

**A STUDY ON SEX DISTINCTION IN CASE OF  
EMPLOYMENT IN NOPOMUA GAON OF  
JORHAT DISTRICT**



**Prepared By**  
**Sri Monoj Borah**  
**B.Sc. 6<sup>th</sup> Sem.**



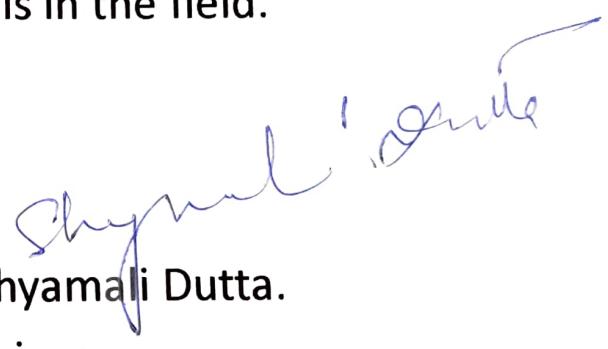
**Department of Statistics**  
**Bahona College**

**2017**

# Certificate

This is to certify that Sri Monoj Borah, a T.D.c. 6<sup>th</sup> sem student of the department of Statistics, Bahona college Jorhat has prepared a project work on " A study on sex distinction in case of employment in nopolomua Gaon of Jorhat District" under my guidance and supervision.

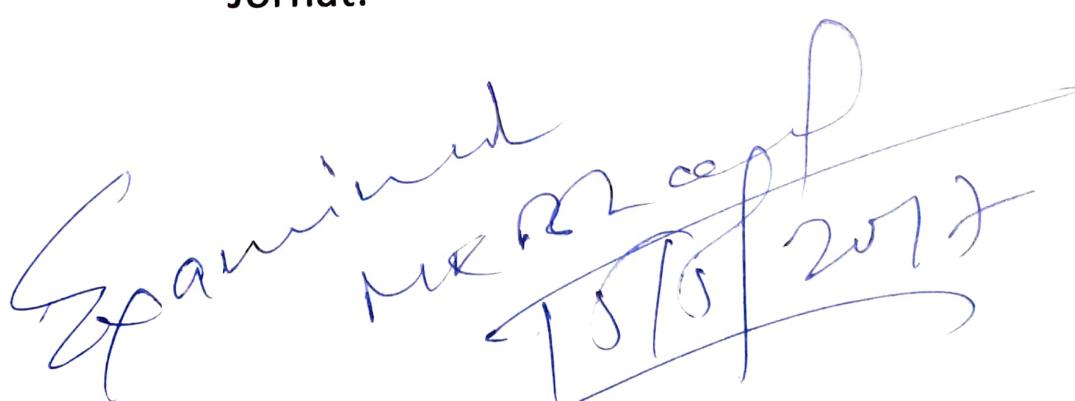
The work on partial fulfillment of B.Sc. Course in Statistics. The work is the result of his own investigation and based on the data collected by his in the field.

  
Mrs. Shyamali Dutta.

Supervisor

Dept. of statistics.

Jorhat.

  
Date :

Examined  
me 22 sep  
15/02/2017

## ACKNOWLEDGEMENT

I also express my sincere gratitude to Mrs. Shyamali Dutta, Bahona college Jorhat for her proper guidance and suggestion throughout the preparation of the project work.

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Lastly I offer my special gratitude to my friends and well wishers for cooperation during the project work.

*Sri Monoj Borah.*

*Date :*

Sri Monoj Borah.

*Place :*

B.Sc. 6<sup>th</sup> Semester.

Dept. of Statistics.

Bahona College.

## **DECLARATION OF THE PROJECT WORK**

I here by declare that the entire work embodies in this project is the result of the investigations carried out by me under the guidance and supervision of my respected madam Mrs. Shymali Dutta ,Dept. of Statistics,Bahona College.

*Monoj Borah.*

Sri Monoj Borah.

B.Sc. 6<sup>th</sup> Semester.

Dept. of Statistics.

# PREFACE

The study of almost all branches of science is incomplete without practical knowledge. Statistics is also such a branch of science and the students of Statistics have to acquire theoretical as well as practical knowledge during their study. So, practical knowledge has the greater importance in our real life. The field work sharpens our knowledge in the subject and gives us a clear concept it. So field study is very much necessary.

So in view of great importance of the field work, the Department of Statistics, Dibrugarh University has introduced project work in B.Sc syllabus.

In this project work an attempt has been made to study the sex distinction in case of employment of a village.

Outline of the project work under different chapters are given below:

Chapter I which is introductory in nature, presents the need of the study, objective of the study, and hypothesis.

Chapter II describes about the population and sample under study, methodology and about the schedule.

Chapter III describes about employment and unemployment.

Chapter IV presents about Chi-square distribution.

Chapter V presents calculation, analysis and interpretation of the data.

Chapter VI presents conclusion of the study.

# CHAPTER I

## GENERAL INTRODUCTION

### 1.1 INTRODUCTION

India is the 2<sup>nd</sup> largest country with respect to population in the world. India has been facing the problem of unemployment and labour surplus right from the inception of its growth plans. 80% of Indian population live in village. With the spread of education in village, the problem of unemployment among educated classes has increased many folds. There are many graduates, post-graduates who are fed with job-hunting, willing to accept any job what so-ever. The attainment of full employment that is fullest utilisation of human resources for productive is a characteristic sign of highly industrialised economics. Unemployment in such countries can occur only when there is a slack in economic activity.

In under-developed countries, unemployment of labour and under-employment equilibrium are closely linked with each other. Unemployment is a rather complex phenomenon, which is sometimes relatively easy to notice but hard to define for an effective development programmes.

The distinction between sex and gender is a concept that, sex is a natural or biological feature and gender is the cultural or social significance of sex.

In India the main obstacle for female achievement is cultural expectations. Specially, women are expected to fulfil the caring and nursing figure (Khuller M). Thus the gap in male and female literacy rate in India is 75.96% and female literacy rate is 54.28% (census report 2011).

## 1.2 NEED OF THE STUDY:

labour force participation not only gives women an opportunity to earn income but also exposes them to the outside world. In a developing country such as India, however, when women's participation is often motivated by poverty, these benefits are likely to be mediated by the social context of women's work and their total work burden. In addition, the empowering effects of employment for women are likely to depend on their occupation, the continuity of their workforce participation, and whether they can earn income. It is generally expected that women who work at a regular job, who earn money, and who perceive that their contribution is a substantial part of total family earnings are more empowered than other employed and unemployed women. Ministry of Health and Family Welfare 2000 explicitly recognizes the importance of women's paid employment in achieving the goal of population stabilization in our country and also specifies measures that will encourage paid employment and self employment of women.

Indian working women taking up employment is to raise the standard of living of the family and supplement their husband's income, they get more concerned about the composition of their family, particularly the number of children they bear and which they have to look after. Hence the employment of women has an important bearing on the family size and child spacing. India has secured the right of women to an adequate means of likelihood and equal pay for equal work. But the social practices and prejudices strongly militate against these laws and achievement of national objectives in this regard. Besides a large number of discrimination in matter of female employment is still found. The women remain trapped in traditional roles and excepting in public sector their employment is not encouraged.

### **1.3 OBJECTIVE OF THE STUDY**

The main objective of the study is to determine if any distinction is made in appointment on the basis of sex.

### **1.4 HYPOTHESIS**

Keeping in view the objective of the study, we set up the null hypothesis that no distinction is made in appointment on the basis of sex.

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## CHAPTER II

### STUDY OF THE POPULATION AND SAMPLE UNDER STUDY

#### 2.1 ABOUT THE VILLAGE UNDER STUDY

The present study covers the population of Nopomua Gaon which is situated in the North-East part of Jorhat District. Jorhat, the last capital of six hundred years long decaying and declining Tungkhungia Ahom Dynasty.

Nopomua Gaon is located at just 7 k.m. far away from Jorhat Town. The sub-way tightens the communication between Jorhat.

There are 206 households and 812 inhabitants in the village. All the villagers are Assamese. Most of the people of the village belong to the lower middle class. The total population of the village is about 794 in numbers. Out of these 794 inhabitants, the male population is 412 and the female population is 382. Therefore, the sex ratio of the village is 927 which is lower than the Indian sex ratio which is 954 female out of 1000 male.

There are 34 kassa, 37 Assam type and 21 R.C.C. type house was noticed among the 100 household of the village. There is a fair price shop in the village under co-operative society of 35no Potia Focola Gaon Panchayata. The fair price shop supplies rice, sugar, kerosene etc. to the consumers at control rate.

For primary and higher education there is a primary school in the village. Just 5k.m. ahead from this village, there is a college, in which most of the students of this village take higher education. The village is provided good running water and electrification. Almost 99% household having electricity, still 1% household of this village cannot effort the electricity facility, so they have to depend upon kerosene to lighten their home.

## **2.2 SAMPLE OF THE STUDY, PROCEDURE OF DATA COLLECTION, AND METHODOLOGY USED**

Out of 206 households 80 households are selected at random for intensive study. The total population of these 80 households is 315, out of which 160 are males and 155 are females. The data were collected by direct interview. An interview schedule was maintained to collect the relevant data. 80 households were successfully interviewed; only the chief of the household answered all the questions of the schedule.

Chi- square test for independent of attributes is used to test the significant sex distinction in case of employment of the village.

## **2.3 THE SCHEUDLE**

The schedule was used to collect information from the sample household of the village. 80 households were successfully interviewed, only the head of the household answered all the questions of the schedule. It collects information on the households itself such as type of house, characteristics of head of the household such as religion, caste or tribe, type of family, whether it is nuclear or joint, number of family members, education qualification of the members, number of earning members and total monthly income

The purpose of the enquiry is to see if males are preferred than females of equal qualification in case of any employment.

# CHAPTER III

## EMPLOYMENT AND UNEMPLOYMENT

### 3.1 INTRODUCTION

The concept of employment is associated with human activities undertaken for the purpose of production and earning an income. In general, the term unemployment meant the lack of availability of employment. When a man-power, whether he is educated or uneducated, he is restricted from getting a reliable job then he is called unemployed.

If some workers are able to get work for less than the standard duration (such as less number of hours per day or less number of days per year) then they are termed as underemployed. If a person is employed at a level of lower than his qualification demands, then also he is underemployed.

### 3.2 CAUSES OF UNEMPLOYMENT IN ASSAM

Assam has crossed over four decades of planning but the problem of unemployment could not be solved. whatever employment would be generated have been neutralised by the release of manpower in the employment market due to growth of population, rapid expansion of education facilities handicapped by lack of growth of industries, lack of entrepreneurship and shyness of capital. The problem of unemployment in Assam is both a deep rooted and complex one. It results from interaction of a number of forces related to the structure of our economy, growth rate and the planning process. A brief description of the salient causes of persistent unemployment is given below—

#### 1. INCREASING LABOUR FORCE:

The number of workers available for employment or seeking employment has been increasing quite rapidly throughout the planning period. Labour force

is defined as number of persons within the specified category who are actually seeking employment or are available for it. By implication, labour force is always less than the population stock in terms of age, skill or residence category. However, in our country labour force for almost all categories has been rapidly increasing due to the following reasons----

- (a) Our country has been experiencing a population explosion over the last few decades while death rate has fallen substantially, the fall in birth rate has lagged behind. Fall in death rate is the result of numerous factors like better health and medical care, reduction in death of infants and women in child birth, reduction of incidence of epidemics, improvement in nutritional standards and so on. Expected life span of both Indian males and females has increased for all groups.
- (b) The social norms in our country are undergoing a rapid change. As a result an increasing number of females are entered the labour market. There is a greater acceptance of the idea that females should also take up jobs. The trend is gaining further strength by the spread of female education.
- (c) As a side consequence of the spread of education and training facilities unemployment of skilled and educated labour is also on the increase.

## **2) SLOW RATE OF ECONOMIC GROWTH**

An increase in population can add to the rank of unemployed only is not full counter balanced by growth of the economy. The potential of employment in some sectors such as agriculture, cottage and village industries have not been tapped properly. Growth of agriculture sectors can not only wipe out the backlog of open and disguised unemployment in agriculture itself, but can also provide a

base for demand and employment creation in villages and cottage industries has not meet with sufficient success in so far as generation of employment is concerned. This is because the defective implementation of the schemes does not provide opportunities for gainful employment to the unemployed.

### **3) INAPPROPRIATE EDUCATIONAL SYSTEM**

In spite of wide spread recognition of the defects of the educational system, our plans have accorded one of the lowest priorities to this aspect of our economic development. Our education creates a dislike for manual and certain other types of jobs which go against the essence of an integrated industrial society with sufficient labour mobility. This kind of value system is further strengthened by the policy of authorities to link recruitment with formal educational qualifications on the one hand and denial of admission in 'elite' institutions to the vast majority of people on the other. Another dimension of faculty educational policy is the lack of harmonization between supply and demand of labour different skills, educational contents and training. This has resulted in increasing unemployment in the skilled and educated persons.

### **4) ILLEGAL MIGRATION:**

The problem of illegal migration is the deep rooted problem of Assam. Nothing have been done to move in the direction of sending away the illegal immigrants from Assam and unemployment problem in Assam is growing more and more effect of this continuing and untreated cancer.

The population of Assam have increased alarmingly and it has now on the one hand become difficult for an Assamese farmer to get sufficient land to engage him and his children fully in agriculture and whatever land they have, they cannot cultivate the same for the whole year fully. Assamese farmer can engage himself and his children only 120 days in a year in his hand. The rest of the days in a year they remain idle and this has resulted in the unemployment in

The villages, yielding on the rush of young villagers going to the towns seeking employment. The number of job seeking through employment exchange of the state has been going up day by day. Agriculture in Assam which is the main economic activity is characterized by mono cropping of high risk of flood, low activity and very poor extinction and support system. It is gradually becoming less attractive and rural youth is running after jobs. Through a few industrial projects are being set up but it is seen that Assamese rural youth have not been able to find employment in the grade IV services like peon, driver etc for lack of suitable skills.

# CHAPTER IV

## CHI-SQUARE DISTRIBUTION

### 4.1 APPLICATIONS OF CHI-SQUARE DISTRIBUTION

Chi-square has a large number of applications in Statistics, some of which are enumerated below—

- 1) To test if the hypothetical value of the population variance is
- 2) To test the 'goodness of fit'
- 3) To test the independence of attributes
- 4) To test the homogeneity of independent estimates of the population variance
- 5) To combine various probabilities obtained from independent experiments to give a single test of significance.
- 6) To test the homogeneity of independent estimates of the population correlation coefficients.

### 4.2 TEST OF INDEPENDENCE OF ATTRIBUTES---CONTINGENCY TABLES—

Let us consider two attributes A and B, A divided into r classes  $A_1, A_2, \dots, A_r$  and B divided into classes  $B_1, B_2, \dots, B_s$ , such a classification in which attributes are divided into more than two classes is known as manifold classification. The various cell frequencies can be expressed in the following table known as  $r \times s$  manifold contingency table where  $(A_i)$  is the number of persons possessing the attribute  $A_i$  ( $i=1, 2, \dots, r$ ),  $(B_j)$  is the number of persons possessing the attribute  $B_j$  ( $j=1, 2, \dots, s$ ) and  $(A_i, B_j)$  is the number of persons possessing both the attributes  $A_i$  and  $B_j$  ( $i=1, 2, \dots, r$ ,  $j=1, 2, \dots, s$ ). Also  $(A_i) = (B_j) = N$ , when N is the total frequency.

## R X S CONTINGENCY TABLE

The problem is to test if the two attributes A and B under consideration are independent or not.

Under the null hypothesis that the attributes are independent, the theoretical cell frequencies are calculated as follows—

$P[A_i] =$  probability that a person possesses the attribute  $A_i = (A_i)/N ; i=1,2,\dots,r$ .  
 $P[B_j] =$  probability that a person possesses the attribute  $B_j = (B_j)/N ; j=1,2,\dots,s$   
 $P[A_i B_j] =$  probability that a person possesses the attribute  $A_i$  and  $B_j = P(A_i) P(B_j)$

(By compound probability theorem since the attributes are independent, under the null hypothesis).

$$P[A_i B_j] = (A_i)/N \cdot (B_j)/N ; i = 1, 2, \dots, r ; j = 1, 2, \dots, s$$

And

$(A_i B_j)_0 =$  Expected number of persons possessing both the attributes  $A_i$  and  $B_j$

$$= N \cdot P[A_i B_j] = (A_i) (B_j)/N$$

$$(A_i B_j)_0 = (A_i) (B_j)/N , (i=1,2,\dots,r ; j=1,2,\dots,s)$$

By using this formula, we can find out expected frequencies for each of the cell frequencies  $(A_i B_j)$  ( $i = 1, 2, \dots, r ; j = 1, 2, \dots, s$ ), under the null hypothesis of independence of attributes.

The exact test for the independence of attributes is very complicated but affair degree of approximation is given, for large samples, (large N), by the chi-square test of goodness of fit.

Where  $O_i =$  Observed frequency for contingency table category in column  $i$  and row  $j$

$E_{ij}$  =Expected frequency for contingency table category in column i and row j.

Which is distributed as a chi-square variate with  $(r-1)(s-1)$  degrees of freedom.

### **DEGREES OF FREEDOM:-**

The number of independent variates which make up the statistic (e.g  $\chi^2$ ) is known as the degrees of freedom (d.f) and is usually denoted by  $\nu$  (the letter 'Nu' of the Greek alphabet)

The number of degrees of freedom in general is the total number of observation less the number of independent constraints imposed on the observations. e.g. if  $k$  is the number of independent constraints in a set of  $n$  observations then  $\nu=n-k$ .

In a  $r \times s$  contingency table, in calculating the expected frequencies, the row totals, the column totals and the grand totals remain fixed. The fraction of 'r' column totals and 's' row totals imposes  $(r+s)$  constraints on the cell frequencies. But since  $\sum_{i=1}^r (A_i) = \sum_{j=1}^s (B_j) = N$ , the total number of independent constraints is only  $(r+s-1)$ . Further, the total number of cell frequencies is  $r \times s$ , the required number of d.f is  $rs-(r+s-1)=(r-1)(s-1)$ .

### **TWO WAY TABLES AND CHI-SQUARE TEST:**

When analysis of categorical data is concerned with more than one variable, two-way table (also known as contingency table) are employed. These tables provide a foundation for statistical inference, where statistical tests question the relationship between the variables on the basis of the data observed.

The Chi-square test provides a method for testing the association between the row and column variables in a two-way table. The null hypothesis  $H_0$  assumes that there is no association between the variables, while the alternative hypothesis  $H_1$  claims that some association exist. The alternative hypothesis does not specify the type of association, so close attention to the data is required to interpret the information provided by the test.

The Chi-square test is based on a test statistics that measure the divergence of the observed data from the values that would be expected under the null hypothesis of no association. This requires calculation of the expected values based on the data. The expected value for each cell in a two-way table is equal to (row total  $\times$  column total)/N, where N is the total number of observations included in the table.

Once the expected values have been computed, the Chi-square test statistic is computed as-----

$$\chi^2 = \sum \frac{(observed - expected)^2}{expected}$$

Where the square of the differences between the observed and expected values in each cell, divided by the expected value are added across all of the cells in the table.

The distribution of the statistics  $\chi^2$  is Chi-square with  $(r-1)(c-1)$  degrees of freedom, where r represents the number of rows in the two-way table and c represents the number of columns. The distribution is denoted  $\chi^2_{(d.f)}$  where d.f is the number of degrees of freedom.

The Chi-square distribution is defined for all +ve values. The p-value for the Chi-square test is  $P(\chi^2 \geq k^2)$  the probability of observing a value at least as extreme as the test statistic for a Chi-square distribution with  $(r-1)(c-1)$  degrees of freedom.

# CHAPTER V

## CALCULATION AND INTERPRETATION

### 5.1 CALCULATION

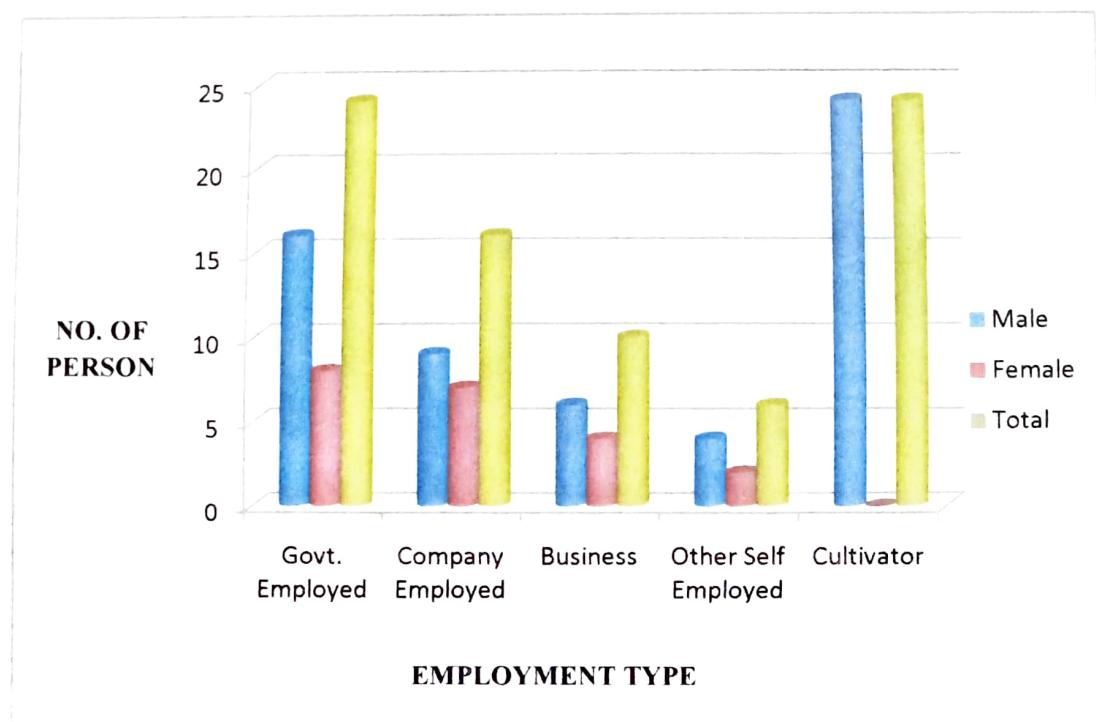
The following table shows the employment status of males and females of the village.

(The students below eighteen years and housewives are taken outside of the employment and unemployment group).

**Table No. 1**

Sex	Govt. Employed	Company Employed	Business	Other Self Employed	Cultivator
Male	16	9	6	4	24
Female	8	7	4	2	0
Total	24	16	10	6	24

### EMPLOYMENT STATUS OF MALES AND FEMALES



We set up the null hypothesis that no distinction is made in appointment on the basis of sex, and test it against the alternative hypothesis that distinction is made in appointment on the basis of sex

The observed and expected frequencies are shown in the following table-----

Table no. 2

Calculation for  $\chi^2$

	Observed frequencies		
	Employed	unemployed	Total
Graduate and P.G male	10	8	18
Graduate and P.G female	4	14	18
total	14	22	36

Table no. 3

Class	Frequencies		$(O_i - E_i)^2$	$(O_i - E_i)^2 / E_i$
	Observed ( $O_i$ )	Expected ( $E_i$ )		
Graduate and P.G male employed	10	7	3	9
Graduate and P.G male unemployed	8	11	3	9
Graduate and P.G female employed	4	7	3	9
Graduate and P.G female unemployed	14	11	3	9
Total				4.22

$$\text{Therefore, } \chi^2 = \sum (O_i - E_i)^2 / E_i = 4.22$$

Tabulated  $\chi^2_{0.05} = 1$  d.f. = 3.841

Since the calculated value of  $\chi^2$  is greater than the tabulated value of  $\chi^2$  is significant and null hypothesis is rejected. Hence we conclude that distinction is made in appointment on the basis of sex.

## ANALYSIS AND INTERPRETATION OF THE DATA

We classified the sample of the village like govt employed, company employed, business other self-employed, cultivator, and unemployed persons. Here we see that only 39% of the villagers are employed in govt-service, company, non-govt service, and business etc. About 60% of the villagers are busy with their paddy fields. 75% male are employed in the above mentioned services. But in case of female population the employment position is very poor, only 24% females are employed.

From the 80 households we get 36 graduate male and female. Out of 36, 18 are males out of which 10 are employed and remaining 8 are unemployed. Remaining 18 females 4 are employed and 14 are unemployed. So we can say that 56% graduate male are employed and only 22% graduate female are employed.

From the study of the village we see that all the villagers are the lower middle class family. Though there are schools and a college for the students yet the scope of employment is very limited. Agriculture is their traditional occupation, but as a source of living they are engaged in various services, business and other activities.

## CONCLUSION

In conclusion it is observed that though the number of educated females is not much lower than males, yet they have not get sufficient opportunity to get a job . In some field of jobs males are preferred than females though they have equal academic degree. In some field females themselves hesitate to accept some types of jobs. To become employed urge should come from female's heart. Degree oriented education is not sufficient to change the social status of women; it is a realisation through change in mindset of both male and female. Value based education should be introduced in the curriculum so that injustice against women can be eliminated. Education should be used as an agent of basic change in the status of women. In order to neutralise the accumulated distortions of the past, there will be a well- conceived edge in favour of women.

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