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An Empirical Study on Markowitz Hypothesis-Income and Consumption Relationship

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ABSTRACT

The study exhibits income &consumption expenditure relationship and empirically studied Markowitz Hypothesis. The Study about organisation, groups as well as individuals linked with purchase of goods and services, uses and disposal of the same is Consumer Behaviour. Income is a most important determinant of consumption. The data is collected from secondary source of income and expenditure from 1960-2020 in India. Analysis is done by using linear trend line and Correlation. The result of the study validates Markowitz hypothesis that change in income changes consumption expenditure but not beyond certain level due to diminishing marginal utility.

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1.0 INTRODUCTION

In the period between 1940-1950s Consumer behaviour became one of the sub-elements of marketing later considered as an interdisciplinary social science which includes Economics, Sociology, Psychology etc. The study about organisation, groups as well as individuals linked with purchase of goods and services, uses and disposal of the same is Consumer Behaviour.

Consumers plays unique role as purchaser as well as payers. Studies proved that it is difficult even for experts to predict how consumers would behave (Armstrong, 1991). Psychological behaviour of the consumer is an important element in understanding the requirements of the consumer. Identifying ways to find this requirement, for example buying decision that is to purchase or not and if decided to purchase, what kind of products, brand to purchase, for which Planning, execution takes place, Predicting the behaviour of the Consumer means analysing who the consumer is, what they use and how they react.

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It may be at Household level or Economic level; Consumption is considered as one of the principal concepts. Household level Consumption means income spending to satisfy the necessary needs. Expenditure on durable as well as nondurable comes under the category of household consumption expenditure. Macro Economics states planned expenditure is aggregate consumption which decides upon real income. Consumption depends upon disposable income. There exists a positive relationship between Income & Consumption. When income increases, Consumption will also increase.

Income is money a person or a corporation receives as compensation due to the provision of certain labour contributing to productivity. Individuals get their income in form of salaries or wages whereas, the business earns their income when they sell their goods and services at a higher price than the production cost. On the other hand, Consumption implies household usage of goods & services in the economy. Income is a most important determinant of consumption, (Diacon and Maha, 2015) but factors like access to credit and subsistence activities are also significant. Willingness to buy is also one of the main factors which will determine consumption expenditure.

1.1 Income and Consumption Relationship

When income rises, disposable income increases contributing to increase in purchase of goods & services by the consumers. Higher income, higher the disposal level, results in more consumption from the consumer.

1.2 Literature Review

Keynesian Absolute Income Hypothesis was tested by (Alimi, 2013) in Nigeria, between 1970-2011 using Least square model and found that APC declines with an increase in income.

Consumption Function investigated by Ofwona (2013) studied about Absolute Income Hypothesis using method of Least Square for the period between 1992-2011 and proved that in Kenya Consumption expenditure is determined by Absolute Income Hypothesis.

Carroll *et al.,* (2004) verified the co-integration of consumption and disposable income.

1.3 Factors Influencing Consumer's Behaviour

- *Psychological Factors:* It is essential factor which determines Consumer's attitude in which Motivation influences consumer to buy to a greater extent than any other psychological factors. Theory of Maslow states among five different levels of human needs, psychological need is the base along with safety, social, esteem & self-actualization need. Perception of the consumer is to gather information & analyse about the product to give relevant image about the product. Consumers learn every time when they make purchase about the product. They gain in-depth knowledge through experience. Attitude & Belief prompts buying decision about the product and plays a important role in building image for the brand of the product.
- *Social Factors:* Factors like Reference Groups, Family, and status influences the purchasing behaviour of the individual.
- *Cultural Factors:* It has strong impact on consumer buying intention. It includes Essential needs, Wants and the consumer preferences from other consumers.
- *Personal Factors:* Personal factors like Age, Income, Occupation, and lifestyle determines buying behaviour. Choice of purchase of a teenager will be different from the purchase done by an elderly person.

- *Income:* Income has more impact on purchasing behaviour. Higher the income, higher the purchasing power of the individuals. Higher income will make the individual to purchase more luxurious goods when middle or lower income group spends more on basic needs like Shelter, Education etc.
- *Economic factors:* Buying behaviour of an individual depends upon the market condition as well as the economic situation of the country. If the economy's growth rate increases with increase in money supply that may pave way for rise in consumer's purchasing power.

1.4 The Markowitz Hypothesis – Theoretical Framework

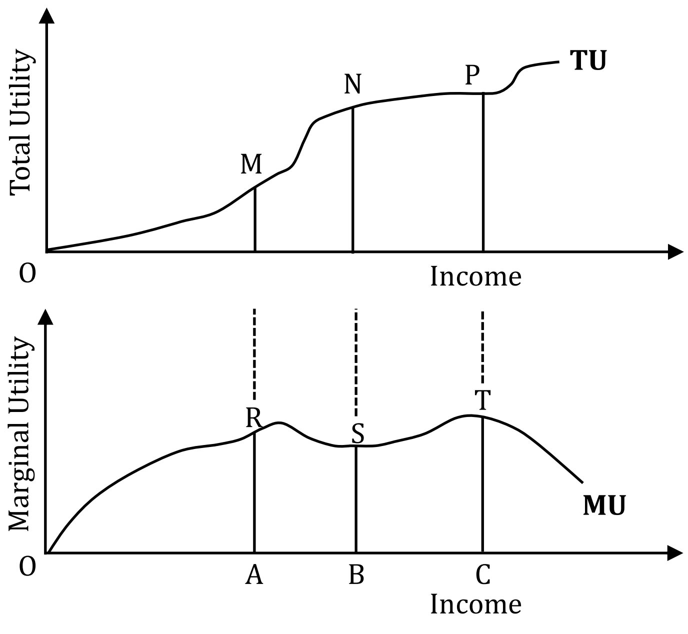
According to Markowitz, both rich and the poor are willing to take risk and gamble except at favourable Occurrence. Rather both rich and the poor purchase lotteries and engage in gambling. Markowitz Hypothesis connects MU of income to change in current income.

Markowitz hypothesis states that, if income rises by a little amount, it will lead to increase in MU of income whereas tremendous increase in income leads to fall in marginal utility of income. This makes the people not to prefer gambling even with high income and low-income groups engage in gambling to raise their economic status and vice versa.

Markowitz theory is demonstrated below in which he takes three corner points m, n and p in the upper portion of the diagram with current income at the middle point n on the TU curve of income.

Figure 1

Markowitz Hypothesis



Lower part of the figure represents MU in which the current income level is OB. With a little rise in the income of an individual from OB to OC, the MU of income rises from point S to T on the Marginal utility path whereas huge rise in income beyond OC lead to decline in mu of income from point T. Likewise, small decrease in income leads to rise in MU of income from S to R, large decrease in income to the left of A lead to declining MU of income from point R along the MU curve.

This theory takes the present level of income of an individual instead of absolute income. It suggests that even a person is rich or poor his attitude is the same towards gambling & insurance.

The significance of the theory is that change in present income will determine the behaviour of an individual towards indulging in gambling or purchase of insurance policy. This Markowitz Hypothesis is tested and proved in this study using secondary data of income and consumption expenditure for over 50 years.

1.5 Objectives of the Study

1. Examine the relationship between Income & Consumption using correlation analysis.
2. Empirically prove Income & Consumption relationship using linear trend line.

1.6 Hypothesis of the Study

- **H_1:** There is significant Correlation between the Income and Consumption expenditure.

2.0 RESEARCH METHODOLOGY

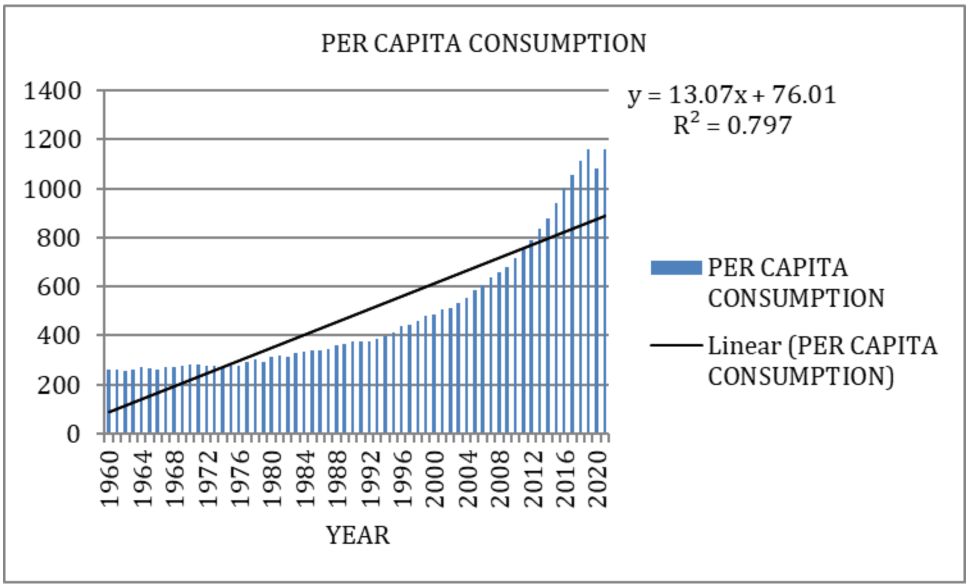
Secondary data is used in this study from the period (1960-2020) taken from Economic Survey (2022-23). Markowitz Hypothesis is tested and proved in this study.

- Linear trend line & Jarque-Bera Probability is used to estimate growth rate of Income and Consumption expenditure over 60 years.
- Correlation is used to test the relationship between Income & Consumption.

3.0 DATA ANALYSIS AND INTERPRETATION

Figure 2

Linear Trend Line of Per Capita Consumption

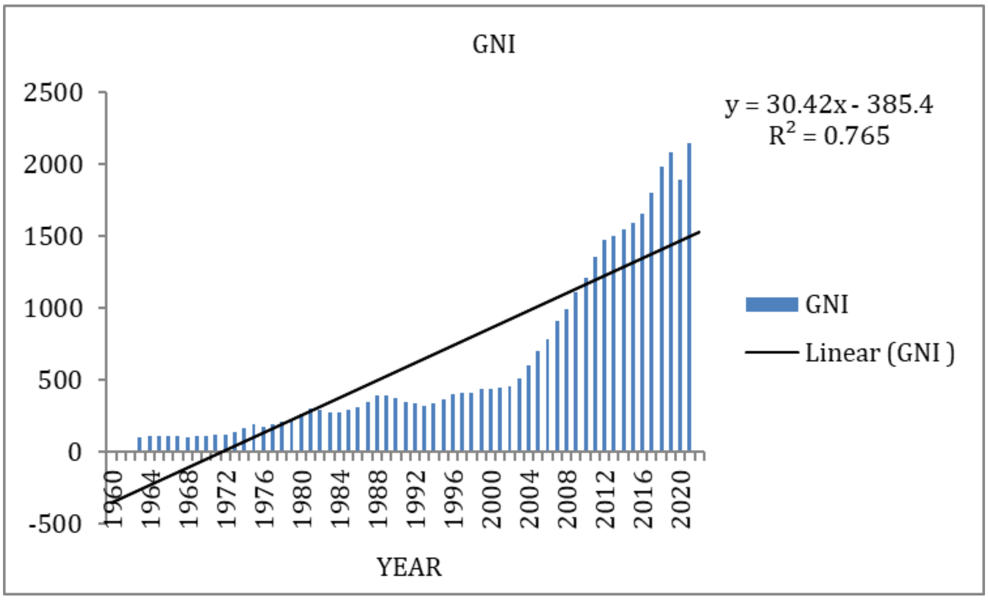


Source: Economic survey (2022-23)

Figure 2 depicts that from 1960 till 2020 per capita consumption is increasing, which shows over 60 years, consumption expenditure of the individuals is in the increasing trend (upward sloping linear per capita consumption curve). Since the R^2 value is 0.797 which is 79 percent, the model is good fit.

Figure 3

Linear Trend Line of Gross National Income

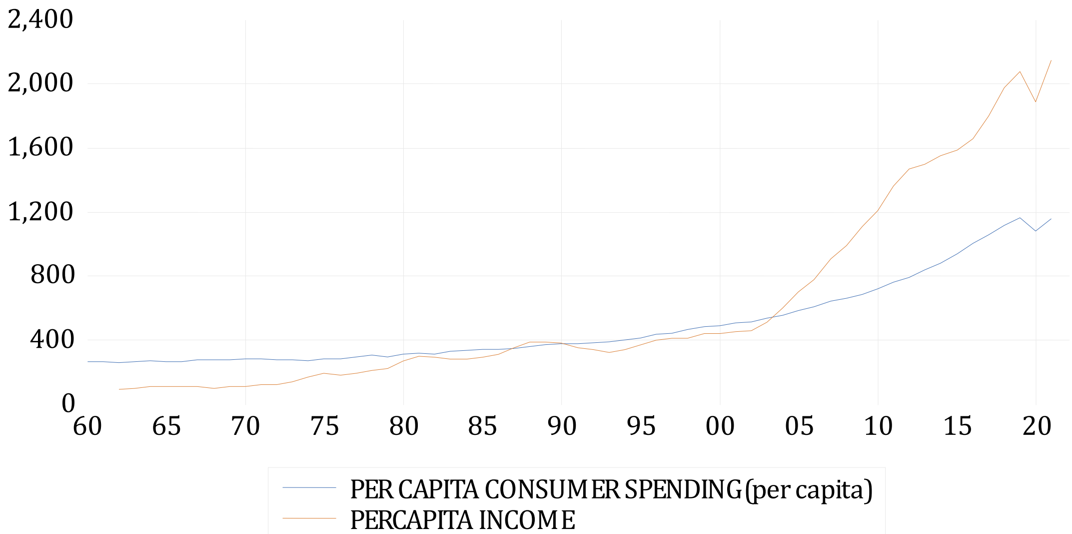


Source: Economic survey (2022-23)

Figure 3 depicts that from 1960 till 2020 Gross national income is increasing, which shows over 60 years, income of the individuals is in the increasing trend (upward sloping linear Gross National income curve). Since the R^2 value is 0.765 which is 76.5 percent, the model is a good fit.

Figure 4

Per Capita Consumer Spending & Per Capita Income



Source: Economic survey (2022-23)

The graphs of consumer spending, and income clearly show that they have a positive growth rate. Figure 4 proves Markowitz hypothesis. In the initial stage, when income increases, consumption also increases but beyond certain level; After the year 2005, increase in income does not increase consumption but it declines. At the same time, decrease in income reduces Consumption but further fall in income does not reduce consumption rather it will increase.

3.1 Correlation between Consumer Spending and Income

- **H_1:** There is significant Correlation between the Income and Consumption expenditure.

Table 1

Correlation between Consumer Spending and Income

		Per Capita Consumer Spending (per capita)	Percapita (income)
Per Capita Consumer Spending (per capita)	Pearson Correlation	1	.990**
	Sig. (2-tailed)		.000
	N	62	60
Percapita (income)	Pearson Correlation	.990**	1
	Sig. (2-tailed)	.000	
	N	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation matrix in Table 1 for the variable's per capita consumption and income. The p value of the data shows a strong positive relationship between the variables by showing a significance value of 0.001 which is less than 0.05 which means the variables are positively correlated with Pearson correlation coefficient of 0.99 percent. Thus, the hypothesis (H_1) is accepted at one percent level and proved Income and consumption are highly positively correlated.

4.0 CONCLUSION

This paper is an attempt to find the relationship between income and consumption expenditure and to empirically study Markowitz hypothesis. Linear trend line and correlation is used in the analysis since the p value of the data shows a positive relationship between the variables. Markowitz hypothesis is proved, when income changes, consumption expenditure also changes but not beyond certain level due to diminishing marginal utility. To conclude, Income is the major factor which determines Consumption expenditure along with Economic, Social, Cultural and Psychological factors.

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