

5. widely accepted as it is more scientific, without personal bias

6. Helps to derive a "calculated risk" <sup>found</sup> & corresponding precision. (sampling error).

Living

## Non-Statistical Sampling [RSX PTX]

• Sample size & selection (composition) decided on basis of

personal experience  $\cong$  knowledge of auditor

• This is common  $\because$  of simplicity.

by <sup>Tools</sup> 1. Bank Rev.  $\rightarrow$  monthly  $\rightarrow$  March / Sep / June select

<sup>Tools</sup> 2. Value of items  $\rightarrow$  Top 10 Highest value items  $\rightarrow$  select.

• Maintain element of surprise.

• Common to check large no. of <sup>items</sup> at "close of year"

Mass

for cut-off procedures.

High risk of fraud.

Reality  $\rightarrow$  Revenue  $\rightarrow$  Profit  $\downarrow$  Fictional RE

• It is criticised because it is

neither objective

Nor scientific



wait next class

• objectivity can't be measured because of personal bias

Sample results can't be projected on population as they are not selected scientifically

Conclusion: Approach is simple But sample may not be

true representative of pop<sup>n</sup> because of

Personal bias  
no scientific method of selection.

Insur

# Sample Design, Size & Selection of Items

Consider purpose of audit procedure & characteristics of population.

Determine sample size sufficient to reduce sampling risk to ~~20%~~ acceptably low level.

Select items in a way that each sampling unit has a chance of selection.

Leave 6 lines

## Sample Design [What to consider?]

When designing a sample, auditor shall consider:

a) Purpose: Specific purpose to be achieved & audit procedures to achieve that purpose.

b) Nature of audit evidence: Nature of A. evidence sought & possible deviation/misstatement condition to define what is actually a deviation/misstatement & what population to use.

c) Completeness: As per SAS 500, Audit Evidence, when doing sampling, check that population is complete.

leg  
TODS relating to "Evidence of Debtors" (Purpose)

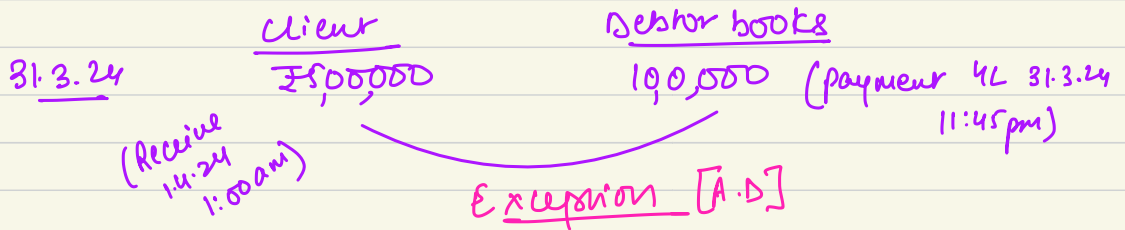
- Use External Confirmation Procedures to get Confirmation. (evidence)

## Spl. cases

a) Payment by a customer before confirmation date but

received by client after that date. → Not considered misstatement

Rough



b) Wrong posting between customer accounts does not affect total debtors balance.

Rough

• Cr. sales of ₹5L to Mr. Chandu but posted in A/c of Mr. Bandhu.

- Before trans<sup>n</sup>, Chandu's balance was ₹5L outstanding for 1 year.
- Bandhu did not have any ops balance.

Actually

Chandu	50,00,000
Bandhu	50,000
	55,00,000

(-) Provision

Chandu (50L x 50%)	25,00,000
Bandhu (50,000 x 5%)	2,500
	29,75,000

(Fr. Fee)

(Fr. Fee) overstated

Correct

Chandu (50L + 5L)	55,00,000
Bandhu	-
	55,00,000

(-) Provision

(55,00,000 @ 50%) 27,50,000

27,50,000

Concept (contd.)

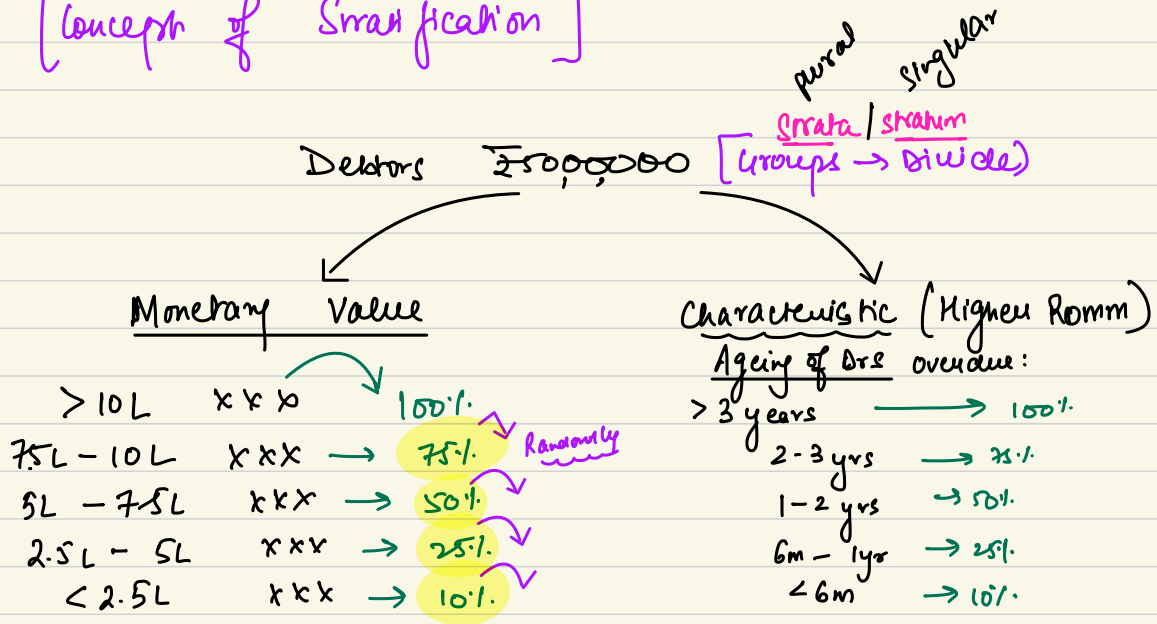
- This wrong posting not considered misstatement, in evaluating sample results but it may have

important effect on other audit areas

fraud risk  
or  
adequacy of allowance

for doubtful A/cs.

# Rough [Concept of Stratification]



## Learning: Stratification

Audit efficiency may be improved, if auditor stratifies population

- by dividing into discrete sub-populations (strata)
- have identifying characteristics.

Objective: Reduce variability of items & allow sample size to be reduced without increasing sampling risk.

## How?

1) When performing tests, pop<sup>n</sup> stratified by monetary value.

This allows greater effort to larger value items.

2) Also, pop<sup>n</sup> may be stratified as per particular

characteristic indicating higher Romm.

eg When testing Allowance for doubtful a/cs for valuation of debtors, <sup>Assessment?</sup>

balances may be stratified by age.



6 lines

## Rough (concept of value weighted selection)

<u>Debtors</u>		£50,00,000	
	£		(sort high to low)
A	30,00,000	A	30,00,000
B	5,00,000	C	10,00,000
C	10,00,000	B	5,00,000
D	25,00,000	D	2,50,000
E	1,50,000	E	1,50,000
F	75,000	F	75,000
G	25,000	G	25,000
	<u>50,00,000</u>		<u>50,00,000</u>

45,00,000 (90%) value weight  
+ common monetary value (£) 5,00,000

### Learning: Value weighted selection

- when performing tests, efficient to identify sampling units as individual monetary units (£).
- Selecting specific monetary units from pop<sup>n</sup> (by debtors) that contain those monetary units.

Benefit? Effort directed to larger value items as they have greater chance of selection  
∴  
results in smaller sample size.

lines } How to use?

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## Sample Size

- Sufficient to reduce sampling risk to acceptably low level.
- Lower sampling risk auditor can accept, greater will be sample size.

## Factors affecting Sample Size

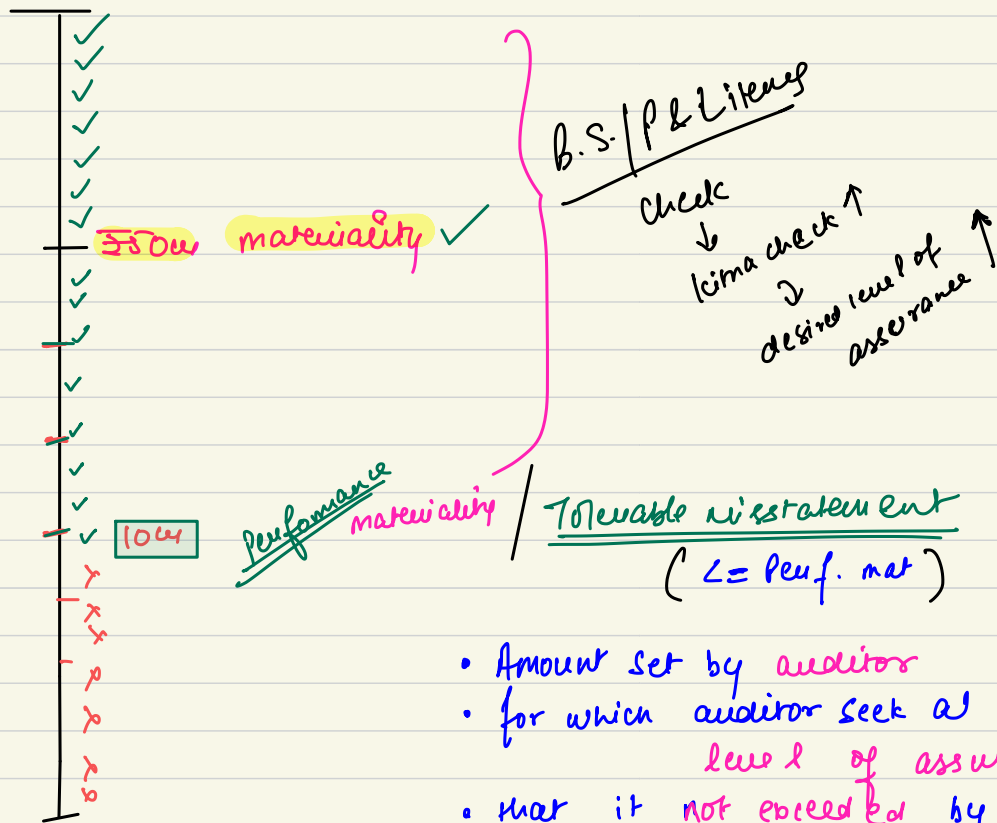
### Test of Controls (TOCs)

1. Increase in extent to which Risk Assessment considers relevant controls.

When auditor's assessment of RoM, includes <sup>75%</sup> expectation of operating effectiveness of controls, auditor shall perform TOCs.

- Greater the reliance on controls,  
↓  
greater is the extent of TOCs.  
∴ Sample size will increase

# Concept Tolerable Misstatement



- Amount set by auditor
- for which auditor seek a level of assurance
- that it not exceeded by actual misstatement.

2. Increase in tolerable rate of deviation?  $\Rightarrow$  sample size decrease

3. Increase in expected rate of deviation (ROD) in pop" ?

Higher the expected ROD ↓

Larger sample size to make reasonable estimate of Actual ROD

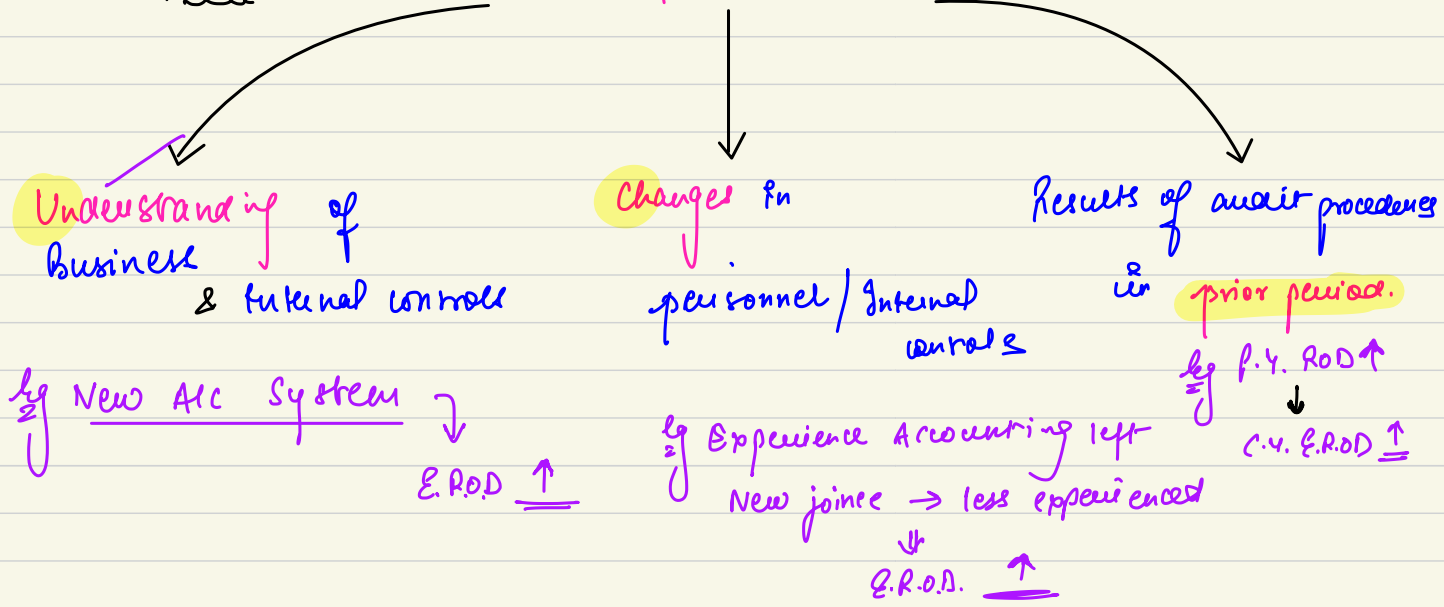
$\Rightarrow$  sample size will increase

Rough 100 POs  $\longrightarrow$  10 samples  $\longrightarrow$  4 Approval  $\times$

Expected R.O.D =  $\frac{4}{10} \Rightarrow 40\%$  [High]  $\Rightarrow$  Actual ROD ?

↓  
Testing ↑

Factors to consider Expected R.O.D?



Can controls with high R.O.D → Romm reduce? → No  
 IR Ltr. → Romm  
 x  
CR High

4. Increase in Desired level of Assurance [Actual deviation / misstatement] → not above Tolerable Miss./Dev.)  
Increase the sample size.

Rough

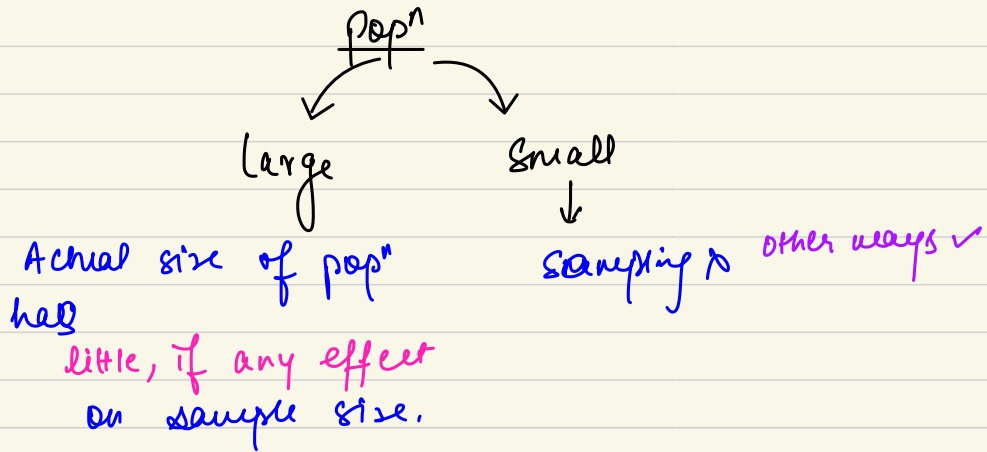
eg (Tos policy)

Sample size = (10% of population or 25 items) ↓

<u>Cases</u>	<u>Pop<sup>n</sup></u>	<u>Sample size</u>
1.	50 items	5
2.	100 items	10
3.	200 items	20
4.	400 items	25
5.	4000 items	25
6.	10,000 items	25

Assume 250 items & above  
 ↓  
 process (controls) similar

5. Increase in no. of sampling units in pop<sup>n</sup>



∴ Negligible effect on sample size due to increase in sampling units in pop<sup>n</sup>.

PODS (spl. points)

1. Increase in ROMM (AR ↓ = ROMM ↑ x DR ↓) ↑ Texting ↑

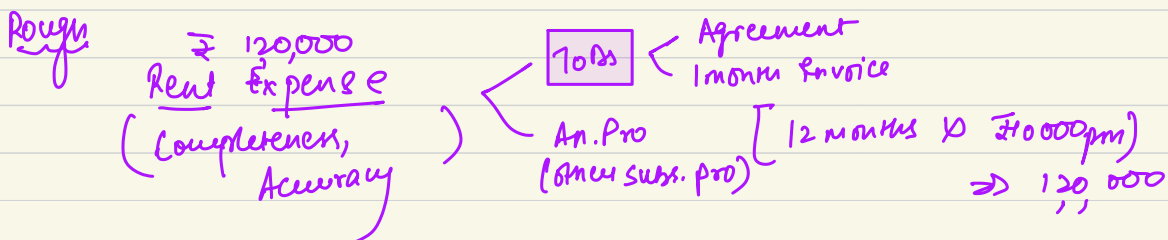
Req If auditor not performed TOs, ROMM can't be reduced.

• To reduce audit risk, reduce D.R. & rely more on substantive procedures.

• more evidence required from TOs (DR ↓),  
larger the sample size.

d. Increase in use of other substantive procedures on same assertion.

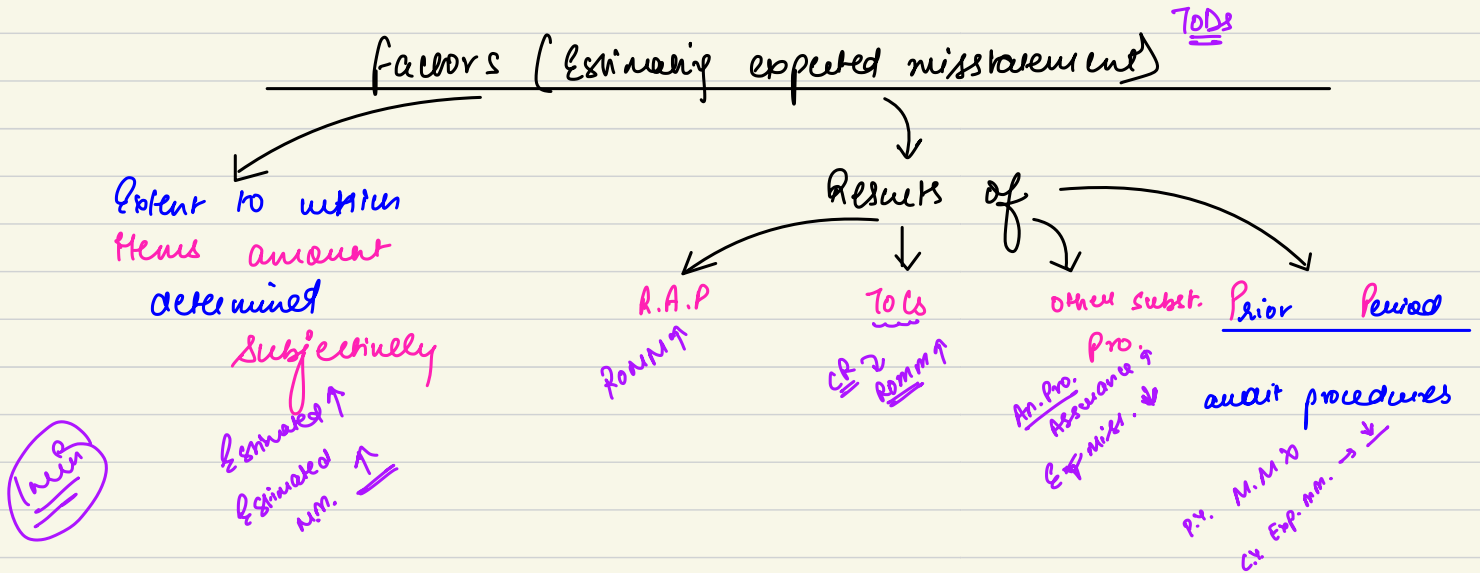
lines { less assurance needed from sampling ∴ smaller sample size.



3. Increase in tolerable misstatement. ↓ Decrease sample size.

4. Increase in expected amount of misstatement.

larger sample size to reasonably estimate actual amt. of misstatements.



5. When stratification of pop<sup>n</sup> done,

sample size will decrease.

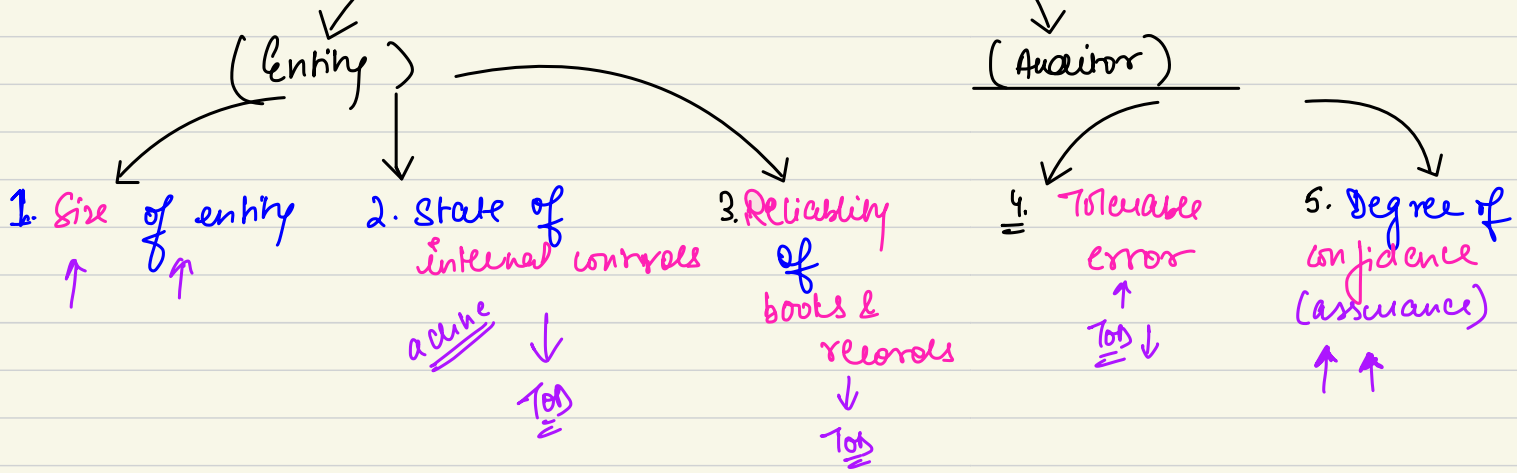
• To reduce variability of items of pop<sup>n</sup>,

it's useful to stratify pop<sup>n</sup>.

• When pop<sup>n</sup> is stratified, sample size (agg. regate of stratas)

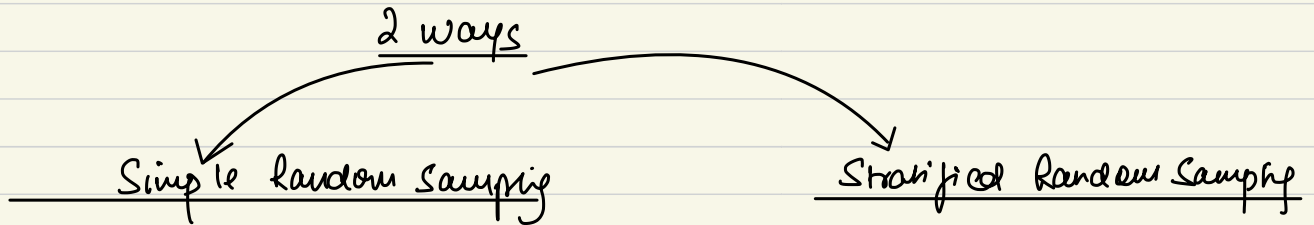
shall be lower than sample size to achieve same sampling risk.

# Extent of checking in Sampling (General factors)



# Sample Selection Methods

1. Random Sampling: Ensures all items in population stratum have known chance of selection.



• Each sampling unit has equal chance of selection.

Benefit: Considered simple, easy to use & has no audit bias.

How? • Each item selected using

Random No. Table using computer or picking up in a random way

250 trans  
 ↓  
 20 samples  
 3rd | 5 | 35 |  
 42 | 67 | ...

When it's suitable?

Appropriate when population consists of:

- reasonably similar units  $\neq$
- within reasonable range.

eg Drs range ₹ 55000 — 2,25000

Inclus  
oo

• Involves dividing population in few separate groups & taking sample from each of them.

• Each stratum treated as separate pop<sup>n</sup> & proportionate items selected from each stratum.

• No. of groups in which pop<sup>n</sup> is divided is based on P.I.

When it is suitable?

In a highly diversified pop<sup>n</sup>, weights should be allocated to reflect differences.

100% | 75% | 150% | ...

• It is extension of random sampling.

eg range ₹ 25 — 10,50,050

## (a) Interval / Systematic Sampling

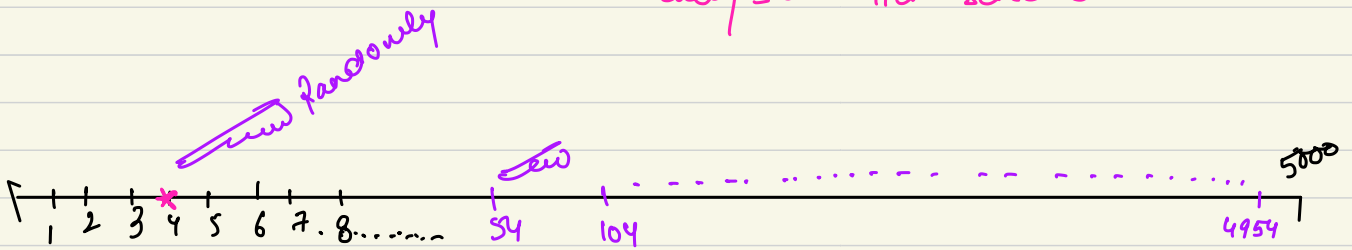
No. of sampling units divided by sample size to give sampling interval.

eg population: 5000 units

sample size: 100 samples

Sampling Interval: 50

i.e. (starting point) any item in first 50 is selected, thereafter every 50<sup>th</sup> item selected.



(starting point?) It may be determined haphazardly, but it shall be truly random, if pick through computer random no. table.

st. malady

(Risk?) Ensure that sampling units not structured in way that

sampling interval (i.e. every 50<sup>th</sup> item) has particular pattern

Rough

eg in test of Sales, every 50<sup>th</sup> transaction is free to customer.

Solution

P.J. ⇒ 4

More sampling intervals (i.e. multiple starting points)

	$I_1$	$I_2$	$I_3$	$I_4$
population	5000	5000	5000	5000
sample size	$\frac{25}{200}$	$\frac{25}{200}$	$\frac{25}{200}$	$\frac{25}{200}$
<u>SI</u>	200	200	200	200

} 100

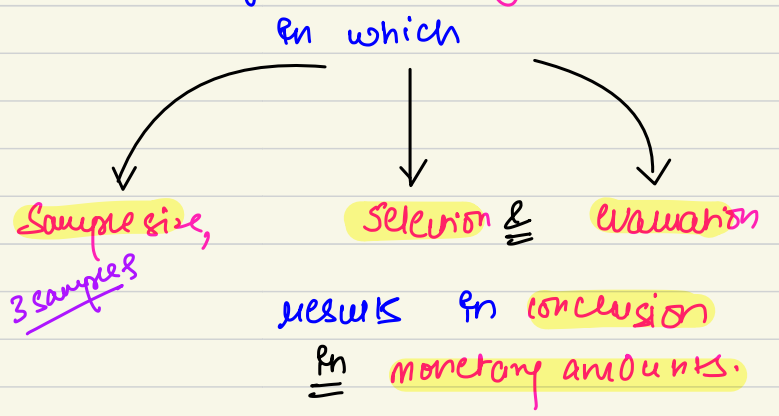
4th	25	100	150
204	225	300	350
⋮	⋮	⋮	⋮

(Solution) Multiple starting points can minimize risk of sample interval pattern

BDD

(3) Monetary Unit Sampling: Type of value weighted selection

30L } common  
10L } M.U.  
5L } 245L



eg conclude that 90% of debtors i.e. 245L are ok.

(4) Haphazard Sampling

- Select sample ~~by~~ without following structured technique.
- Although, NO structured technique is followed, avoid bias (eg avoiding difficult to locate items, or always choosing first or last entries on page)

• NOT appropriate when using statistical sampling.

key? Ne { structured approach judgment use of random no. tables.

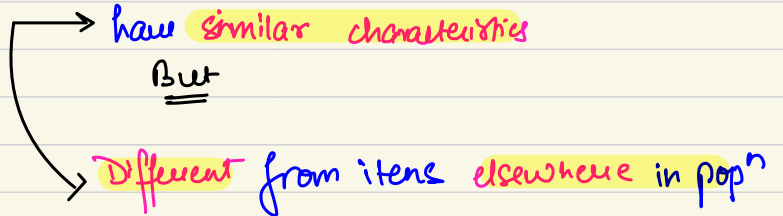
R.S.P.T

Imp BDD

(5) Block sampling

- Involves selection of **blocks of contiguous items** within a pop<sup>n</sup>.
- **Can Not use** in Audit sampling °°

Items in sequence



eg Take 1<sup>st</sup> 200 sales invoices from sales day book in Sep.

- Similar to non-statistical sampling

Benefit Similar characteristics **Simplicity & Economy.**

Software & Backar

Problem It has risk of **Bias** & establishing Pattern



of population.

Tanika I X

Tanika II → Sample → Representative of Pop<sup>n</sup>

