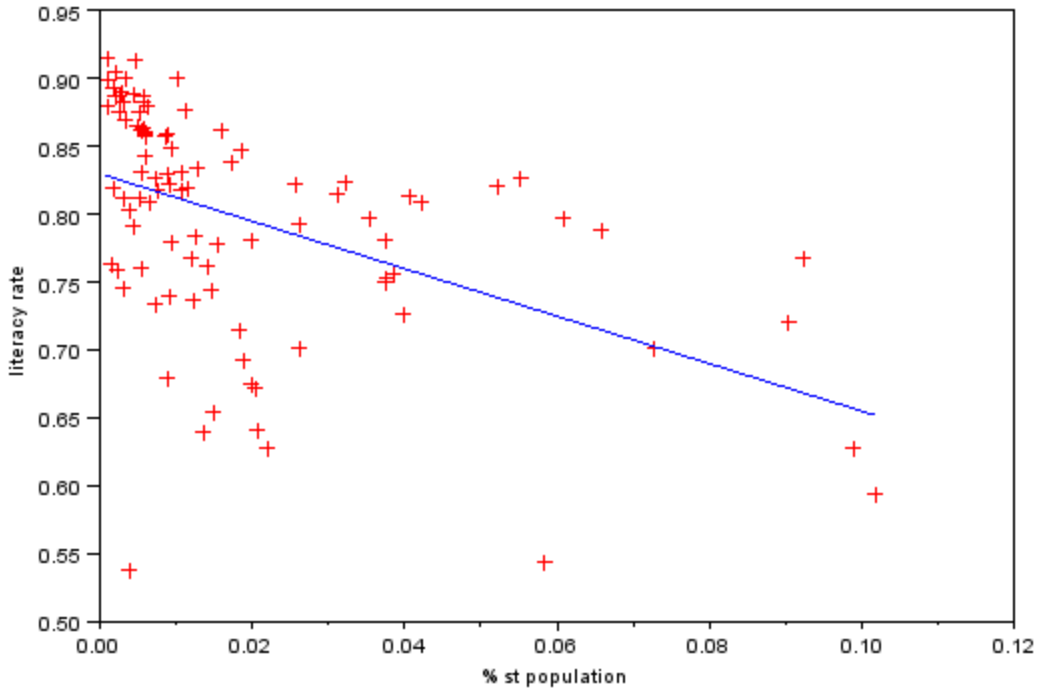
- However there is a good correlation between literacy and main working population.



Correl 0.72

This clearly proves that literate people are much better off at finding regular jobs for themselves.

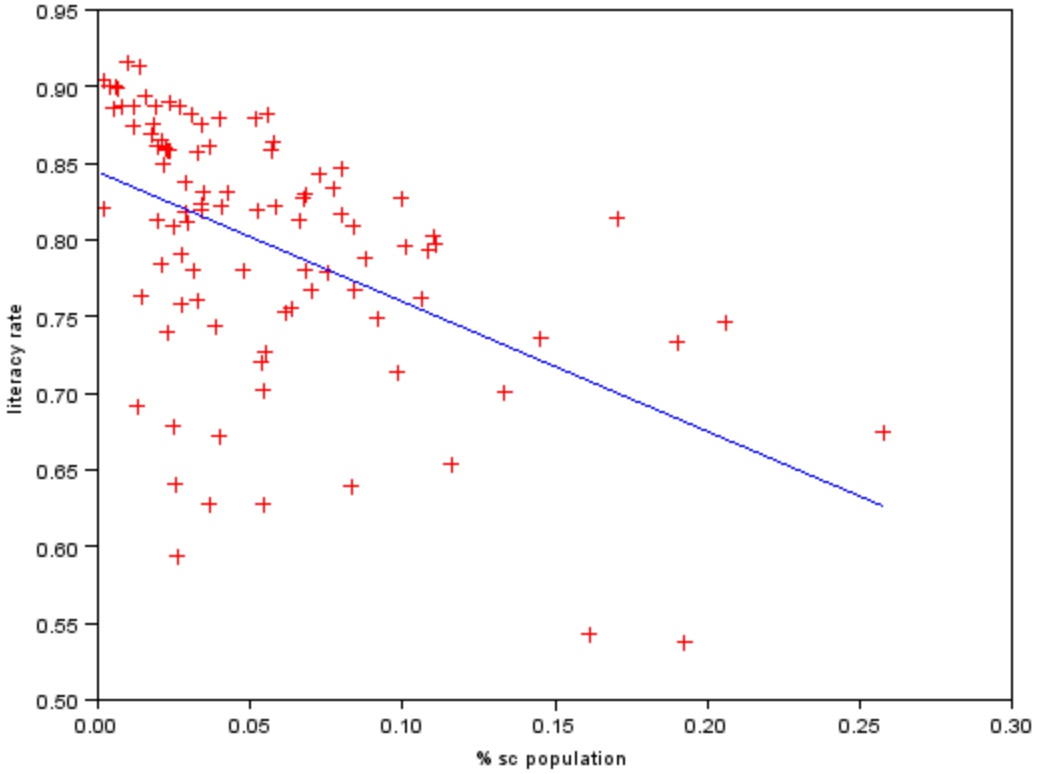
- Also we suspect that there might be a relation between the tribal population % and the literacy rate of an area



Correl -0.47
Regression line
slope -1.75
y-intercept 0.82
sig 0.07

- This graph gives us valuable information that literacy is related to the presence of st people in ward.
- wards which have a higher population of st people have a lower literacy rate which proves that st people are less literate as a general pattern and thus a conclusion is that we must bother about them more while making policies of removing illiteracy.

- Going on the same lines as the previous slide we can take a look at the

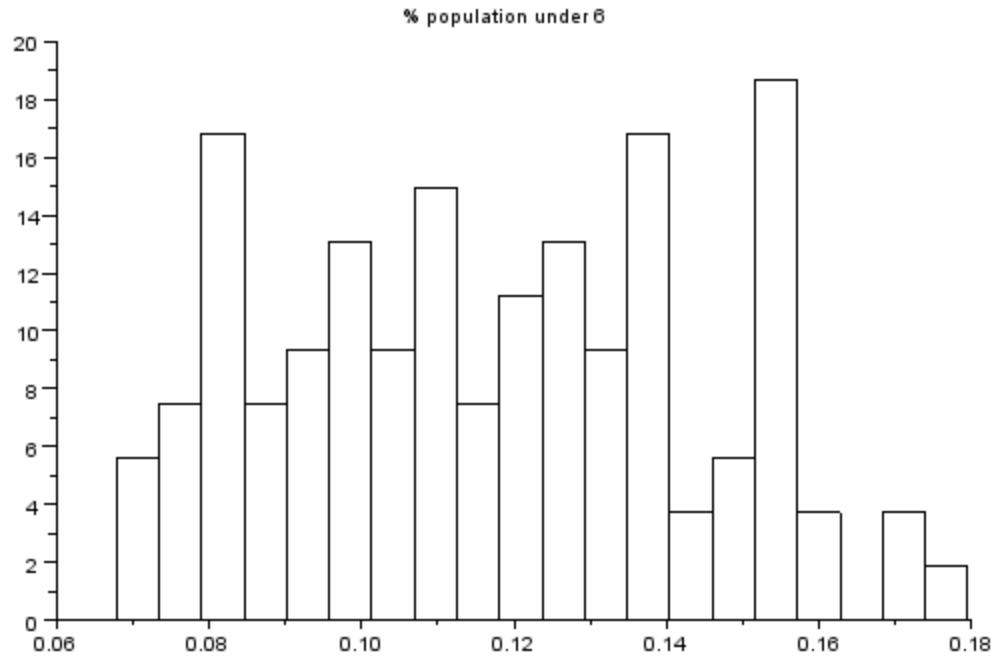


Correl -0.49
Slope -0.84
Intercept 0.84
Sig 0.07

- This graph gives us valuable information that literacy is related to the presence of sc people in ward.
- wards which have a higher population of sc people have a lower literacy rate which proves that sc people are less literate as a general pattern and thus a conclusion is that we must bother about them more while making policies of removing illiteracy.

Another Problem

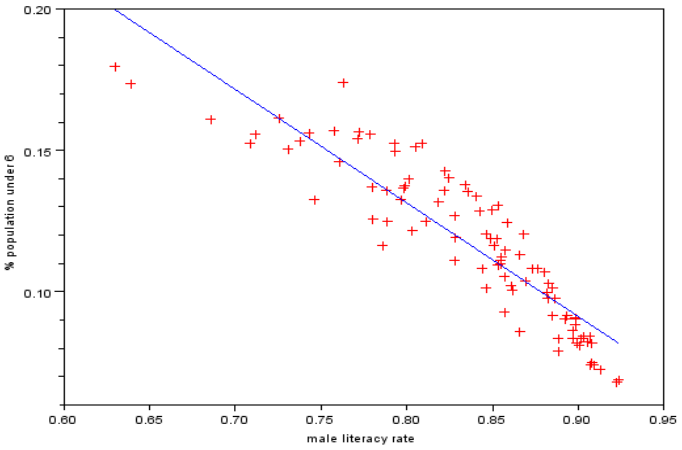
- Population rise is another problem that our country is suffering from
- As discussed in one of the previous slide percentage of population under 6 years of age nicely represents the rate at which the population is rising.
- Let us look at the different parameters depending or being dependent on populaiton under 6.
- But before that lets take a look at the condition of this parameter at present

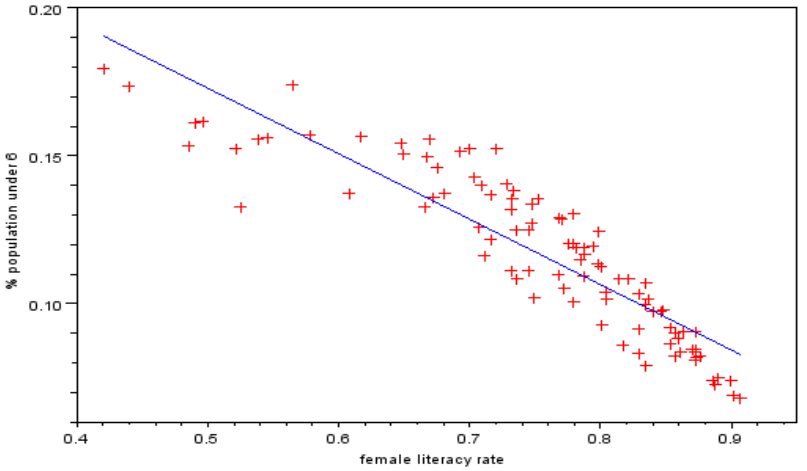


Mean 0.117
Std Deviation 0.027

- The graph is very close to mean evident from the low standard deviation
- An interesting observation is that since the mean is 0.117 means that if the population were not rising, then life expectancy would be roughly 54which is pretty true.
- So , the population explosion not a big problem here.

- We have already seen the relation between lit rate and punder6.
- Let us look at individually female and male literacy rate's dependency with punder6.





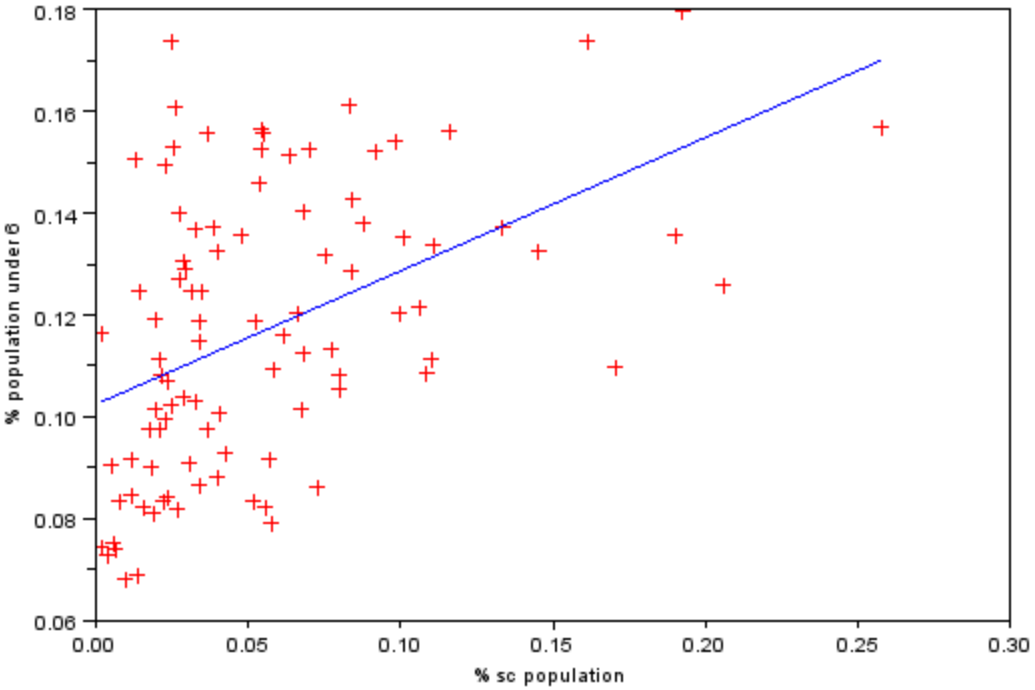
Male literacy vs fraction of population under 6

Correl -0.90 slope -0.40
Intercept -0.45 sig 0.011

Female literacy vs fraction of population under 6

Correl -0.89 slope -0.22
Intercept 0.28 sig 0.012

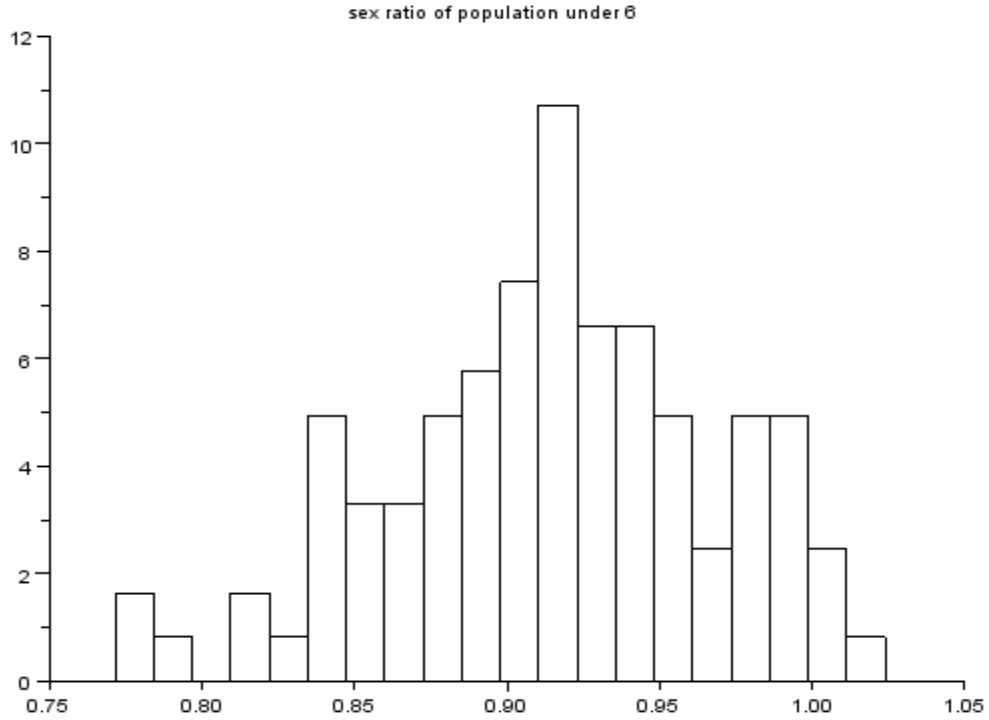
Both of these graphs have high correlation and graphs are similar to that of lit vs fraction of population under 6.



Correl 0.46
Regression line
slope 0.26
b=0.10
sig=0.024

- The graph of percentage-of-sc vs fraction of population under 6 has a good correl leading us to believe that SC families give birth to more children.
- Thus policy-makers need to know that percentage of SC will rise in upcoming years and take decisions accordingly.
- Again in this case we don’t consider ST because of their low presence.

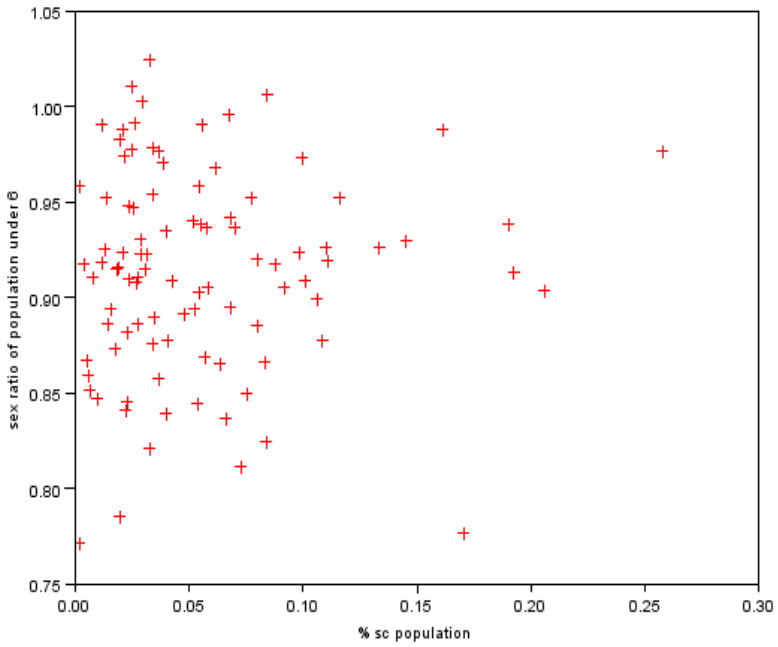
- When we are talking about the rise in population let us take a look at the histplot of the sex ratio of the population under 6 years of age.



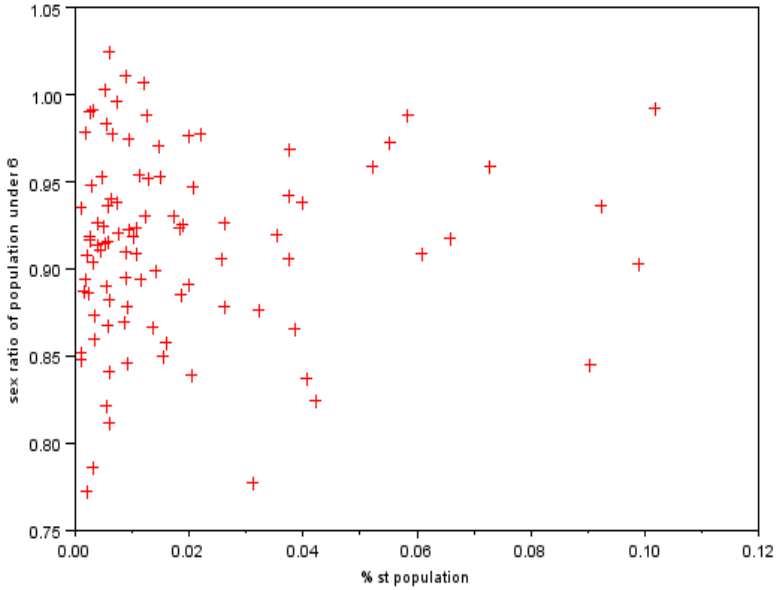
Mean 913
Std deviation 53

However the high deviation is a cause of worry which proves that some specific areas need to be taken care of where malpractices like female foeticide,sex-selective abortion might be prevalent.

- However it is to be noted that there is no correlation between st population/sc population and the sex ratio under 6



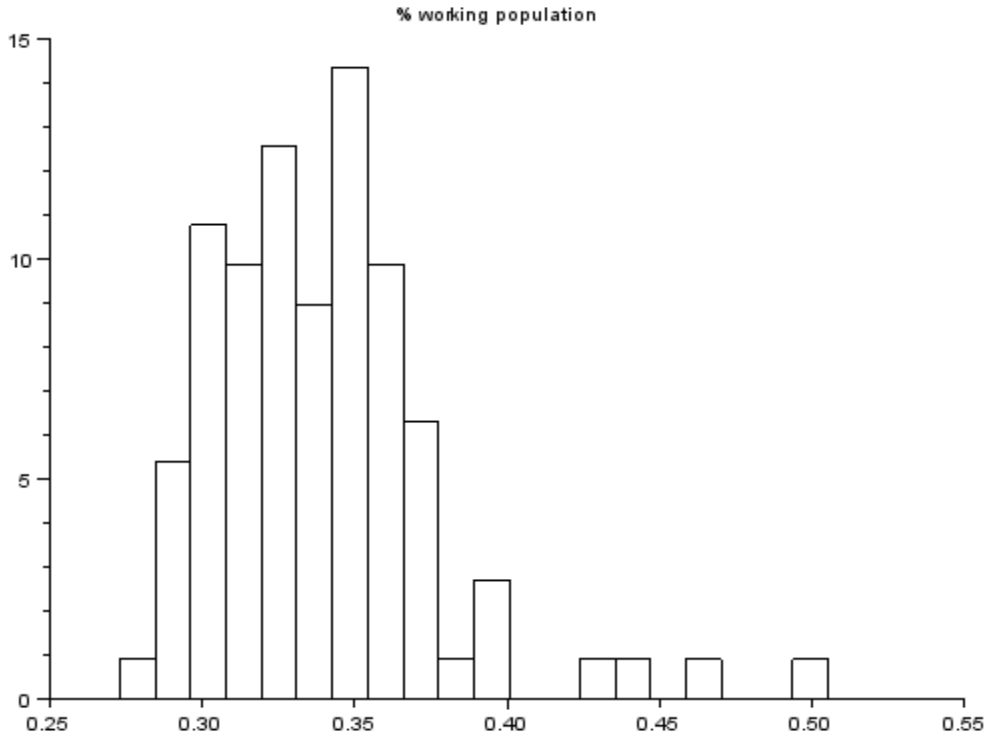
Correl 0.05



Correl 0.067

We also so low correl between literacy and sex ratio under 6.

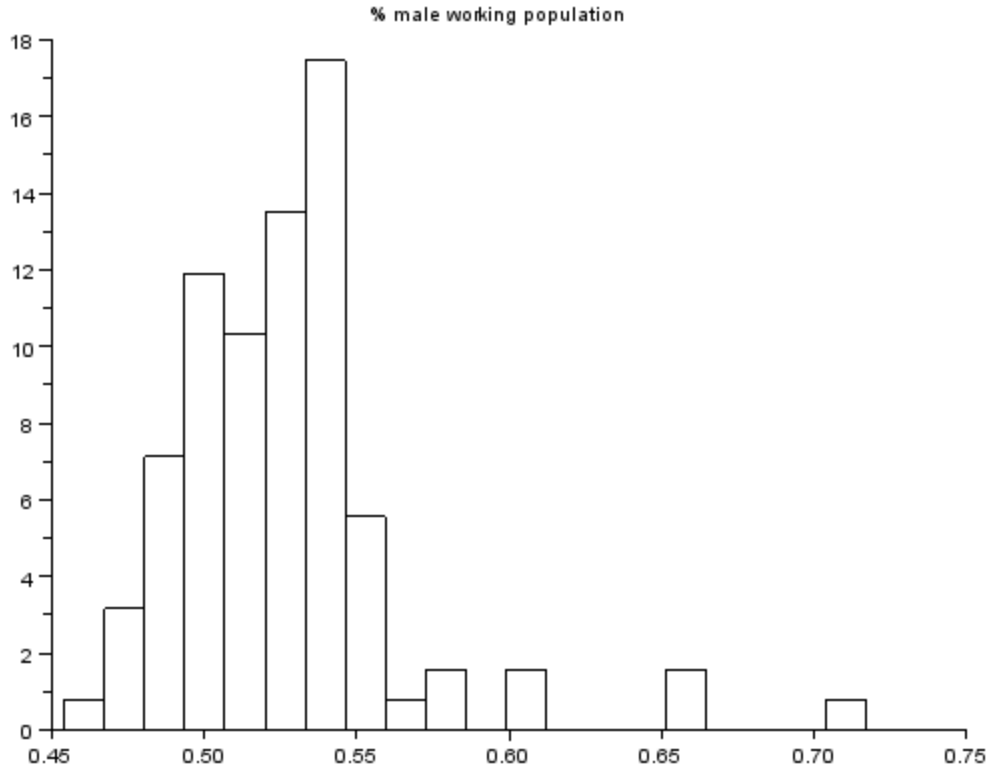
Employment and distribution



Mean 0.33
Std deviation 0.03

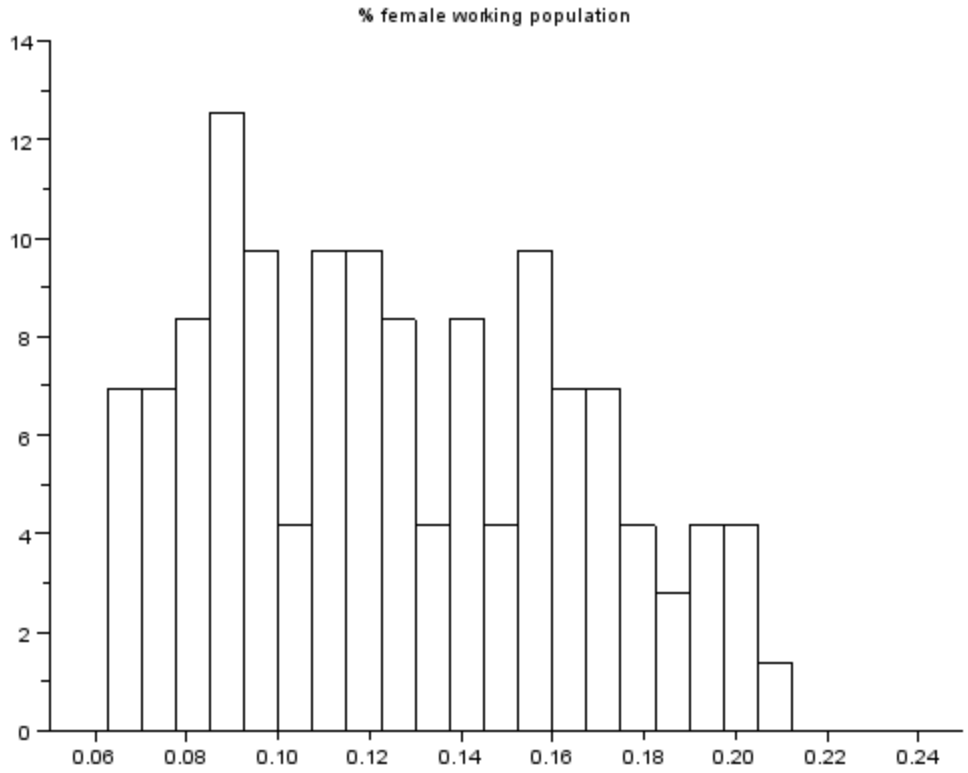
The histplot of % of working people shows the % of working people is not clustered around the mean and is spread to some extent . There are areas where working population is as low as 28% and such data needs to be considered while making policies

However it is disturbing that the mean of 46% is lower than the national average by about 14%. (India working population % is approx 60%)



Mean 0.52
Std deviation 0.03

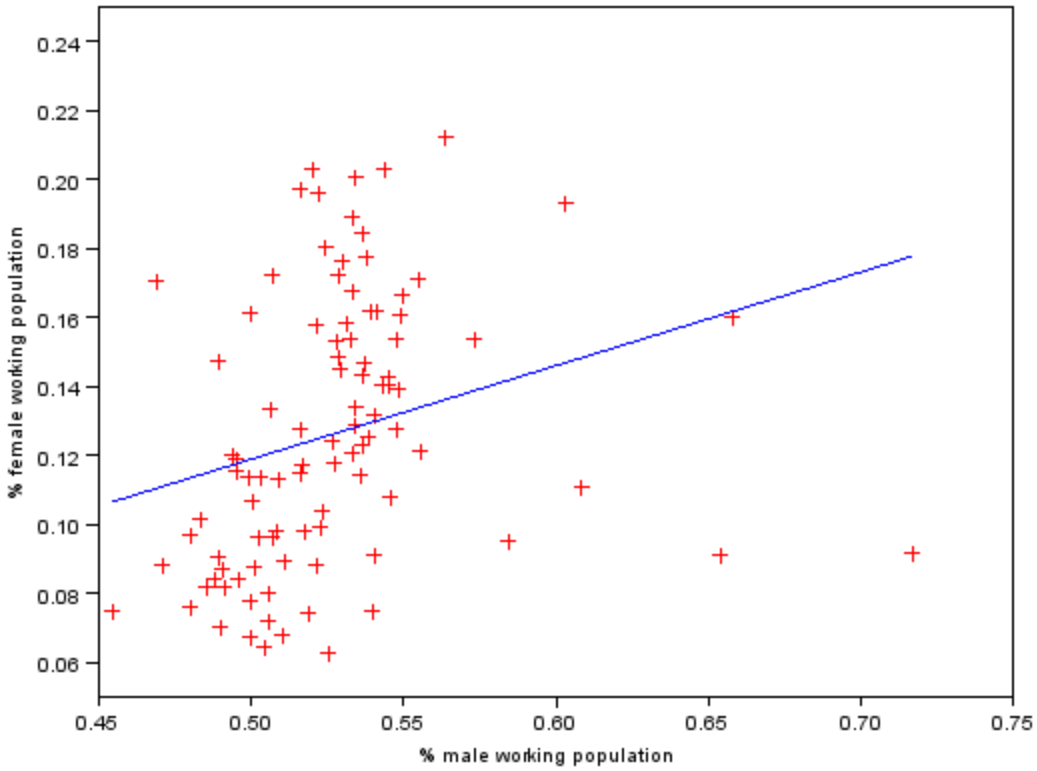
- As expected the % of male working population in wards is greater than overall % of working population
- The data is clustered around the mean in approximately normal distribution with the min value being approx 45%.



Mean 0.12
Std deviation 0.03

- The mean of 0.12 is much lower than the average working population and std deviation of 0.03

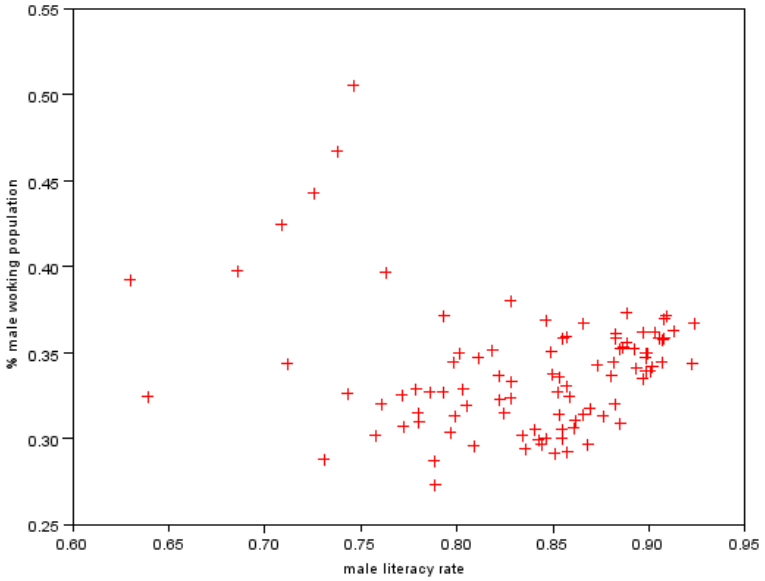
- We have a very interesting observation here.
- As expected women are working less than men in general but the high standard deviation of 0.16 and maximum & minimum values of 0.65 and 0.12 suggests that there are wards where there is an environment of women working and wards where women don't work in general.
- The max values of 0.65 suggests that women also have the potential to work
- So it is important that working population and therefore GDP can be improved by increasing the women working population and it is possible too as clear from the previous graph
- There is a need of programmes and incentives which bring women to work in those areas where the female working population is pretty low

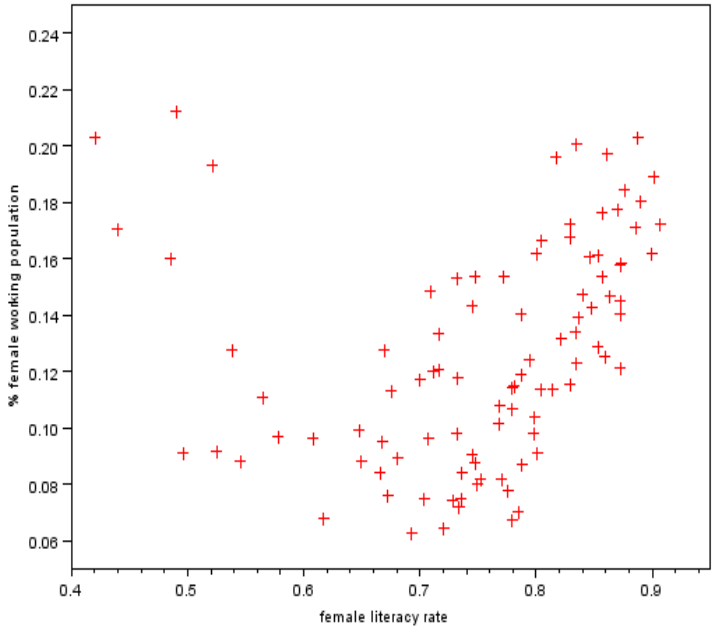


Correl 0.26
Regression line
Slope 0.27
y-intercept -0.01
sig 0.037

- To a large extent the % of female working and % of male working is correlated with a positive slope of 1.3
- This is as expected

- We have seen the graph of literacy rate versus working population and noticed a low correlation. The individual correlations of male literacy rate versus male working population and female literacy versus female working population also shows low correlation.



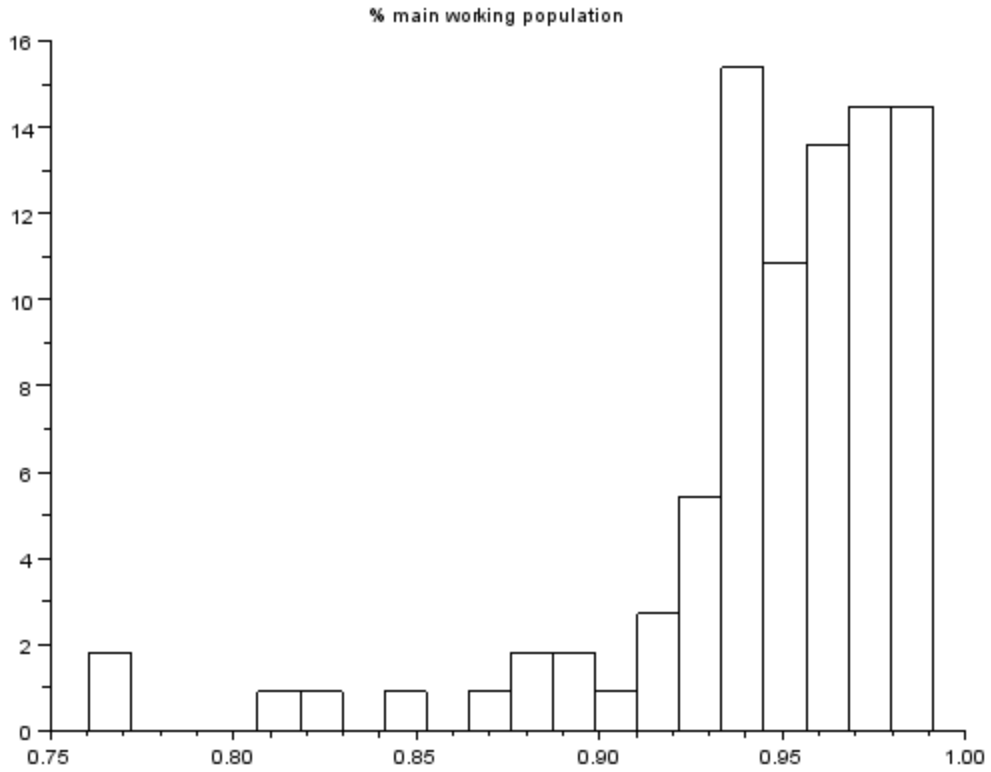


Correl -0.16

Correl 0.23

However it is interesting to note that % of working male is negatively correlated with male literacy while % of working females is positively correlates with female literacy

- The distribution of main workers and marginal workers is like this



Mean 94.5%
Std dev 0.04

The histplot shows that on an average 65% of the workers in a arbitrary ward would be main workers, however a deviation of 20% shows that the pattern is dependent on area such that some wards have high percentage of main workers while some have very low percentage.

Statistics of main workers

- Mean percentage of Male Workers 83.7%
- Mean percentage of female workers 16.2%

- Mean % of household industry labourers 1.8%
- Mean % of agricultural labourers 0.26%
- Mean % of cultivators 0.89%
- Mean % of other workers 97%

Statistics of marginal workers

- Mean percentage of Male Workers 62%
- Mean percentage of female workers 38%

- Mean % of household industry labourers 11.9%
- Mean % of agricultural labourers 2.3%
- Mean % of cultivators 3.5%
- Mean % of other workers 82.1%

- It is an interesting observation to see that most of the marginal workers are females while most of the main morkers are males.
- It is so because many females work in construction sites and in fields where they don’t have work throughout year.
- So the onus is on the men to feed their families when the females don’t find work.
- This situation needs to be taken care of and there should be an emphasis upon regular work for females which will also also motivate females to join the work force in large numbers

- We also observe that the most of the marginal workers are cultivators or agricultural labourers while most of the main workers are other workers.
- This proves that farming and related activities don’t go on throughout the year and therefore the government must intervene.
- There should be water supply even in the summers if possible and distribution of seeds must go on throughout the year.
- Doing this would help in increasing the agricultural output of the entire region.

Conclusion

- We have looked at various parameters of Kalyan talluka
- Even though it is an urban talluka and close to Mumbai the literacy rate is pretty low at 58%.
- We have seen that literacy rate strongly determines the population under 6 which affects the population increase of the country.
- Literacy rate also determines the % of main working population to a large extent and therefore literacy ensures regular work for the literate people
- Literacy also affects the lifestyle and quality of living of the people .
- Then we saw that female literacy is lower than male literacy and also noted that the literacy among ST groups is pretty low.

Conclusion

- So the two target groups, if we want to improve literacy in general should be females and STs.
- However since the female and male literacy is strongly correlated therefore we need to improve male literacy too.

Conclusion

- Next we observed that rate of increase in population is pretty high in many wards and requires attention.
- We saw that there is a strong correlation between ST population and population rise and therefore we need to have some awareness programmes for STs to solve the problem

Conclusion

- We also noted that the sex ratio under 6 is very low for wards and this requires immediate attention
- It is to be noted that there is no correlation between literacy or ST population and the sex ratio under 6.
- Also the sex ratio is pretty low but the reason might be influx of labourers from surrounding villages.

Conclusion

- We saw that the % of people working is pretty low in the talluka and requires attention
- Particularly women have a very low workforce participation even though they have the potential to work .
- We observed that a lot of marginal workers are household industry labourers and policies need to made which will ensure that they get regular work throughout the year

Analysis of problems in village of VADA.

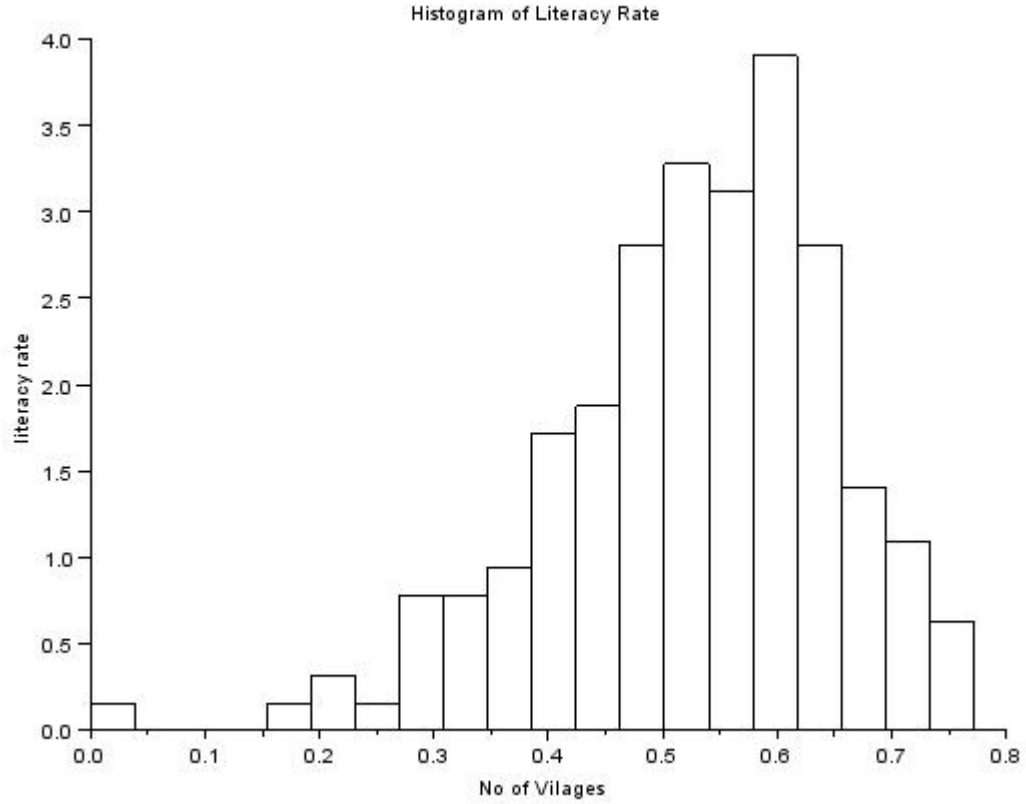
Literacy is one of the most important attributes of any census data and usually can be related to most of other parameters .

- **Literacy affects Population**: This is reasoned out saying that educated (or literate) people are more aware of the benefits of small family. They understand the side-effects of having large number of children. They understand the quality of life they can lead with the constraint income they are earning. Hence if the society is literate it would have moderate rate of population increase. This would be proved in up coming slides.

- **Literacy affects standard of living** :It is very obvious that if population is literate then they are going to have better jobs generally .Hence can earn more have better standard.

India has average literacy rate of around 64%.

Literacy in Taluka Vada

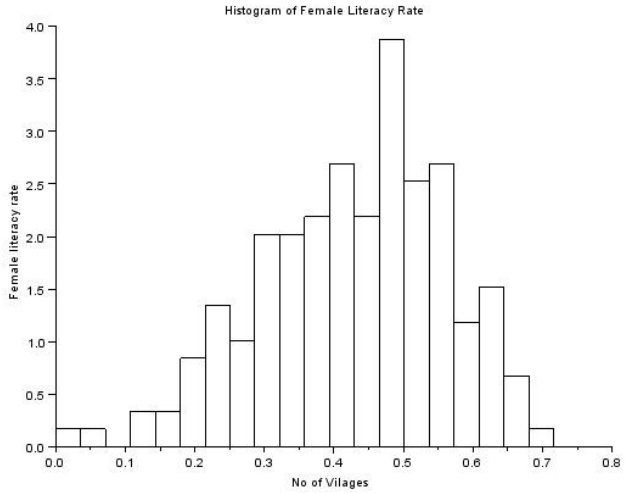


Mean :0.5254181

Variance : 0.0159785

Inference: The mean suggests that literacy quite good and the distribution too spread out and mostly not clustered around mean.
This suggest there is probability of groups being created in the society.
There is one village which has 0 literacy. This village has 100% ST population which is also very less (around 70 people). Highest literacy rate is 0.77.

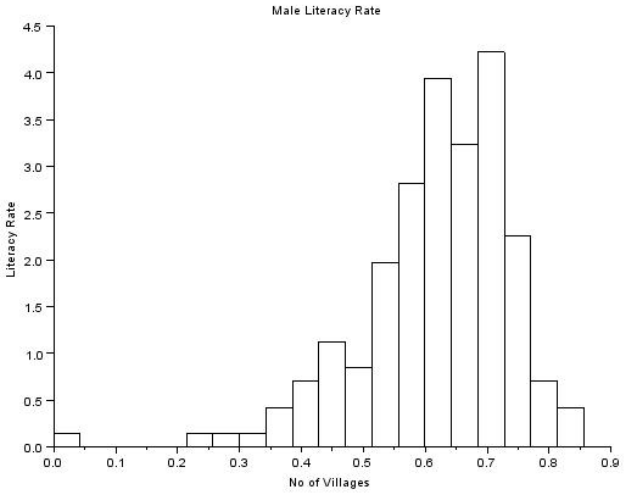
Female Literacy



Mean: 0.4275

Variance: 0.0181351

Male Literacy

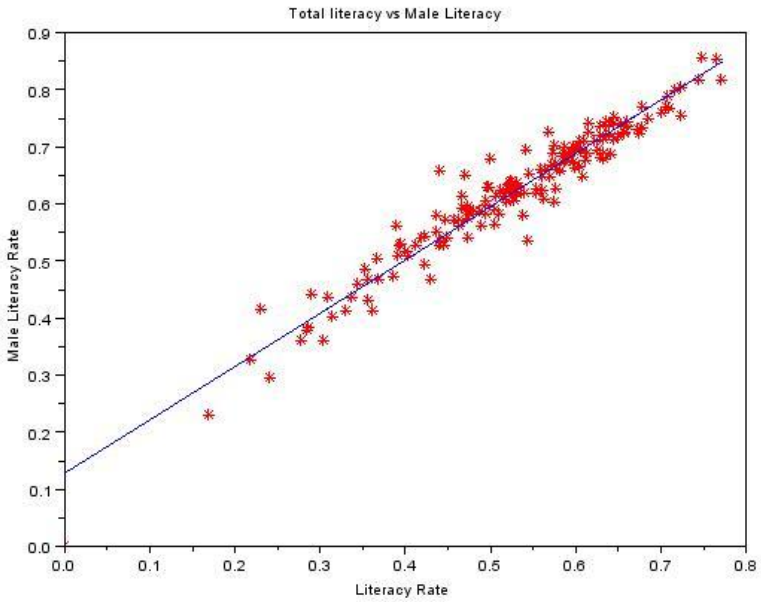


Mean: 0.6190197

Variance: 0.0149090

Inference: From the plots it is clear that more males are literate than females. Also the difference between them is quite a high around 20%. So there is a stress in Female Literacy and hence requires urgent attention

Literacy Rate versus Male Literacy Rate.

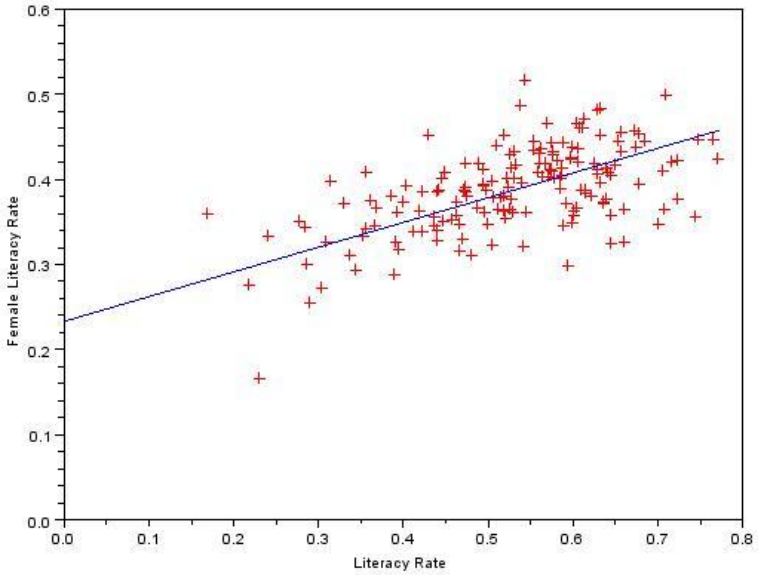


Slope : 1.06

Intercept: 0.128

Inference : The slope of the Best fit line is approximately 1 implies that there is equal increase in male literacy is equal to literacy rate.

Literacy Rate versus Female Literacy Rate



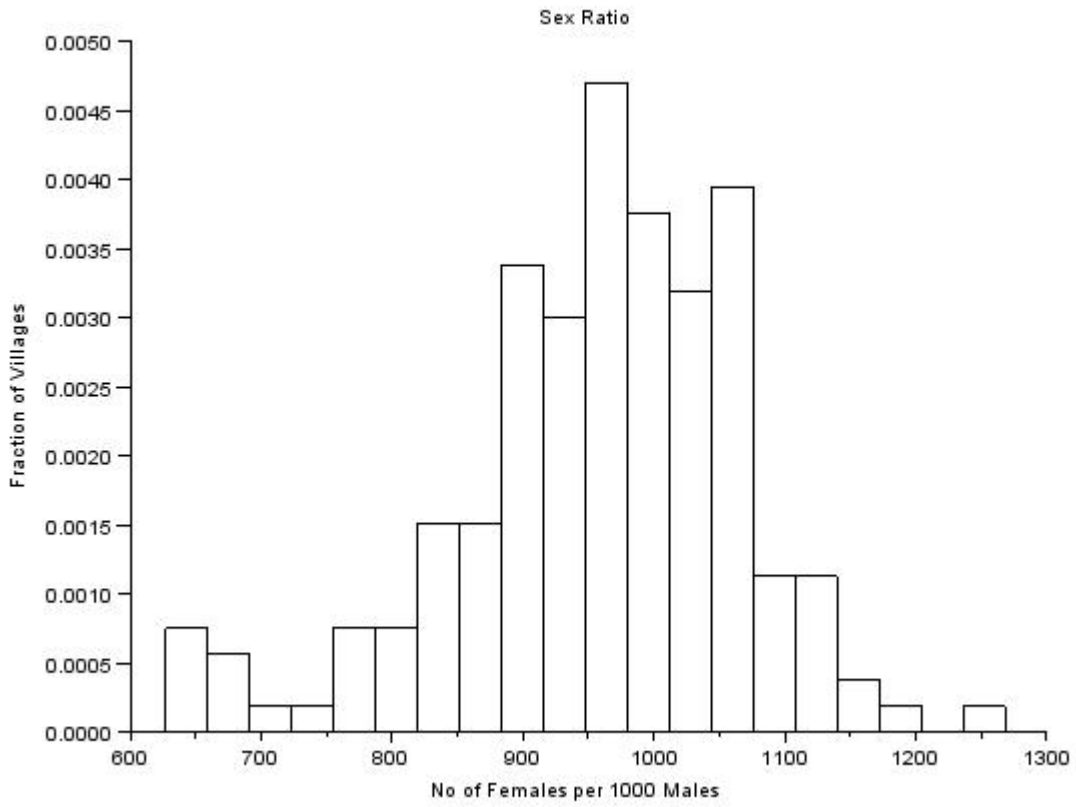
slope: 0.997

Intercept:-0.117

Inference : The slope of the Best fit line is approximately 1 implies that there is equal increase in male literacy is equal to literacy rate.

We also see that the female literacy is overall less than male literacy as is the trend throughout India.

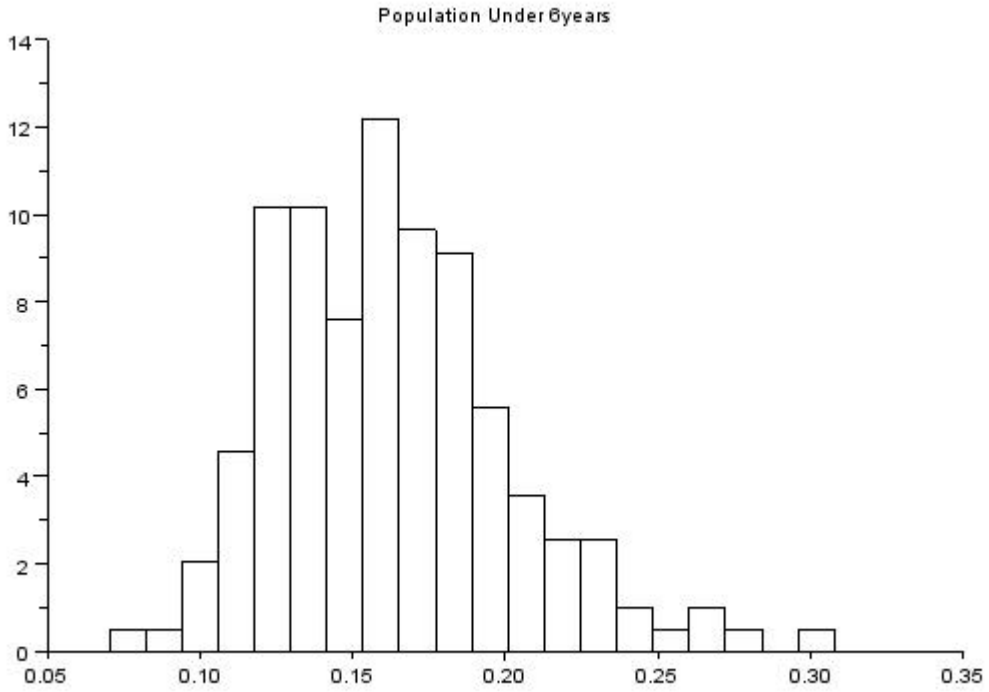
Sex Ratio for the Taluka



Mean:958.43

median:972.7

Population under 6 years…..

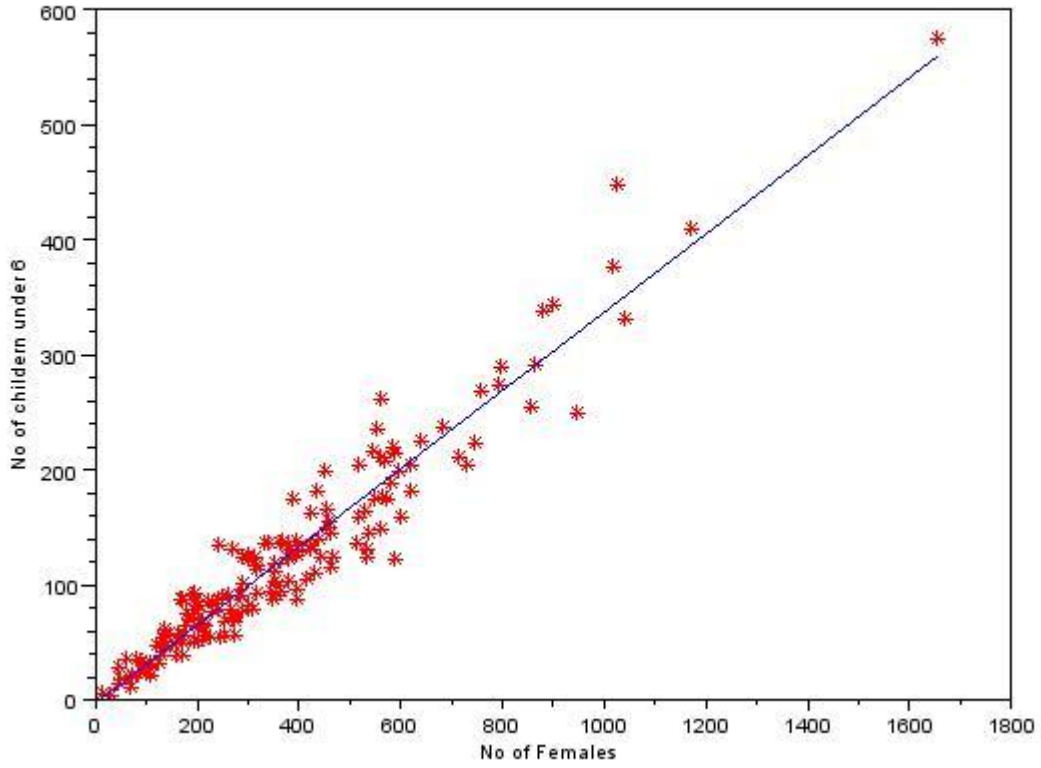


Mean: 0.1625 Variance :0.0015

There is quite high number of population under 6 the expected average value should be around 12.5% if we consider that India has a life expectancy of around 60 yrs.

This suggest two more problem population explosion, and as usual may be the problem of resources and amenities.

Female Population versus Population under 6 years



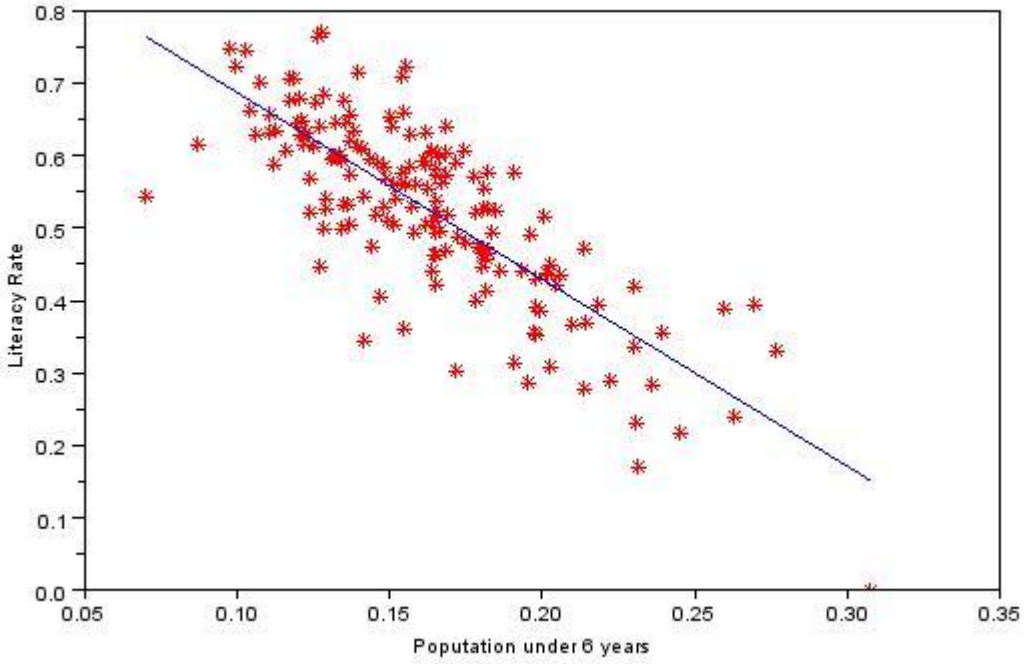
slope =0.3396713

Correlation:0.9609532

The co-relation is very high and it should be as females are the main factor towards rise in population.

But the interesting point here is the mean..the mean shows that out of every three females one female has a child and it could be a boy or girl equally probable.

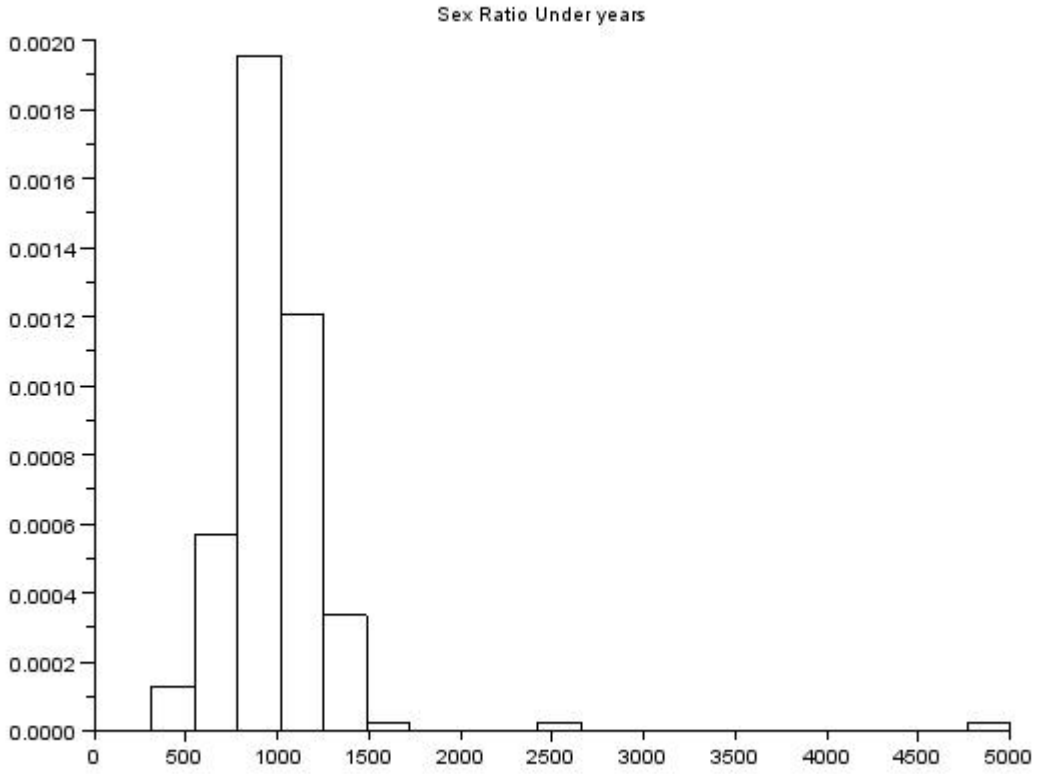
Population under 6 versus literacy rate



Slope : -2.5 Intercept :0.944
Correlation : - 0.79

A very good estimator of the rate of rising population is Population under 6 yr.
So to see the effect of literacy on the population we take the literacy of parent generation and then get its correlation with population under 6.
As literacy increases there is less population as suggested by the correlation.

Sex Ratio under 6



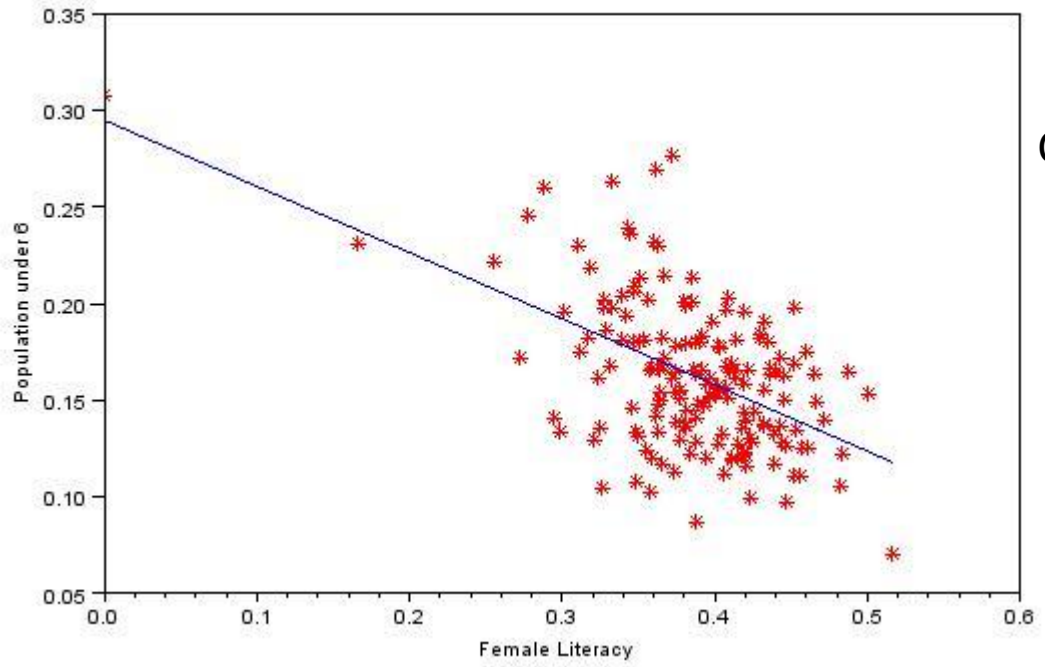
Mean: 999

Mode: 961

Mean is quite misleading because of some village having very high sex-ratio which suggest data discrepancy….so go by mode.

This sex ratio is quite above the normal average of India..and hence there is no problem female feticide.

Female Literacy versus population under 6

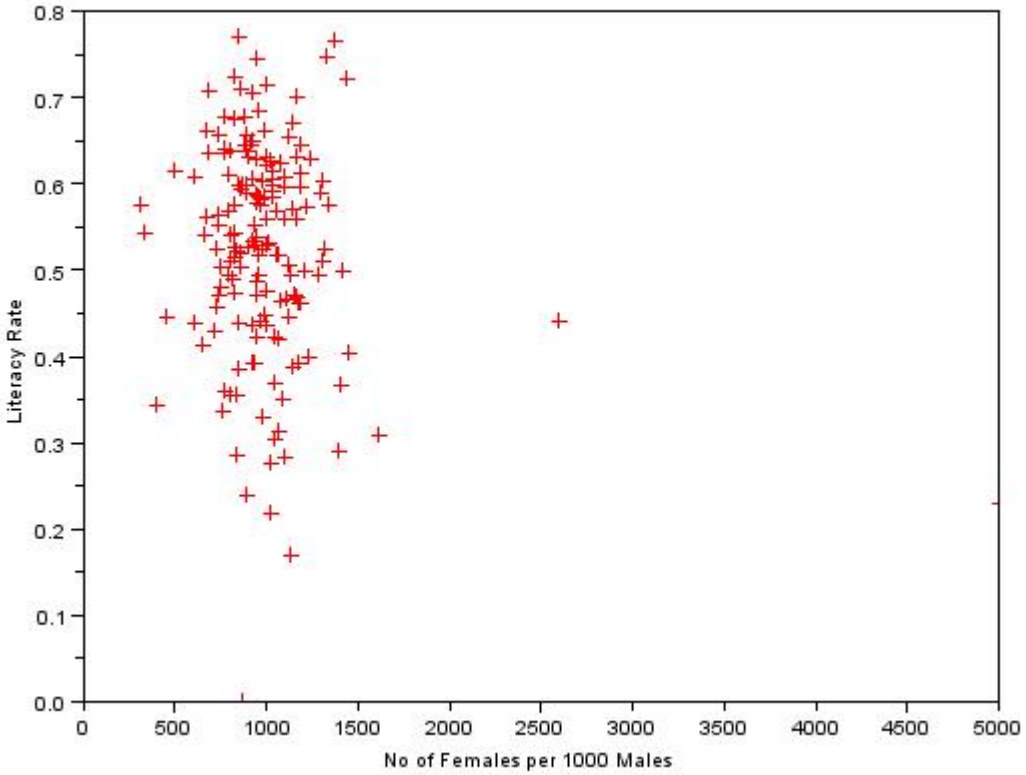


Slope = - 0.3425591

Correlation:= - 0.5164588

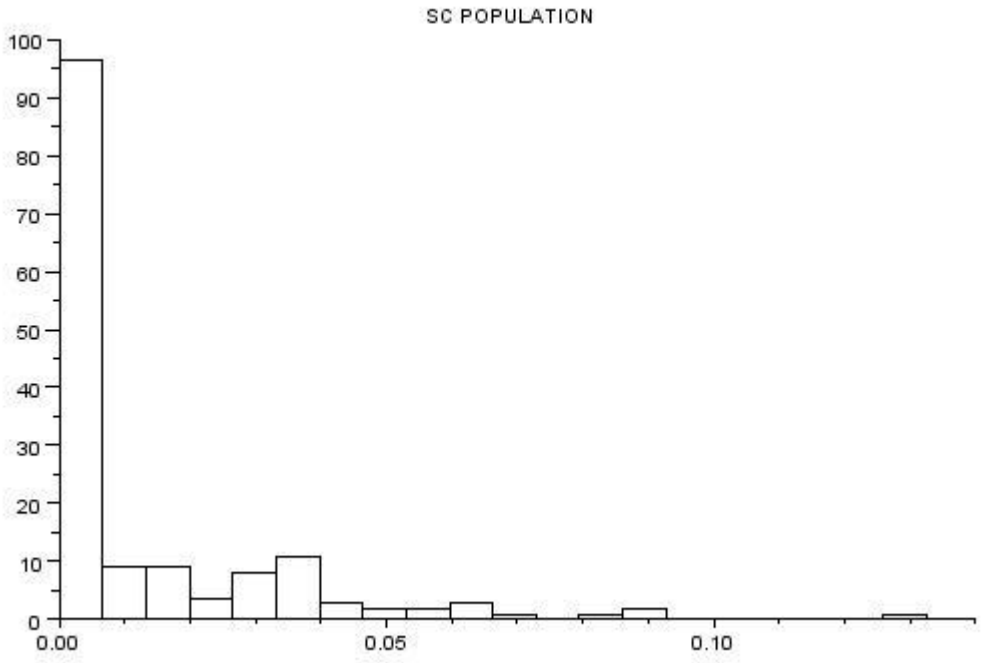
The previous generations literacy shows how seriously they take family planning issues. Here we see that with increase in female literacy there is a corresponding decrease in the population under 6 years of age.

No of Females per 1000 males vs Literacy Rate



There is no change in sex ration with change in literacy rate suggest that population are not influenced about myths of high preference to males than females.

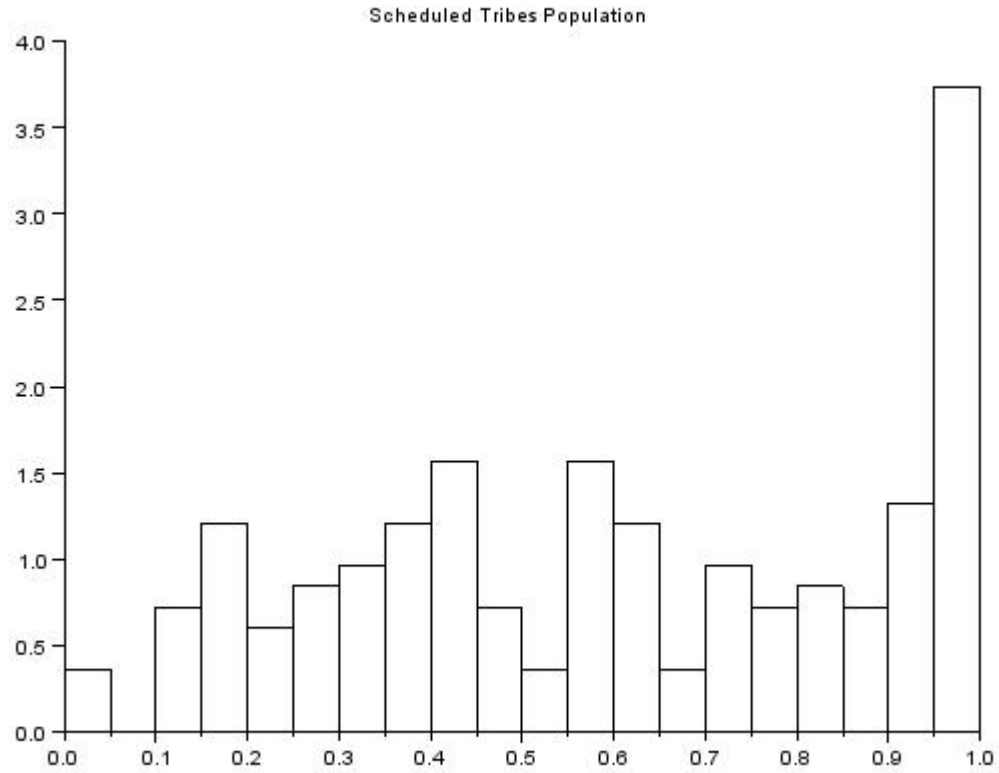
SC Population



Mean: 0.012

Most of the Villages don’t have sc population among them seeing the 0 bar in the histogram. The Population is too insignificant to analyze.

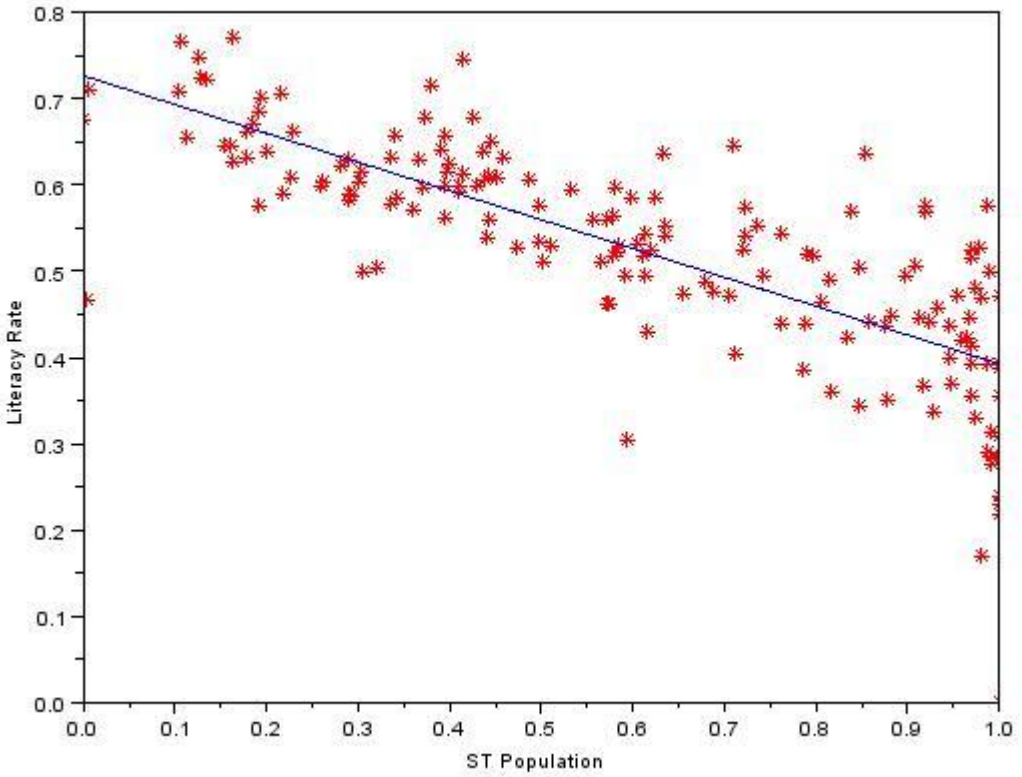
Scheduled Tribes Population



Mean: 0.609

The Data suggest that there are many village who high no of ST people..there are some completely ST villages in the Taluka.
There may be a problem of exclusion from the society..but that con be analyzed by seeing the location of these villages.

Scheduled Tribes vs Literacy rate

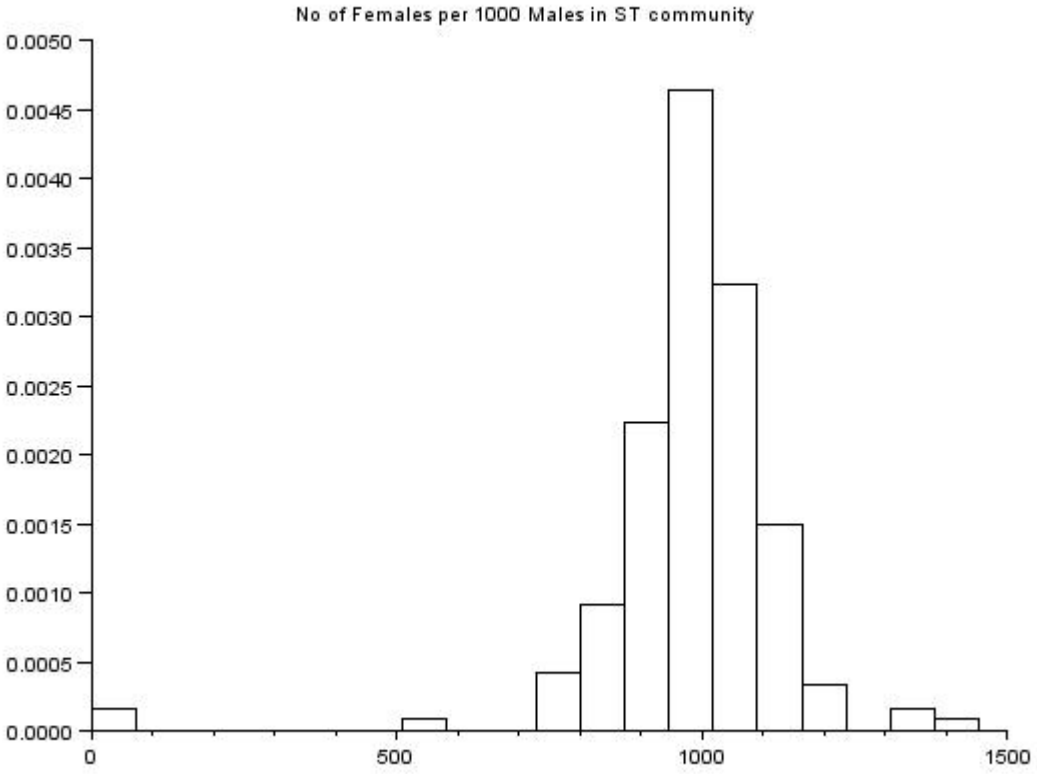


Slope= - 0.333

Correlation : -0.77

The Graph clearly seconds the inference of previous slide..there has been an society exclusion problem in this area as we move towards the village have only ST population there is a sharp decrease in literacy..as there are many villages which are completely tribal. One more problem the taluka faces is tribal exculsion from society.

Sex Ratio in Scheduled Tribes Community

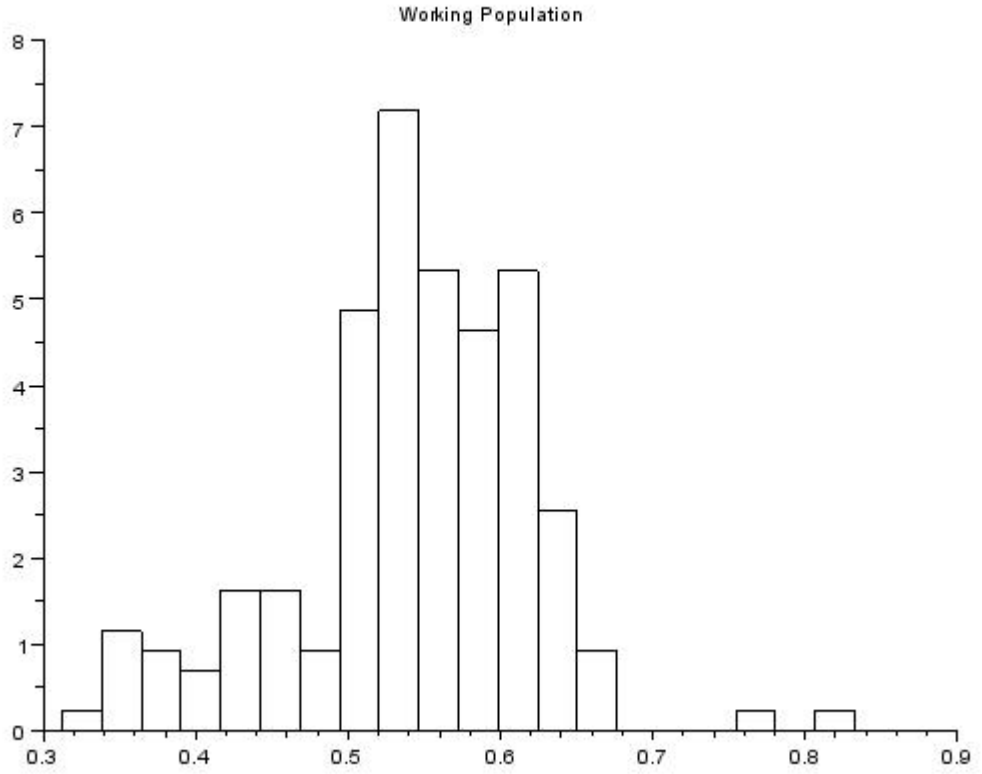


Mean: 985.19

Mode: 999.87

The sex ratio in the tribal's is very good and is natural.
We think the tribal’s don’t have a high interaction with surrounding villages because the overall sex ratio is around 960..which suggest the there ideologies are quite different.

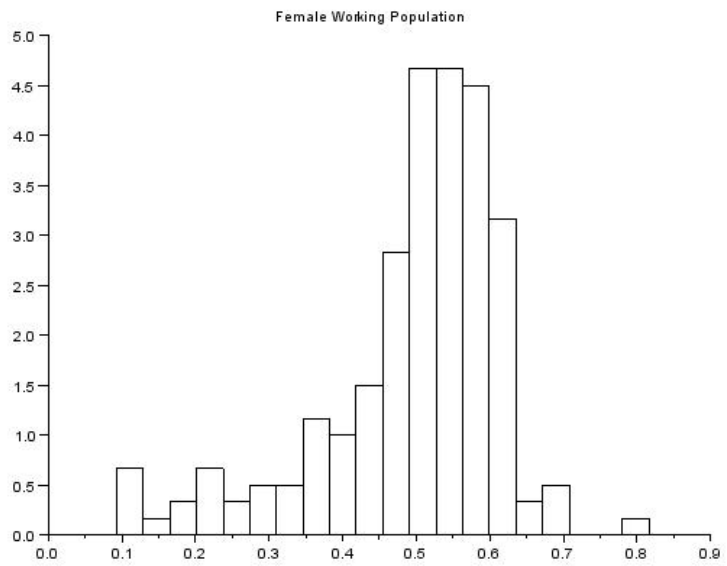
Problem of Employment in the Vada Taluka



Mean: 0.5422 Mode: 0.53 Variance: 0.006

There are very few Villages with high working population rate.
Most of the villages working population around 54%.
This ratio …… W.r.t india……..
Those villages at the either ends of the graph again belong to the socially excluded section of the society hence again supporting the arguments.

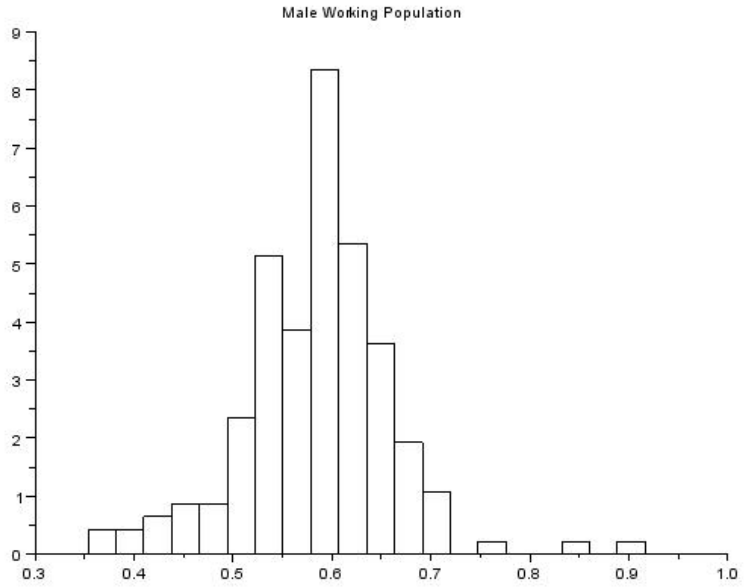
Female working Population



Mean:0.495

Variance :0.0156

Male working Population



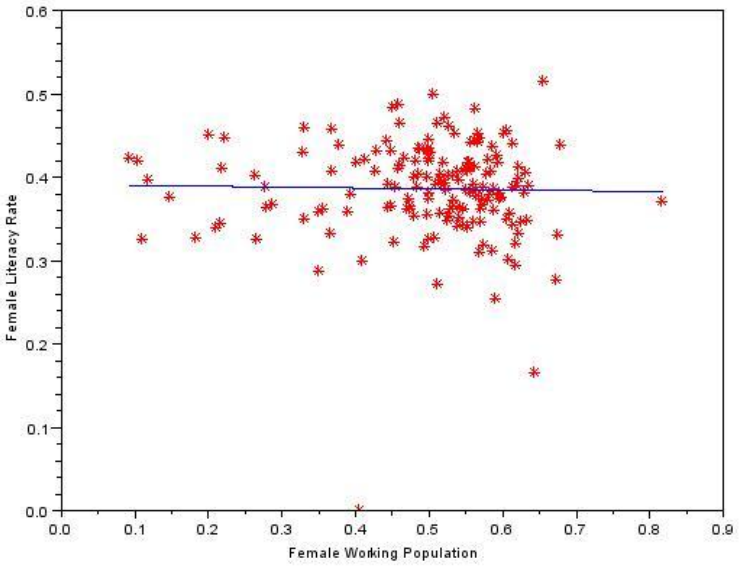
Mean: 0.5839

Variance: 0.0056

From the graphs we can clearly see that there are clearly more males working than females there is and female backwardness to an extent in the taluka. This might a problem in the area.

- We have a very interesting observation here.
- As expected women are working less than men in general but the high standard deviation of 0.16 and maximum & minimum values of 0.75 and 0.12 suggests that there are villages where there is an environment of women working and villages where women don’t work in general.
- The max values of 0.75 suggests that women also have the potential to work
- So it is important that working population and therefore GDP can be improved by increasing the women working population and it is possible too as clear from the previous graph
- There is a need of programmes and incentives which bring women to work in those areas where the female working population is pretty low

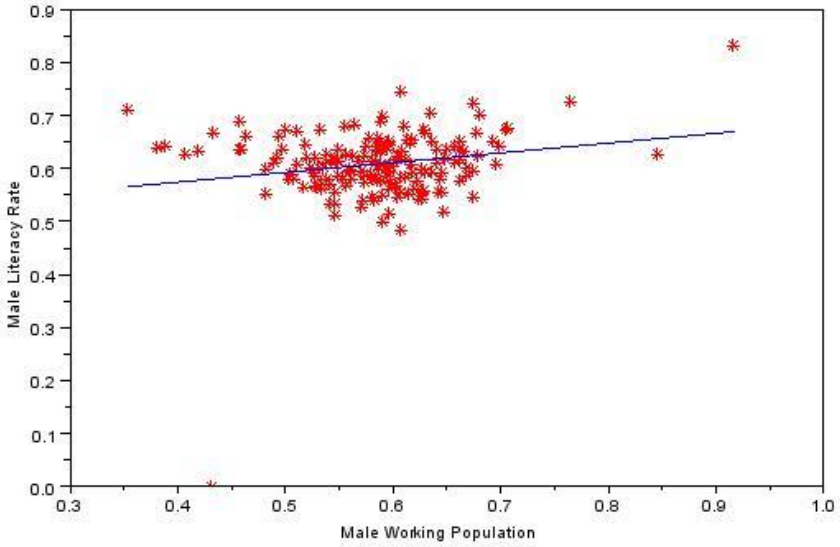
Female working versus Female Literacy



Slope:= - 0.0106713

Correlation: - 0.0228518

Male working versus Male Literacy

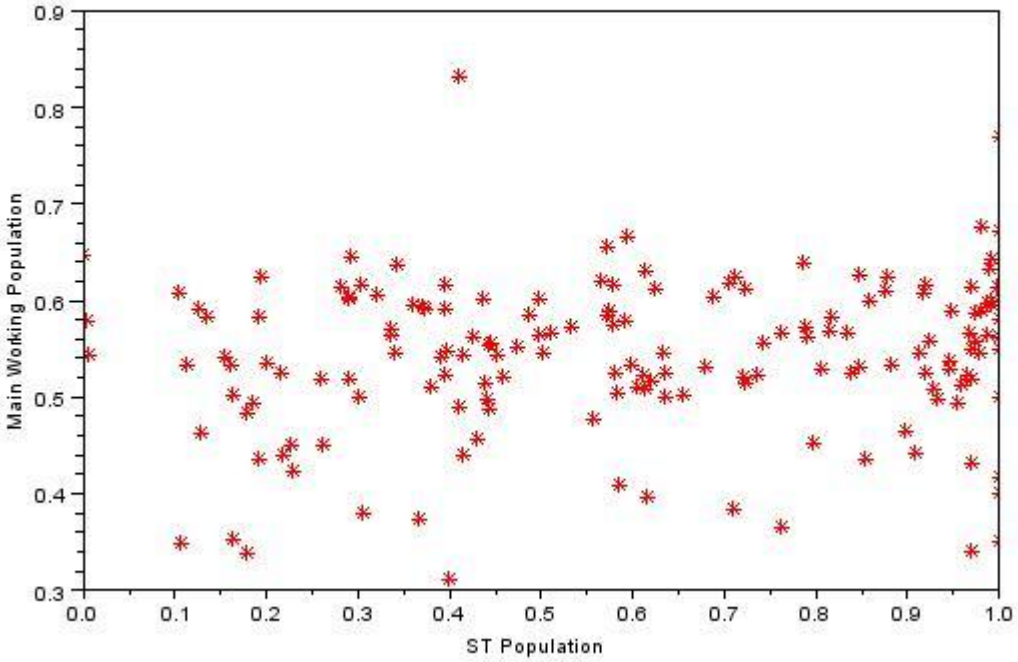


Slope = 0.1843695

Correlation: 0.2002519

There is no significant effect of literacy on female working and male working there respective co-relations are very low...
One more point to be noted is that many working areas where most of the population works does not require literacy.

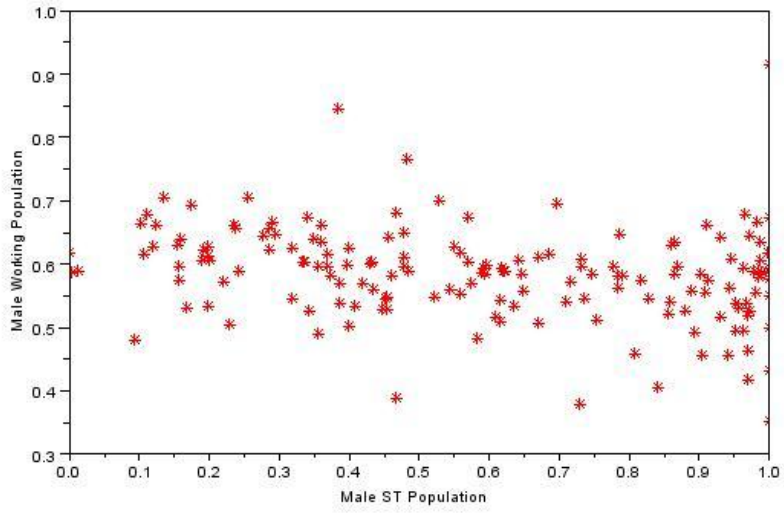
ST Population vs Main Working Population



Correlation: 0.108

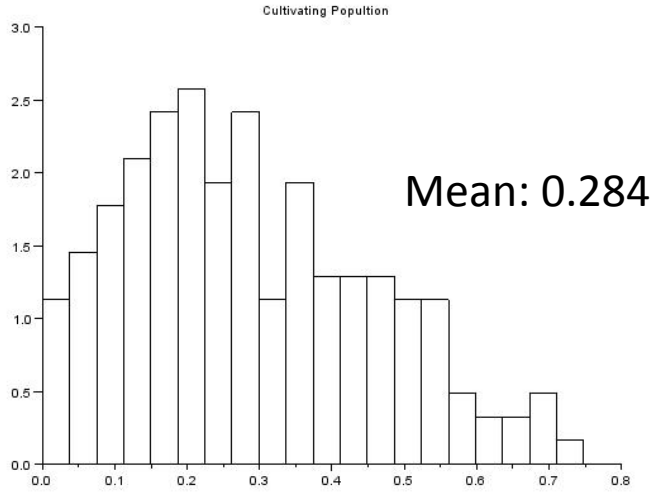
The co-relation between the two parameters is not strong but we can say that ST population works on selected jobs as there is not a considerable increase in main working population.

Male Working Population vs Male ST Population



Correlation: - 0.2776778

Main Cultivating Population

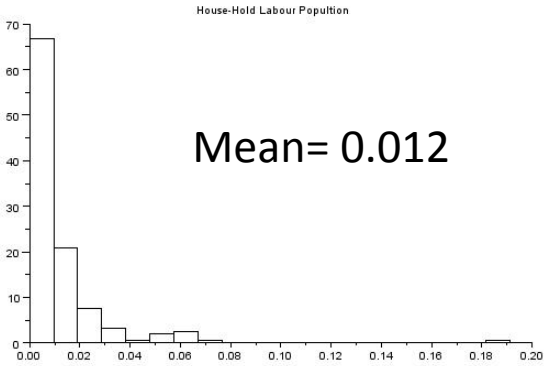


Mean: 0.284

Main Agriculture Population

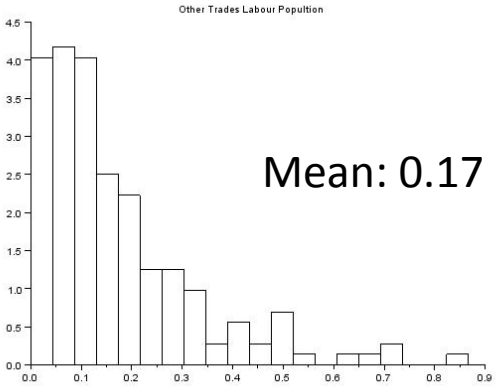
Mean:0.223

Main House Hold Population



Mean= 0.012

Main Other Trades



Mean: 0.17

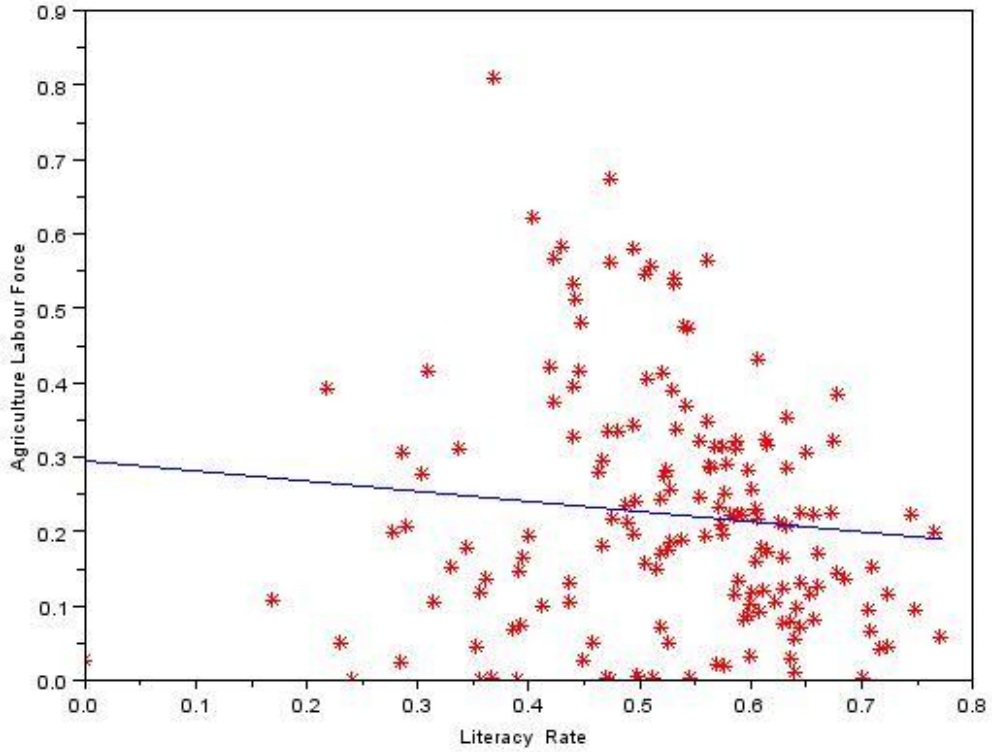
Statistics of main workers

- Mean percentage of Male Workers 69%
- Mean percentage of female workers 31%

- Mean % of household industry labourers 8%
- Mean % of agricultural labourers 30%
- Mean % of cultivators 39%
- Mean % of other workers 23%

As we have seen that the main working population is distributed among 4 classes with agriculture and cultivating taking up the maximum part of it implies that most of the people in the taluka are involved in farming related operations to support there needs. Above it around 70% population being ST it suggest that the people may be practicing traditional farming as there is a lack of literacy among the Scheduled tribes.

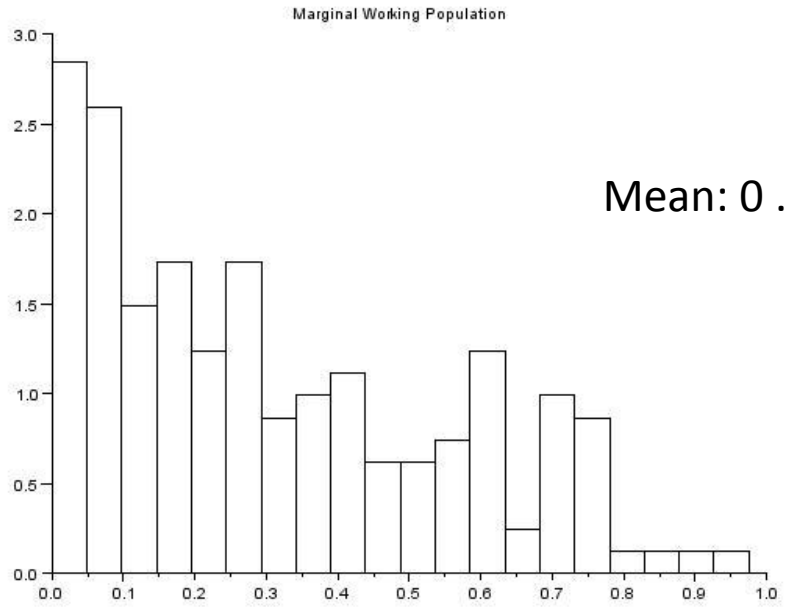
Agriculture Labor Force and Literacy Rate



Correlation: - 0.1058019

This graph seconds the previous argument that literacy among the working class lacks especially the agriculture labor force (which includes cultivating population & agriculture labor) we see that co-relation is very insignificant i.e. the working people in farming use traditional methods and don't respond to literacy.

Marginal Working Population



Mean: 0 .31

Most of the village people go for Main Working jobs and marginal work.

Useful correlations implication is literacy is not affecting the agriculture and cultivating fields

Important Statistics:

Correlation:	Agriculture working & Working Population 0.0319458	Correlation:	Agriculture working & Literacy rate - 0.1058019
Correlation:	Cultivating & Working Population 0.1610033	Correlation:	Cultivating & Literacy rate 0.0457844
Correlation:	Other trades & Working Population - 0.2479343	Correlation:	Other Trades& Literacy rate 0.3872039

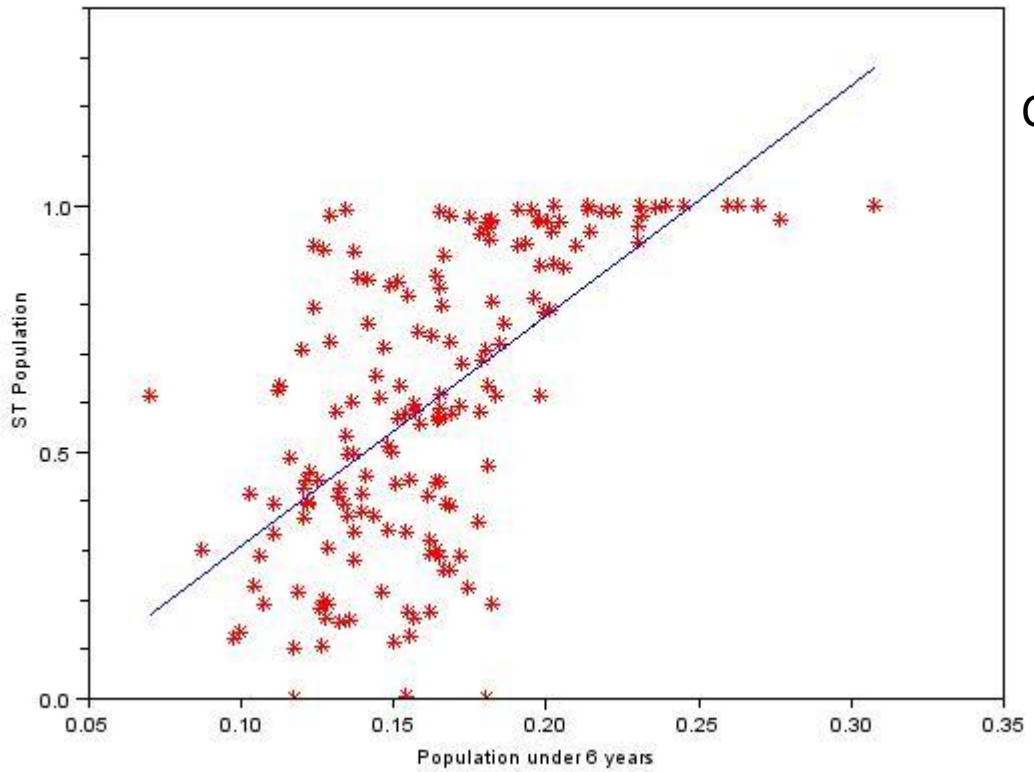
Main Working population 70%

Marginal Working Population 30%

Correlation: Main	Total Working Population & Working Population 0.8996886
Correlation:	Total Working Population & Marginal Working Population 0.5632851

Clearly indicate that Main Working Population versus Working Population has a very high correlation and contributed to the maximum part of it.

Population under 6 years vs ST Population



Slope = 4.6701227
Correlation: 0.6163804

There is a positive and strong co-relation between ST population and population under 6 yrs implies as we go to villages having more ST population we tend to find more children under 6 years

This also says that ST are contributing to faster increase in population.
This may lead to a problem of Population explosion.

Conclusion

- We have looked at various parameters of Vada talluka
- Even though it is an rueral talluka and close to Mumbai the literacy rate is pretty low at 54%.
- We have seen that literacy rate strongly determines the population under 6 which affects the population increase of the country.
- Literacy also affects the lifestyle and quality of living of the people .
- Then we saw that female literacy is much lower than male literacy and also noted that the literacy among ST groups is pretty low.
- So the two target groups, if we want to improve literacy in general should be females and STs.
- However since the female and male literacy is strongly correlated therefore we need to improve male literacy too.

Conclusion

- Next we observed that rate of increase in population is pretty high in the talluka and requires attention.
- We saw that there is a strong correlation between ST population and population rise and therefore we need to have some awareness programmes for STs to solve the problem
- We also noted that the sex ratio under 6 is low for some villages and this requires immediate attention
- However the average sex ratio under 6 is pretty high for the talluka
- It is to be noted that there is no correlation between ST population and the sex ratio under 6.

Conclusion

- We saw that the % of people working is pretty low in the talluka and requires attention
- Particularly women have a very low workforce participation even though they have the potential to work , and we can say this because they do work in many areas of the talluka
- We observed that a lot of marginal workers are agricultural labourers and policies need to made which will ensure that they get regular work throughout the year

Conclusions

There is also a problem of exclusion from the society in this the tribal's are usually not involved in the cultural events of the society which evident from the different ideologies.

Commendable difference in statistical values of the area where the region is very small and not expecting such a high difference.

This require urgent attention . Solution to this problem can be increasing the amenities in the area and removing cultural and ideological differences.

Comparision of Scenario in Vada and Kalyan.

Literacy Rate

- Literacy rate is significantly higher in the urban area of Kalyan than Vada
- Literacy rate for females is lower than males and highly correlated
- Morover the disparity between male and female literacy rate is much higher for vada than for Kalyan
- In both areas literacy rate is dependent on the tribal groups population
- Thus the target groups are females(particularly in Vada) and the tribal groups

Population Rise

- The percentage of population under 6 is much higher in Vada than in Kalyan which says that population needs to be restrained in Vada urgently
- Also population rise is strongly correlated to literacy rate in both the areas
- In both rural and urban areas the population rise is strongly correlated to tribal groups
- However the sex ratio as well as sex ratio under 6 is very low for Kalyan as compared to Vada which proved that malpractices take place in Kalyan but not so much in Villages
- However sex ratio under 6 is not correlated to literacy rate or to tribal groups population

Employment

- Employment shows very interesting trends with working population being significantly less in urban areas
- Morover the female participation is very poor in Kalyan whereas it is significantly better in Vada
- Also most of the marginal workers are household labourers or agricultural labourers and the govt should do something to ensure regular work for them.

Strengths and weaknesses of methods

Strengths

- The data is Census data and expected to be very accurate
- When the correlation is high we have tried to fit data to regression lines
- We have done extensive analysis and used real life experience to decide which graphs can possibly give good correlation

Weaknesses

- The data might be incorrect at many places but we have not flagged data which look incorrect
- We have tried to fit data only to straight lines and not to other curves