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Research Paper

Herd Behavior Unveiled: How Demographics Shape Investment Patterns in North India

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Abstract
The study of herd behavior examines the varied complexity of individual investors' propensity to follow herd behavior, revealing the psychological, social, and economic factors that underlie this phenomena and its market ramifications. This behavior, which is impacted by cognitive biases, social dynamics, and economic reasons, is frequently brought on by the perception of information cascades, in which peer observation is seen as a sign of superior knowledge. The study is focused on individual North Indian investors, and it makes use of data from university personnel that were collected using multistage random sampling and analyzed using descriptive statistics, t-statistics, and One-Way ANOVA. The findings show a strong interaction between herding behavior and demographic characteristics, with married status increasing the likelihood of such behavior owing to shared financial obligations, and a relationship between yearly income levels and conformity.
Keywords: *Herd Behavior, Demographic Factors, North India, Investment Decision Making*

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I. Introduction

Individual investor behavior frequently contradicts reasonable assumptions and established theories in the complex world of financial markets. The prevalence of herd behavior among individual investors is a fascinating phenomenon that has long piqued the interest of scholars, practitioners, and regulators alike (Jorgenson 1967). Herd behavior, defined as individuals' proclivity to mimic the acts of a bigger group rather than making autonomous judgments, has the potential to greatly affect market dynamics, asset values, and overall financial stability (Chang, Cheng and Khorana 2000). Individual investor herd behavior is an intriguing phenomena within the area of financial markets, characterized by individuals' proclivity to copy the behaviors and judgments of a bigger group, frequently at the expense of their own logical judgment. This behavior has substantial significance in a variety of circumstances, notably in the complex terrain of financial markets, where it may have a big impact on asset pricing, market volatility, and overall stability (Rook 2006). The study of herd behavior dives into the numerous complexities of why and how individual investors conform to collective activities, elucidating the psychological, social, and economic motivations that drive this phenomena and its significant implications for market dynamics (Ottaviani and Sørensen 2000). Herd behavior is driven by a mix of cognitive biases, social dynamics, and economic factors (Nareswari, Balqista and Negoro 2021). To begin, the concept of information cascades is critical. When individual investors see a large number of their peers purchasing or selling an item, they frequently take this as an indication of better information (Nair and Yermal 2017). Fearing lost chances or losses, they may overlook their own judgment in favor of mimicking the group's behavior (Mahmood, et al. 2016). Furthermore, the uncertainty that pervades financial markets might accentuate such behavior. Individuals seek safety in numbers, relying on the acts of the crowd as a type of social proof in times of uncertainty. This reinforces

the cycle of copying by causing investors to match their actions with the apparent consensus in order to reduce their own uncertainty (Ahmad and Wu 2022).

Herd behavior is further sustained by a number of processes that enhance and reinforce the original collective behaviors. Information cascades produce a domino effect in which future investors imitate the activities of a small number of powerful investors without properly evaluating the asset's underlying fundamentals (Palley 1995). As a result, the behavior's momentum alone acts as the engine, independent of objective examination. Herd behavior can also result in feedback loops, which heighten market turbulence. Asset prices can fluctuate drastically as additional investors follow the trend, frequently departing from their underlying values (Metawa, et al. 2019). When a reversal takes place or unfavorable information appears, a cascade of selling may be sparked, increasing the instability in the market. Herd behavior has significant and far-reaching repercussions (Agrawal, Singhal and Swarup 2016). The development of market bubbles, when asset prices soar to unsustainable heights as a result of widespread optimism and imitative buying, is one of the most noticeable results. When the bubble eventually bursts, whether it be due to a shift in mood or the discovery of fundamental flaws, a market collapse may occur as investors rush to sell (S. K. Chang 2014). Additionally, this phenomena adds to increased market volatility. Herd behavior-driven, quick changes in emotion cause unpredictably large price fluctuations, which reduce market efficiency and provide difficulties for investors. Furthermore, the improper distribution of resources is a real result of herd behavior. As investors rush to assets based on trends rather than basic examination, certain assets become overpriced while others stay underpriced, distorting capital allocation efficiency (Ouarda, El Bouri and Bernard 2013).

Individual investor herd behaviour has been the subject of much investigation in the financial markets. Bikhchandani, Hirshleifer, and Welch (1992) pioneered the concept of "information cascades," in which investors examine the activities of their predecessors and then mimic those behaviours, frequently disregarding their own judgement. An investigation of individual investors' trading behaviours by Barber and Odean (2001) indicated evidence of herd behaviour displayed through the inclination to pursue prior stock performance, leading to poor investment outcomes. Important aspects have also been identified as social contacts and impact. Hong and Kubik (2003) discovered that when their peers invest in stocks, people are more likely to do so as well, demonstrating a type of herd behaviour driven by social influence. In addition, studies have integrated different areas of herd behaviour research, such as information cascades, social influence, and market bubbles, such as the work of Bollen and Mao (2011). These illustrative studies show the broad spectrum of perspectives and research done on individual investors' herd behavior in the financial markets.

An important aspect of behavioral finance research is examining the link between demographic characteristics and herd behavior among investors. Investigating how age, gender, education, income, and investing experience impact an individual's proclivity to engage in imitative decision-making provides useful insights into the complex interplay between personal traits and group investment behavior (Lin, Tsai and Lung 2013). Demographics have been found to have a significant impact on how people respond to market trends and information cascades. Younger investors, for example, may be more prone to herd behavior due to heightened fear of missing out (FOMO) and a larger appetite for risk (Merli and Roger 2013). Education and financial literacy also have an influence on an individual's capacity to avoid herd behavior, with more informed investors frequently exhibiting greater independence in decision-making. Gender differences may also impact susceptibility to herding, since research show that women have a lesser proclivity for imitative behavior than males. By including demographic considerations into the study of herd behavior, we get a better understanding of the complex incentives and decision-making processes that drive investors to follow collective activities (Din, et al. 2021). These findings have practical implications for targeted investor education and regulatory initiatives that address vulnerabilities associated with certain demographic characteristics, resulting in more informed and effective methods to limiting the influence of herd behavior on financial markets.

The study of herd behavior among investors is critical to understanding the complexities of human psychology, cognitive biases, and financial market dynamics. This research provides insights into the determinants of collective decision-making, market inefficiencies, and possible asset mispricing by exploring why individuals choose to replicate the activities of a bigger group rather than making autonomous judgments. Furthermore, it sheds light on the importance of information distribution, social connections, and technical breakthroughs, especially in the age of social media. This knowledge informs the design of effective investor education, contributes to market stability regulatory strategies, and provides a deeper understanding of the intricate interplay between emotions, perceptions, and rational analysis in investment decisions, ultimately guiding more informed and strategic participation in financial markets.

II. Review of Literature

Herd behavior, a common occurrence in financial markets, has received considerable attention owing to its influence on investor decision-making and market dynamics. This study tries to synthesize the findings of several research on herd behavior among individual investors, providing insights into its underlying motivations,

manifestations, and financial market repercussions. Prospect Theory and social influence theories provide the theoretical basis for herd behavior. Prospect Theory, proposed by Lin and Hu (2010), contends that during times of uncertainty, investors are more likely to follow the crowd due to a heightened aversion to prospective losses over potential benefits. In addition, Rook, (2006) offered social influence theories that emphasize the psychological factors that drive herding behavior, such as the need for social recognition and conformity within a group. Individual investor herd behavior has been regularly documented in empirical investigations.

Coskun, Lau and Kahyaoglu (2020) revealed that during moments of higher market uncertainty, investors are more prone to herd, resulting in increased market volatility. Avery and Zemsky (1998) discovered that herd behavior becomes more intense during major market events, contributing to exaggerated price swings and market bubbles. These empirical data highlight the prevalence of herd behavior in financial markets. Individual investors' proclivity for herd behavior is influenced by a variety of factors. According to Zhou, et al. (2021), information cascades are important because investors copy others because they believe the mob has superior information. According to Zha, et al. (2023), the effect of media and social media platforms is visible in generating herd behavior. These platforms amplify favorable or bad information, causing investors to react collectively. Furthermore, cognitive biases like as anchoring (Haselton, Nettle and Andrews 2015), confirmation bias, and the availability heuristic all have a substantial impact on herding behavior. As various researchers have pointed out, these biases cause investors to follow the crowd rather than doing independent analysis. Furthermore, as Lee and Lee (2012) discovered, emotions like as fear and greed act as powerful triggers for herd behavior. Investors frequently imitate others out of fear of losing out on possible gains or incurring losses. Herd behavior has significant consequences for financial markets.

According to Demirer, Lee and Lien (2015), herd behavior increases market volatility, contributing to sharp price fluctuations and even the creation of market bubbles. Herding undermines efficient market functioning, as (Chiang, et al. 2013) point out, since it distorts market pricing and slows the incorporation of new information into asset appraisals. (Li, Hu and Tang 2019), on the other hand, see a silver lining, arguing that while herd behavior is damaging to individual investors, it can generate chances for contrarian tactics. These tactics enable contrarian investors to profit from mispricing's caused by herd behavior. Researchers and politicians have investigated numerous remedies in response to the negative repercussions of herd behavior. Agrawal, Singhal and Swarup, (2016) indicate for investor education programs that emphasize rational decision-making and the risks of following in the footsteps of others. These efforts have the ability to reduce the influence of herding behavior and promote more informed investment decisions. Because of differences in risk attitudes, levels of confidence in financial institutions, and cultural norms, herd behavior varies among cultures and locations. Chang and Lin (2015) emphasize this by mentioning cultural impacts on herding behavior in Asian marketplaces, emphasizing the need of taking regional variations into account while investigating and resolving this phenomena.

Statement of Problem

Individual investor herd behavior has been seen to have a substantial influence on investment decisions and market dynamics in the context of North India's financial markets. Despite the widely acknowledged importance of demographic variables on investor behavior, there has been no systematic study on the precise relationship between demographic characteristics and the proclivity for herd behavior among individual investors in this region. This study seeks to fill the gap by studying how demographic parameters such as age, gender, education level, income, and investing experience influence the amount and expression of herd behavior among individual investors in North India. The study aims to give significant insights for both scholars and practitioners trying to support better informed investment decision-making by analyzing these links. By doing so, the study hopes to improve our comprehension of the driving reasons underlying herd behavior in the region's financial markets.

Research Objectives

To explore the relationship between the demographic factors and Herd Behavior of Individual Investor's in North India.

III. Research Methodology

The starting point of a primary study is the research process used to systematically collect and evaluate data from primary sources. This includes choosing a study design, data gathering methods, sample techniques, and data analysis tools. During primary investigations, it is usual practise to collect first-hand information using tried-and-true methods including surveys, interviews, observations, experiments, and case studies. The collected data is then rigorously evaluated using appropriate statistical or qualitative analysis techniques with the goal of gaining insightful knowledge and aiding in the formation of conclusions. A main study's research methodology offers a well-organized framework for performing thorough and reliable research, assuring the reliability and integrity of the study's findings.

Population

The term "population" denotes a collection of individuals, animals, or objects of the same species inhabiting a specific area. In the context of human populations, it signifies the overall count of individuals in a particular region or country. Our focus lies in identifying educators and staff members from universities in northern India for this project. Notably, there are 218 universities in North India covering five states and four union territories, as per the UGC listed webpage (Recruitment Inbox, 2019), serving as the potential research participant pool. Furthermore, the National Informatics Centre (2015) reports a presence of over 80,000 teachers in these northern Indian universities.

Sample Size and Sampling Procedure

This study aims to comprehend the impact of demographic factors on the herd behavior of North Indian investors. Data collection encompassed teaching and non-teaching staff across North Indian institutions, employing a multistage random selection approach for participant representation. The study encompassed Himachal Pradesh, Punjab, and Uttrakhand states, along with the union territories of Delhi and Chandigarh, based on 2023 literacy rate estimates from Wikipedia. After a rigorous assessment, 381 out of the initial 450 respondents were deemed eligible for the study. This sample size adheres to Krejcie and Morgan's 1970 recommendation, suggesting a minimum sample size of 380 for consistent results with a 95% confidence level when dealing with an unknown population.

Data Collection and Procedure

For our conclusive analysis, we amassed 381 responses from both teaching and non-teaching staff across institutions in North India. Data was acquired using a standardized questionnaire employing a "5-point Likert scale." Respondents evaluated their level of agreement on a scale of 1 to 5, ranging from "strongly disagree" to "strongly agree." The questionnaire centered on seven psychological traits, such as overconfidence and loss aversion. Alongside psychological aspects, demographic information including age, income, education, and gender was also collected. To ensure a comprehensive perspective, a mix of online and offline questionnaires was utilized to gather data from the participants.

Analytical Techniques and Framework

In our study, we harnessed a diverse range of technologies to analyze data and extract critical insights. Utilizing descriptive statistics, we comprehended key data features. Metrics like mean, median, mode, and standard deviation were employed to discern data patterns, average values, central tendencies, and dispersion. T-tests were utilized to compare means between two groups, aiding in identifying statistically significant differences. One-way ANOVA was employed to examine means across multiple groups, allowing exploration of both within-group variances and between-group disparities. F-values were assessed to determine significant differences, offering a comprehensive view of various groups' influence on the studied outcomes and facilitating conclusive findings.

IV. Results and Discussion

1. Demographic Profile of Investors

Respondents' demographic profile is as follows: Location-wise, Punjab has the highest responders (118), followed by Delhi (81), Uttarakhand (79), Himachal Pradesh (56), and Chandigarh (47). Age distribution reveals 37% are aged 35-45 and 42% are aged 45-60. Gender-wise, 62% of the 381 responders are men and 38% are women. In terms of annual income, 39% earn 5-10 lakhs, 38% earn 10-20 lakhs, 9% earn >20 lakhs, and 3.7% earn 1.5-3 lakhs. Education-wise, 84% have a doctorate, 14.4% possess a postgraduate degree, and 6% are non-teaching staff. Regarding roles, 93% are instructors at North Indian universities.

2. Relationship Between Herd Behavior and Marital Status of the Investors

The correlation between investors' herd behavior and their marital status was investigated using an independent sample t-test. A five-point Likert scale questionnaire was utilized to assess investors' herd behavior. Respondents' marital status was classified into two groups: married and unmarried. The subsequent hypothesis was analyzed through an independent sample t-test:

Null Hypothesis 1a: The marital status of respondents does not exert a significant influence on investors' herd behavior.

Alternative Hypothesis 1b: The marital status of respondents significantly affects investors' herd behavior.

Table 1 presents the results of the independent sample t-test examining the relationship between investors' marital status and their herd behavior. The table reveals that the t-value associated with herd behavior is 2.378 (with a corresponding p-value of 0.001), falling below the conventional threshold of 0.05. As a result, we are unable to

support the null hypothesis. The findings of the study indicate a notable impact of respondents' marital status on investors' herd behavior.

Table 1: Independent sample t-test result for marital status

Independent Sample t-test for marital status						
	Marital Status	**N**	**Mean**	**Std. Deviation**	t-stats (p-value)	Remark
HB	Married	339	1.9996	.64597	2.378 (0.001)	Failed to Accept Null Hypothesis
	Un-Married	42	1.7551	.45863		

Source: Output generated from SPSS software

3. Relationship between Herd Behavior and Annual Income of the Respondents

The impact of annual income on investors' herd behavior is explored utilizing a One-Way Analysis of Variance (ANOVA). Respondents' annual income is segmented into six categories: below 150,000, 150,000-300,000, 300,000-500,000, 500,000-1,000,000, 1,000,000-2,000,000, and above 2,000,000. In this context, respondents' annual income serves as the independent variable, while investors' herd behavior is the dependent variable. The subsequent hypothesis is assessed through One-Way ANOVA:

Null Hypothesis 2a: The annual income of respondents does not exert a statistically significant influence on investors' herd behavior.

Alternative Hypothesis 2b: The annual income of respondents significantly impacts investors' herd behavior.

Displaying the results of the One-Way Analysis of Variance (ANOVA) examining the connection between investors' annual income and their herd behavior, Table 2 is presented. Within the table, the observed f statistic associated with herd behavior amounts to 2.157 (with a corresponding p-value of 0.050), a figure falling below the predetermined threshold of 0.05. Consequently, our ability to substantiate the null hypothesis is limited. In light of these findings, the study arrives at the conclusion that the annual income of respondents significantly affects investors' herd behavior.

Table 2: One-Way ANOVA between annual income and herd behaviour

One-Way ANOVA between annual income and Herd behaviour					
Herd Behaviour					
	N	**Mean**	**Std. Deviation**	**F-statistic (p-value)**	**Conclusion**
Below-1,50,000	3	1.5714	.24744	2.157 (0.050)	Failed to Accept Null Hypothesis
1,50,000-3,00,000	11	2.0779	.76496		
3,00,000-5,00,000	35	1.7224	.33042		
5,00,000-10,00,000	150	1.9448	.59533		
10,00,000-20,00,000	148	2.0212	.66494		
20,00,000 Above	34	2.1429	.78167		
Total	381	1.9726	.63224		

Source: Output generated from SPSS software

4. Relationship between Herd Behavior and Education Background of the Respondents

The examination of the relationship between investors' herd behavior and their educational background is conducted through the utilization of a One-Way Analysis of Variance (ANOVA). Respondents' educational background is segmented into three categories: graduate, postgraduate, and doctorate. In this context, the educational background of respondents serves as the independent variable, while investors' herd behavior constitutes the dependent variable. The subsequent hypothesis is evaluated employing the One-Way ANOVA:

Null Hypothesis 3a: The educational background of respondents does not exert a statistically significant influence on investors' herd behavior.

Alternative Hypothesis 3b: The educational background of respondents significantly impacts investors' herd behavior.

Presented in Table 3 is the outcome of the One-Way Analysis of Variance (ANOVA) exploring the relationship between investors' herd behavior and their educational background. Notably, the table displays an f statistic of 4.629 associated with herd behavior, accompanied by a corresponding p-value of 0.010. This observed p-value is less than the established threshold of 0.05. Consequently, the ability to uphold the null hypothesis is constrained.

The investigation underscores that the educational background of respondents distinctly impacts investors' herd behavior, as indicated by the study's findings.

Table 3: One-Way ANOVA between education level and herd behaviour

One-Way ANOVA for Education level and Herd Behaviour					
Herd Behavior					
	N	**Mean**	**Std. Deviation**	**f-statistic (p-value)**	**Conclusion**
Graduate	6	2.2857	.89898	4.629 (0.010)	Failed to accept null hypothesis
Post Graduate	55	1.7506	.47716		
Doctorate	320	2.0049	.64310		
Total	381	1.9726	.63224		

Source: Output generated from SPSS software

Post Hoc Results

The post hoc analysis outcomes reveal variations in the mean responses across the observed categories. Through the utilization of post hoc analysis, we have identified specific categories of investors with distinct responses compared to others.

Homogenous Subsets

Presented in Table 4 are two distinct groups, denoted as 1 and 2. The analysis demonstrates that the mean responses of postgraduate and doctorate respondents are equivalent in terms of herd behaviour, while doctorate and graduate respondents exhibit comparable responses. However, the responses of graduate respondents differ from those of postgraduate respondents. Consequently, drawing upon the information provided by the aforementioned table, it can be inferred that a notable discrepancy in educational levels of respondents exists concerning herd behaviour.

Table 4: Post Hoc Results for Herd Behaviour

Herd Behaviour			
Tukey HSD[a,b]			
		Subset for alpha = 0.05	
Educational Background	**N**	**1**	**2**
Post Graduate	55	1.7506	
Doctorate	320	2.0049	2.0049
Graduate	6		2.2857
Sig.		.486	.415
Means for groups in homogeneous subsets are displayed.			
a. Uses Harmonic Mean Sample Size = 15.960.			
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.			

Source: Output generated from SPSS software

5. Relationship Between Herd Behavior and Occupation of the Respondents

The investigation into the correlation between investors' herd behavior and their occupation has been conducted using an independent sample t-test. The respondents' occupations have been divided into two categories: teaching and non-teaching. In this context, the respondents' occupation serves as the independent variable, while the herd behavior of investors constitutes the dependent variable. The subsequent hypothesis is evaluated employing the independent sample t-test:

Null Hypothesis 4a: The occupation of respondents does not exert a statistically significant influence on investors' herd behavior.

Alternative Hypothesis 4a: The occupation of respondents significantly impacts investors' herd behavior.

Illustrated in Table 5 is the t-statistic associated with herd behavior, amounting to 0.543, with a corresponding p-value of 0.538. This p-value exceeds the designated threshold of 0.05. Therefore, based on these findings, the study draws the conclusion that the occupation of the respondents does not wield a significant influence over investors' herd behavior.

Table 5: Relationship between occupation and herd behaviour of investors

Group Statistics						
	Occupation	**N**	**Mean**	**Std. Deviation**	**t-statistic**	**Conclusion**
HB	Teacher	357	1.9772	.62838	0.543	Null hypothesis
	Non-Teaching Staff	24	1.9048	.69816	(0.538)	Accepted

Source: Output generated from SPSS software

V. Discussion

The objective of this research was to determine whether there could be a connection between demographic variables and individual investors' herd behavior in North India. The demographic elements that were examined were marital status, yearly income, educational attainment, and line of work. The investigation sought to provide light on whether these elements could affect investors' propensity for herd behavior while making investment decisions. The results of this study provided fascinating new information on how demographic characteristics affect investors' tendency to follow the herd. The marital status of investors was initially investigated, and it was shown that this had a major impact on herd behavior. This implies that investors' marital status could influence their propensity for herd behavior, possibly as a result of shared financial choices and conversations amongst married couples.

After looking at yearly income, the study found a significant link between this variable and investors' tendency to follow the herd. According to the findings, herding propensities varied among people of different socioeconomic levels. This is consistent with the hypothesis that people with greater incomes may have more faith in their own judgments, which would diminish their propensity for herd behavior. Investors' educational backgrounds have also become a significant demographic component influencing herd behavior. The investigation showed that differing educational levels among investors resulted in varying degrees of herd behavior. This discovery implies that a person's level of education may have an impact on their investing decision-making process and their propensity to follow the herd. Last but not least, the work of investors was looked at, and the findings showed that work did not significantly affect herd behavior. This suggests that people from various professions, whether teaching or not, were equally likely to engage in herd behavior while making investment decisions. The study clarified the complex interplay between demographic variables and individual investors' herd behavior in North India. A number of variables, including marital status, annual income, and educational background, were found to have a big influence on whether investors behave in herds.

These results help us understand the psychological and behavioral factors that influence how people make financial decisions. Financial institutions attempting to customize their services to various demographic segments as well as individual investors looking to make educated decisions can both benefit from such knowledge. However, more investigation into the interactions between these variables and the underlying processes that govern herd behavior in varied demographic settings is needed.

VI. Conclusion

In conclusion, this study reveals a strong interaction between demographic parameters and individual investors' herding behavior in North India. Marital status becomes a significant factor, because shared financial responsibilities in marriage increase the likelihood of herd behavior. Annual income levels and conformity are correlated, showing the influence of financial security on such behavior. Individual decision-making processes are highly influenced by educational background, although profession does not greatly influence these processes. These revelations have important ramifications for both investors and financial institutions, providing ways for well-informed choices and specialized services. Future studies can go even further into the complex mechanisms underlying these connections, expanding our comprehension of how demographic factors affect investors' financial decisions.

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