

# Sampling assignment

[Science](#), [Social Science](#)



Sample Technique Part Comparing Sampling Techniques First sample Weed Patch school is equally large as compared to any population for the purpose of research. The population of 100 students is a mere representation in the sampling technique of the general population of the school.

The drawing of three samples consisting of 20 students each of the sample population stated is carried out in unbiased manner and randomly chosen without any prejudice for the purpose of accuracy of the information we want to derive. The selection of the students for each sample was done on the basis of random selection. The student were hand-picked to constitute a team of 20 students without condition or any other consideration (be it a student of any level, of any particular gender or age).

The list of the first sample is:

Student Days

ID Absent

10

21

33

41

51

64

713

82

95

101

112

121

133

141

151

164

173

1811

193

208

The comparison of the average calculated from the first sample which is 3.4 with the population average which is 5.85 show a deviation of -2.45.

The result of the average of the sample in comparison with the population is showing a relative large deviation since the first sample is just a mere representation of the whole population constituting 20% of the whole population in general. Another aspect of the big deviation is the existence of extreme values within the first sample for instance while student ID no. 1 has zero days for being absent, the student ID no. 7 has 13 days of absenteeism.

The second sample

The second sample of this sampling technique is categorically picked on the basis of gender. The technique seeks to investigate the difference created as a result of the school attendance among the boy-child vis a vis the girl-child. This second sample particularly check the absenteeism rate across the whole school for the girl-child gender.

The list of the 20 students randomly picked from the whole population of the

100 students are as stated in correspondence with their ID numbers and the number of days a student has been absent from school over the period.

Student Days

ID Absent

81 4

82 5

83 2

84 11

85 9

86 9

87 9

88 6

89 10

90 3

91 0

92 7

93 8

94 4

95 6

96 10

97 3

98 4

99 3

100 8

The statistical comparison of the population average and the second sample

gives  $(6.05 - 5.85 = 0.2)$ .

The positive deviation felt in the second sample as compared to the population average is as a result of reduction in sample space from 100 to 20 students for the sampling purposes. The average rate of absenteeism among the girls is slightly higher than the average population average, showing absenteeism is higher among girl-child in school.

### The Third Sample

The third sample of this sampling technique entails the 20 boys among the 100 students population. This sample randomly picks at student from any grade, any age as long as he is a boy-child for this sampling purpose. Their ID numbers are recorded alongside their respective number of days one has been absent from school as follows:

#### Student Days

ID Absent

215

221

2315

2410

2511

263

274

283

296

309

3114

322

334

344

351

362

375

386

3916

405

The statistical comparison of the third sample's average with the population's average gives  $(6.3 - 5.85 = 0.45)$ .

The average rate of absenteeism among the boys in the school is slightly above the average rate of absenteeism in the general population of the school. The dispersion of several figures of the absenteeism among the boys within this sample becomes the basis on which the difference in averages is pegged with respect to the smaller sample size.

#### Convenience sampling

This type of sampling is based on the judgement of the researcher on a non-probability technique. The basis on which the researcher lays the unit he selects for inclusion into the sample size should be easier to access.

#### Advantages

Convenience sampling is very easy to undertake since there are no strict rules governing the sample collection.

The informal access of population list makes convenience sampling the best for collection of information that would have been possible to get while using

other techniques like probability techniques.

Convenience sampling is less costly and minimal time consuming.

#### Disadvantages

Convenience sampling suffers from biases as a result of a number of biases. Being that the sampling frame is unknown, and there is no random choosing of the sample, the inherent bias in the convenience sampling shows that it is unlikely to have a representative sample of the whole population.

#### Simple Random Sample

This technique puts every member of the population under study has equal chance of being selected. The whole process of the simple random sampling is carried in a single step with every item selected independently of the other various members of the population.

#### Advantages

There is ease of assembling the sample. It is a fair way of selection since every member has equal chance of being selected.

It has a fair level of being a representative of the general population with luck as the only compromising factor.

#### Disadvantage

The simple random sampling requires a whole list of all the population members. This whole list are not always available for large populations.

#### Systematic Sample

The technique involves a researcher first picking the first subject or item from the population. Then, the selection of the  $n$ th subject from the population is done.

#### Advantages

1. The systematic random sampling is having high level of simplicity.
2. It has an assurance of the population to be evenly sampled unlike the simple random sampling where only a clustered selection of subjects is sampled.

#### Disadvantages

1. A number of the lists are not readily available to the public domain and purchasing them would be expensive.
2. The problem of having access to the list is at times a challenge, though the list may be readily available, i. e. protected privacy policies.

#### Part 2: Exploring Sampling Error

##### Sample A1

##### Student Days

##### ID Absent

10

415

81 4

21

429

82 5

133

533

93 8

141

544

94 4



151

554

95 6

164

193

221

629

2315

The average of the sample A1 has a deviation of 5.  $0-5.85 = -.85$

Sample A2

Student Days

ID Absent

6315

2410

645

221

629

344

7412

351

755

362

766

375

770

43 2

83 2

41

444

84 11

51

87 9

The average of the sample A2 has a deviation  $4.8 - 5.85 = -1.05$

Sample A3

Student Days

ID Absent

45 7

47 4

87 9

82

48 0

112

515

91 0

64

465

86 9

713

474

87 9

82

480

88 6

95

496

89 10

The average of the sample A3 has a deviation of  $5.1 - 5.85 = -0.75$

Sample A4

Student Days

ID Absent

10 1

5015

90 3

173

5717

97 3

1811

589

98 4

193

121

5211

151

554

95 6

164

5613

96 10

173

5717

The average of the sample A4 has a deviation of  $6.95 - 5.85 = 1.1$

Sample A5

Student Days

ID Absent

97 3

2315

6315

2410

645

2511

6510

10

415

81 4

82

480

88 6

95

496

89 10

141

544

94 4

151

The average of the sample A5 has a deviation of  $5.55 - 5.85 = -0.3$

Sample A6

Student Days

ID Absent

554

95 6

164

5613

96 10

728

2511

6510

263

667

283

680

296

695

3114

7114

334

362

766

375

The average of the sample A6 has a deviation of  $6.75 - 5.85 = 0.9$

B

Sample B1

Student Days

ID Absent

10

415

81 4

21

42 9

82 5

33

432

83 2

41

444

84 11

51

457

85 9

64

465

86 9

713

474

87 9

82

480

88 6

95

496

89 10

10 1

5015

90 3

112

515

91 0

121

5211

92 7

133

533

93 8

141

Sample B2

Student Days

ID Absent

544

94 4

151

554

95 6

164

5613

96 10

173

5717

97 3

1811

589

98 4

193

593

99 3

208

604

100 8

215

6111

221

629



2315

6315

2410

645

2511

6510

263

667

274

6712

283

680

296

695

309

703

Sample B3

Student Days

ID Absent

3114

7114

322

728

334

735

344

7412

351

755

362

766

375

770

386

780

3916

798

405

803

10

415

81 4

21

42 9

82 5

33

432

83 2

41

444

84 11

51

457

85 9

64

465

86 9

713

474

Sample B4

Student Days

ID Absent

81 4

21

42 9

82 5

33

432

83 2

41

444

84 11

51

457

85 9

64

465

86 9

713

474

87 9

82

544

94 4

151

554

95 6

164

5613

96 10

173

5717

97 3

1811

589

98 4

193

593

99 3

208

604

100 8

Sample B5

Student Days

ID Absent

322

728

334

735

344

7412

351

755

362

766

375

770

386

780

3916

798

405

803

10

415

100 8

215

6111

221

629

2315

6315

2410

645

2511

6510

263

667

274

6712

283

680

296

695

309

Sample B6

Student Days

ID Absent

3114

7114

322

728

334

735

344

7412

351

755

173

5717

97 3

1811

589

98 4

193

593

99 3

208

604

100 8

215

6111

221

629

2315

6315

2410

645

10

415

81 4

21

42 9

82 5

33

432

83 2

41

The deviation in the averages of the sample size of 40 students is slightly deviating from the general population average as compared to the average derived from the sample size of 20 students.

This is because the more the sample size approaches the figure of the entire population the error of sampling is minimized and thus the slight deviations.

Work cited

Ardilly, Pascal, and Yves Tillé. *Sampling Methods: Exercises and Solutions*. New York: Springer, 2006. Print.