CRITICAL ANALYSIS OF LINKAGES BETWEEN DEMOGRAPHIC FACTORS AND REAL ESTATE INVESTMENT

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Abstract

Present financial services sector flooded with the myriad financial products and services, which are offered in the Variety forms. Such Development and growth of the sector come out with the several new investment sub sector. Likewise, Observed in the past two decade real estate segment becomes the attractive investment avenue with the better return on the investment such as Real Estate Investment. It's an immerging investment tool at a view point of investors. Now a day's huge investment behind the real estate market have been observed in the market due to growth and development of the Real estate market. So in this situation it is the need to identify the behaviour of the rational investor towards the Real Estate market. It is Crucial to know the behaviour of the rational investor's expectation in the current competitive market. Because, there are variety of variable affect to the investor behaviour in the real estate market. Thus, this study targets the demographic variable and concludes linkages between the real estate market and demographic variable like age, gender, level of income, location and profession etc. for the purpose of this study. About 125 real estate investors of Gujarat (The State of Country India) have been targeted as the samples to reach at the conclusion.

Keywords*: Demographic variable, real estate investment, linkages, rational investor, behaviour*

1.0 INTRODUCTION

Investment decision picks up a vital importance in the current competitive arena. Because investor become more rational and along with the rationality, the expectation of the typical investor taking an interesting turn into the domination to the investment portfolio. As the observation and studies states that demographic factors both inherent as well as extrinsic like age, marital status, gender, geographic location, annual income, education qualifications, occupation, etc. have the logical impact on the risk aversion capacity of the investor, further it affects to their behavioural decision making aspect. Assessment of tolerance capacity of risk for the investor however, can be tricky. It must consider not only level of risk an investor can afford to take but also how much risk he can stand to take. An investor's capacity to bear risk may be related to individual personal characteristics such as age, income, time horizon, investment knowledge, liquidity needs, portfolio size, etc. This study critically observes the impact of a demographic character of a typical investor and how that impact on the investment decision in the real estate sector of Gujarat. A detail review of the literature has been done in order to develop the key factors and the necessary concept for the study.

2.0 LITERATURE REVIEW

Bajtelsmit & Bernasek (1996) have explained the linkages between gender differences in investment and risk-taking in an effort to help guide data collection and identification of relevant variables for empirical research. Also one of the earlier studies on demographic patterns on the real price of housing is by Mankiw and Weil (1989), in which they

concluded that, demographic plays a vital role in the fluctuations of real estate prices. Mankiw and Weil (1989) sampled 203,190 individuals from the 1980 United States Census data and found that the age specific housing demand reaches its apex at the age of 40. Also they found that a major part of the housing demand is made up of those between the ages of 20 to 30. The study was criticized by the many researchers of the various countries due to the varying results in each country. Fortin and Leclerc's (2000) results can be hypothesized that the effects of demographics on unregulated population fluctuations, such as the United States, would have a minor impact on housing prices. In the situation for China, with a highly regulated population growth, a more significant impact can be seen on the housing prices. In addition, there are growing concerns of a housing bubble in the Chinese real estate market. In order to examine the impacts of demographics on the housing prices, a model based on the United States will be created to determine the factors that affect the housing prices. The model will be used to forecast the potential trends of the real estate prices in the United States in the future. The implications of demographic and economic shifts on the Chinese housing market will also be examined. Anthony La Malfa (2015) observed markets with younger populations with growing families (think multiple kids) would warrant different retail and healthcare properties than those with older populations. Similarly, markets with higher education or skill rates would warrant different commercial properties than those with lower or more unskilled labour populations. He revealed several Factors with linkages to the real estate and property market such as age and family composition, income levels, education levels, have a specific impact on the types of properties that will perform in a given market. Mankiw and Weil (l989) and McFadden (1994a) have argued that population aging in the United States in the coming three decades is likely to induce substantial declines in housing prices, resulting in capital losses for current homeowners. McFadden (1994a) also argues that the welfare impact of these capital losses is small if they are anticipated and savings rates adjust to optimize life-cycle consumption. However, the impact near the end of life of some cohorts could be large if they have failed to adjust savings behaviour to compensate for demographically induced losses in housing wealth. Atkin and Myers (1994) made a major breakthrough after observing the housing demand over a 30-year period and concluded that housing demand continues to rise until the age of 70 instead of the age of 40, as previously concluded by Mankiw and Weil (1989). This could indicate that the baby boomers rapid retirement might not have a significant effect on the housing market. Similarly, Green and Hendershott (1996) have observed the correlation between education and the housing consumption after the age of 40. This would suggest that with higher levels of lifetime income and higher education, the housing market would not be significantly affected by the baby boomer generation heading to retirement. DiPasquale and Wheaton (1994) replicated the study and found that real per-capita income was an important factor on real estate demand. Further concluded that the negative shocks, including demographic shifts and the real estate demand was negated in the long run because the supply of housing is price elastic. Fortin and Leclerc's (2000) studied the demographic and non-demographic factors that contributed to the changes in the Canadian real housing prices. They were also concerned with the fact that the Canadian baby boomer generation is aging and heading to retirement soon. As we see, some studies hypothesized that the shift in demographics would directly cause real estate prices to fall because of the diminishing number of buyers. Others believed that demographics have very little or no effect on real estate prices. Wang and Hanna (1997) have concluded that relative risk aversion decreased as people aged (i.e., the proportion of net wealth invested in risky assets increases as people age) when other variables are held constant. They concluded that risk tolerance increased with age and therefore rejected the constant life-cycle risk aversion hypothesis. Andrew (2007) provided the estimation results and discussed that supported the initial hypotheses regarding the roles of race/gender in investment preferences.

3.0 DEMOGRAPHICS AND INVESTMENT BEHAVIOUR STUDY

As the study mainly concern with the identification of the linkages between the investors demographic characters and the investment decision, so it has followed descriptive research design, besides that study took the primary root for the collection of the data from the various investors from the different regions of Gujarat, for this purpose 125 real estate investor targeted by the convenient sampling technique to gather the data directly from the investor related to their demographics and investment behaviour in the real estate. Moreover data has been collected through the close ended structured questionnaire by meeting the investor personally and telephonic conversation. Furthermore this study defines the variety of variables and studies the characters of the variables so this study is descriptive in nature. The main objectives and focus of the study are following on the bases of the past research survey.

Several Studies in the past have discussed that there is a significant relationship exist between the demographics of the investors like age, gender, profession, level of income etc. and the investment preferences like tolerance level, investment behaviour, and choice of investment towards the real estate market. So study further carry on with the following objectives to be investigate by the primary data.

4.0 DATA ANALYSIS AND INTERPRETATION

This part of the study reveals the analysis of the key data gathered directly from the respondents like variety of demographics and personal characters of the respondents. See Table 1 for the further information on the primary data collection of the study.

The survey covered total 125 respondents from the various cities of the Gujarat amongst which approximately 71% respondents were male respondents and rest of the 29% respondents were female. Out of total respondents maximum 33.6% respondents falling in the age group of 25-35 Years and very few from the age group of 55 years and above which is reported to approximately 6.4%. Income and education level reported a notable mark amongst the observed respondents out of total respondents highest 31.2% falling in the income bracket of Rs2,00,000-Rs4,00,000. The highest 38.4% respondent reported to be a graduate respondent from the total respondents. Approximately 29.3% respondents were reported to be a service class person and 27.2% were reported to have the Businessman as an occupation. Maximum response from Ahmedabad city which was reported is 19.2% and from Surat city which were 15.2%. Out of total respondents highest 41.6% were married and 23.2% as a single in their marital status. Maximum respondents having the family size 3 to 5 members which were counted to approximately 40.8% and 37.6% respondents having the family size of 6 to 9 members.

The analysis of key characters of the demographics of the respondents (Table 1) clears the picture of the demographic profile of the respondents now further research extends to analyses the investment behaviour in the real estate and seeks to identify the linkages between the respondent's demographic profile and real estate investment behaviour.

4.1 Testing Statistical Significance of the Real Estate Market Involvement with Variety of Demographic Variable

4.1.1 Chi Square- Test of Independence

In the statics of the Chi square Test study have taken all the independent variable related to the demographics of the respondents and tested against the involvement in the real estate market which have been taken to be a dependent variable to identify the linkages between the demographic variables and the real estate market involvement by the investors.

Table 1: Demographic characteristics of the respondents

Characters of Respondents		No. of Respondents	Percentage
Gender	Male	89	71.2
	Female	36	28.8
	Total	125	100
Age Group	Below 25 Years	18	14.4
	25-35 Years	42	33.6
	35-45 Years	36	28.8
	45-55 Years	21	16.8
	55 Years and Above	8	6.4
	Total	125	100
City	Ahmedabad	24	19.2
	Gandhinagar	13	10.4
	Baroda	11	8.8
	Bharuch	7	5.6
	Rajkot	19	15.2
	Surat	21	16.8
	Vapi	9	7.2
	Mehsana	14	11.2
	Others	7	5.6
	Total	125	100
Average Annual Income	Below Rs 2,00,000	19	15.2
	Rs 2,00,000 - Rs 4,00,000	39	31.2
	Rs 4,00,000 - Rs 6,00,000	37	29.6
	Rs 6,00,000 - Rs 8,00,000	21	16.8
	Rs 8,00,000 and Above	9	7.2
	Total	125	100
Education	Below Graduation	12	9.6
	Graduate	48	38.4
	Post Graduate	46	36.8
	Above Post graduation	19	15.2
	Total	125	100
Marital Status	Single	29	23.2
	Married	52	41.6
	Divorced/Separated	23	18.4
	Widow	21	16.8
	Total	125	100
Occupation	Service	37	29.6
	Businessman	34	27.2
	Professional	29	23.2
	Retired	18	14.4
	Others	7	5.6
	Total	125	100
Family Size	Less than 3 Members	15	12
	3 to 5 Members	51	40.8
	6 to 9 Members	47	37.6
	More than 9 Members	12	9.6
	Total	125	100

Source: Primary data collected from the respondents through the close ended questionnaire

From Table 2-10, tests of the Chi Square for the independence of the demographic variable and real estate involvement, the following points have been observed that there are several demographic variables which is having the significance value less than 0.05 which are the cause of the variation in the real estate investors behaviour like knowledge of the real estate market, occupation, income level, age group, risk aversion capacity of the investor, marital status of the investor, these are the variable which shows the Chi square value less than 0.05 which means that these variable are dominating demographic variables in construction of the investor behaviour in the real estate market and thus it can be proved that there are some linkages between these variables and real estate investors behaviour.

More over to that there are several variable which is having the calculated chi square value more than 0.05 like Family size, level of education and Location which are considered to be independent from the real estate behaviour or else it has been concluded that there is no relationship or linkages exist between these variables and real estate market involvement by the investors.

Table 2: Chi Square Test of risk aversion capacity of investor with respect to real estate market count

		Risk Aversion Capacity					Total
		Very High Capacity	High Capacity	Moderate	Low Capacity	Very Low Capacity	
Involvement in Real Estate Market	Less than 1 Year	1	6	1	1	0	9
	1 to 2 Year	6	7	10	4	0	27
	3 to 4 Years	6	20	10	1	2	39
	5 to 6 Years	2	16	6	4	2	30
	More than 6 Years	5	6	6	0	3	20
Total		20	55	33	10	7	125

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.011[a]	16	0.014
N of Valid Cases	125		

Table 3: Chi Square Test of marital status and involvement in real estate market

Count							
		Involvement in Real Estate Market					Total
		Less than 1 Year	1 to 2 Year	3 to 4 Years	5 to 6 Years	More than 6 Years	
Marital Status	Single	4	7	6	7	5	29
	Married	4	7	21	11	9	52
	Divorced/Separated	0	5	8	7	3	23
	Widow	1	8	4	5	3	21
Total		9	27	39	30	20	125

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.860[a]	12	0.006
N of Valid Cases	125		

Table 4: Chi Square Test of knowledge of real estate market and involvement in real estate market count

		Involvement in Real Estate Market					Total
		Less than 1 Year	1 to 2 Year	3 to 4 Years	5 to 6 Years	More than 6 Years	
knowledge of Real estate market	Very good knowledge	5	15	20	16	9	65
	Good knowledge	2	6	13	11	9	41
	Moderate	2	6	4	3	2	17
	Little knowledge	0	0	1	0	0	1
	No Knowledge	0	0	1	0	0	1
Total		9	27	39	30	20	125

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28.741[a]	16	0.007
N of Valid Cases	125		

Table 5: Chi Square Test of family size and involvement in real estate market

Count							
		Involvement in Real Estate Market					Total
		Less than 1 Year	1 to 2 Year	3 to 4 Years	5 to 6 Years	More than 6 Years	
Family Size	Less than 3 Members	1	0	7	3	4	15
	3 to 5 Members	4	12	17	10	8	51
	6 to 9 Members	4	11	12	14	6	47
	More than 9 Members	0	4	3	3	2	12
Total		9	27	39	30	20	125

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.582[a]	12	0.653
N of Valid Cases	125		

Table 6: Chi Square Test of occupation and involvement in real estate market

Count							
		Involvement in Real Estate Market					Total
		Less than 1 Year	1 to 2 Year	3 to 4 Years	5 to 6 Years	More than 6 Years	
Occupation	Service	2	6	14	10	5	37
	Businessman	3	10	10	5	6	34
	Professional	4	8	5	7	5	29
	Retired	0	3	7	4	4	18
	Others	0	0	3	4	0	7
Total		9	27	39	30	20	125

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.37[a]	16	0.05
N of Valid Cases	125		

Table 7: Chi Square Test of level of education and involvement in real estate market

Count							
		Involvement in Real Estate Market					Total
		Less than 1 Year	1 to 2 Year	3 to 4 Years	5 to 6 Years	More than 6 Years	
Education	Below Graduation	0	5	2	4	1	12
	Graduate	3	9	18	10	8	48
	Post Graduate	4	7	17	11	7	46
	Above Post graduation	2	6	2	5	4	19
Total		9	27	39	30	20	125
Chi-Square Tests							
		Value			df	Asymp. Sig. (2-sided)	
Pearson Chi-Square		11.488[a]			12	0.488	
N of Valid Cases		125					

Table 8: Chi Square Test of age group and involvement in real estate market

Count							
		Involvement in Real Estate Market					Total
		Less than 1 Year	1 to 2 Year	3 to 4 Years	5 to 6 Years	More than 6 Years	
Age Group	Below 25 Years	1	6	8	1	2	18
	25-35 Years	2	7	15	13	5	42
	35-45 Years	2	12	6	8	8	36
	45-55 Years	2	1	8	7	3	21
	55 Years and Above	2	1	2	1	2	8
Total		9	27	39	30	20	125
Chi-Square Tests							
		Value		df	Asymp. Sig. (2-sided)		
Pearson Chi-Square		22.019[a]		16	0.043		
N of Valid Cases		125					

Table 9: Chi Square Test of location and involvement in real estate market

Count							
		Involvement in Real Estate Market					Total
		Less than 1 Year	1 to 2 Year	3 to 4 Years	5 to 6 Years	More than 6 Years	
City	Ahmedabad	3	2	11	5	3	24
	Gandhinagar	1	3	2	3	4	13
	Baroda	1	3	5	2	0	11
	Bharuch	0	1	1	4	1	7
	Rajkot	0	6	6	2	5	19
	Surat	0	4	7	8	2	21
	Vapi	1	2	3	2	1	9
	Mehsana	3	2	4	2	3	14
	Others	0	4	0	2	1	7
Total		9	27	39	30	20	125

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.217[a]	32	0.278
N of Valid Cases	125		

Table 10: Chi Square Test of average annual income and involvement in real estate market

Count							
		Involvement in Real Estate Market					Total
		Less than 1 Year	1 to 2 Year	3 to 4 Years	5 to 6 Years	More than 6 Years	
Average Annual Income	Below Rs 2,00,000	2	2	6	6	3	19
	Rs 2,00,000 - Rs 4,00,000	4	7	18	4	6	39
	Rs 4,00,000 - Rs 6,00,000	2	8	9	12	6	37
	Rs 6,00,000 - Rs 8,00,000	1	6	5	6	3	21
	Rs 8,00,000 and Above	0	4	1	2	2	9
Total		9	27	39	30	20	125

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	40.279a	16	0.000
N of Valid Cases	125		

4.1.2 Factor Analysis

To get the better idea of the demographic variables that has larger impact in the construction of the Real Estate Involvement, factor analysis would be useful measure to most effective factors.

The Kaiser-Meyer-Olkin (KMO) test

The Kaiser-Meyer-Olkin (KMO) test statistic represents the strength of the relationship among variables which should be greater than 0.5 for a satisfactory factor analysis to proceed. From the Table 11 it has been observed that value of the test arrives at 0.537 which is greater than the 0.5 which is adequate for the further processing.

Bartlett's Test

Bartlett's test is another indication to test the adequacy of the variable. This tests the null hypothesis that the correlation matrix is an identity matrix. An identity matrix is matrix in which all of the diagonal elements are 1 and all off diagonal elements are 0. From the same table, Bartlett's test of sphericity is significant That is, its associated probability is less than 0.05. In fact, it is actually 0.001, i.e. the significance level is small enough to reject the null hypothesis. This means that correlation matrix is not an identity matrix and there is an adequacy.

Table 12 represent relationships amongst the variables and can proceed further for the factor Extraction. Table 13 shows the how the variance divided amongst the eleven possible factors. Amongst which five factors that having an Eigen Values greater than 1.00 which are common criterion for a factor to be useful. As maximum variation in the dependent variable have been explained by these five variable now further proceeds to retain and extract those factors.

Table 11: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.537
Bartlett's Test of Sphericity	Approx. Chi-Square	46.262
	Df	55
	Sig.	0.001

Table 12: Communalities

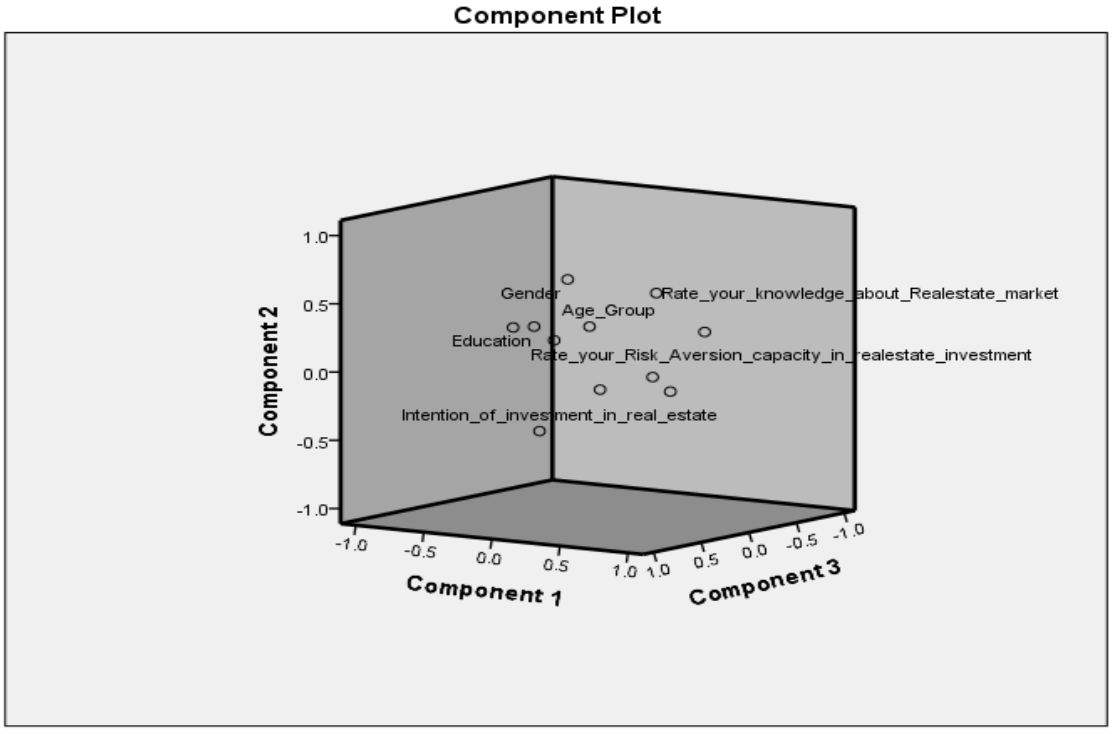
	Initial	Extraction
Gender	1.000	0.634
Age Group	1.000	0.687
City	1.000	0.525
Average Annual Income	1.000	0.617
Education	1.000	0.493
Marital Status	1.000	0.641
Occupation	1.000	0.501
Family Size	1.000	0.512
knowledge of Real estate market	1.000	0.475
Risk Aversion Capacity	1.000	0.410
Intention to investment in real estate	1.000	0.710
Extraction Method: Principal Component Analysis.		

Table 13: Total Variance Explained

Component	Initial Eigen Values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.585	14.412	14.412	1.585	14.412	14.412
2	1.277	11.606	26.017	1.277	11.606	26.017
3	1.240	11.273	37.290	1.240	11.273	37.290
4	1.080	9.816	47.106	1.080	9.816	47.106
5	1.023	9.303	56.409	1.023	9.303	56.409
6	0.996	9.054	65.463			
7	0.912	8.292	73.755			
8	0.787	7.156	80.911			
9	0.720	6.549	87.459			
10	0.708	6.435	93.894			
11	0.672	6.106	100.000			
Extraction Method: Principal Component Analysis.						

Table 14 Component Matrix[a]

	Component				
	1	2	3	4	5
Gender	-0.250	0.599	-0.041	0.039	0.457
Age Group	-0.227	0.227	-0.239	0.695	0.208
City	0.380	0.200	-0.579	-0.015	0.070
Average Annual Income	0.569	0.006	0.237	-0.009	0.486
Education	-0.556	0.210	-0.126	-0.346	0.064
Marital Status	-0.186	0.350	0.622	-0.244	0.194
Occupation	0.284	-0.093	0.381	0.511	-0.071
Family Size	0.544	-0.134	0.015	-0.310	0.319
knowledge of Real estate market	0.385	0.560	-0.066	0.075	-0.066
Risk Aversion Capacity	0.015	0.255	0.478	0.141	-0.310
Intention to investment in real estate	-0.365	-0.505	0.089	0.182	0.530
Extraction Method: Principal Component Analysis					
a. 5 components extracted					



Graph 1: Component plot of the factors

Factor Component matrix will helpful to know those five variables to be extracted which are the cause of highest variation in the Dependent variable. Table 14 shows that age group and gender bearing the highest factor loading on the 4th and 3rd component, respectively, so this can be concluded that highest variation have been observed by these two variables. Other variables like average annual income, knowledge about the real estate market and marital status also bearing the cause of variation in the dependent variable i.e. in the construction of the real estate investment behaviour. So these factors should be studied further.

Graph 1 show the association and strength of the relationship among the extracted factor which can be observed clearly from the above cube. It represents the differences among the factors in terms of variation towards the dependent variable which we already identified through the Eigen value from the Total variance explained table.

5.0 CONCLUSION

From the analysis of the primary data it has been concluded that majority participant towards the real estate market are male and falling in the age group of the 25-35 Years. Majority of the respondents having the income bracket of Rs.2, 00,000 to Rs.4,00,000. Chi Square statics clearly represent that knowledge of the real estate market, occupation, income level , age group, risk aversion capacity of the investor, marital status of the investor, these are the variable which shows the Chi square value less than 0.05 which means that these variable are dominating demographic variables in construction of the investor behaviour in the real estate market and thus it can be proved that there are some linkages between these variables and real estate investors behaviour

Factor analysis indicate the most effective variable which are important to measure the variation in the investors behaviour in the real estate market under which it has been observed that highest variation have been explained by the five factors from the all eleven factors to be observed. The most effective variables are age group and gender bearing the highest factor loading on the 4th and 3rd component, respectively, so this can be concluded that highest variation have been observed by these two variables. There are other three variables also which can be studied further to know the cause of the maximum variation in the investor's behaviour in the real estate market due to demographic factor.

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