

A SURVEY ON PERSPECTIVES ABOUT THE
RESERVATION POLICIES IN HIGHER
EDUCATIONAL INSTITUTIONS AMONG
UNDERGRADUATE STUDENTS OF FACULTY OF
ARTS



BHU

Banaras Hindu University

Capu
ST5/24
HEAD
Department of Statistics
Faculty of Science
Banaras Hindu University
Varanasi-221005

Project Report

Submitted for the partial fulfilment of the

Bachelor Degree (Hons.)

Under the supervision of:

Dr. Arun Kaushik

Assistant Professor

Department of Statistics

Institute of science

Banaras Hindu University

Submitted by: Chandramohan

Chandramohan Kushwah

B.A (Hons.) Statistics

Enrolment No - 442740

Exam roll No -21214STA031

Faculty of Art's



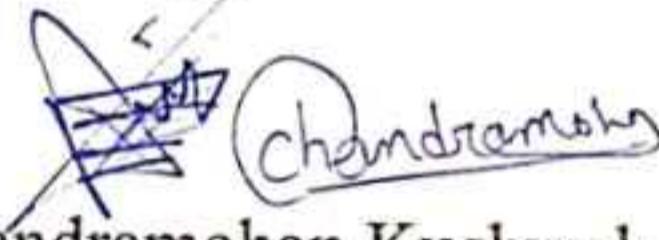
BHU

Banaras Hindu University

DECLARATION

I, Chandramohan Kushwah hereby declare that the project entitled "**A survey on perspectives of undergraduate students of faculty of Arts about the reservation policies in higher educational institutions**" is submitted by me, under the guidance and supervision of Dr Arun Kaushik. I also declare that it has not been submitted previously in part or in full to this university or any other university or institution for the award of any degree or diploma.

Date: 27th April 2024


Chandramohan Kushwah

Exam Roll No.: 21214STA031

Enrolment Id: 442740



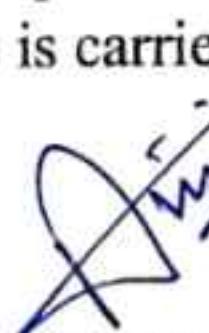
BHU

Banaras Hindu University

CERTIFICATE

This is to certify that the project entitled "**A survey on perspectives of undergraduate students of faculty of Arts about the reservation policies in higher educational institutions**" is submitted by Chandramohan Kushwah in part fulfilment of the requirement for the completion of an undergraduate degree in Statistics is carried out by him under my guidance.

DATE - 1-5-2024


DR. ARUN KAUSHIK

(Supervisor)

Department of statistics

Institute of science

Banaras Hindu University

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to Dr. Arun Kaushik for his invaluable guidance, support, and expertise throughout the course of my B.A. (Hons) Statistics project on the “A survey on perspectives of undergraduate students of faculty of arts about the reservation policies in higher educational institutions”. His insightful suggestions and encouragement have been instrumental in shaping the direction and methodology of this research.

Additionally, I extend my appreciation to all the undergraduate students of the Faculty of Arts at Banaras Hindu University who generously participated in the survey, contributing their perspectives and insights. Their input has been integral to the success of this study.

I am grateful to the colleague, who participated in this study, as their cooperation and willingness to share their experiences have been essential to the success of this project.

Finally, I would like to express my gratitude to my family and friends for their unwavering support, encouragement, and motivation throughout this project.

Date-	Chandramohan Kushwah
Banaras Hindu University	B.A. (Hons.) Statistics sem. VI
Varanasi 221005	Department of Statistics
	Faculty of arts

CONTENTS

- INTRODUCTION
- METHODOLOGY OF SURVEY
- DATA ANALYSIS AND INTERPRETATION
- CONCLUSION
- FIELD EXPERIENCE & DIFFICULTIES
- QUESTIONNAIRE

INTRODUCTION

The reservation policies in higher educational institutions have been a topic of significant discussion and debate in India. These policies aim to address historical injustices and promote social equity by providing opportunities to underrepresented groups. However, the perspectives of undergraduate students in the Faculty of Arts regarding these policies are crucial for understanding their effectiveness and impact.

This survey seeks to explore the opinions and attitudes of undergraduate students towards reservation policies in higher educational institutions. By gathering insights from students at Banaras Hindu University, we aim to gain a comprehensive understanding of their views on the implementation, efficacy, and potential improvements of these policies. Through this research, we aim to contribute to the ongoing discourse surrounding reservation policies and their implications for higher education in India.

METHODOLOGY
OF
SURVEY

METHODOLOGY OF SURVEY:

In any type of survey, preplanning and systematic approach play an important role to arrive at the best possible results and successful completion in minimum time and cost. Also, the success of that depends upon resources, quality, timing and integrity of the surveyor who compiles the primary data. So, it is very important task to manage all the available resources which make an impact of the quality of the survey. In this survey we use following steps:

(1) PLANNING OF THE SURVEY:

A full proof planning is an essential part of any statistical survey to complete it in a successful manner at minimum cost, labour and time. Planning of survey includes selection of topic and preparation of a short questionnaire covering almost all the area. From this questionnaire, I select those questions which seem to be relevant in context of the mentioned topic.

(2) OBJECTIVE OF THE SURVEY:

The objective of this survey is to investigate the perspectives of undergraduate students in the Faculty of Arts at Banaras Hindu University regarding reservation policies in higher educational institutions. The study also aims to Investigate the personal experiences of undergraduate students with the implementation of reservation policies, including any challenges, opportunities, or instances of discrimination they may have encountered. The study also aims to identify suggestions and recommendations from undergraduate students for improving the implementation and effectiveness of reservation policies in higher educational institutions.

By addressing these objectives, this survey seeks to provide a comprehensive understanding of the perspectives, experiences, and suggestions of undergraduate students regarding reservation policies in higher educational institutions.

(3) TARGET POPULATION:

Since we are investigating about the perspectives of undergraduate students of faculty of arts on reservation policies in higher educational institutions. Therefore, all the undergraduate students of faculty of arts will be our target population.

(4) SAMPLING UNIT:

Sampling unit should be clearly defined. Sampling unit should be defined in such a manner that there should be a unique identity for each unit of the population. Sampling units should be non-overlapping and clearly distinct from each other. Therefore, each undergraduate student of faculty of arts who has valid id proof is our sampling unit.

(5) SAMPLING TECHNIQUE:

We choose sampling technique keeping in the mind that with the available resources (time, cost and labour) we can obtain maximum reliable results. Since here the complete list of all the undergraduate students of faculty of arts cannot be provided by the faculty to us so here, we cannot use simple random sampling without replacement (SRSWOR). Since for applying SRSWOR there should be a complete list of the sampling units.

We can also use here stratified random sampling by considering each cast as a stratum. In these stratum sampling units will be homogeneous within the strata and heterogeneous among the strata. But it is not possible to make cast wise list of the students and to know the number of students in each cast. So, we cannot use here stratified random sampling.

Now we try to use here two stage cluster sampling.

If we divide all the undergraduate students into the clusters according to their honours subject. Then these clusters will be non-overlapping and the sampling

units will be heterogeneous within each cluster and homogeneous among the clusters. Here to get the list of honours subjects is easy. So, by using SRSWOR we can select a sample of these clusters. Now to get the list and to know the number of students in selected clusters is comparatively easier. Now we can take a sample from each selected cluster and obtain a grand sample. This sample will be the fully representative of whole population. So, on the basis of this sample, we can predict the reliable results for whole population. Hence the two-stage cluster sampling is the appropriate sampling for this survey.

Now I am going to use this sampling

If we divide our whole population honours wise, then they will make non-overlapping subgroups of the population. We consider each honours as a cluster. Since there are 21 honours subject in graduation and our population is all the three years students of faculty of arts so there are total $21 \times 3 = 63$ clusters. The sampling units are heterogeneous within the clusters and homogeneous among the clusters. In this way by dividing the population into 63 non overlapping subgroups (clusters). I am going to use two stage cluster sampling for unequal size of clusters.

Assumption: -

Since we are taking students opinion on reservation, these opinions will be independent of each other, also we assume that the variability within the cluster will be equal for all clusters. So, I can fix an assumption that there is not any intraclass correlation between the sampling units which are in the same cluster i.e. the intraclass correlation between the sampling units which are in the same cluster is zero [$\rho=0$].

Determination of sample size: -

Now because of this assumption we can decide total sample size and the number of clusters to be selected in the sample similarly as SRSWOR without considering the clustering effect. Following are the formulas for sample size determination in two stage cluster sampling.

Some notations:

N_0 - total size of the population = 2920

N - total number of clusters = 63

n = total number of clusters to be selected

n_0 - total sample size

e – margin of error

Formula for calculating sample size $n = [N/\{1+(N/e^2)\}]$

We consider 8% margin of error then the total sample size will be

$$n = [2920/\{1+(2920 \cdot (0.08)^2)\}] = 148.314 = 148 \text{ approx.}$$

But by taking into account the problem of non-respondent we take a sample of size 170

Now total number of clusters to be selected

$n = \text{total sample size} / \text{average cluster size}$

average cluster size = $2920/63 = 46.35$

$n = 170/46.35 = 3.668 = 4$ approx. hence the total number of clusters to be selected is 4.

Now when I generate 4 random numbers from 1 to 63 and have select 4 cluster randomly, these following clusters have been selected.

We allocate sample size to each cluster in proportion to their size

cluster name	GEOGRAPHY 3rd YEAR	AIHC & Arch 3rd YEAR	MATHEMATICS 2nd YEAR	STATISTICS 1st YEAR
cluster size	150	100	35	30
sample size	81	54	19	16

Note: this date is approx. data not exact data is not provided by the faculty and departments.

Hence in this way we have decide the sample size to be drawn from each cluster.

The list of all 63 clusters

First year	Second year	Third year	First Year	Second Year	Third year
1.AIHC & Arch	22	43	16. Philosophy	37	58
2.Arabic	23	44	17. Russian	38	59
3.Bengali	24	45	18. Sanskrit	39	60
4.Chinese	25	46	19. Statistics	40	61
5.English	26	47	20. Urdu	41	62
6.French	27	48	21. Persian	42	63
7.Geography	28	49			
8.Germen	29	50			
9.Hindi	30	51			
10.History of Art	31	52			
11.Japannese	32	53			
12.Linguistics	33	54			
13.Mathematics	34	55			
14.Nepali	35	56			
15.Pali & Budd. Studies	36	57			

(6) METHOD OF DATA COLLECTION:

To collect the data, I have generated a google form and have collected the responses through this google form. I have gone in the classes which are selected as clusters in my sampling procedure and circulate QR code of my google form among the students and have collected the responses.

(7) REPORTING ANALYSIS AND:

After collection of raw data, we put them in coded form so that the analysis become easy. For this purpose, I used SPSS software, and I also used MS-excel and MS word for giving a perfect frame to my whole analysis.

SPSS:

SPSS is a Windows based program that can be used to perform data entry and analysis and to create tables and graphs. SPSS is capable of handling large amounts of data and can perform all of the analyses covered in the text and much

more. SPSS is commonly used in the Social Sciences and in the business world, so familiarity with this program should serve one well in the future.

Pictorial representation data:

Any statistical data can be represented by using chart or diagram. A chart is a graphical representation of data, in which "the data is represented by symbols, such as bars in bar chart, slices in pie chart ". Charts are often used in understanding of large quantities of data and the relationships between parts of the data. Chart can usually be read more quickly than the raw data that they are produced from. We can represent raw data in

1. Bar chart or bar diagram
2. Pie chart

(1). Bar chart or Bar diagram:

A bar chart or bar graph is a chart with rectangular bars which length proportional to the values that they represent. The bars can be plotted vertically or horizontally. A vertical bar chart is sometimes called a column bar chart. A bar graph is a chart that uses either horizontal or vertical bars to show comparisons among categories. Some bar graphs present bars clustered groups of more than one (grouped bar graphs), and others show the bars divided into sub parts to show cumulative effect (stacked bar graphs).

(2) Pie chart:

A pie chart is a circular chart divided into sectors illustrating numerical proportion. In pie chart, they are length of each sector (and consequently its central angle and area), is proportional to the quantity it represents, while it is named for its resemblance to a pie which has been sliced, there are variations on the way it can be presented. Pie charts are very widely used in the business world and the media. However, they have been criticized, and many experts recommend avoiding them, pointing out that research has shown it is difficult to compare different sections of a given pie chart, or to compare data across different pie charts. Pie charts can be replaced in most cases by other plots such as the bar chart

DATA ANALYSIS

&

INTRPRETATION

[It includes graphs, tables, charts and numerical results and their interpretation]

CONCEOT OF TWO STAGE CLUSTER SAMPLING

Cluster sampling is used when up to date list of the population is not available but list of subgroups (clusters) is available. In the sampling we divide the whole population into the finite number of subgroups, these subgroups are called clusters. The sampling units should be homogeneous among the clusters and heterogeneous within the cluster. The clusters should be non-overlapping and homogeneous to each other.

Now we consider a cluster as a sampling unit and choose a random sample of clusters. Now we study on these selected clusters and draw inferences about the whole population. There three types of cluster sampling:

1. One stage cluster sampling:

In one stage cluster sampling all the individuals within the selected clusters are selected in the sample i.e. the is a complete enumeration is done of the selected clusters.

2. Two stage cluster sampling:

In two stage cluster sampling a sample of clusters is first selected, and then a sample of individuals is choosing from each of the selected cluster using appropriate sampling method.

3. Three stage cluster sampling:

Three stage cluster sampling involves an additional level of sampling. In this sampling first of all a sample of clusters is selected and then sub-clusters within the selected clusters is choosing and finally individual units are selected from within each of the selected subcluster.

Now estimation in two stage cluster sampling for unequal size of clusters:

Let we divide the whole population into N clusters of sizes $M_1, M_2, M_3, \dots, M_N$. Now we draw a sample of n clusters (from N clusters of sizes $m_1, m_2, m_3, \dots, M_n$.

$$N_0 = \sum_{i=1}^N M_i = \text{total population size}$$

$$m_o = \sum_{i=1}^n m_i = \text{total sample size}$$

$$y_{ij} = j^{\text{th}} \text{ unit of } i^{\text{th}} \text{ cluster}$$

$$\bar{y}_i = \frac{1}{m_i} \sum_{j=1}^{m_i} y_{ij} = \text{Sample Mean of } i^{\text{th}} \text{ cluster}$$

$$\bar{Y}_i = \frac{1}{M_i} \sum_{j=1}^{M_i} y_{ij} = \text{Population Mean of } i^{\text{th}} \text{ cluster}$$

$$\bar{Y} = \frac{1}{N_0} \sum_{i=1}^N \sum_{j=1}^{M_i} y_{ij} = \frac{1}{N} \sum_{i=1}^N u_i \bar{Y}_i = \text{Grand Population Mean}$$

$$\bar{y} = \frac{1}{m_0} \sum_{i=1}^n \sum_{j=1}^{m_i} y_{ij} = \frac{1}{n} \sum_{i=1}^n \bar{Y}_i = \text{Grand Sample Mean}$$

Now some other required formula

$$\overline{\overline{Y}}_N = \frac{1}{N} \sum_{i=1}^N \bar{Y}_i$$

$$u_i = \frac{M_i}{M} \quad \bar{M} = \frac{1}{N} \sum_{i=1}^N M_i \quad \bar{m} = \frac{1}{n} \sum_{i=1}^n M_i$$

$$S_b^2 = \frac{1}{N-1} \sum_{i=1}^N (\bar{Y}_i - \overline{\overline{Y}}_N)^2 \quad S_i^2 = \frac{1}{M_i-1} \sum_{j=1}^{M_i} (y_{ij} - \bar{Y}_i)^2$$

$$s_b^2 = \frac{1}{n-1} \sum_{i=1}^n (\bar{y}_i - \bar{y})^2 \quad s_i^2 = \frac{1}{m_i-1} \sum_{j=1}^{m_i} (y_{ij} - \bar{y}_i)^2$$

$E(s_b^2) = S_b^2$ $E(s_i^2) = S_i^2$ i.e. s_b^2 and s_i^2 are the unbiased estimator of S_b^2 and S_i^2 respectively.

Now we propose an estimator $\bar{y} = \frac{1}{m_0} \sum_{i=1}^n \sum_{j=1}^{m_i} y_{ij} = \frac{1}{n} \sum_{i=1}^n \bar{y}_i$ it is a

biased estimator of population mean and the amount of biasedness is

$$\text{Bias } (\bar{y}) = \frac{N-1}{N\bar{M}(n-1)} \sum_{i=1}^n (M_i - \bar{m})(\bar{y}_i - \bar{y})$$

Hence the unbiased estimator of population mean is

$$\bar{y} + \text{Bias } (\bar{y})$$

$$\text{Now } \text{var } (\bar{y}) = \left(\frac{1}{n} - \frac{1}{N} \right) S_b^2 + \frac{1}{Nn} \sum_{i=1}^N \left(\frac{1}{m_i} - \frac{1}{M_i} \right) S_i^2.$$

$$\text{Now } \text{var}(\bar{y}) = \left(\frac{1}{n} - \frac{1}{N}\right) s_b^2 + \frac{1}{n^2} \sum_{i=1}^n \left(\frac{1}{m_i} - \frac{1}{M_i}\right) s_i^2.$$

now confidence interval for population mean

$$[\bar{y} \pm z_{\alpha/2} \sqrt{\text{v}(\bar{y})}]$$

Attribute Proportion Estimation using Cluster Sampling:

- Instead of studying a quantitative measure associated with sampling units, we often are interested in an attribute (a qualitative characteristic). Statistically, the goal is to estimate a proportion. The population proportion p is the proportion of population units having that attribute.

- Examples:

the proportion of females (or males) in an animal population, the proportion of consumers who own motorcycles, the proportion of married couples with at least 1 child...

- If a one-stage cluster sample is taken, then how do we estimate p ?

Estimating p with unequal Cluster Sizes:

- Statistically, we use an indicator function that assigns a y_{ij} value to secondary sampling unit j in primary sampling unit (cluster) i as follows:

$y_{ij} = 1$ if unit j in cluster i possesses the attribute

= 0 otherwise

- Suppose the cluster sizes are not all equal. Let M_i be the number of secondary sampling units (SSUs) in cluster i and $t_i = \sum_{j=1}^{M_i} y_{ij}$ = the cluster i total.

- By taking a one-stage cluster sample of n clusters from a population with unequal-sized clusters, we estimate p as the proportion of sampled SSUs that possess the attribute:

$$\hat{p}_c = \frac{\sum_{i=1}^n t_i}{\sum_{i=1}^n M_i}$$

- Note that \hat{p} is a ratio estimator. Therefore, it is a biased estimator. The bias, however, tends to be small for large $\sum_{i=1}^n M_i$.
- The variance $V(\hat{p}_c)$ is approximated by:

$$v(\hat{p}_c) = \left(\frac{1-f}{n\bar{M}_0^2} \right) \frac{\sum_{i=1}^n (t_i - pM_i)^2}{N-1}$$

where $\bar{M}_0^2 = \sum_{i=1}^N M_i / N$ = the average number of elements per cluster in the population.

- Because p is unknown, we use \hat{p}_c as an estimate to get the unbiased estimator of $V(\hat{p}_c)$:

$$V(\hat{p}_c) \approx \left(\frac{1-f}{n\bar{m}_0^2} \right) \frac{\sum_{i=1}^n (t_i - \hat{p}_c M_i)^2}{N-1}$$

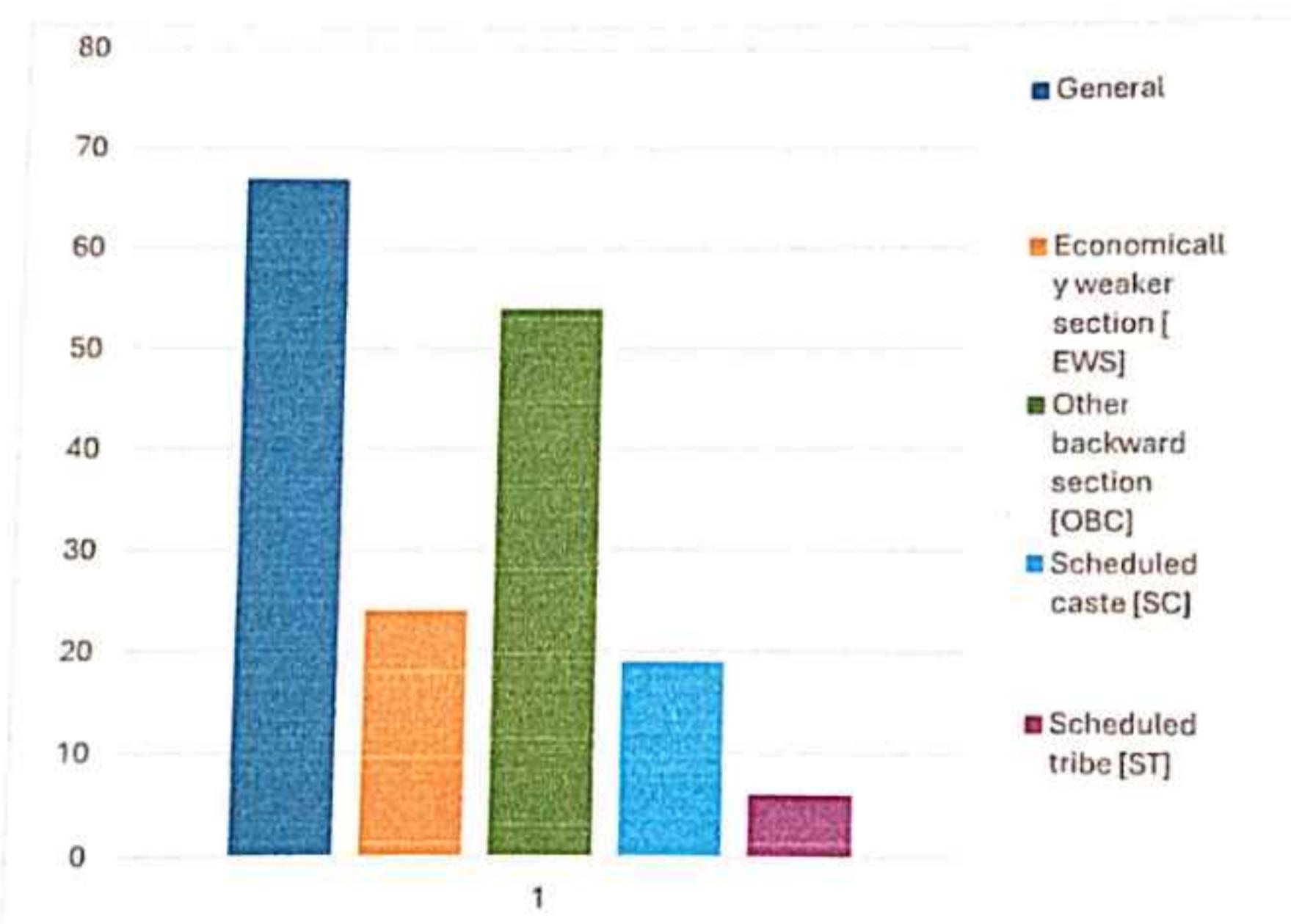
where $\bar{m}_0^2 = \sum_{i=1}^n M_i / N$ = the average number of elements per cluster in the sample.

TABLE NO. 1

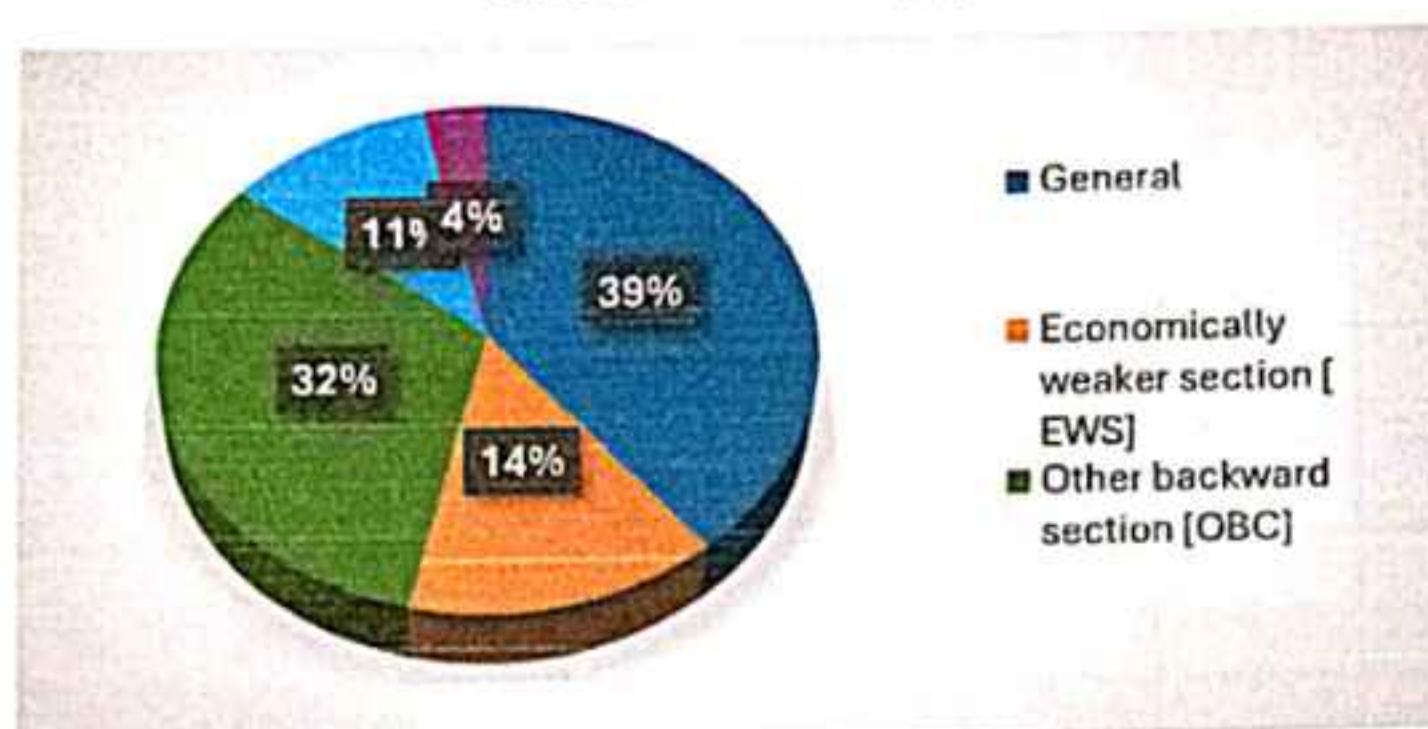
Column1	Column2
General	67
Economically weaker section [EWS]	24
Other backward section [OBC]	54
Scheduled caste [SC]	19
Scheduled tribe [ST]	6

Cast wise classification of the sample.

GRAPH NO.1 (a)



GRAPH NO. 1 (b)



INTERPRETATION:

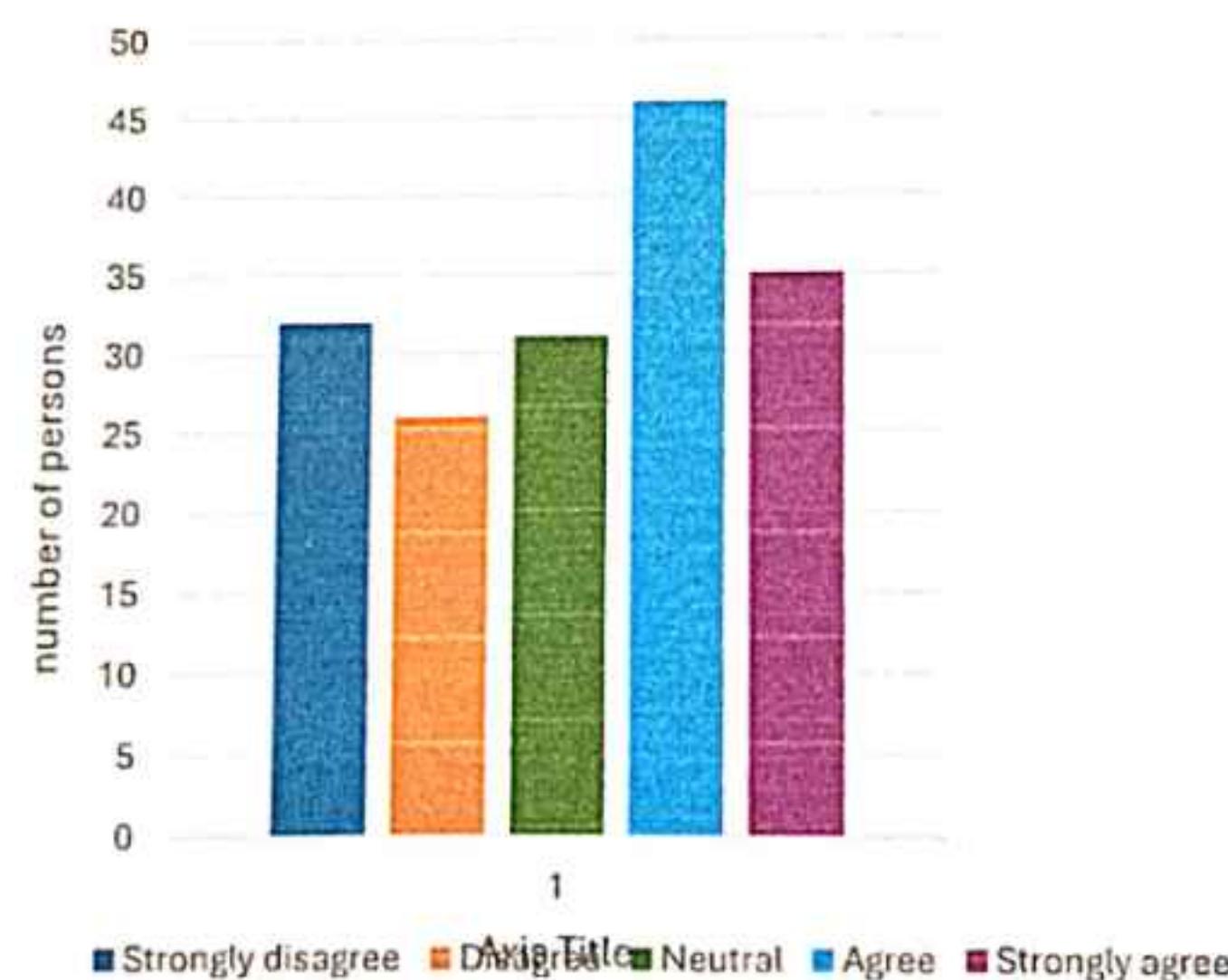
Our 39% sample have come from general category, 32% sample have come from other backward section, 14% sample have come from economically weaker section, 11% sample have come from schedule tribe cast and 4% sample have come from schedule tribe cast.

Responses on the question: Do you agree, reservation should be provided in higher education?

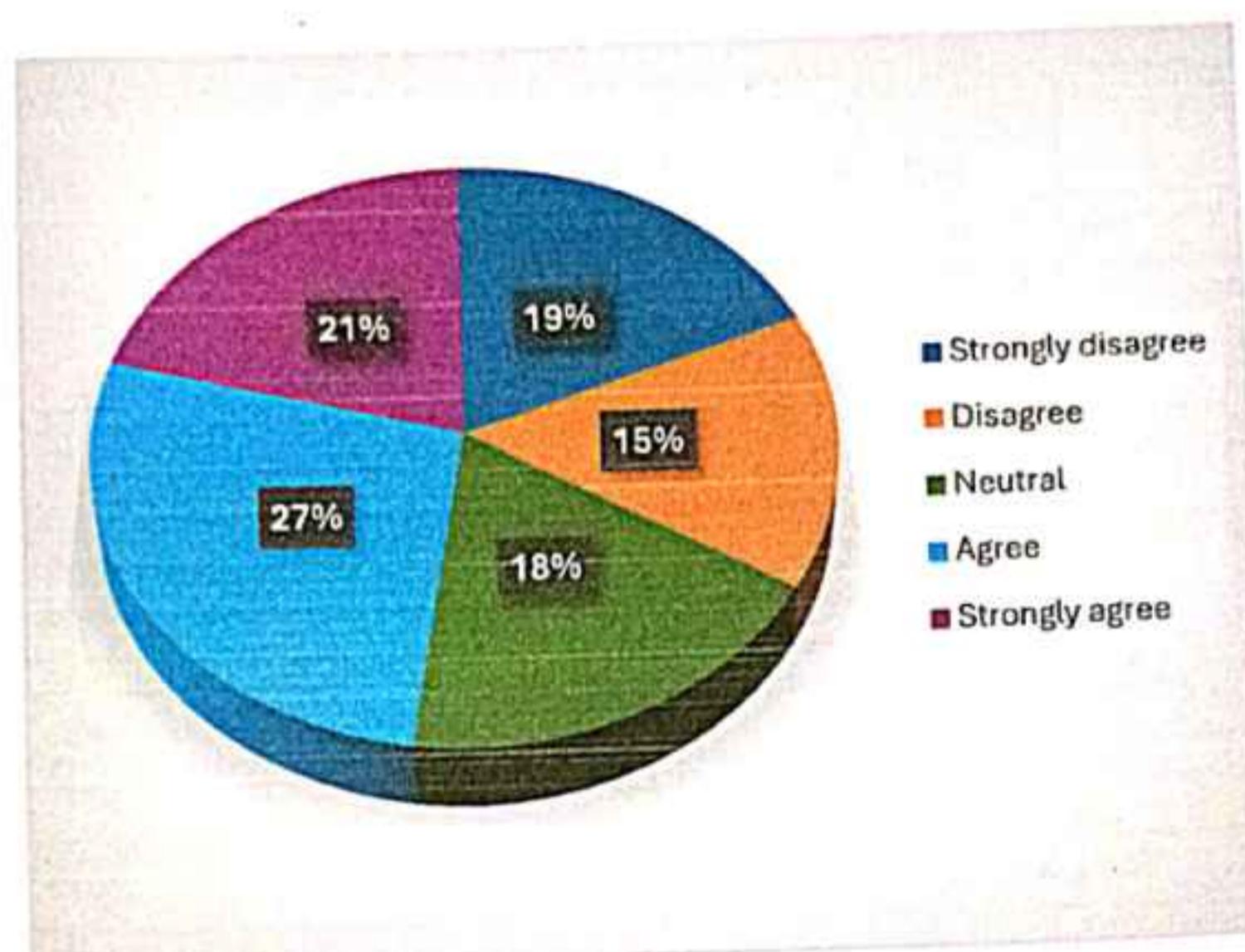
TABLE NO. 2

Opinion		cluster name				Total
		cluster 1	cluster 2	cluster 3	cluster 4	
	Strongly disagree	19	5	5	3	32
	Disagree	9	9	5	3	26
	Neutral	14	15	2	0	31
	Agree	28	13	2	3	46
	Strongly agree	11	12	5	7	35
	Total	81	54	19	16	170

GRAPH NO. 2 (a)



GRAPH NO. 2 (b)



1

INTERPRETATION:

1. In our sample 19% people are strongly disagree with the statement that reservation should be provided in higher educational institutions.
2. In our sample 15% people are disagree with the statement that reservation should be provided in higher educational institutions.
3. In our sample 18% people are neutral with the statement that reservation should be provided in higher educational institutions.
4. In our sample 27% people are agree with the statement that reservation should be provided in higher educational institutions.
5. In our sample 21% people are strongly agree with the statement that reservation should be provided in higher educational institutions.

Responses on the question: What should be the basis for allocating reservation slots in higher educational institutions?

TABLE NO. 3

	total sample = 170	Cluster name				Total	percentage
		cluster 1	cluster 2	cluster 3	cluster 4		
	Backwardness	38	25	7	4	74	43.5294118
	Geographical isolation	25	21	3	2	51	30
opinion	Distinct culture	8	6	2	2	18	10.5882353
	Inadequacy of representation	24	10	3	4	41	24.1176471
	Shyness in contact with a community at a large.	5	5	2	2	14	8.23529412
	Poor financial background	64	39	14	12	129	75.8823529
	Other	7	7	3	2	19	11.1764706

INTERPRETATION:

1. In our sample 43.529% people of the total sample suggest that the reservation should be provided on the basis of backwardness.
2. In our sample 30% people of the total sample suggest that the reservation should be provided on the basis of geographical isolation.
3. In our sample 10.58% people of the total sample suggest that the reservation should be provided on the basis of distinctive culture.
4. In our sample 24.11% people of the total sample suggest that the reservation should be provided on the basis of inadequacy of representation.
5. In our sample 8.23% people of the total sample suggest that the reservation should be provided on the basis of shyness in contact with a community at large.
6. In our sample 75.88% people of the total sample suggest that the reservation should be provided on the basis of poor financial background.
7. In our sample 11.176% of the total sample people suggest that the reservation should be provided on the basis of some other factor instead of above factors.

Responses on the question: What factors do you think should disqualify student from receiving reservation in higher education?

TABLE NO. 4

	cluster 1	cluster 2	cluster 3	cluster 4	Total	percentage
The candidate or his family are economically strong.	54	45	12	10	121	71.1764706
The candidate belongs to specific religion.	4	9	0	0	13	7.64705882
Either of the parents of the candidate are in the A grade government job.	56	23	8	10	97	57.0588235
The candidate having criminal history.	31	34	3	4	72	42.3529412
The candidate or his family having political exposure.	25	19	3	4	51	30

INTERPRETATION:

1. According to 71.18% people of the total sample reservation should not be provided to the student who or whose family is economically strong.
2. According to 7.65% people of the total sample reservation should not be provided to the student who belongs to specific religion.
3. According to 57.06% people of the total sample reservation should not be provided to the student whose either of the parents are in the A grade government job.
4. According to 42.35% people of the total sample reservation should not be provided to the student who has any criminal history.

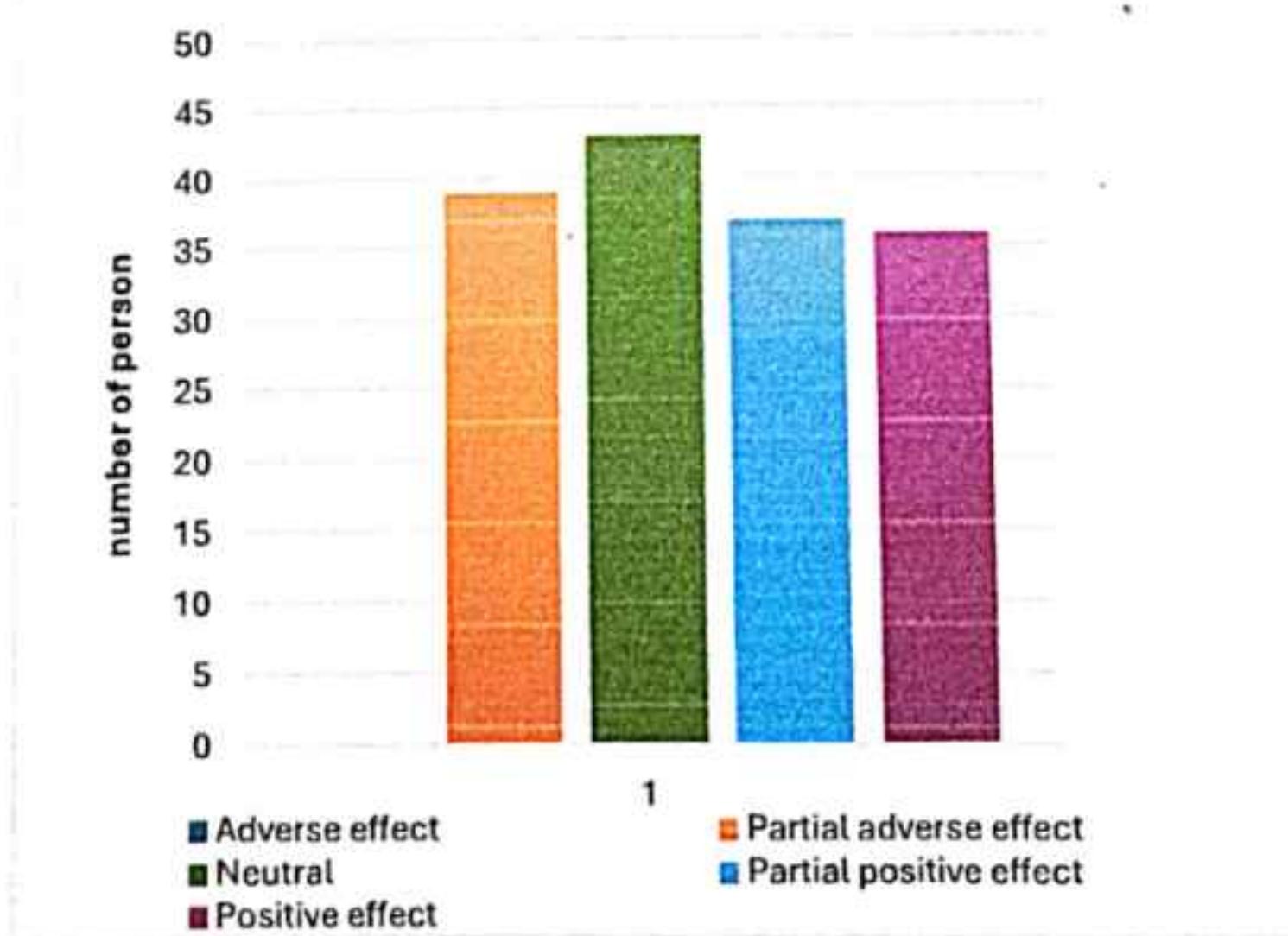
5. According to 30% people of the total sample reservation should not be provided to the student who or whose family has any political exposure.

Reponses on the question: In your perspective, how reservation policies affect the overall landscape of social justice and equality?

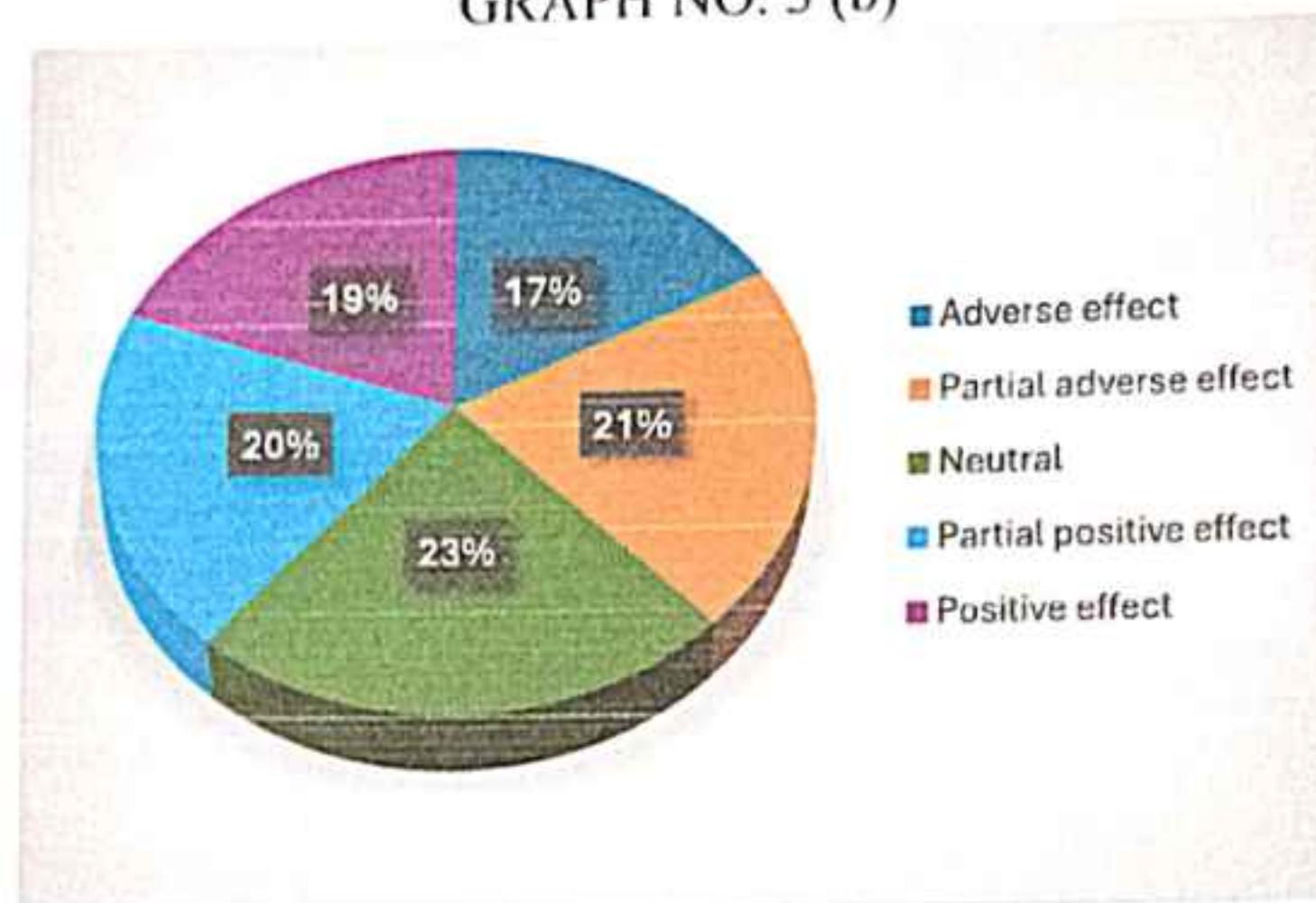
TABLE NO. 5

		cluster name				
		cluster 1	cluster 2	cluster 3	cluster 4	Total
opinion	Adverse effect	14	10	1	7	32
	Partial adverse effect	20	12	3	4	39
	Neutral	18	13	4	1	36
	Partial positive effect	16	12	6	1	35
	Positive effect	13	7	5	3	28
	Total	81	54	19	16	170

GRAPH NO. 3 (a)



GRAPH NO. 3 (b)



INTERPRETATION:

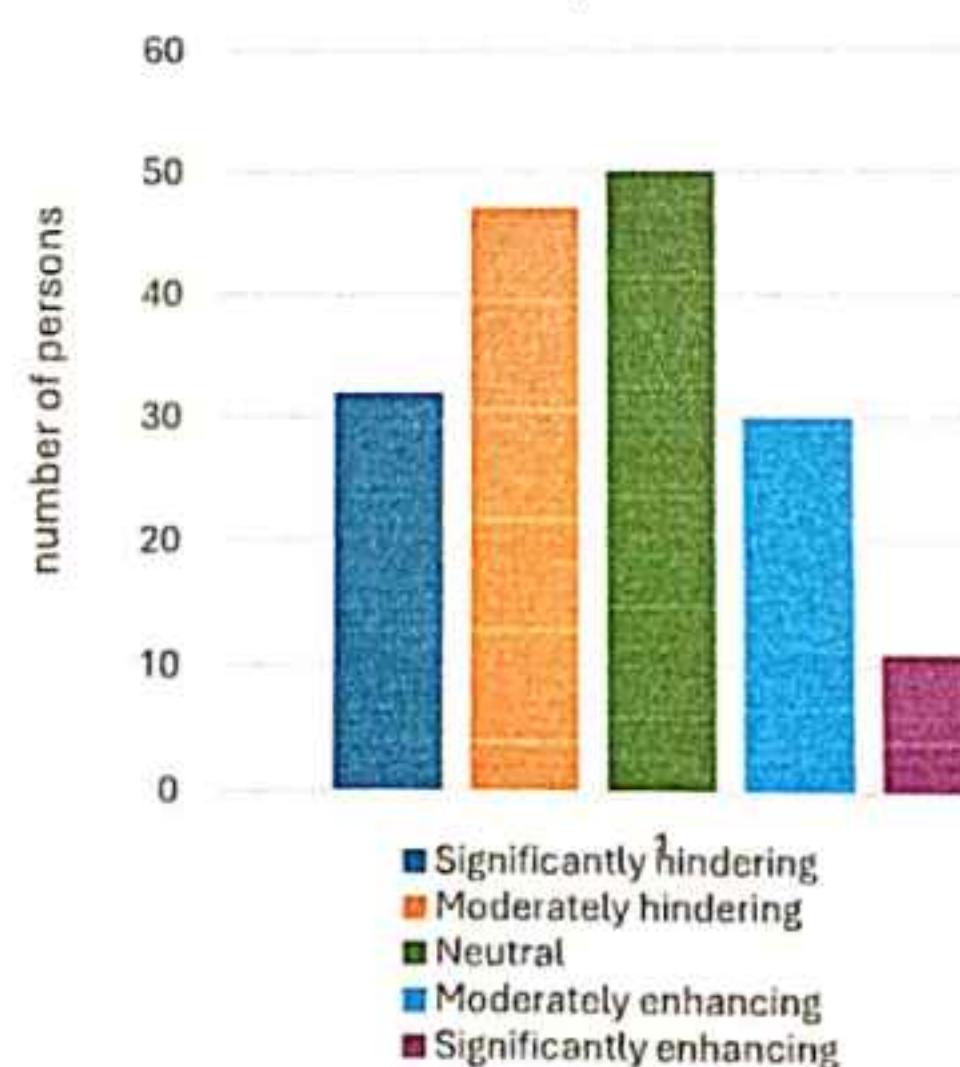
1. According to 17% of sample observations reservation policies adversely affect the overall landscape of social justice and equality.
2. According to 21% of sample observations reservation policies has partial adverse effect on the overall landscape of social justice and equality.
3. According to 23% of sample observations reservation policies has no effect on the overall landscape of social justice and equality.
4. According to 20% of sample observations reservation policies has partial positive effect on the overall landscape of social justice and equality.
5. According to 19% of sample observations reservation policies has positive effect on the overall landscape of social justice and equality.

Responses on the question: To what extent reservation policies hampering social harmony?

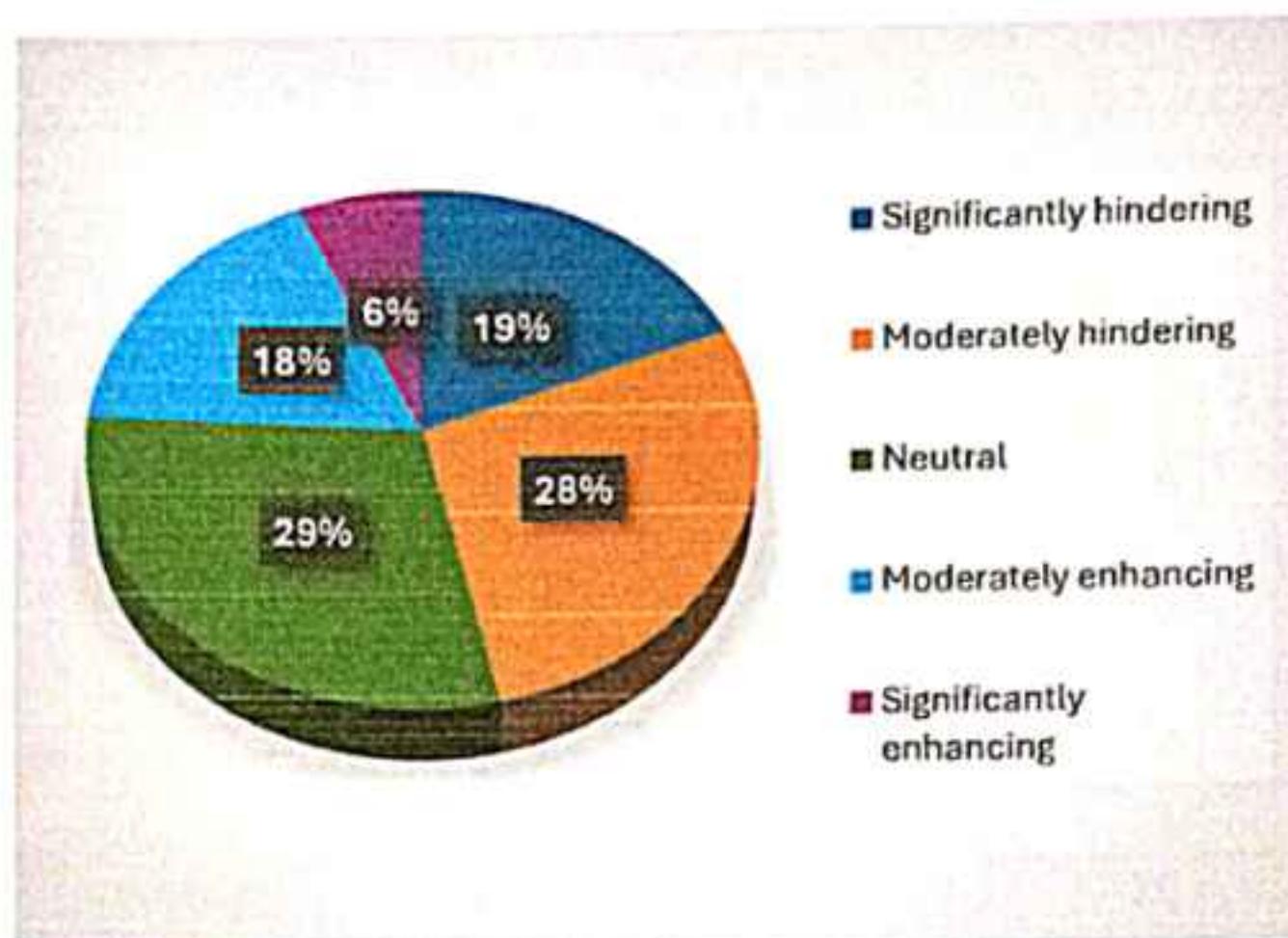
TABLE NO. 6

opinion		cluster name				Total
		cluster 1	cluster 2	cluster 3	cluster 4	
	Significantly hindering	16	8	2	6	32
	Moderately hindering	25	11	7	4	47
opinion	Neutral	21	19	7	3	50
	Moderately enhancing	14	13	2	1	30
	Significantly enhancing	5	3	1	2	11
	Total	81	54	19	16	170

GRAPH NO. 4 (a)



GRAPH NO. 4 (b)



INTERPRETATION:

1. According to 19% of the sample observations reservation policies significantly hindering the social harmony.
2. According to 28% of the sample observations reservation policy moderately hindering the social harmony.
3. According to 29% of the sample reservation policies has not any effect on social harmony.
4. According to 18% of the sample observations reservation policies moderately enhancing the social harmony.
5. According to 6% of the sample observations reservation policies significantly enhancing the social harmony.

Responses on the question: Do you agree that there is a need to establish a deadline for the reservation to expire?

TABLE NO. 7

opinion	cluster name				Total
	cluster 1	cluster 2	cluster 3	cluster 4	
Strongly disagree	7	3	4	0	14
Disagree	16	8	5	2	31
Neutral	14	10	3	3	30
Agree	21	20	3	1	45
Strongly agree	23	13	4	10	50
Total	81	54	19	16	170

GRAPH NO. 5 (a)

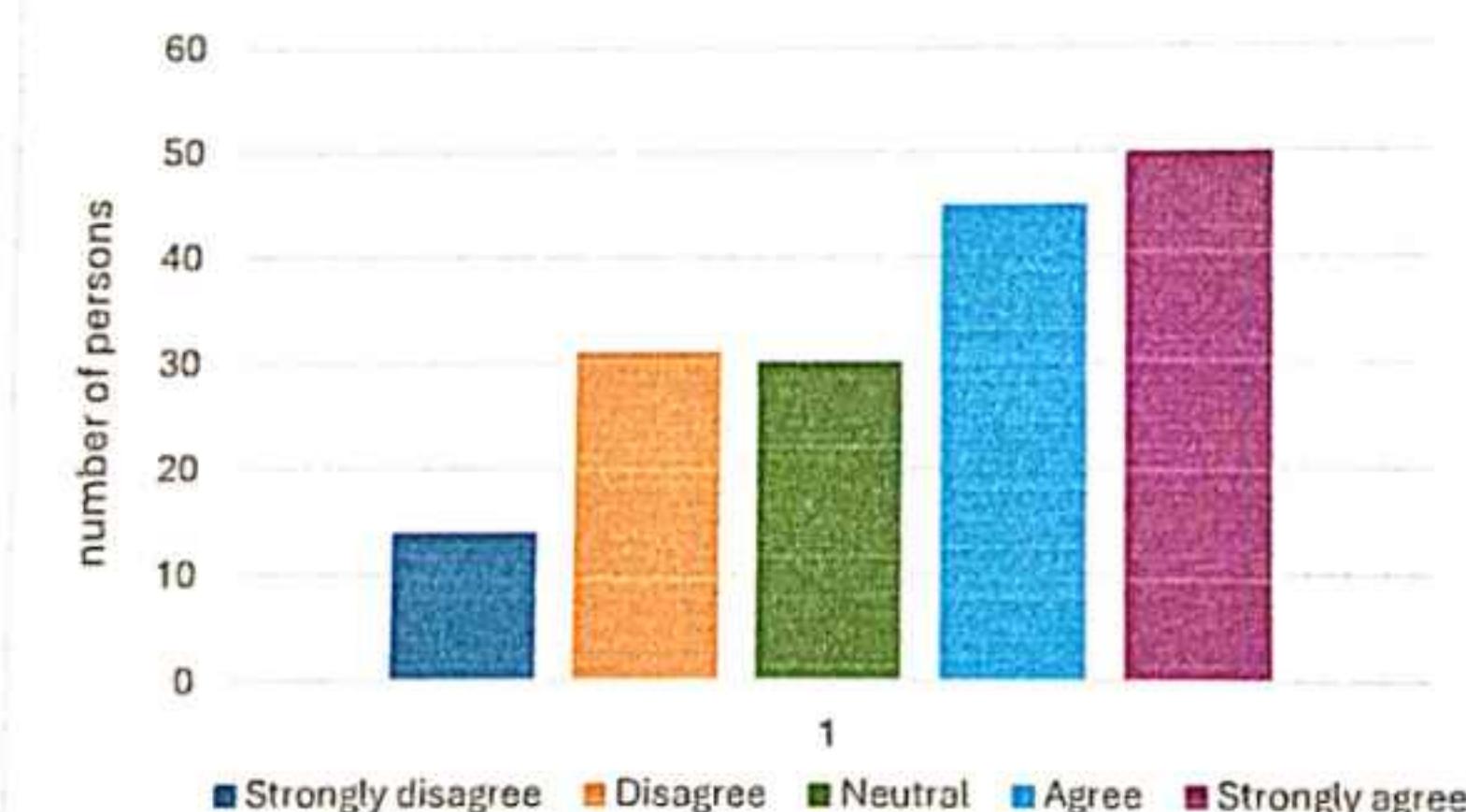
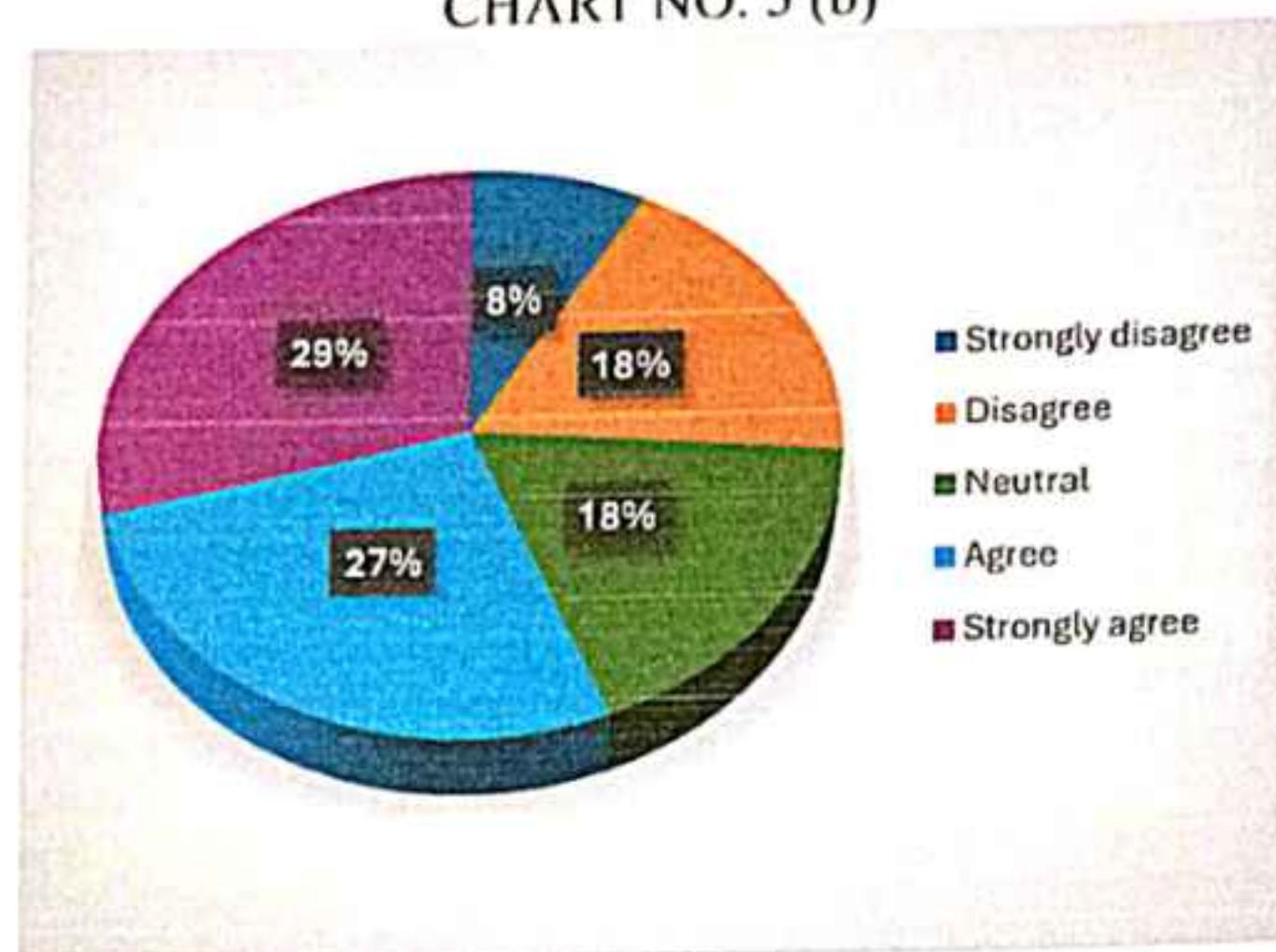


CHART NO. 5 (b)



INTERPRETATION:

1. In our sample 8% of the sample observations are strongly disagree with the statement that there is a need to establish a deadline for the reservation to expire.
2. In our sample 18% of the sample observations are disagree with the statement that there is a need to establish a deadline for the reservation to expire.
3. In our sample 18% of the sample observations are neutral with the statement that there is a need to establish a deadline for the reservation to expire.
4. In our sample 27% of the sample observations are agree with the statement that there is a need to establish a deadline for the reservation to expire.
5. In our sample 29% of the sample observations are strongly agree with the statement that there is a need to establish a deadline for the reservation to expire.

Responses on the question: Are you suffered by reservation in the recent past five years?

TABLE NO. 8

		cluster name				
		cluster 1	cluster 2	cluster 3	cluster 4	Total
opinion	Yes	37	18	10	13	78
	No	36	20	9	3	68
	Neutral or do not want to answer.	8	16	0	0	24
Total		81	54	19	16	170

GRAPH NO. 6 (a)

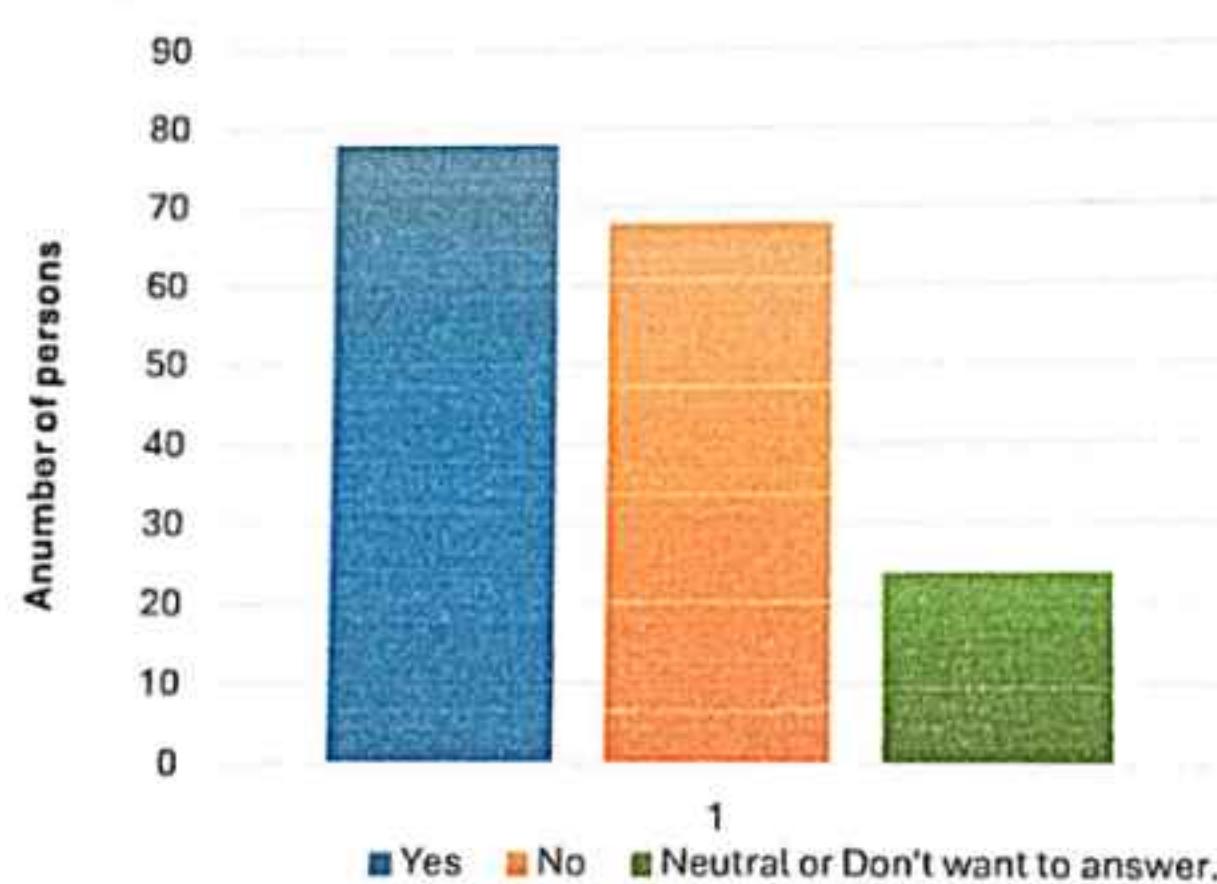
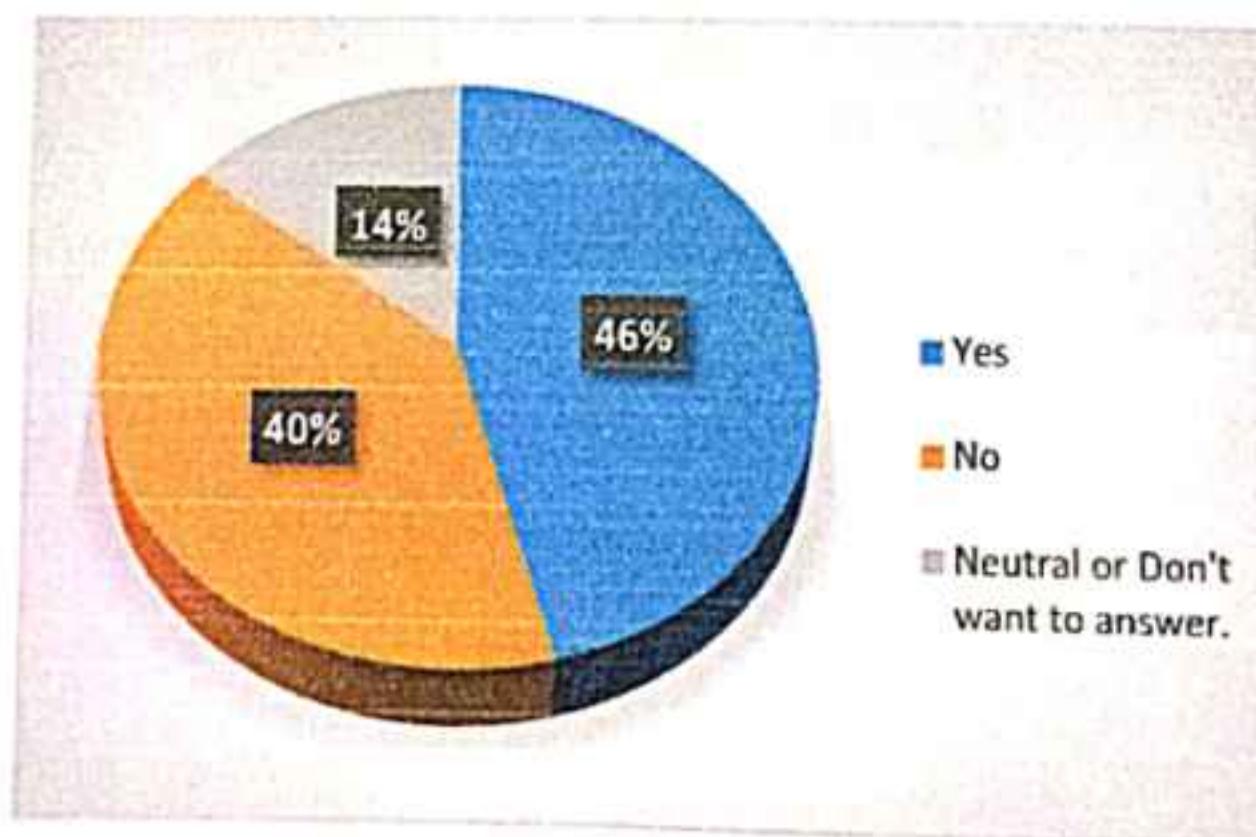


CHART NO. 6 (b)



INTERPRETATION:

1. In our sample 46% of the people are suffered by reservation in the recent past five year.
2. In our sample 40% of the people are not suffered by reservation in the recent past five year.
3. In our sample 14% of the people are neutral or don't want to answer of this question.

Responses on the question: Are you benefited by reservation in the last five years?

TABLE NO. 9

		cluster name					
		cluster 1	cluster 2	cluster 3	cluster 4	Total	
opinion		Yes	25	16	8	5	54
opinion		No	56	30	11	11	108
		Neutral or do not want to answer.		8	0	0	8
		Total	81	54	19	16	170

GRAPH NO. 7 (b)

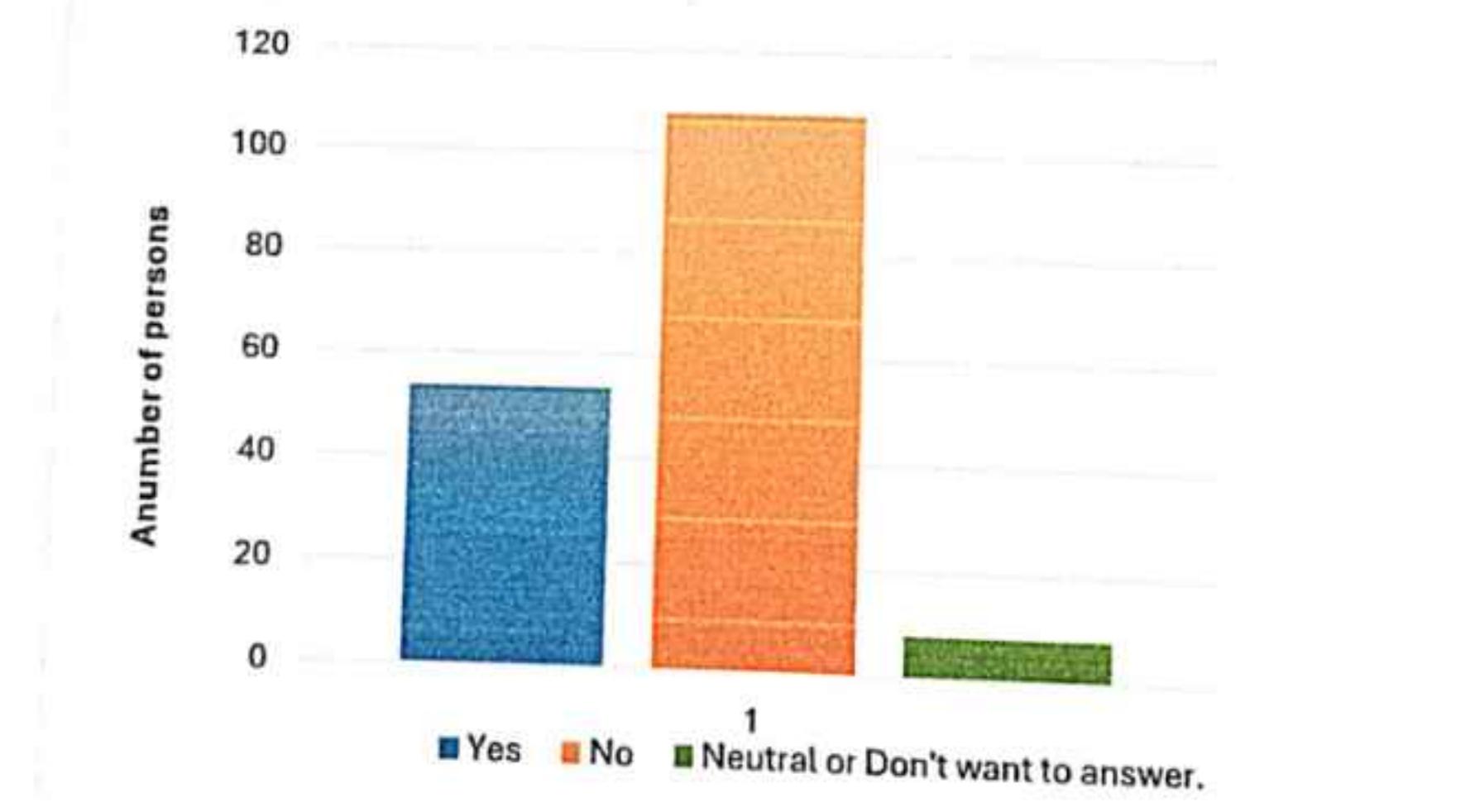
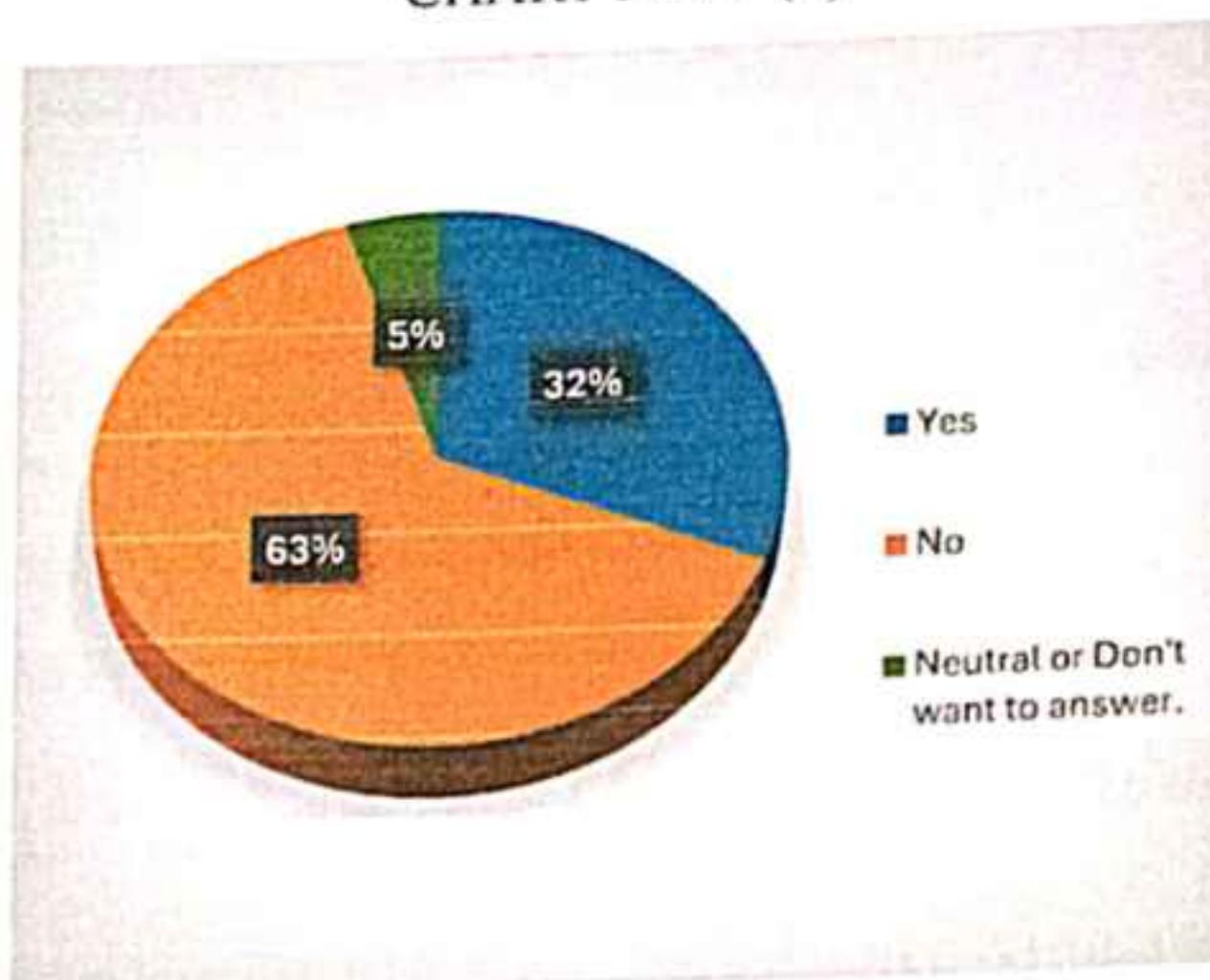


CHART NO. 7 (b)



INTERPRETATION:

1. In our sample 32% of the people are benefitted by reservation in the recent past five year.
2. In our sample 63% of the people are not benefitted by reservation in the recent past five year.
3. In our sample 5% of the people are neutral or don't want to answer of this question.

Now we are going to estimate that on an average how many times people suffered by reservation in the past five year. The calculation is given in the following table:

	Cluster name			
	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Average no. times people suffered by reservation	1.06172	1.518519	0.94736	1.875
Mean sum of square s_i^2	2.45	6.933613	17.0105	5.3167

we estimate population mean with the help of the estimator \bar{y} .

$$\bar{y} = \frac{1}{m_0} \sum_{i=1}^n \sum_{j=1}^{m_i} y_{ij} = \frac{1}{n} \sum_{i=1}^n \bar{y}_i = 1.350654$$

this is a Now biased estimator of population mean and the amount of biasedness is estimated as

$$\text{Bias } (\bar{y}) = \frac{N-1}{NM(n-1)} \sum_{i=1}^n (M_i - \bar{m})(\bar{y}_i - \bar{y}) = -0.17928$$

Therefore, the unbiased estimate of population mean is

$$= 1.350654 + (-0.17928) = 1.171374$$

$$\text{Now } \text{var } (\bar{y}) = \left(\frac{1}{n} - \frac{1}{N} \right) s_b^2 + \frac{1}{n^2} \sum_{i=1}^n \left(\frac{1}{m_i} - \frac{1}{M_i} \right) s_i^2 = 0.082696$$

$$\text{And the confidence interval is } [\bar{y} \pm z_{\alpha/2} \sqrt{\text{var}(\bar{y})}] = [0.668128, 1.674621]$$

INTERPRETATION:

1. Since estimated value of population mean is 1.171374 so we can conclude that on an average 1.171374 times people suffered by reservation in the recent past 5 year.
2. Since the 92% confidence interval for population mean is [0.668128, 1.674621] so we are 92% confident that our sample true value of the population mean will lie between [0.668128, 1.674621].

Now we are going to estimate that on an average how many times people benefitted by reservation in the past five year. The calculation is given in the following table:

	Cluster name			
	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Average no. times people benefitted by reservation	0.90123	0.722222	0.94736	0.1875
Mean sum of square s_i^2	3.16512	2.279874	4.2	0.5625

we estimate population mean with the help of the estimator \bar{y} .

$$\bar{y} = \frac{1}{m_0} \sum_{i=1}^n \sum_{j=1}^{m_i} y_{ij} = \frac{1}{n} \sum_{i=1}^n \bar{y}_i = 0.689581$$

this is a Now biased estimator of population mean and the amount of biasedness is estimated as

$$\text{Bias } (\bar{y}) = \frac{N-1}{NM(n-1)} \sum_{i=1}^n (M_i - \bar{m})(\bar{y}_i - \bar{y}) = 0.20829$$

Therefore, the unbiased estimate of population mean is

$$= 0.689581 + 0.20829 = 0.897872$$

$$\text{Now } \text{var } (\bar{y}) = \left(\frac{1}{n} - \frac{1}{N} \right) s_b^2 + \frac{1}{n^2} \sum_{i=1}^n \left(\frac{1}{m_i} - \frac{1}{M_i} \right) s_i^2 = 0.038117$$

And the confidence interval is $[\bar{y} \pm z_{\alpha/2} \sqrt{\text{var}(\bar{y})}] = [0.556208, 1.239535]$

INTERPRETATION:

1. Since estimated value of population mean is 0.897872 so we can conclude that on an average 0.897872 times people benefitted by reservation in the recent past 5 years.
2. Since the 92% confidence interval for population mean is [0.556208, 1.239535] so we are 92% confident that our sample true value of the population mean will lie between [0.556208, 1.239535].

Now we are going to estimate average satisfaction of people [on 1 to 5 scale 1 refers to very less satisfaction and 5 refers to very high satisfaction] by reservation. The calculation is given in the following table:

	Cluster name			
	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Average satisfaction of people by reservation	2.67901	2.796296	0.94737	1.9375
Mean sum of square s_i^2	1.27068	1.948288	1.92398	1.6625

we estimate population mean with the help of the estimator \bar{y} .

$$\bar{y} = \frac{1}{m_0} \sum_{i=1}^n \sum_{j=1}^{m_i} y_{ij} = \frac{1}{n} \sum_{i=1}^n \bar{y}_i = 2.066896$$

this is a Now biased estimator of population mean and the amount of biasedness is estimated as

$$\text{Bias } (\bar{y}) = \frac{N-1}{N\bar{M}(n-1)} \sum_{i=1}^n (M_i - \bar{m})(\bar{y}_i - \bar{y}) = 0.808315$$

Therefore, the unbiased estimate of population mean is

$$= 2.066896 + 0.808315 = 2.875212$$

$$\text{Now } \text{var } (\bar{y}) = \left(\frac{1}{n} - \frac{1}{N} \right) s_b^2 + \frac{1}{n^2} \sum_{i=1}^n \left(\frac{1}{m_i} - \frac{1}{\bar{M}} \right) s_i^2 =$$

$$\text{And the confidence interval is } [\bar{y} \pm z_{\alpha/2} \sqrt{\text{var}(\bar{y})}] = [2.15916, 3.591263]$$

INTERPRETATION:

1. Since estimated value of population mean is 2.875212 so we can conclude that [on 1 to 5 scale 1 refers to very less satisfaction and 5 refers to very high satisfaction] average satisfaction of people is 2.875212.
2. Since the 92% confidence interval for population mean is [2.15916, 3.591263] so we are 92% confident that our sample true value of the population mean will lie between [2.15916, 3.591263].

TESTING:

Now we are going to check that is there an association among the categories and their responses on the statement that: should reservation provided in higher educational institutions or not.

For this we apply here chi-square test for association.

Null Hypothesis: there is no any association among the categories and their responses.

Alternative hypothesis: there is an association among the categories and their responses.

Calculated value of chi-square is calculated by following formula:

$$\chi^2 = \sum \left(\frac{O_i - E_i}{E_i} \right)^2$$

O_i is the observed frequency which is obtained from the data.

E_i is the expected frequency which is calculated under the null hypothesis from the following formula.

Expected frequency = (Row total * Column Total) / Grand total

Now we form a contingency table for the responses:

		CATEGORIES						
		GENERAL	EWS	OBC	SC	ST	Total	
Frequencies	Observed	YES	16	6	37	16	5	80
	Expected		30.1449275	9.27536232	26.6666667	10.4347826	3.47826087	80
	Observed	NO	36	10	9	2	1	58
	Expected		21.8550725	6.72463768	19.3333333	7.56521739	2.52173913	58
		Total	52	16	46	18	6	138

Now calculated value of chi-square statistics is

$$\chi^2 = \sum \left(\frac{O_i - E_i}{E_i} \right)^2 = 36.71726$$

Now

$$\text{degree of freedom} = (\text{no. of row} - 1) * (\text{no. of column} - 1) = (5-1) * (2-1) = 4$$

Now calculated value of chi-squares with 4 degrees of freedom at 5% level of significance is = 8.336532

Since here $\chi^2_{\text{cal}} > \chi^2_{\text{tab}}$ so, our null hypothesis is rejected and alternative hypothesis is accepted.

INTERPRETATION:

Since here $\chi^2_{\text{cal}} > \chi^2_{\text{tab}}$ so, our null hypothesis is rejected and alternative hypothesis is accepted. So, we can conclude that there is an association among their categories and their responses.

CONCLUSIONS:

1. 48% people of the total population suggest that reservation should not be provided in higher education. And 34% people of the total population suggest that reservation should be provided in higher education
2. Most of the people suggest that the reservation should be provided on the basis of poor financial background.
3. Most of the population suggest that in higher education reservation should not be provided to the student who or whose family is economically strong and to the student whose either of the parents are in grade A job.
4. There is no major difference between the proportion of the people who say that the reservation policy has an adverse or positive effect on social justice and equality.
5. Most of the people favours that the reservation policy hindering the social harmony.
6. Most of the population are agree with that, there is a need to establish a deadline for reservation policy to expire.
7. 46% people say that they are suffered by reservation in the recent past five
8. 32% people say that they are benefitted by reservation in the recent past five years.
9. On an average 1.17 times a people suffered by reservation in the recent past five years.
10. On an average 0.89 times a people benefitted by reservation in the recent past five years.
11. On 1 to 5 scale where 1 refers to very less satisfaction and 5 refers to very high satisfaction, the overall average satisfaction of the people is 2.875.
12. There is an association among the categories and their responses. i.e. people's responses are affected by their own category and people are not completely fair.

Questionnaire:

In which faculty you are enrolled*

Choose from given list.

Select the correct response from the list given below:

Choose from given list

2. *What is your current academic year?*

1. *What is your "honours" subject?*

Choose

3. *What is your category? **

- (a) General
- (b) Economically weaker section [EWS]
- (c) Other backward section [OBC]
- (d) Scheduled caste [SC]
- (e) Scheduled tribe [ST]

4. Are you falls under Divyang (Person with disability - PWD) category??*

- (a) Yes
- (b) No

5. *Do you agree, reservation should be provided in higher education?*

- (a) Strongly disagree
- (b) Disagree
- (c) Neutral
- (d) Agree
- (e) Strongly agree

6. What should be the basis for allocating reservation slots in higher educational institutions? *

(you can choose more than one option)

- (a) Backwardness
- (b) Geographical isolation
- (c) Distinct culture
- (d) Inadequacy of representation
- (e) Shyness in contact with a community at a large.
- (f) Poor financial background

Other

7. What factors do you think should disqualify student from receiving reservation in higher education?

*

(you can also choose more than one option)

- (a) The candidate or his family are economically strong.
- (b) The candidate belongs to specific religion.
- (c) Either of the parents of the candidate are in the A grade government job.
- (d) The candidate having criminal history.
- (e) The candidate or his family having political exposure.

8. In your perspective, how reservation policies affect the overall landscape of social justice and equality? *

Adverse effect

- (a) Partial adverse effect
- (b) Neutral
- (c) Partial positive effect
- (d) Positive effect

9. To what extent reservation policies hampering social harmony? *

- (a) Significantly hindering
- (b) Moderately hindering
- (c) Neutral
- (d) Moderately enhancing
- (e) Significantly enhancing

10. Do you agree that there is a need to establish a deadline for the reservation to expire? *

- (a) Strongly disagree
- (b) Disagree
- (c) Neutral
- (d) Agree
- (e) Strongly Agree

11. Are you suffered by reservation in the recent past five years? *

- (a) Yes
- (b) No
- (c) Neutral or don't want to answer.

12. If yes then, in the past five years how many times you are suffered by reservation?

write number of times you suffered.

Your answer

13. Are you benefited by reservation in the last five years?

- (a) Yes
- (b) No
- (c) Neutral or don't want to answer.

14. If yes then, in the past five years how many times you are benefited by reservation *

write number of times you are benefited.

Your answer

15. On a scale of one to five how you rate your overall satisfaction by reservation? *

1 represents very less or no satisfaction while 5 represent high satisfaction

- (a) 1
- (b) 2
- (c) 3
- (d) 4
- (e) 5



BHU

Banaras Hindu University

Finished