GOVERNMENT HOLKAR(MODEL, AUTONOMOUS) SCIENCE COLLEGE , INDORE

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DEPARTMENT OF STATISTICS

TOPIC:- DOUBLE SAMPLING PLAN

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SAMPLING

Sampling is the act , process or technique of selecting a suitable sample or a representative part of a population for the purpose of determining parameters or characteristics of the whole population .

DOUBLE SAMPLING PLAN

- Another sampling scheme propounded by Dodge and Roming is the ‘second sampling method’ . In this method , a second sample is permitted if the first sample fails i.e. if the data from the first sample is not conclusive on either side (about accepting or rejecting the lot), then a definite decision is taken on the basis of the second sample .

Such a rectifying double sampling inspection plan for attributes is briefly described below

N= Lot size from which samples are taken $n_1 = \text{Size of sample } 1$; n_2= Size of sample 2

c_1= Acceptance number for first sample i,.e. maximum permissible number of defectives in first sample if lot is to be accepted without taking another sample .

c_2= Acceptance number for samples 1 and 2 combined i.e., maximum permissible number of defectives in combined samples if lot is to be accepted.

d_1=Number of defectives in sample 1;

d_2 =Number of defectives in sample 2.

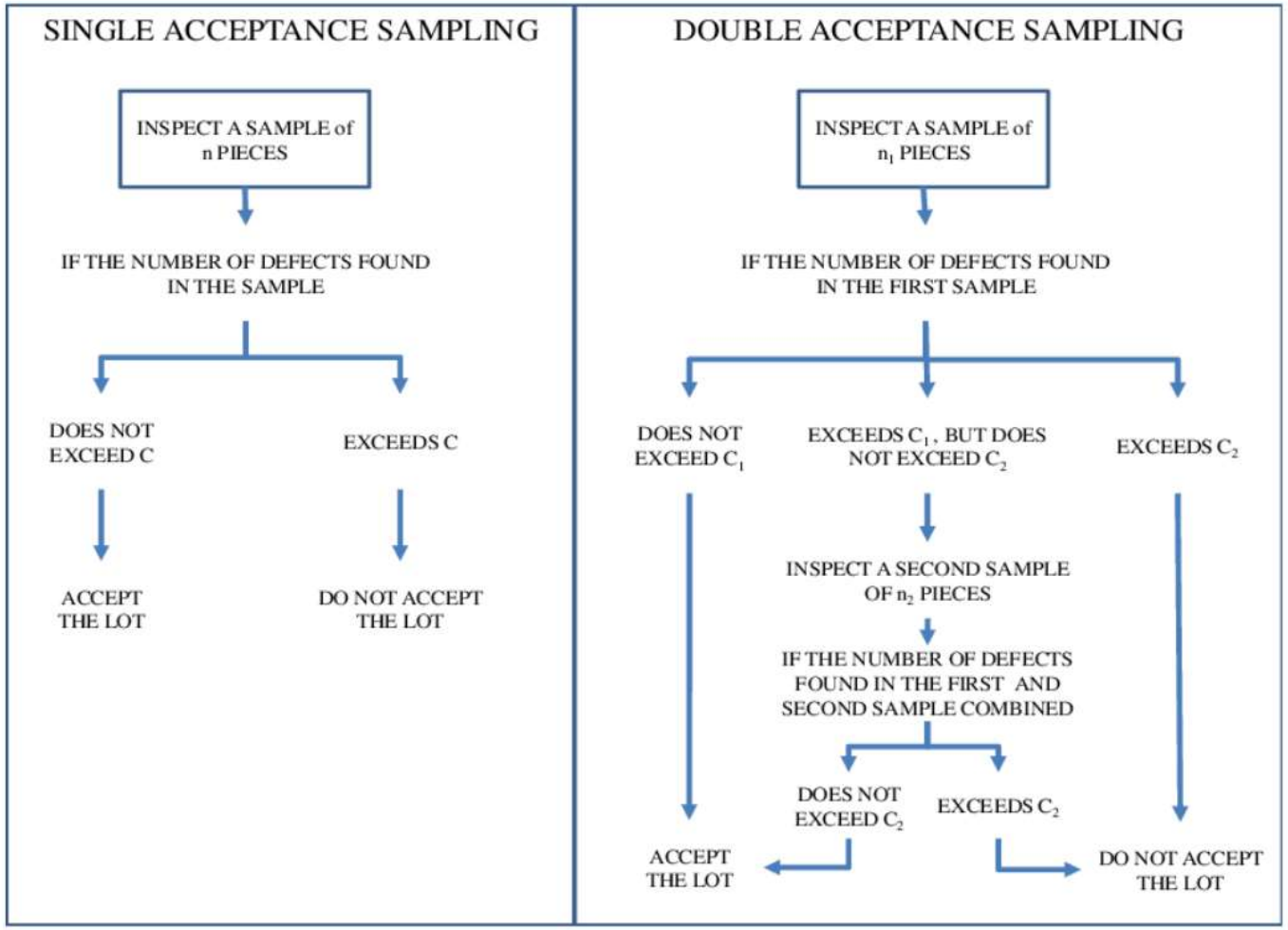

Figure 1. Procedures of Single and Double Acceptance Sampling [1]

Procedure:-

- Take a sample of size n_1 from the lot of size N .
- If $d_1 \leq c_1$, accept the lot replacing the defective found in the sample by non defectives.
- If$d_1 > c_2$,reject the whole lot . Detail the lot 100% , replacing all bad items by good ones .
- If c_1+1 $\leq d_1 \leq c_2$, take a second sample of size n_2 from the remaining lot .
- If d_1+$d_2 \leq c_2$, accept the lot replacing defective items by standard ones .
- If d_1+$d_2 > c_2$, reject the whole lot, inspect the rejected lot 100% replacing all the defective items by good one.

ADVANTAGES

-Reduces total number of rejections .

-Gives a second chance for vendor .

DISADVANTAGES

- Can loose economical advantage .
- Customer is at risk .
- More record keeping .

DIFFERENCE BETWEEN SINGLE SAMPLING AND DOUBLE SAMPLING

- No. of samples one.
- Decision of acceptance and rejection depend on sample taken.
- Sample size is large .

- No. of samples two .
- Decision of acceptance and rejection depend on first and second sample taken.
- First sample size is about half of single sampling .

REFERENCE

www.wekipedia.com
Fundamental of applied statistics~ S.C. Gupta and V.K. Kapoor

THANK YOU