Research Paper: ANOVA Analysis to Evaluate Investment Behaviour of Teachers Across Bhatinda and Bhopal Districts

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ABSTRACT

Investing represents a strategic decision-making process involving a calculated trade-off between present and future consumption. Investment behaviour is significantly influenced by factors such as investor knowledge, risk tolerance, financial goals, and social influences. Teachers as an investor segment, require particular attention due to their pivotal societal role and the impact their financial stability has on education quality. Two-Way ANOVA tool has been utilised to examine how demographic variables such as age, income, district, and marital status influence constructs like awareness, attitudes, and intentions.

KEYWORDS

Investment Behaviour, Awareness, Attitude and Intentions

1. INTRODUCTION

The term investment carries different implications depending on the context. From a financial viewpoint, it refers to placing money into vehicles such as stocks, bonds, mutual funds, fixed deposits, and government securities to achieve financial goals. Investors vary widely in their financial circumstances, knowledge levels, and risk tolerance. Consequently, safety, liquidity, and returns become critical considerations influencing investment decisions.

Investment behaviour involves individual actions such as researching, selecting, purchasing, managing, and eventually disposing of financial products. Understanding this behaviour reveals insights into how individuals use their surplus funds among available investment avenues.

The study employs a quantitative research approach in which data from the targeted sample of teachers in Bhatinda and Bhopal districts was collected using a cross-sectional structured survey questionnaire. The present chapter outlines how the various constructs such as awareness about investment avenues, attitudes towards investment and lastly the investment intentions of the teachers were measured.

ANOVA analysis was used to uncover the differences in the investment awareness, attitudes and intentions across the two districts i.e., Bhatinda and Bhopal. Further Two-way ANOVA was also used to study the combined effect of demographics along with accessing the difference in two districts regarding awareness, attitudes and intentions. A Two Way Analysis of Variance (ANOVA) offers a powerful means to examine how the mean scores on the identified constructs namely Investor Awareness, Investor Attitude, and Investor Intentions vary not only across geographic contexts (Bathinda vs. Bhopal) but also across demographic subgroups such as gender, age bracket, or teaching experience.

2. DEMOGRAPHICS

Out of the 500 participant teachers in the survey, 10 teachers (2%) were drawn from government schools, whereas the overwhelming majority of 490 teachers (98%) attended private or public (non-government) schools. 413 teachers (82.7%) were female, while 87 teachers (17.3%) were male. The largest age group of teachers was in the 31–40 years bracket (212 teachers; 42.4%), followed by 41–50 years group (125 teachers; 25.0%), 24–30 years (87 teachers; 17.4%) and 50 years and above (76 teachers; 15.2%). The survey age profile indicates that most of the teachers are in the middle career stage, which may lead to implications for interpreting awareness, attitudes, and intentions across life stages.

The survey shows that the largest group as per income distribution per annum falls in the bracket of ₹5–10 lakhs (207 teachers; 41.4%), followed by ₹2–5 lakhs income group (198 teachers; 39.6%), upto ₹2 lakhs (68 teachers; 13.6%), and the smallest group being ₹10 lakhs and above (27 teachers; 5.4%). The large concentration in the middle income group infers a reasonably consistent financial profile for bulk of the teachers.

As far is the teaching experience is concerned, the largest group of 258 teachers (51.6%) has 10 years or more of experience, followed by 113 teachers (22.6%) in the 5–10 years of experience, 77 teachers (15.4%) with 3–5 years of experience and 52 teachers (10.4%) having upto 3 years of experience. This survey indication towards more experience levels infers that most of the teachers are veteran and experienced educators. Moreover, 433 teachers (86.6 %) were married and 40 teachers (13.4 %) are unmarried.

As far as geographic distribution of the 500 participant teachers by district is concerned, exactly half of the sample (250 teachers; 50.0 %) are from Bhatinda, and the remaining half (250 teachers; 50.0 %) are from Bhopal. This equal representation ensures that any comparisons of awareness, attitudes, or intentions (using ANOVA) across the two districts will not be confounded by class imbalances.

3. ANOVA ANALYSIS

ANOVA analysis to infer as to how the teachers in the two districts namely, Bhatinda and Bhopal differ in their investment behaviours. Firstly, differences were examined

using two-way anova on investment awareness, then investment attitudes and lastly, investment intentions.

3.1 INVESTMENT AWARENESS USING ANNOVA

3.1.1 ANALYSIS: GENDER AND DISTRICT WISE

Firstly, gender and district differences in investment awareness were examined. Table 1 summarises these results.

Independent Variable	F-ratio	p-value	Significance
District	0.591	0.443	Not significant
Gender	0.341	0.559	Not significant
District × Gender (interaction)	2.792	0.096	Not Significant

Group 1	Group 2	Mean Difference	p-value	95% CI Lower	95% CI Upper
Bhatinda - Female	Bhatinda - Male	-0.2343	0.3705	-0.6087	0.1400
Bhatinda - Female	Bhopal - Female	-0.1151	0.5045	-0.3286	0.0984
Bhatinda - Female	Bhopal - Male	-0.0171	0.9993	-0.3682	0.3341
Bhatinda - Male	Bhopal - Female	0.1192	0.8448	-0.2561	0.4945
Bhatinda - Male	Bhopal - Male	0.2173	0.6270	-0.2503	0.6848

Table 1: Two Way ANOVA for Gender and Districts on Awareness

The results of the two-way ANOVA provide insight into how investment awareness varies as a function of both gender and district. Statistically, the main effects of gender ($F = 0.341$, $p = 0.559$) and district ($F = 0.591$, $p = 0.443$) on awareness were found to be insignificant, indicating that neither gender nor district alone has a meaningful influence on the level of investement awareness among teachers. However, the interaction effect between district and gender approached significance ($F = 2.792$, $p = 0.096$), suggesting a potential but not statistically confirmed difference in how gender influences awareness across different districts.

To further investigate these patterns, a post hoc analysis using Tukey's HSD was conducted. This analysis compared the mean awareness scores between all possible combinations of gender and district subgroups. The results showed that none of the pair-wise comparisons were statistically significant at the 0.05 level. For example, the mean difference in awareness between "Bhatinda - Female" and "Bhopal - Male" was minimal (mean difference = -0.0171, $p = 0.9993$), and even the largest observed difference, between "Bhatinda - Male" and "Bhopal - Male" (mean difference = 0.2173, $p = 0.6270$), fell well short of significance. Confidence intervals for all comparisons included zero, further confirming the lack of significant differences between groups.

Taken together, these findings suggest that within this sample awareness levels are relatively stable across gender and district.

3.1.2 ANALYSIS: AGE AND DISTRICT WISE

Now, we take age and district and perform its ANOVA on awareness.

	F	p-value	Interpretation
District	0.686	0.408	Not significant
Age Group	0.327	0.805	Not significant
District × Age	1.557	0.200	Not significant

Group 1	Group 2	Mean Difference	p-value	95% CI Lower	95% CI Upper
Bhatinda – 24 to 30	Bhatinda – 31 to 40	-0.0624	0.9999	-0.5238	0.3990
Bhatinda – 24 to 30	Bhatinda – 41 to 50	-0.0749	0.9998	-0.5708	0.4210
Bhatinda – 24 to 30	Bhatinda – 50 and above	0.0882	0.9997	-0.4767	0.6532
Bhatinda – 24 to 30	Bhopal – 24 to 30	-0.1314	0.9962	-0.6841	0.4212
Bhatinda – 24 to 30	Bhopal – 31 to 40	0.0135	1.0000	-0.4404	0.4674

Table 2: Two Way ANOVA for Age and District on Awareness

The two-way ANOVA and post hoc analyses reveal that investment awareness among respondents does not significantly vary by either age group or district. The lack of significant findings suggests that investment awareness is relatively uniform across demographic segments like age and location in this sample. This could imply that other factors such as access to financial education, institutional policies, or professional development opportunities may play a more pivotal role.

3.1.3 ANALYSIS: INCOME AND DISTRICT WISE

Now, thirdly, let us take income and district and its effects on awareness. The two-way ANOVA examined whether investment awareness varied significantly across different income levels and districts, as well as whether there was a meaningful interaction between these two factors. The summary is as follows:

Source	F	p-value	Interpretation
District	0.497	0.481	Not significant
Income Group	1.276	0.283	Not significant
District × Income	0.772	0.511	Not significant

Table 3: ANOVA of Income and District on Awareness

These results indicate that neither district nor income, nor their interaction, has a statistically significant influence on investment awareness. This suggests that teachers

across different income levels and districts exhibit similar levels of investment awareness in this sample.

3.1.4 ANALYSIS: TEACHING EXPERIENCE AND DISTRICT WISE

Next, the ANOVA for district and teaching experience on teachers investment awareness is examined. Table 4 summarises these results.

Source	F	p-value	Interpretation
District	0.743	0.390	Not significant
Experience	2.116	0.098	Not Significant
District × Experience	2.045	0.108	Not Significant

Table 4: ANOVA of Experience and District on Awareness

Although the analysis did not yield statistically significant results, the patterns observed are noteworthy. Teaching experience appears to have a marginal effect on investment awareness levels of teachers. It is plausible that teachers with more years in the profession have greater exposure to institutional or peer-led financial discussions, but the effect may vary by district depending on local programs or support systems. These findings suggest that while experience and district may not independently determine awareness, their combined effect warrants deeper investigation.

3.1.5 ANALYSIS: MARITAL STATUS AND DISTRICT WISE

Lastly, we examine the effect of marital status and district on investment awareness of teachers. Table 5 summarises these results.

Source	F	p-value	Interpretation
District	0.656	0.419	Not significant
Marital Status	0.074	0.785	Not significant
District × Marital	0.877	0.350	Not significant

Table 5: ANOVA of Marital Status and District on Awareness

The findings (Table 5) point that marital status does not significantly influence investment awareness, nor does it interact meaningfully with district-level factors. Awareness scores appear relatively consistent whether respondents are married or unmarried, and regardless of their district. This could imply that factors such as household decision-making dynamics or exposure to financial planning are not strongly differentiated by marital status among this population.

3.2 INVESTMENT ATTITUDES USING ANNOVA

Next we test the same combination of demographic variables on investment attitudes of teachers across the two districts.

3.2.1 ANALYSIS: GENDER AND DISTRICT WISE

Table 6 shows the results of ANOVA analysis for district and gender on teachers investment attitudes.

Effect on Attitudes	F	p-value	Interpretation
District	0.346	0.557	Not significant
Gender	0.353	0.553	Not significant
District × Gender	0.006	0.938	Not significant

Table 6: Two Way ANOVA for Gender and Districts on Attitudes

There is no significant difference ($p > 0.05$) in investment attitudes based on district, gender, or their interaction. This suggests that investment attitudes are stable across male and female respondents, regardless of their district.

3.2.2 ANALYSIS: AGE AND DISTRICT WISE

We examined the effect of age and district on investment attitude of the teachers. Table 7 summarised the findings of this analysis.

Effect	F	p-value	Interpretation
District	0.344	0.558	Not significant
Age	0.369	0.775	Not significant
District × Age	1.082	0.357	Not Significant

Table 7: Two Way ANOVA for Age and District on Attitudes

District alone does not influence investment attitudes. Once age and district interaction values are compared using two-way ANOVA and relatively high p-values ($p > 0.05$) suggest that attitudes remain consistent across age groups regardless of regional location.

3.2.3 ANALYSIS: INCOME AND DISTRICT WISE

The income and district were compared using two way ANOVA for their effects on investment attitudes of the teachers. Table 8 summarises these findings.

Effect	F	p-value	Interpretation
District	0.118	0.731	Not significant
Income	0.738	0.530	Not significant
District × Income	1.022	0.383	Not Significant

Table 8: ANOVA of Income and District on Attitudes

Investment attitudes do not differ significantly across income brackets or districts. The interaction effect also lacks significance, indicating no unique pattern in attitudes based on combined income and district grouping.

3.2.4 ANALYSIS: TEACHING EXPERIENCE AND DISTRICT WISE

Next, we took district and work experience as independent variables and investment attitude as dependent variable. Table 9 summaries these results of the two way ANOVA analysis.

Effect	F	p-value	Interpretation
District	0.057	0.812	Not significant
Experience	2.140	0.095	Not Significant
District × Experience	1.050	0.371	Not significant

Table 9: ANOVA of Experience and District on Attitudes

District has no significant effect, but teaching experience shows a marginal effect on attitudes ($p \approx 0.095$). This suggests that individuals with different experience levels may develop slightly different investment attitudes, although this effect does not significantly vary by district. Overall, but this effect and the interaction is not significant. Thus, work experience does not impact investment attitudes of teachers across the two districts.

3.2.5 ANALYSIS: MARITAL STATUS AND DISTRICT WISE

The effect of marital status on investment attitudes was examined. Table 10 summaries these results of the two way ANOVA analysis.

Effect	F	p-value	Interpretation
District	0.030	0.862	Not significant
Marital Status	0.030	0.862	Not significant
District × Marital	0.019	0.890	Not Significant

Table 10: ANOVA of Marital Status and District on Attitudes

Investment attitudes are not affected by marital status or district of the respondent teachers. The extremely low F-values and non-significant p-values ($p > 0.05$) across all effects suggest strong uniformity in attitudes across these demographic groups of teachers reading investment attitudes across the two districts.

3.3 INVESTMENT INTENTIONS USING ANNOVA

The teacher's investment intentions were examined by two way ANOVA as to how they differ across the demographics and the districts.

3.3.1 ANALYSIS: GENDER AND DISTRICT WISE

The effect of gender and district on investment intentions of teachers were examined. Table 11 shows the Two-Way Anova Analysis for Gender and District of teachers on their investment intentions.

Effect	F	p-value	Interpretation
District	0.339	0.561	Not significant
Gender	0.304	0.582	Not significant
District × Gender	0.388	0.534	Not Significant

Table 11: Two Way ANOVA for Gender and Districts on Intentions

Investment intentions are not significantly influenced by district or gender, and no interaction effect exists. This suggests both male and female teachers in both the districts i.e., Bhatinda and Bhopal have comparable/similar investment intentions.

3.3.2 ANALYSIS: AGE AND DISTRICT WISE

The effect of Age and District on the investment intention of teachers was examined in a similar way using the TWO-WAY Anova analysis. Table 12 indicates the results of this analysis as follows:

Effect	F	p-value	Interpretation
District	0.291	0.590	Not significant
Age	0.183	0.908	Not significant
District × Age	0.903	0.439	No meaningful interaction detected

Table 12: Two Way ANOVA for Age and District on Intentions

Intentions to invest do not differ significantly across age groups or between districts. Moreover, there is no meaningful interaction between the age and districts of the teachers, suggesting consistency in investment intentions of teachers across age categories.

3.3.3 ANALYSIS: INCOME AND DISTRICT WISE

The effect of Income and District on the investment intention of teachers was examined. Table 13 summaries these findings.

Effect	F	p-value	Interpretation
District	0.270	0.604	Not significant
Income	0.755	0.521	Not significant
District × Income	0.746	0.525	Not Significant

Table 13: ANOVA of Income and District on Intentions

From Table 13 we can see that there is no evidence that income or district impacts investment intentions. Additionally, the absence of interaction implies that income-related variation in investment intention is not influenced by geographic location of the teachers in our sample.

3.3.4 ANALYSIS: TEACHING EXPERIENCE AND DISTRICT WISE

The interaction effect of Work Experience and District on investment intention of the teachers is depicted by Table 14.

Effect	F	p-value	Interpretation
District	0.268	0.605	Not significant
Experience	2.018	0.111	Not Significant
District × Experience	0.908	0.438	Not Significant

Table 14: ANOVA of Experience and District on Intentions

Neither experience nor district show a statistically significant effect, its p-value are all greater than 0.05, indicating an insignificant effect. This hints that teachers in all experience categories have more or less same investment intentions. Also, these variations do not differ significantly by district.

3.3.5 ANALYSIS: MARITAL STATUS AND DISTRICT WISE

The interaction effect of marital status and district on the investment intention of the teachers has been summarised at Table 15.

Effect	F	p-value	Interpretation
District	0.057	0.812	Not significant
Marital Status	0.073	0.786	Not significant
District × Marital	0.091	0.763	Not Signficant

Table 15: ANOVA of Marital Status and District on Intentions

As we can see from Table 15, Investment intentions of teachers are consistent regardless of marital status or district. This suggests that personal relationship status does not significantly impact teacher's intention to invest in our sample.

4. CONCLUSION

Item-wise and construct-level statistics revealed that teachers' awareness, attitudes, and intentions hovered around a neutral-to-moderate level. For example, many were familiar with traditional instruments like fixed deposits and post-office schemes, but less so with risk-return dynamics or modern platforms like ETFs. Similarly, while attitudes toward investment were generally positive, there appeared to be some hesitation when it came to risk-taking or acting independently. On the intentions front, teachers expressed a willingness to invest especially in modern instruments like mutual funds but weren't strongly proactive about seeking financial advice or regularly tracking investment opportunities.

The findings of Two-Way ANOVA tests were strikingly consistent and across all 15 combinations (five demographic pairs for each of the three constructs), we did not find statistically significant differences. In other words, investment awareness, attitudes, and intentions were largely uniform across demographic lines.

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