AN EMPIRICAL RESEARCH ON REAL ESTATE RESIDENTIAL INVESTMENT & GDP DEVELOPMENT IN INDIA: KEYNESIAN THEORY OF INVESTMENT

A. Nithyakarpagam
[1]*Research Scholar, Department of Corporate Secretaryship, Alagappa University, Karaikudi.
Mail Id: kushi2016kn@gmail.com, ORCID Id: 0000-0003-3284-9503

Dr. SP. Mathiraj
[2] Professor, Department of Corporate Secretaryship, Alagappa University, Karaikudi.
Mail Id: mathirajsp@alagappauniversity.ac.in, ORCID Id: 0000-0002-8762-5593

*Corresponding Author:- A. Nithyakarpagam
*Research Scholar, Department of Corporate Secretaryship, Alagappa University, Karaikudi.
Mail Id: kushi2016kn@gmail.com, ORCID Id: 0000-0003-3284-9503

Abstract
The Real Estate sector is functioning in India under the Real Estate (Regulation and Development) Act, 2016. This research is empirical research on real estate investment & GDP Development in India by using Keynesian Theory of Investment. In this paper the researcher focused on MPC value by using Keyne's Psychological Law of Consumption to discover the Consumer Income influence the Consumer Expenditure towards savings of their income and invested in residential property. Since, if the consumer expenditure is made on any investment the Indian GDP level became influenced. Followed by the researcher mainly focused on study must predict India's GDP growth rate by 2030. The major findings of the study for the objectiveswere residential investment is influencing the GDP growth in India as per the ANOVA R^2 and the model has substantial by using Keynesian theory of Investment and the study discovered that the Consumer Income level should influenced towards on Consumer Expenditure by using the statistical tool ANOVA.The researcher gave a model for prediction of GDP in the year of 2030.

Keywords: Residential Investment, Consumer Income, Consumer Expenditure, Keynesian Theory of Investment, GDP

Introduction
Macroeconomic and financial sector outcomes are linked to house price booms and busts in residential investment. In modelling financial cycles, which have peaks that are strongly related to financial crises, the co-movement of credit and property prices also takes center stage. *(Borio (2014), Classens et al., (2012)).* Given that residential investment is one of the most volatile parts of GDP and the recent history of housing booms and busts in nations like the United States, this is surprising. In the 1990s, Ireland, Spain, or the Nordic nations *(Emanuel Kohlscheen et al., 2018).*

According to this study, the people are investing in residential investments, which can increase the Indian economy's gross domestic product. A common consequence of GDP growth is an increase in the money supply as well. Consequently, the investment real estate market has also received high ratings. Residential Investment includes Price, Technology Development, Demand, Interest Rate. *Sanjeev Sinha (2022)* states that According to real estate experts, demand for upscale residences will increase over the next year due to the expanding pool of ambitious consumers and their changing lifestyles. Now, the focus is on correlating luxurious living with leading a happy and meaningful life.

It has been reported that the authors have done more research regarding Residential Investments and Indian Financial Growth. However, what is the need to create this study when it focuses on

sustainable development of the real estate market by examining consumer expenditures on residential investments, as well as the impact of GDP growth?

Residential Investment refers to Expenditures made by people on building or buying new houses or apartments for their own use or for renting out. The benefits of residential investment include great financial security for investors. When you are planning to retire, income from your rental properties can make it easier for you to live a hassle-free retirement life. Contribution of residential investment is Income and employment are multiplied by investment in the housing/construction sector. According to research, every additional rupee invested in the housing sector in India can contribute $1.54 to the country's Gross Domestic Product (GDP).

The research's primary goal is to know that a residential investment is influence the GDP growth in India and how the investment plays the vital role on Indian economy progress by using Keynesian theory of Investment. In addition, the study must predict India's GDP growth rate by 2030. The current research is based on Keynesian Theory of Investment. The researcher has used Keynes' Psychological Law of Consumption and Regression statistical tools to measure consumer expenditure towards the house property in order to examine India's GDP growth. There is a primary need to identify the factors determining the residential investment.

This study consists of the following sections. The first section discusses the Introduction of the study. The second section discusses the literature on residential investment and economic growth in India. Followed by third section, a theoretical framework of Keynesian Theory of Investment, Keynes' Psychological Law of Consumption, Conceptual framework and Hypothetical Formulation of the study. Subsequently, the fourth section discussed about research methodology. The Fifth section covers with data analysis and the interpretation followed by findings and suggestion. The seventh section deals and concluded that the study along with the discussion on limitations and future recommendations.

The following of the research question for this study:
1. In India, what is the predicted GDP growth rate by 2030?
2. Whether there is a connection between consumer spending and income?

Literature Review

Hua Liao, Ying peng et. Al (2022) they highlighted vital points of their research like, using an OLS fixed effect model, the impacts of investment on energy use are calculated. Analysis of heterogeneity is done in terms of time, resource endowment, and political control over the economy. the ratio of added value to GDP in the industry and the growth rate of energy-intensive products per person. Overall, the findings suggest that investments have a favourable impact on economic growth and the GDP.

Yi Wen (2001) said that, Re-examination of the ad hoc connection between growth and fixed capital formation. The study found that capital formation in the residential sector (housing) causes GDP growth, which in turn causes capital formation in the business sector (plant and equipment), refuting the conventional wisdom promoted by De Long and Summers (1992, 1992), which claimed that capital formation in the form of business equipment determines the rate of a country's economic growth.

Theoretical framework and Hypothetical Formulation

In the study, the major goal is to examine the residential investment of consumer expenditures influence the GDP growth in India and to predict the GDP growth rate in India on 2030. Before using the Keynesian theory of Investment, it is a requirement to study the theoretical Background. The theoretical models are Keynesian theory of Investment and Keyne's Psychological Law of Consumption for the prediction of GDP growth rate by 2030.

Keynesian theory of Investment

Michel A. Anderson and Arthur H. Goldsmit *(1997)* conveyed that in terms of Profit expectation and level of confidence. The manager's data was collected by conference Board. In order to create a measurement of the importance managers place on their profit projections. The results lead to the conclusion that investment increases in the majority of industries when managers are more upbeat and show more confidence in their projection.

Shozaburo Fujino (Volume – 104) As said, the company chooses the ideal amount of investment by taking into account the marginal efficiency of capital and the rate of interest, in accordance with Keynesian theory of investment.

As per the classical theory there are three determinations viz, cost, return and expectation. The Keynesian theory of investment says the decision derived by contrasting the Marginal Efficiency of Capital (MEC) (or) Yield with the real rate of Interest (r). This theory had very much focused towards the investments bringing fluctuations in the output of economy. It highly belief an investment is highly volatile. There are two types of investment viz, Autonomous investment and induced investments. The autonomous investment is highly volatile because it is based on the expectation of the investors or businessman who want to invest in the capital stock. Because of this reason the investment brings lot of fluctuation in the output and is capable of brining business cycle in economy. So, it is a vital part to understand the belief on the theory of Investments. As followed by this theory the person who want to invest the capital because capital investment is vital part of process of any economy for progress. The investors invest in the capital they are having two options. First one is Invest his money in capital to get profit from using that capital and the second option is investors can give their money into the market and his money is going to get them back with the interest. But the thing is if the rate of profit the investor will going to get after investing in the capital is greater than the interest rate getting from the market. So, the investor will always be attracted towards the Investment. According to this theory the investment depends on two factors.

Figure – 1 Factors determining an Investment
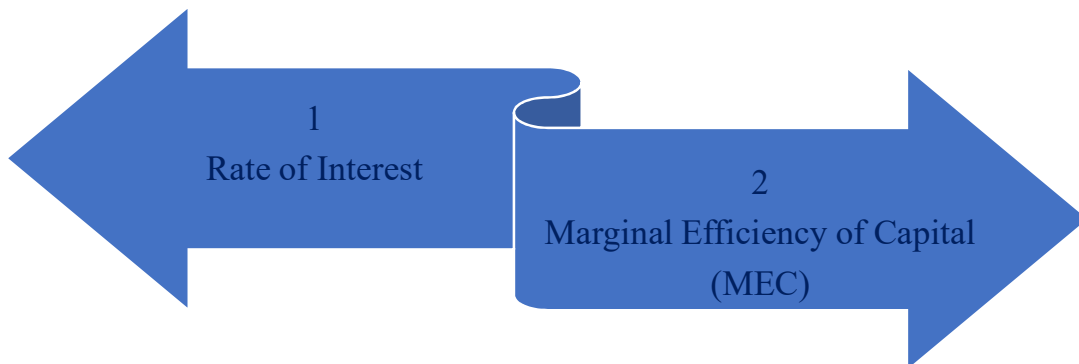
Source: (Constructed by Researcher)

Marginal Efficiency of Capital

The discount rate that would bring the supply price and present value of a series of annuities just into balance for capital assets over their lifetimes (John Maynard Keynes, 1936). In simple term MEC is just that expected rate of profit you will get when you invest in that one extra unit of the capital. So, by investing the money into that one unit of the capital how much expected rate of profit the investors think that they going to get.

Now there is a question arises how do you determine the MEC? There are two ways to determine the MEC. They are a) supply price (or) Cost of Capital b) Yields from the Investment (Revenue). Investor are going to investing money into the capital stock and the investor make a revenue over that from that particular investment. Similarly, Investor invested in the capital stock today, investors going to get a revenue tomorrow and after that it steps it is a flow of revenue which is going to happen. So, investors will invest today maybe the investors keep getting the returns from that investment over the period five years or may be over the period of eight years. But the investor going to get some stream revenues. So, when the investors going to find those revenues, the investors need to find the present value today because the investors making an investment in the present scenario. The present value is playing a vital role. There is formula for getting the r value.

$$S = \frac{R_1}{1+r} + \frac{R_2}{(1+r)^2} + \ldots + \frac{R_n}{(1+r)^n}$$

Explanation for the formula:
If the investors getting the revenue or if an investor getting the profit in the first year like after employing the capital today and the investors getting the profit next year. So, it will be R_1. Let us denote the profit an investor going to make next year after using the capital for one year by R1. So, how to find the present value? In simple R_1 divide with 1 Plus r. After that if investor move on the second year like using the investment and capital for 2 years and Investors make the revenue. R_2 to convert to finds its present value, the investor needs to divide with one plus r power square $(1+r)^2$. Following with same procedure if the investor using their capital for n number of years the present value of revenue also makes n^{th} year (i.e.) R_n the revenue in that year is divided by $1 + r$ raised to power n. So, if the investor equated this the above-mentioned formula, the investor knows the value of R1, R2and Rn and S. Investor just don't know the value of r which indicate the rate of Interest. So, the interest rate has denoted by i or r. When solving this formula, the investor will be getting the r value that is nothing but Marginal Efficiency of Capital. Since, the interest rate is equal to marginal efficiency of capital at the optimum level pf investment. So, this is only what Keynesian theory of investment says that how to find the capital stock which is going to be the optimum level through equating supply price and the MEC.
In Simple the research expresses the investment implantation based on interest rate and MEC through the figure

Figure – 2 Concept of Investment implementation based on Interest rate and MEC
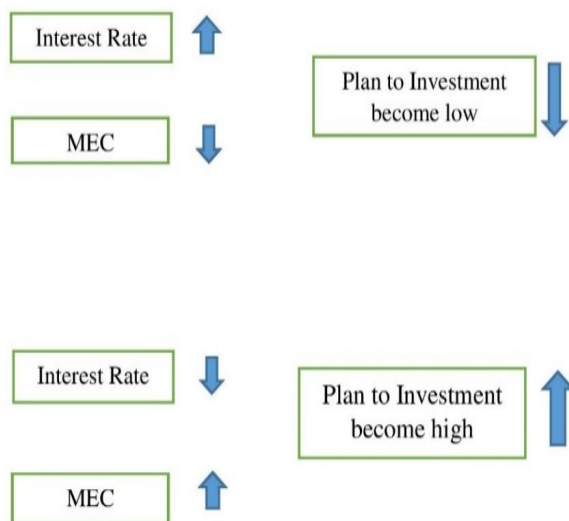
(Source: Primary (Created by researcher))

Keyne's Psychological Law of Consumption:

Keyne's theory refers that "the Fundamental Psychological law" (i.e.) Consumption rises as income rises, however not as much as income growth. In shortly, The marginal propensity to spend (MPC), or the rate of change in consumption for a unit change in income, was hypothesized to be greater than zero but less than one according to Keynes' rule.i.e. (**MPC > 0 < 1**).

The MPC value is >0 <1 then the Keynes theory is accepted. If the MPC value is beyond the rule, then the Keyne's theory is not accepted.

In simpler terms, Keynes argued that individuals do not spend all of their additional income; instead, they save a portion of it. As income rises, the percentage of income saved decreases, leading to an increase in consumption. This relationship between income and consumption is known as the consumption function.

It's important to note that while Keynes' theories had a significant impact on economic thought, they were also subject to various interpretations and criticisms. Different economists have refined and extended his ideas over time, and the field of macroeconomics has evolved with new developments and perspectives.

Marginal Propensity to consume (MPC)

In the term of economics MPC has referred that, the percentage of an increase in overall income that a customer spends on consumption rather than savings. The Marginal Propensity to consume is a component of Keynesian macro-economic theory (*The Investopedia team, Somer Anderson*).

MPC varies by income level. MPC is typically lower at higher income. MPC is the key determinant of the Keynesian multiplier, which describe the effect of increase investment (or) govt. spending as an economic stimulus.

Calculation of MPC

The MPC is calculated as the change in consumption divided by the change in disposable income. Mathematically, it can be expressed as:

$MPC = \Delta Y \Delta C$

Where:
- *MPC* is the Marginal Propensity to Consume.
- ΔC is the change in consumption.
- ΔY is the change in disposable income.

The MPC can range from 0 to 1. A value of 0 indicates that individuals do not change their consumption at all in response to a change in income, and they save the entire additional income. A value of 1 suggests that individuals spend the entire additional income and do not save any of it.

The concept is crucial in understanding the multiplier effect in economics. The multiplier effect occurs when an initial change in spending leads to a chain reaction of increased consumption throughout the economy. The size of the multiplier effect is influenced by the MPC. A higher MPC implies a larger multiplier effect, as more of the additional income is spent and respent in the economy.

Governments and policymakers often consider the MPC when designing fiscal policies, as it helps estimate the potential impact of changes in income on overall consumption and economic activity.

Hypothetical Formulation of the study

H_{o1}: *The Consumer Residential Investment Influence the Indian GDP.*
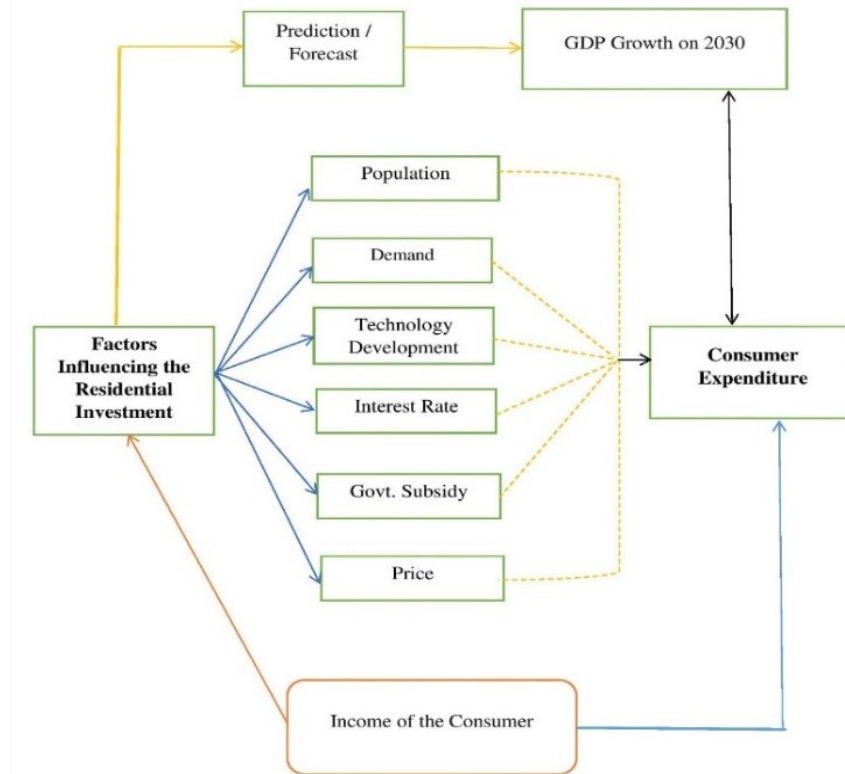
H_{o2}: *There is no significance relationship between Income of the Consumer and Consumer Residential Investment.*

H_{o3}: *The Consumer expenditure predict / Forecast the Indian GDP on 2030.*

H_{o4}: *Consumer Income and Consumer Expenditure are not significantly correlated.*

Conceptual Framework of the research

Figure - 3

Source: Primary (Created by Researcher)

The conceptual model indicates the consumers earn income they are having a plan to invest their money into the residential investment. The consumer faces the basic six factors for investing into the residential property. The factors are influencing to invest in the residential investment are population, Demand, Technology Development, Interest rate, Government Subsidy and Price of the property. These factors are leading a consumer to invest in the residential investment. Then the consumption expenditure is arising. The consumer expenditure influences the GDP of Indian Economy. In this research the prediction of GDP of Indian economy on 2030 based on the consumers Income and Consumption Expenditure.

Research Methodology

A qualitative method has been adopted for conducting research to test the proposed theoretical framework. After reviewing the existing paper, the comprehensive research instrument was developed to identify the consumer expenditure on the residential investment based on the consumer Income *(Neelam & Bhattacharya, 2023).* A structural survey questionnaire was developed that consisted of 40 questions. The researcher has used 5-point scale based on survey questionnaire (1 – Strongly disagree to 5 Strongly agree) for collection of primary data. Overall, the researcher has collected 13 years of GDP growth rate values from the year 2010-2022 from the source of secondary data. The researcher collected data from 600 respondents belonging to consumers who invest their money into residential property. Clustered sampling was used to draw the sample from selected Districts of North India and South India (North Indian – Delhi, Gujarat, Bihar and South Indians – Karnataka, Tamil Nadu & Kerala). The researcher has collected data

from 600 respondents. For this study each state of covers 100 respondents. i.e., from Delhi – 100 respondents, Gujarat – 100 respondents, Bihar – 100 respondents and from south Indians Karnataka – 100 respondents, Tamil Nadu – 100 & Kerala – 100 respondents.

Analysis and Interpretation

H_{o1}: There is a correlation between the Consumer Expenditure and Indian GDP
Statistical Tools Used for the Hypothesis: Regression Analysis.

The researcher workout the model for discover the Consumer Residential Expenditure influence the India GDP

Table – 1Model Summary for Regression				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.919[a]	.844	.829	1.726839793891
Source: Primary Data				

Interpretation

The R Square Value in Table 1 indicates that.844. As per the Hair model the R Square value has been above 0.75 then the model is substantial. In the table, the R square value is 0.844, with its cross above the hair value 0.75. Hence, suggesting that the model is substantial or fits the both variable like Consumer Residential Investment and Gross Domestic Product (GDP) in India.

H_{o2}: *There is no significance relationship between Income of the Consumer and Consumer Residential Investment.*

Statistical Technique Used: Regression

TABLE – 2

ANOVA						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	161.609	1	161.609	54.195	.000[b]
	Residual	29.820	10	2.982		
	Total	191.429	11			

Source: Primary Data

Interpretation

The "P" value of Liner Regression reads a significant level of 0.000 at 5 Percent level of significance. The "P" value of Table – 2 shows that 0.000 being less than the significant level of 0.005 the null hypothesis rejected. Thus, at 95 Percent of confidence level, we reject the null hypothesis. Hence there is a significance relationship between the Income of the Consumer and Consumer Residential Investment.

H_{o3}: *The Consumer Residential Expenditure predict / Forecast the Indian GDP on 2030.*

TABLE – 3

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
	Model	B	Std. Error	Beta	t	Sig.
1	(Constant)	-.204	.821		-.248	.809
	Consumer Expenditure	4.105	.558	.919	7.362	.000

Source: Primary Data

Interpretation

Prediction of the two variables. The independent variable is consumer residential investment and the dependent variable is Gross Domestic Product (GDP) of Indian Economy. The researcher should have focused on the prediction of Indian GDP will increase or decrease by 2030 through regression coefficient.

$$Y = a + bX$$

The variable Y indicates Dependent Variable. The variable X indicated as independent Variable. The variable a refers interrupts and Variable b indicate as Slope.

In the Table – 3 shows that B value is -.204 and 4.105. so, the researcher takes the value of -.204 as **a (i.e.) Interrupt** and 4.105 as **b (Slope). Assume independent variable like consumer residential income as Rs. 50,00,000/-**

Substitute with Formula
Y- Dependent Variable (Indian Gross Domestic Product (GDP))
a - Interrupt Value from Table - 3
b- Slope Value Form Table – 3
X - Independent Variable (Consumer Residential Expenditure)

$Y = a+bX$	-----------	1
$Y = -.204 + 4.105 \,(50,00,000)$	-----------	2
$Y = 2,05,25,000/-$	-----------	3

Based on the formula derivation, it is predicted that Indian Gross Domestic Product (GDP) will be rupees two cores five lakhs twenty-five thousand (Rs. 2,05, 2,25,000/-) per annum in 2030.

H_{o4}: There is no significant relationship between Consumer Expenditure and Consumer Income.
For the above-mentioned hypothesis, the Keynes statement of theory has adopted. Keynes theory stated that consumption increases as Income Increases but not as much as the increase in Income.
In Short, Keynes postulated that the marginal propensity to consume (MPC), the rate of change of consumption for a unit change in income is greater than zero but less than 1.

$$\text{RULE} \rightarrow \text{MPC} > 0 < 1$$

✓ The MPC value is greater than zero and less than one, then the Keynes theory is accepted.
✓ If the MPC value is beyond the rule > 0 < 1, then the Keynes theory is not accepted.

Calculation of MPC

$$\text{Marginal Propensity to Consume (MPC)} = \frac{\text{Change in consumption}}{\text{Change in Income}}$$

Change in Consumption Values are Rs.5,00,000/-, Rs.2,00,000/-, Rs. 2,00,000/-, Rs. 5,00,000/- Rs. 10,00,000/- Rs. 1,00,000/-, Rs. 1,00,000/- Rs. 16,00,000/-.

Change in Income Values are Rs. 1,00,000/- Rs. 7,00,000/- Rs. 3,00,000/- Rs. 15,00,000/- Rs. 14,00,000/-, Rs. 1,00,000/- Rs. 25,00,000/-

=5,00,000+2,00,000+2,00,000+5,00,000+10,00,000+1,00,000+1,00,000+16,00,000

10,00,000 + 7,00,000+3,00,000+15,00,000+14,00,000+1,00,000+25,00,000

$$= \frac{42,00,000}{75,00,000}$$

$$= 0.56$$

MPC Value = 0.56

Interpretation

The MPC has stated that, the proportion of an aggregate raise in pay that a consumer spends on the consumption of goods and services as opposed to saving it. The marginal Propensity to consume is a component of **Keyne's Psychological Law of Consumption** and it's calculated as the Change in Consumption divided by the Change in Income. MPC varies by Income level. MPC is typically lower at higher income. MPC is the Key determinant of the Keynesian Multiplier, which describe the effect of increase investment (or) government spending as an economic stimulus. Table – 4 **MPC Value = 0.56 its discover that value of MPC is higher than Zero and Less than 1. So, the Keynes theory was accepted.**

FINDINGS AND SUGGESTIONS OF THE STUDY

1. As per the Table – 1 interprets that, the R square value is 0.844, with its cross above the hair value 0.75. Hence, suggesting that the model is substantial or fits the both variable like Consumer Residential Investment and Gross Domestic Product (GDP) in India.
2. The "P" value of Table – 2 shows that 0.000 being less than the significant level of 0.005 the null hypothesis rejected. Thus, at 95 Percent of confidence level, we reject the null hypothesis. Hence there is a significance relationship between the Income of the Consumer and Consumer Residential Investment.
3. According to Table – 3 the researcher discovered that, the Prediction of the two variables. The independent variable is consumer residential investment and the dependent variable is Gross Domestic Product (GDP) of Indian Economy. The researcher should have focused on the prediction of Indian GDP will increase or decrease by 2030 through regression coefficient.
4. Based on the formula derivation, it is predicted that Indian Gross Domestic Product (GDP) will be rupees two cores five lakhs twenty-five thousand (Rs. 2,05, 2,25,000/-) per annum in 2030.
5. Using MPC formula to discover the consumer income induced the Consumer Expenditure and the researcher discovered the result form Table – 4   MPC Value = 0.56 its indicated that, the value of MPC is higher than Zero and Less than 1. So, the Keynes theory was accepted. So, the consumers saved their income and invested in the Residential Property.

SUGGESTIONS

1. The researcher suggest that the consumer should invest their money on the residential property in India. If any consumer invests their money into the abroad residential property, then Indian GDP level become low. Hence, the consumer invests their money on residential property only in India.
2. The consumer residential investment influences the Indian GDP. So, the government take necessary steps to improve towards the residential investment in India.

Conclusion

The real estate investment is quite common in India. The highest income earned by the consumers are invested in real estate investment. From this study, the researcher predicted the GDP in 2030 by using Keynes theory has rupees two cores five lakhs twenty-five thousand (Rs. 2,05, 2,25,000/-) per annum in 2030. In this research, the researcher particularly focused on Keyne's Psychological Law

of Consumption and Keynesian Theory of Investment by using this theory, the MPC value got .56% so, this theory was accepted. So, the consumers save their income and invested in the residential house property. In every country GDP is more vital source of their economy. In this research the researcher discovered that the consumer residential investment has played a role for Indian GDP.

References

1. Allen, M. T., Rutherford, J., Rutherford, R., & Yavas, A. (2018). Impact of investors in distressed housing markets. *The Journal of Real Estate Finance and Economics*, **56**, 622–652.
2. Campbell, J. Y., Giglio, S., & Pathak, P. (2011). Forced sales and house prices. *American Economic Review*, **101**, 2108–2131.
3. Akkoyun, H. C., Arslan, Y., & Kanik, B. (2013). Housing prices and transaction volume. *Journal of Housing Economics*, **22**(2), 119–134
4. Alexander, C., & Barrow, M. (1994). Seasonality and cointegration of regional house prices in the UK. *Urban Studies*, **31**(10), 1667–1689.
5. Ashworth, J., & Parker, S. C. (1997). Modelling regional house prices in the UK. *Scottish Journal of Political Economy*, **44**(3), 225–24.
6. Brady, R. R. (2011). Measuring the diffusion of housing prices across space and over time. *Journal of Applied Econometrics*,
7. Taylor, J. B. 2007. "Housing and Monetary Policy." NBER Working Paper No. 13682
8. Mishkin, F. 2007. "Housing and the Monetary Transmission Mechanism." NBER Working Paper No. 13518.
9. Scatigna, M., R. Szemere, and K. Tsatsaronis. 2014. "Residential Property Price Statistics across the Globe." BIS Quarterly Review (September): 61–76.
10. Angrist, J., O. Jord`a, and G. Kuersteiner. 2013. "Semiparametric Estimates of Monetary Policy Effects: String Theory Revisited." NBER Working Paper No. 19355
11. Campbell, J., and J. Cocco. 2007. "How Do House Prices Affect Consumption? Evidence from Micro Data." Journal of Monetary Economics 54 (3): 591–621.
12. https://www.investopedia.com/terms/m/marginalpropensitytoconsume.asp.
13. https://www.sciencedirect.com/science/article/abs/pii/S0954349X22001163.