The Structure of a Scientific Research Introduction

Writing a scientific research introduction is a crucial step, serving as the gateway through which the reader enters the content of your study. It must be clear and convincing to demonstrate the research's importance and highlight its knowledge contribution.

1. **General Context of the Topic or Preamble (Background) :**
   Begin by stating the **broader field** under which your research topic falls.

- **In Economics:** Start by discussing a major economic issue or a general trend (e.g., "Sustainable economic growth is one of the most important global objectives..." or "Companies face significant challenges due to global fluctuations in interest rates...").

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2. Problem statement (The Research Gap)

- **Brief Review of Previous Studies:** Refer to what has already been addressed in the relevant economic literature, focusing on the agreed-upon and disputed **key findings**.

- **Highlighting the Gap:** This is the most crucial part. Explain **what is missing** or **what has not yet been answered** in previous studies.

- **In Economics:** The gap might be the absence of a study applying a certain model to a local context (e.g., "Despite the abundance of studies on the **impact of the exchange rate**, the relationship in the **Algerian economy** using the **Spatial Vector Autoregression (SVAR) model** has not been sufficiently analyzed...").

- **Formulating the Problem:** Conclude this section with a clear statement defining the problem your research will address. Main question.

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3. Research Significance

- **Theoretical Significance:** Explain how your research will add new **concepts**, **models**, or **analyses** to the existing economic theory.
- **Practical Significance:** Clarify who will benefit from your research findings (e.g., **policymakers**, **central banks**, **investors**, **fiscal policymakers**).

4. Research Objectives: Clearly define **what the study seeks to achieve**. Objectives should be measurable
(e.g., "The study aims to **measure** the impact of **inflation** on **Foreign Direct Investment (FDI)** in GCC countries...").

5 . Sub-Questions:

Sub-questions are detailed questions derived from the main research question. They are used to break down a complex problem into manageable parts that can be systematically

6. Hypotheses

A hypothesis is a **tentative explanation** or **smart guess** about the relationship between two or more variables, which the researcher aims to **test** statistically (or empirically) throughout the study.
Hypotheses are primarily used in **quantitative/econometric studies** that seek to prove causality or correlation.

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5. Research Structure

- Provide a brief and concise overview of how the rest of the research is organized (chapters or sections), to guide the reader through the subsequent content (e.g., "Chapter one reviews the **theoretical framework of public finance**, while Chapter two discusses the **econometric study** and **data analysis**...").

Structure of an Effective Conclusion

A strong conclusion typically follows a three-part structure:

1. Restate the Research Problem and Purpose

Start by bringing the reader back to the central focus of your study without being repetitive.

- **Restate the Topic:** Briefly remind the reader of the **main research problem** or the **gap** you intended to address.
  - *Example:* "This study aimed to investigate the long-term impact of remote work policies on organizational productivity and employee well-being."
- **Reiterate the Thesis/Objectives:** Briefly restate your primary **thesis statement** or the **main objectives** of your research in a new, synthesized way.[2] This confirms that you achieved what you set out to do.

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2. Summarize the Main Findings

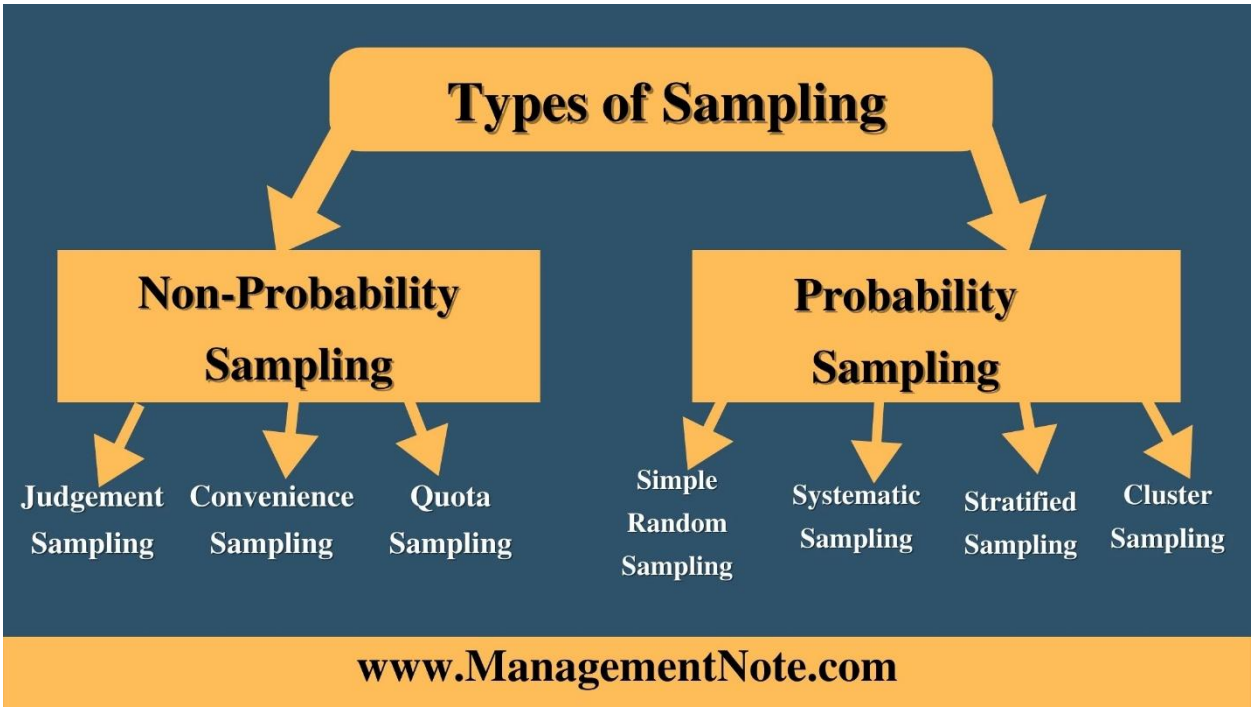
This section provides a synthesis of your results, not just a list of data points. It should directly address the research questions or hypotheses stated in your introduction.

- **Synthesize Key Results:** Summarize the most **significant outcomes** or **major arguments** you developed in your discussion section. Focus only on the findings that have the greatest impact.
  - *Crucial Tip:* Do not introduce any new data, facts, or concepts here. Stick strictly to summarizing the evidence already presented.

- **Address Hypotheses:** Clearly state whether your findings **supported** or **rejected** your main hypotheses.
  - *Example:* "The analysis consistently rejected the null hypothesis, demonstrating a statistically significant, inverse relationship between increased screen time and self-reported job satisfaction."

The types of samples in research

are broadly categorized into two main groups: **Probability Sampling** (or Random Sampling) and **Non-Probability Sampling** (or Non-Random Sampling).



The choice of sampling technique depends on the research goals, the nature of the population, and the resources available.

1. Probability Sampling (Random Sampling) 🎲

In probability sampling, every element in the population has a known, non-zero chance of being selected for the sample. This method is preferred for **quantitative research** because it ensures the sample is representative of the population, allowing for **statistical generalization**.

A. Simple Random Sampling (SRS)

- **Description:** Every individual is chosen entirely by chance, and each individual has an equal probability of being selected.
- **Method:** Assign a number to every member of the population and use a random number generator or a lottery method to select the sample.

- **Best Used When:** The population is small, homogeneous, and easily accessible.

B. Systematic Sampling

- **Description:** Individuals are selected at regular intervals from a list of the population.
- **Method:** Select a random starting point and then select every k^{th} member (where k is the sampling interval, calculated as Population Size / Desired Sample Size).
- **Best Used When:** A complete list of the population exists and the list is not ordered in any specific pattern that might bias the results.

C. Stratified Sampling

- **Description:** The population is divided into homogeneous subgroups (**strata**) based on relevant characteristics (e.g., age, gender, income level). Then, a sample is drawn from each stratum using simple random or systematic sampling.
- **Method:** Ensures that subgroups are accurately represented in the final sample in proportion to their size in the population.
- **Best Used When:** The population is heterogeneous, and the researcher needs to ensure specific subgroups are included and compared.

D. Cluster Sampling

- **Description:** The population is divided into naturally occurring groups or clusters (e.g., schools, cities, neighborhoods). The researcher then randomly selects a few clusters, and **all** members within the chosen clusters are sampled.
- **Method:** Often more cost-effective and time-efficient when the population is geographically dispersed. Can be **Single-Stage** (all individuals in selected clusters are sampled) or **Multi-Stage** (a sample is drawn from the selected clusters).
- **Best Used When:** The population is large and dispersed, and the clusters are internally heterogeneous but externally homogeneous (i.e., similar to other clusters).

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2. Non-Probability Sampling (Non-Random Sampling)

In non-probability sampling, not every element in the population has a known chance of being included. Selection is based on the researcher's subjective judgment, convenience, or specific criteria. This method is often used for **qualitative research** and exploratory studies where the goal is deep understanding rather than statistical generalization.

A. Convenience Sampling

- **Description:** Individuals are selected because they are easily accessible to the researcher.
- **Method:** Sampling individuals who happen to be nearby, such as students in a classroom or shoppers at a specific mall.
- **Caution:** Highly susceptible to bias, as the sample may not be representative of the general population.

B. Voluntary Response Sampling

- **Description:** Individuals volunteer themselves to be part of the study, usually in response to an appeal (e.g., online surveys, call-in polls).
- **Caution:** Results are heavily biased toward people who already have strong opinions or are highly motivated to participate.

C. Purposive Sampling (Judgmental Sampling)

- **Description:** The researcher uses their own judgment to select sample members who are believed to be the most relevant or knowledgeable for the study's purpose.
- **Method:** Deliberately selecting participants based on specific traits, expertise, or experience (e.g., sampling only CEOs with five years of experience in a specific industry).
- **Best Used When:** You need a specific group to answer your research questions, often in qualitative or mixed-methods research.

D. Quota Sampling

- **Description:** The researcher aims to create a sample whose composition is proportional to the population's characteristics. The population is

divided into subgroups (like in stratified sampling), but then individuals are chosen using **non-random** methods (convenience or judgment) until the defined quota is met.

- **Method:** The researcher sets a target number (quota) for each subgroup and fills it non-randomly.
- **Best Used When:** Budget and time constraints prohibit probability sampling, but the researcher still needs to represent specific characteristics of the population.

E. Snowball Sampling

- **Description:** Used primarily for hard-to-reach populations. The researcher recruits initial participants, who then refer the researcher to other people who meet the study criteria.
- **Method:** The sample size grows like a rolling snowball.
- **Best Used When:** Studying sensitive topics or specialized, closed communities (e.g., rare disease patients, undocumented immigrants).