TWO METHOD OF LOGICAL REASONING INDUCTIVE AND DEDUCTIVE

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Problem

Ideas to solve the problem

Inductive & deductive logical thought

- When professionals carrying experiments, they use different methods to understand a problem.
- For instance, a expert could use **inductive reasoning,** which is drawing conclusions from evidence,
- **And deductive reasoning,** which is finding evidence to support or disprove conclusions.

Inductive and Deductive reasoning

- Deductive and Inductive these two methods of reasoning have a very different "composition" to them when you are **verifying of theoretical idea from class room knowledge in real world.**

DEDUCTIVE AND INDUCTIVE

- A particular study may look like it is purely deductive most science social science & management and many more range involves both inductive and deductive reasoning processes at some time in the project.

DEDUCTIVE LOGICAL THOUGHT

Deductive Reasoning

- Deductive reasoning works from the more general to the more specific. Sometimes this is informally called a

"TOP-DOWN"

approach.

- We might begin with thinking up a *theory* about our topic of interest. We then narrow that down into more specific *hypotheses* that we can test.

Deductive Reasoning

- We narrow down even further when we collect *observations* to address the hypotheses.

- Deductive reasoning is more narrow in nature and is concerned with testing or confirming hypotheses.

- This ultimately leads us to be able to test the hypotheses with specific data - a *confirmation* (or not) of our original theories.

Deductive Reasoning

Theory: Demand theory – A. Marshall

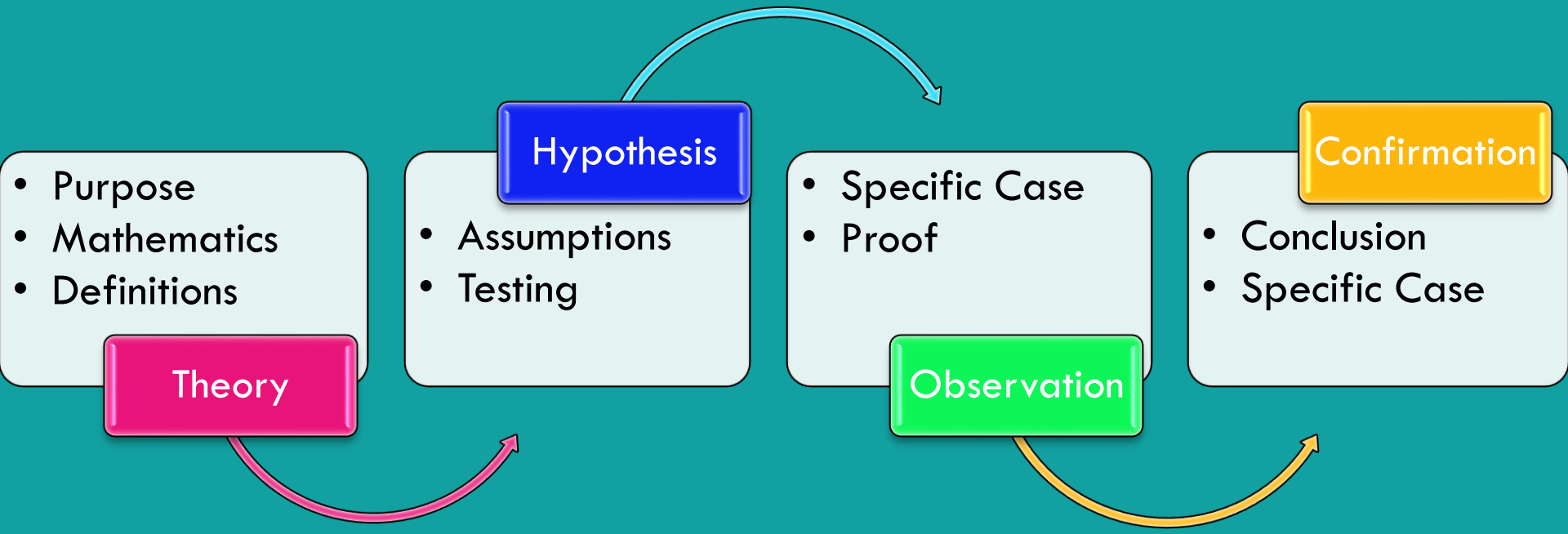
Waterfall

Hypothesis: There is a negative relationship between price and quantity

Observation: data from market/ particular market

Conformation: accept or reject the hypothesis

Deductive Reasoning: Flow Chart



Deductive Reasoning

Deductive reasoning works from the more general to the more specific

- **Have Theories then Hypotheses: theory and hypothesis should also accurate**
- **Data are Gathered to Test**
- **Referred to as: "THEORY-DRIVEN"**
- **Conformation or testing of hypothesis**
- **Most Common Approach and Usually Quantitative**

The Method of Deduction and Empirical Testing

- The process of deduction and empirical testing is the most important method of approach followed by modern entrepreneurs & economists. It is illustrated in sequence of following steps
- It provides a specific example of the way in which the *deductive method* works; it provides a good illustration of *modern business & economic methodology*

- **A priori theory: Theory of Alfred Marshall**

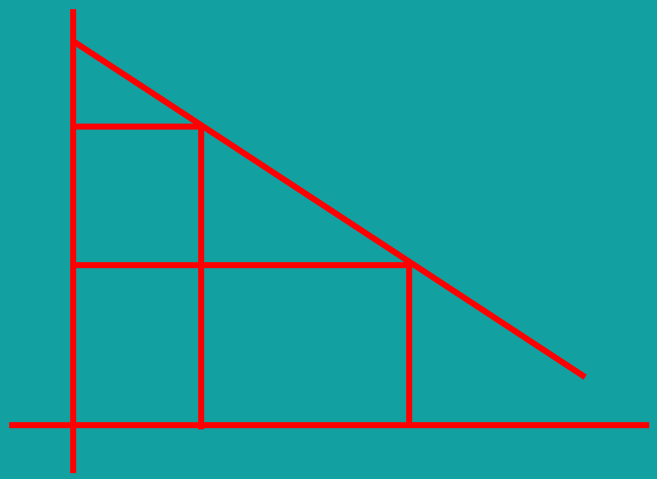
Example: The market price of a good is determined by the demand for and supply of the good.

- **Assumptions**

i. There are many buyers and many sellers of the good so that the market is competitive.

ii. Quantity demanded rises as price falls and falls as price rises.

iii. Quantity supplied rises as price rises and falls as price falls.



Example: Market Equilibrium

1. Application of Marshallian Demand function is in Kalimati vegetable market.
2. Consumption behavior of urban population is according to the Keynesian Consumption

Hypothesis: Null H_o: $\beta = 0$

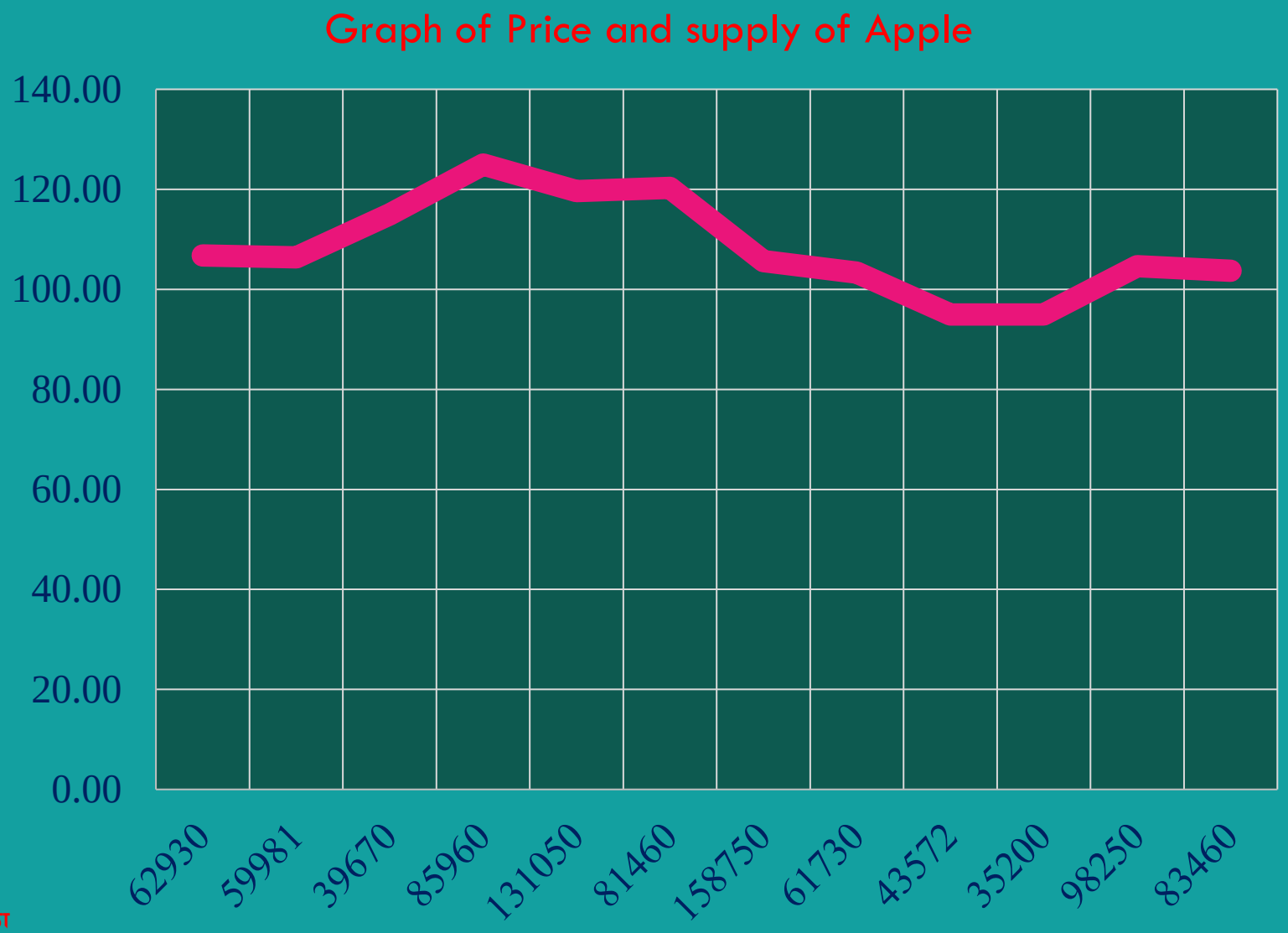
Alternative H_1: $\beta \neq 0$

$Y = a + b_1 x_1 + b_2 x_2$ (i)

$C = a + b_1 Y + b_2 F$ (ii)

Price of Apple per KG and Quantity supply of KG 2073

AP	Qs
106.77	62930
106.41	59981
115.00	39670
125.00	85960
119.68	131050
120.33	81460
105.67	158750
103.33	61730
95.00	43572
95.00	35200
104.63	98250
103.71	83460



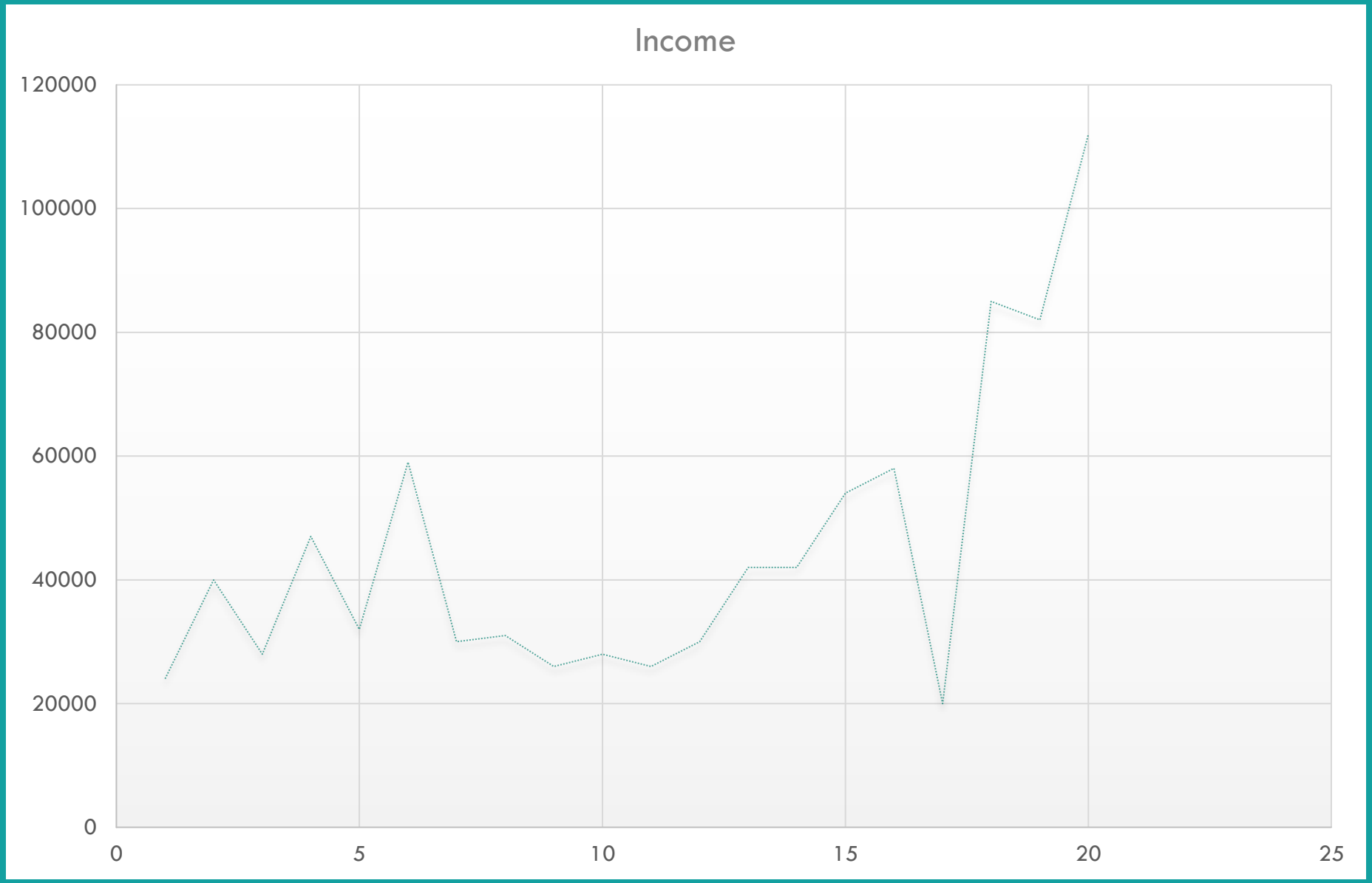
Keynesian Consumption Function: A Study of Urban Population Of Nepal

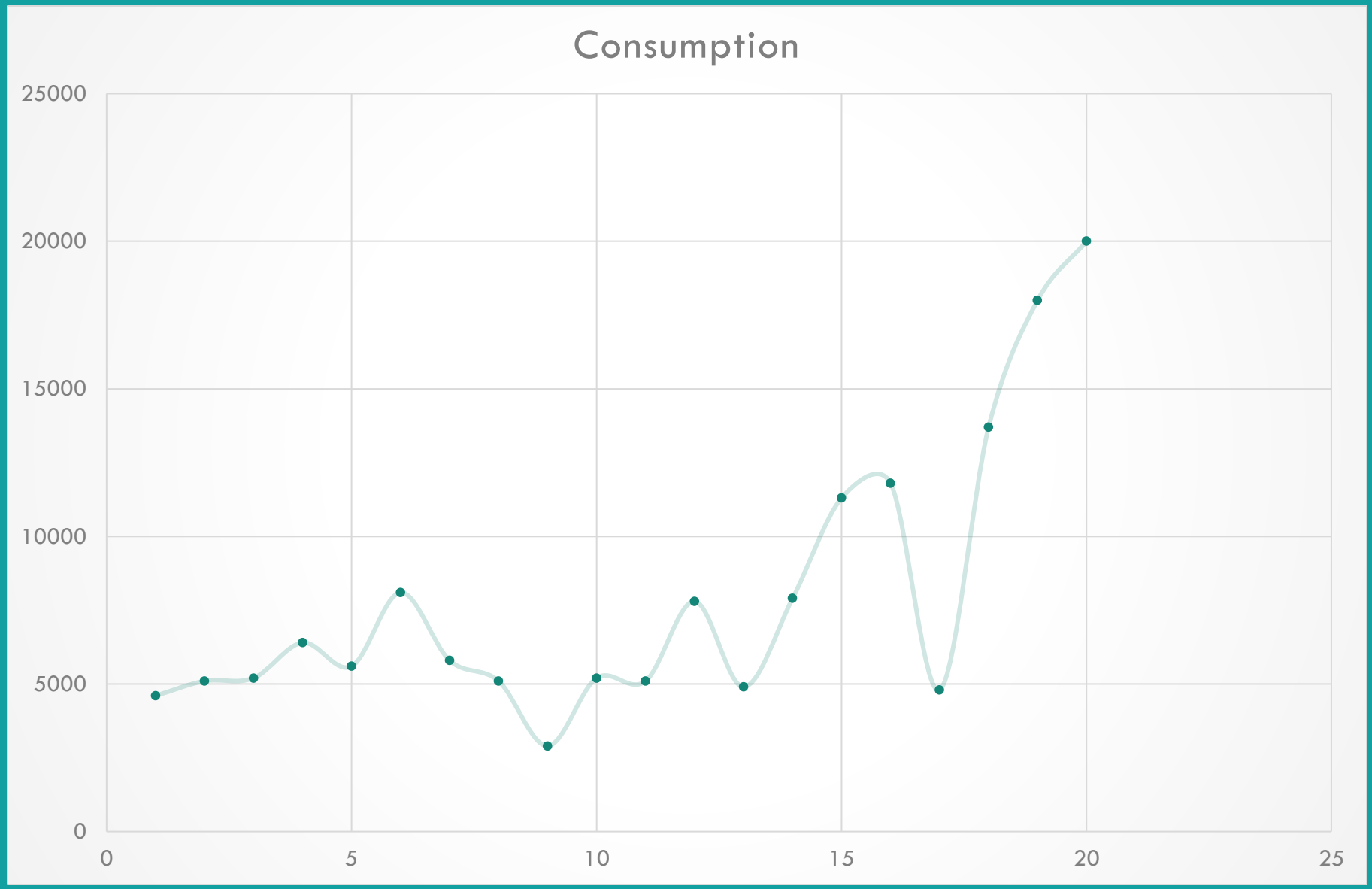
	c	y	f	lnc	lny	lnf
1	5.20	28.00	3.00	.72	1.45	.48
2	5.10	26.00	3.00	.71	1.41	.48
3	5.60	32.00	2.00	.75	1.51	.30
4	4.60	24.00	1.00	.66	1.38	.00
5	11.30	54.00	4.00	1.05	1.73	.60
6	8.10	59.00	2.00	.91	1.77	.30
7	7.80	44.00	3.00	.89	1.64	.48
8	5.80	30.00	2.00	.76	1.48	.30
9	5.10	40.00	1.00	.71	1.60	.00
10	18.00	82.00	6.00	1.26	1.91	.78
11	4.90	42.00	3.00	.69	1.62	.48
12	11.80	58.00	4.00	1.07	1.76	.60
13	5.20	28.00	1.00	.72	1.45	.00
14	4.80	20.00	5.00	.68	1.30	.70
15	7.90	42.00	3.00	.90	1.62	.48
16	6.40	47.00	1.00	.81	1.67	.00
17	20.00	112.00	6.00	1.30	2.05	.78
18	13.70	85.00	5.00	1.14	1.93	.70
19	5.10	31.00	2.00	.71	1.49	.30
20	2.90	26.00	2.00	.46	1.41	.30
21						
22						

Keynesian Consumption Function: A Study of Urban Population Of Nepal, Regression Result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.935(a)	.874	.859	.08182	1.870

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Variables	B	Std. Error	Beta		
1	(Constant)	-.599	.159		-3.765	.002
	LNY	.842	.107	.782	7.886	.000
	LNF	.216	.084	.256	2.580	.019





Merits of Deductive Methods

- Near to reality, Less time consuming and less expensive
- Mathematical techniques can be used to analysis in deduction theory its brings clarity
- The method is simple
- Offering many theories e.g. law of demand, low of supply, marginal utility, consumption function, GDP calculation

Demerits of Deductive Methods

- Conclusion drawn from assumption may misleading
- Deductive method not applicable universally
- Deductive method is highly abstract

INDUCTIVE LOGICAL THOUGHT

INDUCTIVE REASONING

- Inductive reasoning, by its unusually nature, is more open-ended and empirical, especially at the beginning.
- Inductive reasoning works the other way, moving from specific observations to broader generalizations and theories.

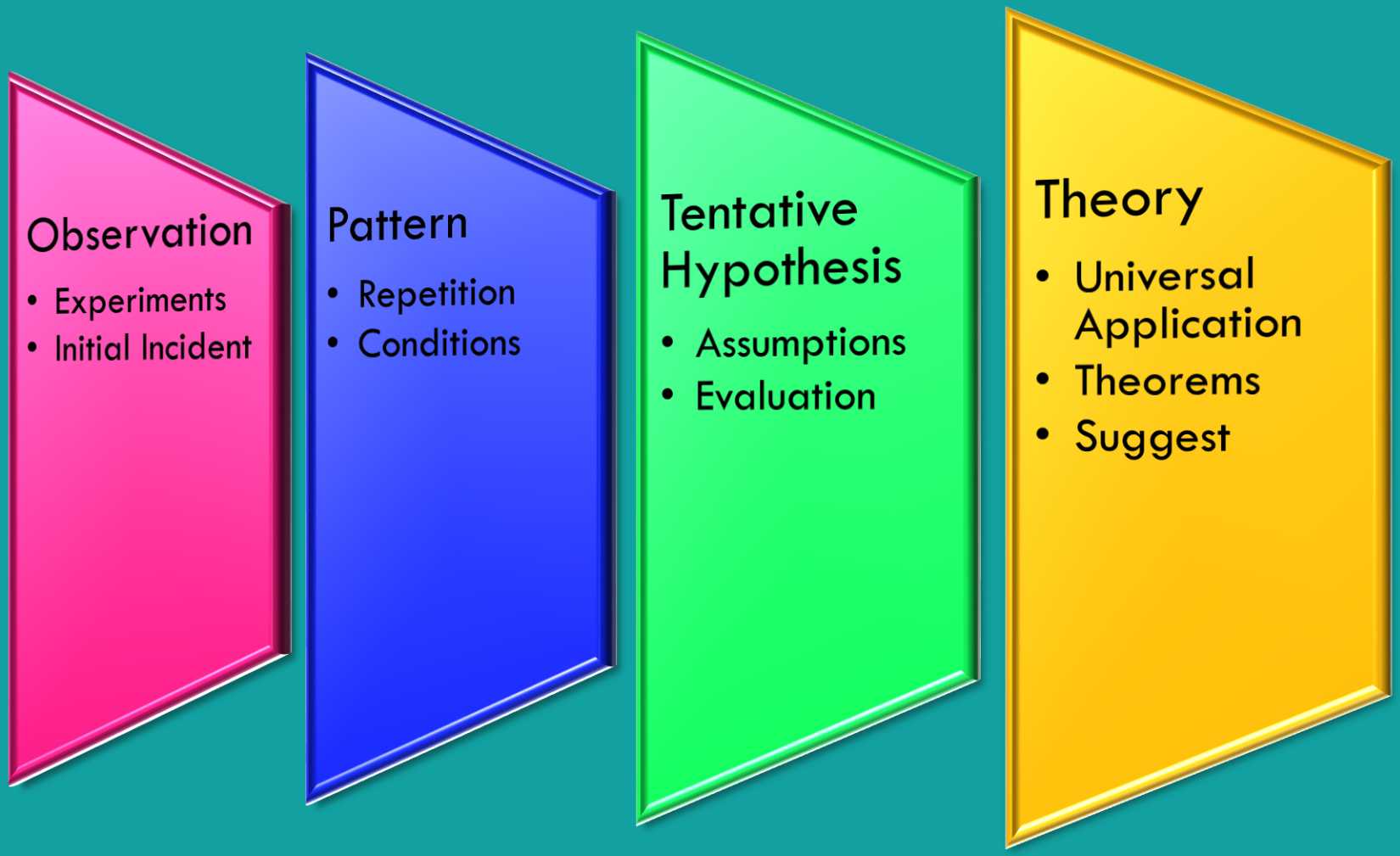
- sometimes call this a "BOTTOM UP" approach .

Inductive Reasoning

- In inductive reasoning, we begin with specific:
- observations and measures,
- begin to detect patterns and regularities,
- formulate some tentative hypotheses that we can explore, and
- finally end up developing some general conclusions or theories.

Inductive Reasoning

Inductive Reasoning: Flow Chart



Inductive Method

- **Inductive reasoning** works the other way, moving from specific observations to broader generalizations and theories

- In this approach data are gathered first, and then theory is formed

- This method is also referred to as: ***"DATA-DRIVEN***"

- This is Exploratory in nature and is Used When an Area of Research is in Early Stages; this approach is often **qualitative**

INDUCTIVE LOGICAL THOUGHT

- Even in the most controlled experiment, the scholars/researchers may observe patterns in the data that lead them to develop new theories (inductive).

Steps in an Inductive Approach

1. Observe fact and describe it
2. Offer hypothesis/explanation about event
3. Predict effects/implications of said hypothesis upon future observation

Steps in an Inductive Approach

4.Test prediction

5. Repeat steps 3 and 4 as necessary in order to improve explanation

6. Offer Laws (Example: Law of Demand, Law of Supply Law of Diminishing Marginal Utility, consumption Function)

- **Example: MPC, International Trade: trade balance deficit**

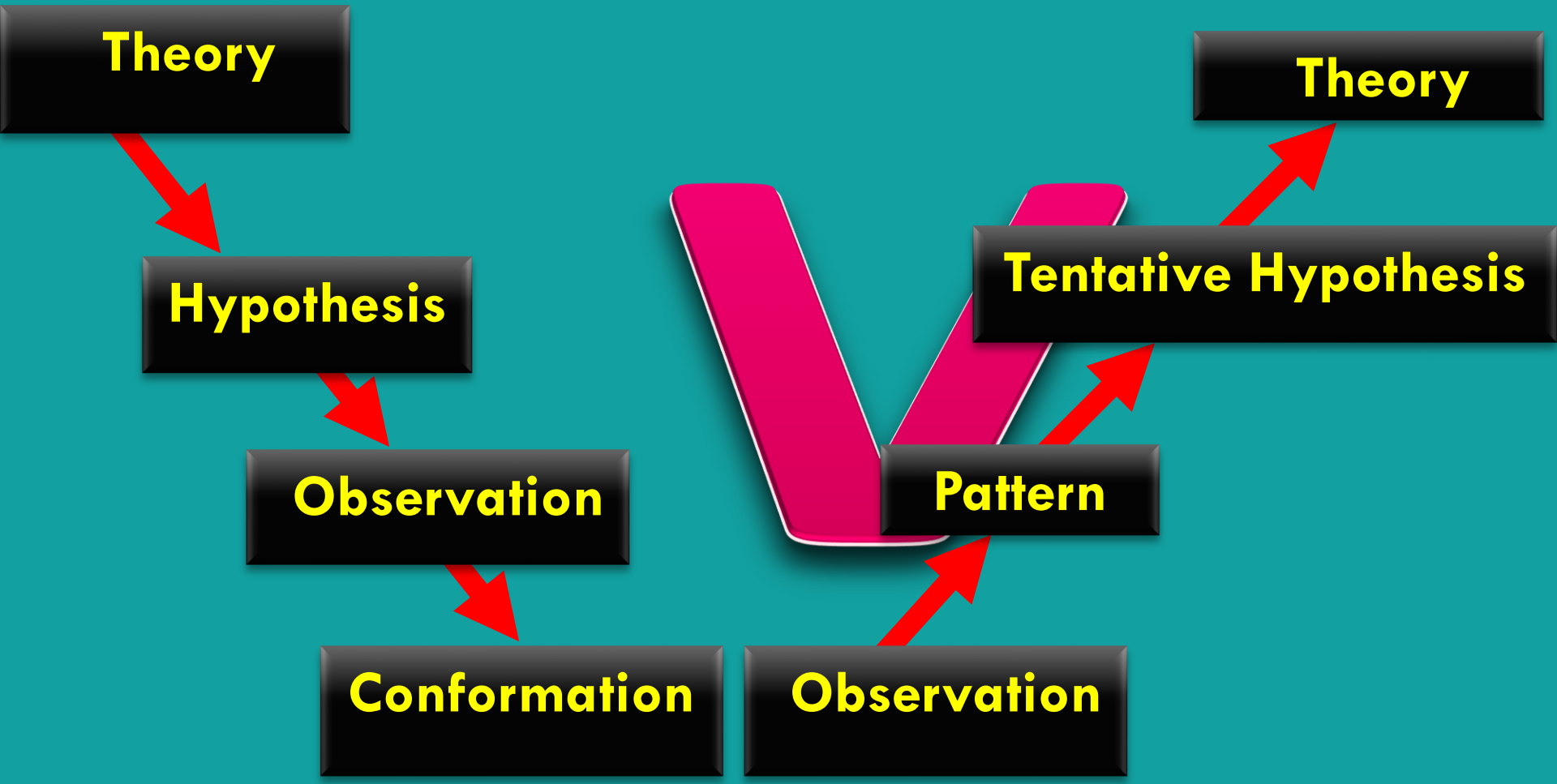
Merits of Inductive Approach

- Based on facts
- Methods makes statistical tolls which makes more reliable
- More dynamic because of real data
- It help future investigation
- Can help development of own theory/ new theory

Demerits of Inductive Approach

- Sample biasness and insufficient data
- Sources of data different for investigator to investigator the result may differ and sample problem
- It is time consuming and expensive

DEDUCTIVE VERSES INDUCTIVE



Deductive vs. Inductive

Deductive Approach	Inductive Approach
• Scientific principles • Moving from theory to data • The need to explain causal relationships between variables • The collection of quantitative data • The application of controls to ensure data validity • A highly structured approach • Researcher independence of what is being researched • The necessity to select samples of sufficient size in order to generalise conclusions	• Gaining an understanding of the meaning humans attach to events • A close understanding of the research context • The collection of qualitative data • A more flexible structure to permit changes of research emphasis as the research progresses • A realisation that the researcher is part of the research process • Less concern with the need to generalise

INDUCTIVE METHOD VS	DEDUCTIVE METHOD
➢It gives new knowledge	➢It does not give any new knowledge.
➢It is a method of discovery.	➢It is a method of verification.
➢It is a method of teaching.	➢It is the method of instruction.
➢Student gain firsthand knowledge and information by actual observation.	➢Student gets ready made information and makes use of it.
➢It is a slow process.	➢It is quick process.
➢It trains the mind and gives self confidence and initiative.	➢It encourages dependence on other sources.
➢It is full of activity.	➢There is less scope of activity in it.
➢It is an upward process of thought and leads to principles.	➢It is a downward process of thought and leads to useful results.

THANK YOU