CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

This study adopted a descriptive survey design. This design is selected to enable the collection of data that describes the current state of lease financing and its effects on SME productivity, providing a comprehensive overview of the situation. This research design is appropriate for achieving the study's objectives, as it facilitates the collection of detailed information from a representative sample, thereby enabling the generalization of findings to the broader population of SMEs in Calabar.

3.2 Population of the study

The population of this study comprises all small and medium scale enterprises (SMEs) in Calabar, Cross River State, Nigeria.

3.3 Sample size and sample size determination

The sample size for this study will be determined using statistical methods to ensure that the results are representative and reliable. Given the population of SMEs in Calabar, Cross River State, Nigeria, the sample size must be large enough to reflect the diversity and characteristics of the entire population while maintaining manageable data collection and analysis processes.

The Taro Yamane formula will be used to determine the sample size

$$n = \frac{N.Z^2.p.(1 - P)}{(N-1).E^2+Z^2.p.(1-p)}$$

n = required sample size

N = population size (estimated number of SMEs in Calabar)

Z = Z-value (the number of standard deviations corresponding to the desired confidence level, for a 95% confidence, Z is 1.96)

E = margin of error(typically st at 5% or 0.05 for this type of study)

p = estimated proportion of the population hat has the attribute of interest (since the exact proportion is unknown, 0.5 is often used as it maximizes the sample size)

Assuming there are approximately 1,000 SMEs in Calabar:

$N = 1000$

$Z = 1.96$

$p = 0.5$

$E = 0.05$

Plugging these values into the formula:

$$n = \frac{1000.(1.96^2).0.5.(1-0.5)}{(1000-1).(0.05^2)+(1.96^2).0.5.(1-0.5)}$$

$$n = \frac{1000.3.8416.0.25}{999.0.0025+3.8416.0.25}$$

$$n = \frac{960.4}{2.4975+0.9604}$$

$$n = \frac{960.4}{3.4579}$$

$$n \approx 278$$

$$n = \frac{\mathbf{N}}{\mathbf{1+N(e^2)}}$$

Where:

- n = required sample size
- N = population size
- e = margin of error {level of precision}

Using this simplified version for a population of 1,000 SMEs and a margin of error of 5% (0.05):

$$n = \frac{1000}{1+1000(0.05^2)}$$

$$n = \frac{1000}{1+1000.0.0025}$$

$$n = \frac{1000}{1+2.5}$$

$$n = \frac{1000}{3.5}$$

$n \approx 286$

n=N·Z2·p·(1−p) (N−1)·E2+Z2·p·(1−

Where:

- n = required sample size

- N = population size (estimated number of SMEs in Calabar)

- Z = Z-value (the number of standard deviations corresponding to the desired confidence level; for a 95% confidence level, Z is 1.96)

- p = estimated proportion of the population that has the attribute of interest (since the exact proportion is unknown, 0.5 is often used as it maximizes the sample size)

- E = margin of error (typically set at 5% or 0.05 for this type of study)

Assuming there are approximately 1,000 SMEs in Calabar:

$$N = 1000$$

$$Z = 1.96$$

$$p = 0.5$$

$$E = 0.05$$

Plugging these values into the formula:

$$n = \frac{{1000 \cdot (1.96^2) \cdot 0.5 \cdot (1 - 0.5)}}{{(1000 - 1) \cdot (0.05^2) + (1.96^2) \cdot 0.5 \cdot (1 - 0.5)}}$$

$$ n = \frac{{1000 \cdot 3.8416 \cdot 0.25}}{{999 \cdot 0.0025 + 3.8416 \cdot 0.25}} $$

$$ n = \frac{{960.4}}{{2.4975 + 0.9604}} $$

$$ n = \frac{{960.4}}{{3.4579}} $$

$$ n \approx 278 $$

Therefore, the required sample size is approximately 278 SMEs. This sample size is sufficient to achieve a 95% confidence level with a 5% margin of error, ensuring that the findings are statistically significant and can be generalized to the larger population of SMEs in Calabar.

To enhance the representativeness of the sample, stratified random sampling will be employed. This technique involves dividing the population into distinct strata (e.g., by industry sector) and randomly selecting participants from each stratum proportionally. This approach ensures that different sectors within the SME population are adequately represented in the sample, thereby improving the accuracy and reliability of the study’ s findings.