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Management is Synergy

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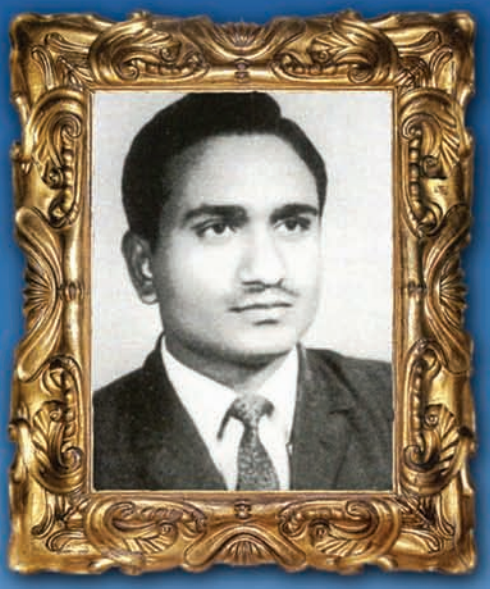
A TRUE VISIONARY

"You see things and you say **Why***? But I dream of things that never were and say* **Why** *not?"*

- George Bernard Shaw



Shri Jagannath Gupta
(1950 - 1980)

Also a true visionary...who dared to dream!
He lives no more but his dreams live on....and on!

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And more dreams to come!

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Editor's Desk

Addressing Climate Change and Environmental Challenges

Climate change is no longer a distant threat—it is a reality manifesting in rising temperatures, extreme weather events, melting ice caps, and rising sea levels. Its impacts ripple through ecosystems, economies, and societies, exacerbating inequalities and threatening the well-being of future generations. Coupled with environmental degradation—deforestation, biodiversity loss, and pollution—human actions have brought the planet to a tipping point.

To confront these challenges, proactive and sustained measures are imperative:

1. Transition to Renewable Energy
Fossil fuels remain a significant contributor to greenhouse gas emissions. Shifting to renewable sources such as solar, wind, and hydropower can significantly reduce our carbon footprint. Governments and industries must prioritize investments in clean energy infrastructure.

2. Strengthen Policies and Regulations
Stricter environmental regulations, such as carbon pricing and emissions trading systems, incentivize sustainable practices. Nations must also honor international agreements like the Paris Accord to ensure collective action.

3. Promote Sustainable Practices
Individuals and organizations can adopt sustainable lifestyles by reducing waste, recycling, and using energy-efficient products. Encouraging circular economies, where resources are reused and repurposed, can curb environmental harm.

4. Conservation and Reforestation
Restoring degraded ecosystems and protecting forests are vital. Trees act as carbon sinks, absorbing CO_2 from the atmosphere. Reforestation projects and conservation efforts also support biodiversity, enhancing the resilience of ecosystems.

5. Innovate and Educate
Technological innovations, such as carbon capture and storage, can offer solutions to reduce emissions. Public awareness campaigns and education foster a culture of responsibility, empowering communities to make informed choices.

6. Community Participation and Collaboration
Local communities, businesses, and governments must work together. Grassroots movements and public-private partnerships can drive change, ensuring that solutions are inclusive and effective.

Climate change is a shared challenge, but it also presents an opportunity to reimagine development and growth in harmony with nature. By embracing sustainable practices and fostering global solidarity, we can mitigate its effects and leave a healthier, more equitable planet for future generations.

Time is of the essence—action is not optional but essential.

Madhu Vij

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REVISITING THE EMPIRICAL CHALLENGES TO THE CAPM: A STUDY OF THE NSE DURING AND POST COVID-19

Dr. Sant Kumar*

Purpose: *This paper investigates the empirical validity of the Capital Asset Pricing Model (CAPM) on the NIFTY 50 Index during two distinct subperiods: the COVID-19 period (January 2020 to April 2023) and the post-COVID period (May 2023 to June 2024).*

Methodology: *The study employs Lintner's (1965) methodology, conducting cross-sectional regressions for each subperiod. The relationship between average returns, systematic risk (beta), and the variance of residuals is analyzed. Statistical significance is determined using p-values, and the explanatory power of the model is assessed through R-squared values.*

Findings: *During the COVID-19 period, a significant negative relationship between average return and systematic risk is found, contrary to CAPM predictions. A positive and significant relationship between average return and the variance of residuals is also observed. The model's explanatory power is notable with an R-squared value of 0.469678. In the post-COVID period, the negative relationship between average return and systematic risk becomes statistically insignificant, and the explanatory power of the model decreases significantly (R-squared value of 0.15079). In both periods, the CAPM underestimates the risk-free rate, however, market risk premium prediction during the COVID is quite good, but not after COVID.*

Originality/Value: *This study provides critical insights into the performance of the CAPM during periods of economic disruption and recovery in the Indian stock market, highlighting the model's limitations and suggesting the need for reconsideration or modification to better capture market realities.*

Keywords : *CAPM, Fama-French, Asset Pricing, Lintner methodology, Miller and Scholes methodology, Black-Jensen- Scholes methodology.*
JEL Code: *G11, G12*

I. Introduction

The Capital Asset Pricing Model (CAPM) is a cornerstone of modern financial theory and serves as a fundamental framework for understanding the relationship between risk and return in financial markets. Developed in the 1960s by Jack Treynor, William Sharpe, John Lintner, and Jan Mossin, CAPM extends Harry Markowitz's portfolio theory (1959) and provides a robust methodology for asset pricing and investment decision-making. At its core, CAPM posits that the expected return of an asset is directly proportional to its systematic risk, measured by its beta coefficient relative to the overall market. This beta represents the asset's sensitivity to market movements and is a critical component in the model's equation: $E(r_i) = r_f + [E(r_m) - r_f]\beta_i$, where $E(R_i)$ is expected return on asset i, R_f is the risk-free rate, β_i is the beta of the asset, and $E(R_m)$ is the expected return of the market portfolio. CAPM's elegance lies in its simplicity and its ability to provide a clear, linear relationship between risk and return, making it an indispensable tool for investors and financial analysts. The practical applications of CAPM are vast, ranging from portfolio management and capital budgeting to performance evaluation and regulatory assessments. By quantifying the risk-return trade-off, CAPM helps investors make informed decisions about which assets to include in their portfolios to maximize expected returns for a given level of risk. Furthermore, it aids in determining the cost of equity capital, which is crucial for corporate finance decisions and valuation models. Despite its widespread use, CAPM is not without criticisms. Empirical studies have highlighted various anomalies and market inefficiencies that CAPM fails to account for, such as the size and value effects, which suggest that other factors may influence asset returns beyond market risk. These limitations have led to the development of alternative models, like the Fama-French three-factor model, which incorporates additional risk factors to better explain asset prices. Nevertheless, CAPM remains a foundational concept in finance education and practice. Its assumptions, while simplified, provide a starting point for understanding more complex market dynamics. The model assumes markets are efficient, investors are rational, and there are no transaction costs or taxes—all idealized conditions that do not always hold in the real world. Yet, these assumptions facilitate the derivation of the CAPM and its straightforward application, making it a valuable heuristic tool. For

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academics and practitioners alike, CAPM offers a benchmark for evaluating investment strategies and understanding the underlying mechanics of risk and return in financial markets. The most often used asset pricing model is the Capital Asset Pricing Model (CAPM), yet numerous research have been done to determine whether or not the CAPM is applicable, and the majority of these studies are limited to the US stock market and developed economies. Renowned researcher J. French and American economist Eugene F. Fama, who received the Nobel Prize in economics, conducted the significant empirical analysis of the CAPM. According to Fama and French (2004), the CAPM was an empirical failure. Systematic risk and stock return were determined to have a positive and significant link by Black et al. in 1972. Using data from the NYSE, AMEX, and NASDAQ for the years 1963 to 1991, Fama and French (1993) performed research and discovered that the CAPM was unable to fully explain the variations in stock returns. The applicability of the CAPM in India remains a debated topic, with limited literature and no consensus on its relevance in the Indian stock market. Many past studies are considered not updated with reference to various changes, which have contributed to systematic risks. These changes many include the Goods and Services Tax Act (2017), the formation of a non-coalition government in 2014, 19, and the COVID-19 pandemic, etc. Therefore, the very aim of the study is to enrich the finance literature (in Indian context) on the empirical evidences of the CAPM during and post COVID-19 from January 2020 to June 2024. The findings can aid Indian fund and portfolio managers in evaluating the cost of equity and portfolio valuation on the S&P BSE Sensex. Additionally, the study aims to offer insights into the efficiency of the Indian stock market, potentially guiding government agencies like SEBI in enhancing market efficiency.

I. Review of Literature

Barua et al. (1994) noted that research on the Indian capital market, especially concerning asset pricing theories like the CAPM, arbitrage pricing theory, and option pricing theories, is either very limited or nonexistent. Among the available literature, studies by Suraj et al. (2020), Srinivasan (1988), Yalwar (1988), Varma (1988), Kothari and Shanken (1995), Choudhary and Choudhary (2010), Taneja (2010), Paul (2013), Bajpai & Sharma (2015), Paul and Asarebea (2013), Rabha and Singh (2022) have provided evidence supporting the CAPM. In contrast, research by Gupta (1981), Gupta and Sehgal (1993), Obaidullah (1994), Ray (1994), Madhusoodanan (1997), Sehgal (1997), Mohamed and Abirami (2004), Dhankar and Singh (2005), Diwani (2010), Basu and Chawla (2010), Majumder (2012), Aziz and Ansari (2014), Agarwal and Mangla (2014), Kumar and Pathak (2015), Reddy and Durga (2015), Sobti (2016), Ratra (2016), Sen (2016), Hussain and Islam (2017), Shrivastav (2017), Aniruddh and Ravinder (2021), Gupta and Ruchi (2022), Choudhary et al. (2022), Sehgal and Sagar (2022), Kumar et al. (2023) have produced results that challenge the CAPM. Additionally, some studies, such as Lazar and Yaseer (2009), have shown mixed results. Ansari (2000) found that no definitive conclusions could be drawn for or against the CAPM.

II. Research Design and Methods

Model Specification

The Sharpe (1964) and Lintner (1965) version of the CAPM is given in equation (1).

$$E(r_i) = r_f + [E(r_m) - r_f]\beta_i \quad \ldots (1)$$

where $E(R_i)$ is the expected return of an asset i, R_f represents the rate of return of a risk-free, $E(R_m)$ is the expected return of a market portfolio (typically proxied by an index of a stock exchange), and β_i is a measure of the systematic risk. The expression $E(r_m) - r_f$ represents market risk-premium. If β_i is an explanatory variable and $E(R_i)$ a dependent variable, then this is called security market line. However, the above equation cannot be used as it is because of the non-availability of the data in their expected form, therefore, past data used to test or use the CAPM practically. Thus, the equation of the CAPM for practical purpose is

$$r_i = r_f + (r_m - r_f)\beta_i \quad \ldots (2)$$

Data Collection and calculation

The study covers the total period from January 2020 to June 2024 (i.e., 53 months), with a division into two sub-periods: a) January 2020 to April 2023, encompassing the COVID-19 pandemic, and b) May 2023 to June 2024, representing the post-pandemic period. These sub-periods are delineated based on the nearest date of the start of the pandemic and end date (5 May 2023) of the pandemic as declared by the World Health Organization. Additionally, the monthly adjusted closing prices used to compute log returns (as outlined in equation (3a)) for the stocks under investigation, as well as the data for NIFTY 50 required to calculate market returns (as outlined in equation (3b)), have been sourced from

Prowess database.

$$r_{it} = ln\ ln\left(\frac{P_t}{P_{t-1}}\right) \times 100 \qquad \ldots (3a)$$

$$r_{it} = ln\ ln\left(\frac{NIFTY_t}{NIFTY_{t-1}}\right) \times 100 \qquad \ldots (3b)$$

Where, ln (.) is natural log, P_t is closing adjusted price at time P_{t-1} is closing adjusted price at time $t-1$, and r_{it} is the log return of an asset i at time t. Further, another component of the CAPM is risk-free rate of return. The literature shows that risk-free rates may be proxied by 91- day T bill yield, Government bonds yields, etc. However, the most acceptable risk-free rate is 91-T-bill yield. In the study, 91-day T bill yield as risk-free rate has been obtained from the data library for Indian Market, Indian Institute of Management, Ahmedabad.

Diagnose of regression assumptions

Normality of the residuals was assessed using the Chi-square test. If the resulting p-value of the test exceeds the significance level 5 percent, the variable is considered normally distributed. Table 1 (corresponding Figure 1) and Table 2 (corresponding Figure 2) show the results of the normality test for COVID and Post-COVID periods respectively.

Table - 1 : Chi-Square Test for Normality (Covid)

Null hypothesis: Residuals are normally distributed.
Test statistic: Chi-square (2) = 3.160 with p-value = 0.2059 > 0.05
Conclusion: There is evidence of the normality of the residuals because the p-value exceeds 5 percent.

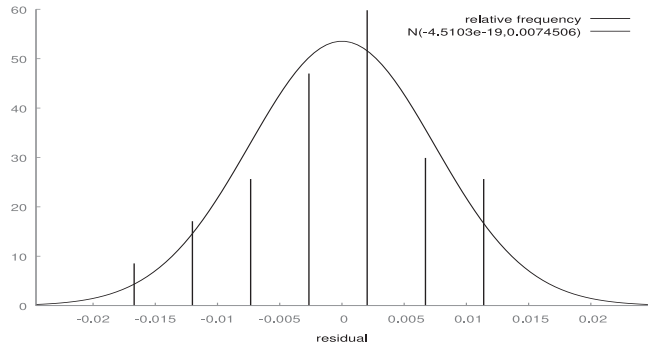


Figure - 1: Impulses versus Normal Distribution
Source: Author's calculation

Table - 2 : Chi-Square Test for Normality (Post-COVID)

Null hypothesis: Residuals are normally distributed.
Test statistic: Chi-square (2) = 1.282 with p-value = 0.52675 > 0.05
Conclusion: There is evidence of the normality of the residuals because the p-value exceeds 5 percent.

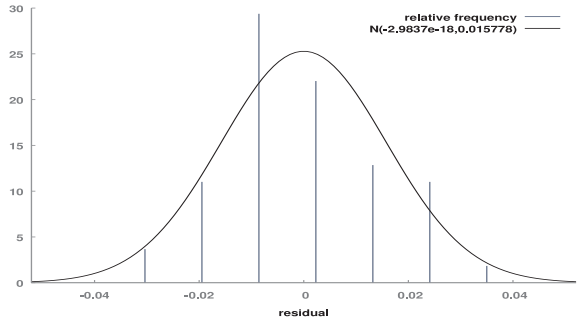


Figure - 2: Impulses versus Normal Distribution
Source: Author's calculation

Heteroscedasticity was verified using Breusch-Pagan Test (BP) test. Tables 3 and 4 show the test results for COVID and Post-COVID periods respectively.

Table 3: BP Test (COVID)

Null hypothesis: Heteroskedasticity not present
Test statistic: LM = 3.24926 with p-value = P(Chi-square(2) > 3.24926) = 0.196984
Conclusion: No evidence to assume heteroskedasticity because the p-value exceeds 5 percent.

Source: Author's calculation

Table 4: BP Test (Post-COVID)

Null hypothesis: Heteroskedasticity not present
Test statistic: LM = 1.465104 with p-value = P(Chi-square(2) > 1.465104) = 0.480681
Conclusion: No evidence to assume heteroskedasticity because the p-value exceeds 5 percent.

Source: Author's calculation

Multicollinearity was verified using the Belsley-Kuh-Welsch (BKW) test. According to BKW, condition index (cond.) ≥ 30 indicates "strong" near linear dependence, and cond. between 10 and 30 "moderately strong". Based on this test, no evidence of excessive collinearity is observed in the present data. Tables 5 and 6 show the test results during COVID and Post-COVID periods respectively.

Table - 5: BKW Test (COVID)

lambda	cond	const	Beta	Variance
2.672	1.000	0.026	0.022	0.035
0.219	3.497	0.301	0.038	0.856
0.110	4.929	0.673	0.940	0.109
Conclusion: No evidence of excessive collinearity is observed in the present data.				

Source: Author's calculation

Table - 6: BKW Test (Post-COVID)

lambda	cond.	const.	Beta	Variance
2.718	1.000	0.012	0.019	0.027
0.223	3.494	0.006	0.275	0.608
0.059	6.765	0.982	0.706	0.365
Conclusion: No evidence of excessive collinearity is observed in the present data.				

Source: Author's calculation

Lintner (1965) Test for the CAPM

Lintner test is based on the first-pass regression (time-series regression) and the second-pass regression (cross-section regression). Let, there are *n* assets and their returns are obtained for T units of time (e.g., months in the present study). Further, we have the returns on a market index (e.g., proxied by the NIFTY 50 in the present study) over the same time period. After that the first-pass regression is run based on the following equation:

$$r_{it} = \alpha_i + \beta_i r_{mt} + u_{it} \quad \ldots (4)$$

Where r_{it} is the return of a security *i* at a time *t* such that i = 1,2, 3, . . ., *n* and *t* = 1, 2, 3…, T r_{mt} denotes the return on the market portfolio, and u_{it} is the residual error. Furthermore, there are equal number of regressions as securities. Therefore, equation (4) is run for *n* = 50 times to obtain the estimates of β_i and variance of residuals $\sigma^2(u_i)$.These estimates are used in equation (5) as explanatory variables. Thereafter, the following cross-sectional (or second-pass regression) is run

$$\underline{r_i} = \gamma_1 + \gamma_2\beta_i + \gamma_3\sigma^2(u_i) + e_i \quad \ldots (5)$$

where

$$\underline{r_i} = \frac{1}{T}\left(\sum_{t=1}^{T} r_{it}\right) \ldots\ldots (6)$$

where γ_1 is the intercept, γ_2 and γ_3 are the coefficients of b_i and $\sigma^2(u_i)$. To test the CAPM following null hypothesis is tested: $\sigma^2(u_i) = 0$.Apart, if the CAPM is valid, then γ_1 should be statistically equal to the risk-free return, r_f, and γ_2 should be statistically equal to the market-risk premium. Thus, if the CAPM holds, then

$$\gamma_1 = r_f \; ; \; \gamma_2 = market\ premium = r_m - r_f \ and \ \gamma_3 = 0$$

III. Results and Discussion

Lintner Test findings

The first-pass regression results are summarized in Table 7. The second pass regression was performed using the values of these betas.

Table -7: The First-Pass Regression (COVID Period)

Stocks	$\underline{r_i}$	β_i	$\sigma^2(u_i)$
Adani Enterprises Ltd.	0.0556	1.6256	0.0334
Adani Ports & Special Economic Zone Ltd.	0.0155	1.2219	0.0065
Apollo Hospitals Enterprise Ltd.	0.0285	1.0973	0.0116
Asian Paints Ltd.	0.0122	0.5677	0.0051
Axis Bank Ltd.	0.0033	1.7554	0.0047
Bajaj Auto Ltd.	0.0083	1.1060	0.0040
Bajaj Finance Ltd.	0.0099	2.1354	0.0085
Bajaj Finserv Ltd.	0.0092	2.1743	0.0086
Bharat Petroleum Corpn. Ltd.	-0.0080	1.1328	0.0026
Bharti Airtel Ltd.	0.0145	0.5778	0.0043
Britannia Industries Ltd.	0.0102	0.4913	0.0035
Cipla Ltd.	0.0160	0.3848	0.0057
Coal India Ltd.	0.0024	0.8218	0.0065
Divi'S Laboratories Ltd.	0.0143	0.4938	0.0070
Dr. Reddy'S Laboratories Ltd.	0.0135	0.1469	0.0061
Eicher Motors Ltd.	0.0096	0.8510	0.0056
Grasim Industries Ltd.	0.0210	1.0602	0.0051
HCL Technologies Ltd.	0.0157	0.8850	0.0058
HDFC Bank Ltd.	0.0071	1.1081	0.0014
HDFC Life Insurance Co. Ltd.	-0.0042	0.8532	0.0028
Hero Moto Corp Ltd.	0.0012	0.9515	0.0059
Hindalco Industries Ltd.	0.0175	1.9563	0.0093
Hindustan Unilever Ltd.	0.0061	0.0915	0.0043
ICICI Bank Ltd.	0.0133	1.4139	0.0030
ITC Ltd.	0.0146	0.5998	0.0035
IndusInd Bank Ltd.	-0.0067	3.0959	0.0121
Infosys Ltd.	0.0135	0.7237	0.0050
JS W Steel Ltd.	0.0247	1.4462	0.0107
Kotak Mahindra Bank Ltd.	0.0035	0.9367	0.0036
Larsen & Toubro Ltd.	0.0150	1.1968	0.0022
LTI Mindtree Ltd.	0.0232	1.0340	0.0076
Mahindra & Mahindra Ltd.	0.0209	1.4087	0.0066
Maruti Suzuki India Ltd.	0.0038	1.0186	0.0042
NTPC Ltd.	0.0092	0.7957	0.0049
Nestle India Ltd.	0.0097	0.2262	0.0022
Oil & Natural Gas Corpn. Ltd.	0.0053	1.0675	0.0071
Power Grid Corpn. Of India Ltd.	0.0127	0.5400	0.0023
Reliance Industries Ltd.	0.0120	0.9213	0.0041
SBI Life Insurance Co. Ltd.	0.0043	1.0839	0.0027
Shriram Finance Ltd.	0.0039	1.5824	0.0136
State Bank of India	0.0137	1.4229	0.0067
Sun Pharmaceutical Inds. Ltd.	0.0206	0.6831	0.0041
Tata Consultancy Services Ltd.	0.0100	0.5074	0.0029
Tata Consumer Products Ltd.	0.0216	0.8544	0.0041
Tata Motors Ltd.	0.0241	1.9200	0.0162
Tata Steel Ltd.	0.0207	1.5073	0.0094
Tech Mahindra Ltd.	0.0074	0.9243	0.0063
Titan Company Ltd.	0.0200	1.0368	0.0040
Ultratech Cement Ltd.	0.0156	0.8601	0.0031
Wipro Ltd.	0.0112	0.5530	0.0068

Source: Author's calculation

After obtaining the results of the first pass regression, the verification of the regression model assumptions has been conducted to ensure that the estimates are the best linear unbiased estimator (BLUE). The second pass regression results are shown in Table-8.

Table-8: Cross Sectional Regression

Regression Statistics

R Square	0.469678
Adjusted R Square	0.447111
Standard Error	0.007451
Observations	50

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	0.002311	0.001155	20.81268	3.36E-07
Residual	47	0.002609	5.55E-05		
Total	49	0.00492			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
γ_1	0.009266	0.0023	4.028429	0.000204
β_i	-0.00629	0.002133	-2.94806	0.004967
$\sigma^2(u_i)$	1.563016	0.242293	6.450921	0.000000

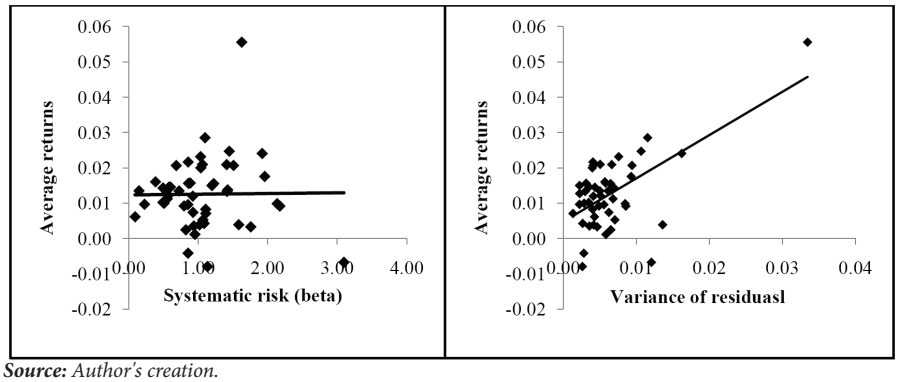
Source: Author's calculation

Thus, the cross-section regression is

$$\underline{r_i} = 0.009266 - 0.00629\beta_i + 1.563016\sigma^2(u_i)$$

From the above regression, the concerning finding is the presence of a negative relationship between the average return and systematic risk. With a p-value of 0.004967, which is below the significance level of 0.05, it is evident that systematic risk significantly impacts average return, but in a negative direction. Consequently, a higher beta corresponds to lower average returns. This relationship is depicted in the left part of Figure 3. There is a positive and significant relationship between the average return and the variance of residuals, as evidenced by a p-value of 0.000, which is below the 0.05 significance level. This indicates that the variance of the residuals is a significant explanatory variable for the average returns. This relationship is illustrated in the right part of Figure 3. Given that the p-value corresponding to the F-statistic is less than the significance level of 0.05, the R-squared value of 0.469678 is statistically significant. Consequently, the systematic risk and the variance of residuals significantly account for the variation in average returns. The intercept term is 0.009266, whereas the actual average yield on 91-day Treasury bills, serving as the risk-free rate during the period, is 0.0035 with a standard deviation of 0.001006. Consequently, the CAPM underestimates the risk-free rate. The model estimates the market premium at 0.00629, while the actual average market premium on the NIFTY 50 is calculated to be 0.0064. This indicates that the model predicts the market return quite good.

Figure -3 : Relationship Between Average Returns And Beta & Variance Of Residuals



Source: *Author's creation.*

Table 9 presents the first-pass regression results run over the post COVID period.

Table 9: The First-Pass Regression (Post COVID Period)

Stocks	$\underline{r_i}$	β_i	$\sigma^2(u_i)$
Adani Enterprises Ltd.	0.0358	0.7349	0.0091
Adani Ports & Special Economic Zone Ltd.	0.0553	0.9438	0.0040
Apollo Hospitals Enterprise Ltd.	0.0225	1.3041	0.0030
Asian Paints Ltd.	0.0004	1.2792	0.0022
Axis Bank Ltd.	0.0276	0.9002	0.0021
Bajaj Auto Ltd.	0.0545	0.8721	0.0030
Bajaj Finance Ltd.	0.0089	0.7359	0.0034
Bajaj Finserv Ltd.	0.0114	0.8432	0.0013
Bharat Petroleum Corpn. Ltd.	0.0379	0.6620	0.0065
Bharti Airtel Ltd.	0.0422	0.4763	0.0024
Britannia Industries Ltd.	0.0132	1.2686	0.0018
Cipla Ltd.	0.0349	-0.0898	0.0031
Coal India Ltd.	0.0506	-0.1447	0.0054
Divi'S Laboratories Ltd.	0.0244	1.1952	0.0035
Dr. Reddy'S Laboratories Ltd.	0.0187	0.9642	0.0037
Eicher Motors Ltd.	0.0248	0.8564	0.0047
Grasim Industries Ltd.	0.0317	1.2421	0.0011
HCL Technologies Ltd.	0.0226	0.6201	0.0042
HDFC Bank Ltd.	-0.0002	1.4963	0.0025
HDFC Life Insurance Co. Ltd.	0.0083	0.9003	0.0050
Hero MotoCorp Ltd.	0.0557	1.3552	0.0043
Hindalco Industries Ltd.	0.0331	1.4698	0.0066
Hindustan Unilever Ltd.	0.0005	0.6460	0.0017
ICICI Bank Ltd.	0.0191	0.8846	0.0007
ITC Ltd.	-0.0001	0.8755	0.0012
IndusInd Bank Ltd.	0.0171	0.8386	0.0017
Infosys Ltd.	0.0160	0.8177	0.0028
JS W Steel Ltd.	0.0179	1.5186	0.0016
Kotak Mahindra Bank Ltd.	-0.0052	0.8803	0.0027
Larsen & Toubro Ltd.	0.0290	0.8661	0.0036
LTI Mindtree Ltd.	0.0141	1.6007	0.0048
Mahindra & Mahindra Ltd.	0.0606	0.8080	0.0048
Maruti Suzuki India Ltd.	0.0241	-0.1247	0.0024
NTPC Ltd.	0.0563	1.5096	0.0018
Nestle India Ltd.	0.0114	0.7846	0.0020
Oil & Natural Gas Corpn. Ltd.	0.0389	0.4787	0.0044
Power Grid Corpn. Of India Ltd.	0.0443	0.9932	0.0023
Reliance Industries Ltd.	0.0184	1.0473	0.0012
SBI Life Insurance Co. Ltd.	0.0192	0.3306	0.0022
Shriram Finance Ltd.	0.0558	1.2143	0.0071
State Bank of India	0.0274	1.1389	0.0036
Sun Pharmaceutical Inds. Ltd.	0.0308	0.9187	0.0035
Tata Consultancy Services Ltd.	0.0138	1.0514	0.0010
Tata Consumer Products Ltd.	0.0259	1.0401	0.0020
Tata Motors Ltd.	0.0510	1.4204	0.0026
Tata Steel Ltd.	0.0341	1.1343	0.0016
Tech Mahindra Ltd.	0.0239	1.0184	0.0027
Titan Company Ltd.	0.0181	0.8151	0.0022
Ultratech Cement Ltd.	0.0310	1.5653	0.0015
Wipro Ltd.	0.0208	1.7063	0.0026

Source: Author's calculation

Table 10: Cross-Sectional Regression

Regression Statistics	
R Square	0.15079
Adjusted R Square	0.114653
Standard Error	0.015778
Observations	50

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	0.002078	0.001039	4.172779	0.021471
Residual	47	0.0117	0.000249		
Total	49	0.013778			

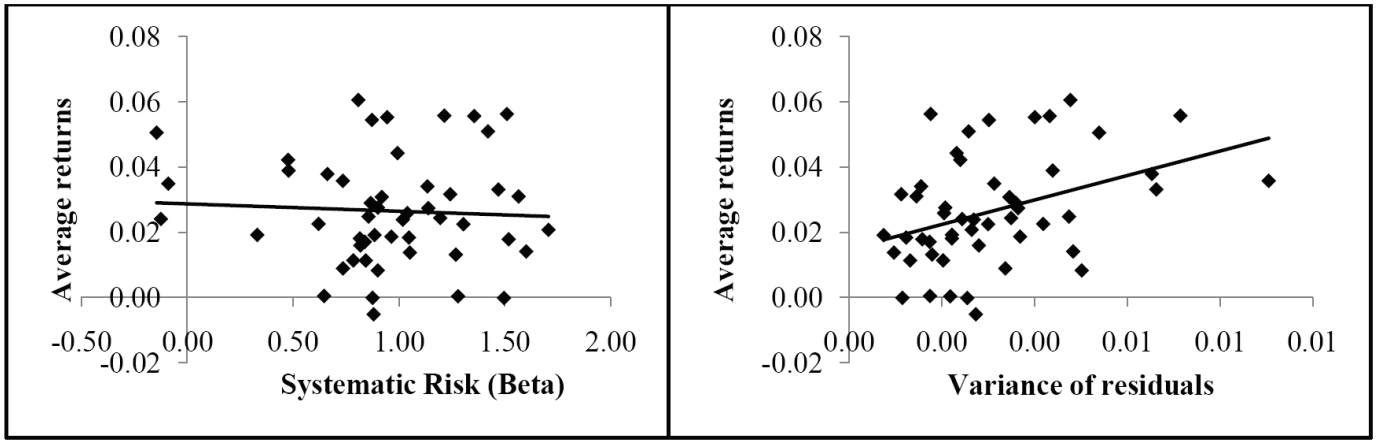
	Coefficients	*Standard Error*	*t Stat*	*P-value*
γ_1	0.01527	0.007351	2.07721	0.043272
β_i	-0.00036	0.005481	-0.06589	0.947744
$\sigma^2(u_i)$	3.742377	1.309098	2.858744	0.006322

Thus, the cross-section regression is

$$\underline{r_i} = 0.01527 - 0.00036\beta_i + 3.742377\sigma^2(u_i)$$

From the above regression, the concerning finding is again the presence of a negative relationship (in post COVID period) between the average return and systematic risk. With a p-value of 0.947744, which is higher than the significance level of 0.05, it is evident that systematic risk does not significantly impact the average returns, but whatever insignificant effect is, then it is in a negative direction. Consequently, a higher beta corresponds to lower average returns. This relationship is depicted in the left part of Figure 4. There is a positive and significant relationship between the average return and the variance of residuals, as evidenced by a p-value of 0.006322, which is below the 0.05 significance level. This indicates that the variance of the residuals is a significant explanatory variable for the average returns. This relationship is illustrated in the right part of Figure 4. Given that the p-value corresponding to the F-statistic is less than the significance level of 0.05, the R-squared value of 0.15079 is statistically significant. Consequently, the systematic risk and the variance of residuals significantly account for the variation in average returns. However, the explanatory power of the CAPM has fallen in the post COVID period as compared to the COVID period. The intercept term is 0.01527, whereas the actual average yield on 91-day Treasury bills, serving as the risk-free rate during the period, is 0.00055 with a standard deviation of 0.000329. Consequently, the CAPM massively underestimates the risk-free rate. The model estimates the market premium at 0.00036, while the actual average market premium on the NIFTY 50 is calculated to be 0.0149. This indicates that the model massively undervalues the market return also.

Figure -4 : Relationship Between Average Returns And Beta & Variance Of Residuals



Source: *Author's creation.*

IV. Conclusion

Based on the analysis of the two subperiods, it is evident that the CAPM model exhibits distinct behaviors during the COVID-19 period and the post-COVID period. The regression results for the COVID-19 period reveal a significant negative relationship between average return and systematic risk. This indicates that, contrary to CAPM's assumptions, higher beta values correspond to lower average returns during this period. Additionally, there is a significant positive relationship between average return and the variance of residuals. The explanatory power of the model, reflected by an R-squared value of 0.469678, suggests that both systematic risk and the variance of residuals significantly account for variations in average returns during the COVID-19 period. The cross-regression results for the post-COVID period also indicate a negative relationship between average return and systematic risk, but this relationship is statistically insignificant. This suggests that systematic risk does not significantly impact average returns in the post-COVID period. However, the positive relationship between average return and the variance of residuals remains significant. The explanatory power of the model decreases substantially in the post-COVID period, as evidenced by a lower R-squared value of 0.15079. This reduction in explanatory power indicates that the CAPM's ability to account for variations in average returns has diminished in the post-COVID period compared to the COVID-19 period. The intercept terms for both periods highlight the CAPM's underestimation of the risk-free rate and market return. However, the model estimates the market premium quite good during the COVID period, but fails badly post COVID.

In conclusion, the empirical evidence from the two subperiods challenges the validity of the CAPM model in the context of the NIFTY. During the COVID-19 period, systematic risk negatively impacts average returns, contrary to the CAPM's predictions, and the model underestimates both the risk-free rate and market return. In the post-COVID period, systematic risk becomes insignificant in explaining average returns, and the model's explanatory power diminishes. These findings suggest that the CAPM model may not adequately capture the dynamics of the Indian stock market during periods of significant economic disruption and recovery, necessitating a reconsideration of its applicability and potential modifications to better reflect market realities.

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DOES INFRASTRUCTURE DETERMINE SOCIO-ECONOMIC DEVELOPMENT IN INDIA? AN EVALUATION THROUGH COMPOSITE INDEX AND REGRESSION APPROACH

Harshit Kumar Srivastava* Vijay Lakshmi SinghSanjay Kumar Singh*****

Purpose: *This study aims to analyse the significance of social and economic infrastructure in the socio-economic development of India. It also aims to find the states and regions lagging in terms of infrastructure and socio-economic development.*

Design/Methodology/Approach: *Composite index of social and economic infrastructure and socio-economic development has been constructed from various indicators for twenty-eight states of India to analyse in detail the level of infrastructure and socio-economic development of the country. Moreover, the study also uses regression analysis to estimate the relationship of socio-economic development with social and economic infrastructure.*

Findings: *We find that the availability of infrastructure is evidently inadequate, thus adversely affecting the country's growing developmental needs. We observed a strong relationship of socio-economic development with the availability of social and economic infrastructure, especially economic infrastructure, across the states and regions. The strategy of pacing socio-economic development via investment in infrastructure, both social and economic infrastructure, is recommended.*

Originality/Value: *This study estimates composite index of social and economic infrastructure and socio-economic development for twenty-eight states of India. Using these data, regression analysis is done to estimate the relationship of socio-economic development with social and economic infrastructure. We observed a strong relationship of socio-economic development with the availability of social and economic infrastructure, notably economic infrastructure.*

Keywords : *Socio-economic development, social infrastructure, economic infrastructure, composite index, regional analysis, India.*
JEL Code: *O1, O2, I15, I25*

I. Introduction

India is now the most populous country of the world with 1428.6 million people (UNFPA 2023). Despite being the fifth largest economy, it is still a developing country, and on the lower ladder of socio-economic development; inadequacy of infrastructure is one of the important reasons for this. (Kumari & Sharma, 2017; Kumar & Singh, 2022; Rosario, 2020; Singh & Singh 2007). The gigantic population of the country necessitates the adequacy of infrastructure for inclusive socio-economic development by unfolding the enormous opportunities existing in the form of demographic dividend (James, 2008; Sehrawat & Singh, 2019).

Infrastructure is the set of basic facilities required to enable socio-economic activities. It includes social infrastructure, consisting of education and health; and economic infrastructure, comprising transport, electricity, telecommunication, irrigation, banking, among others. Particularly in social infrastructure, quality of education and health facilities decides the long-term fate of a country, as it affects economic productivity as well as the overall development (Ghosh & De, 2004). India is a young country, with more than half of its population below the age of 30 years (NFHS, 2022), however, to realize the demographic dividend, availability of social infrastructure will be of paramount importance. Also, economic infrastructure is a prerequisite for the efficient functioning of the economy. Further, both social and economic infrastructure, on one hand, contribute directly to the socio-economic development by improving the people's quality of life, and on the other hand, they facilitate the functioning of other sectors; hence, social and economic infrastructural inadequacies may have detrimental impact on the overall performance of the economy (Kumari & Sharma, 2017). Therefore, investment in infrastructure is often seen as a key strategy to provide impetus to economic activities and achieving the higher trajectory of economic growth (Agénor, 2010). In this regard, Government of India has started the national infrastructure pipeline (NIP) project,

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under which over one trillion dollars is planned to be invested in infrastructure to achieve the mark of five trillion-dollar economy by 2025-26 (Economic Survey, 2022).

I. Review of Literature

This study is largely based on the 2020-21 data of the twenty-eight states of India, that are divided into six regions for the purpose of analysis. The states of India have been grouped into six regions on the basis of historical, geographical, political and cultural conditions. The regions are the Northern, the Central, the Western, the Eastern, the Southern, and the Northeastern region. Major data sources include the Economic Survey 2022-23 published by the Ministry of Finance, GOI; Handbook of Statistics on Indian States 2021-22 published by the Reserve Bank of India; Rural Health Statistics 2020-21 published by the Ministry of Health & Family Welfare, GOI; National Family Health Survey (NHFS-5) 2019-21 published by the Ministry of Family & Health Welfare, GOI; National Health Profile 2021 published by the Ministry of Family & Health Welfare, GOI; Unified District Information System for Education Plus (UDISE+) 2020-21 published by the Department of School Education and Literacy, Ministry of Education, GOI; All India Survey for Higher Education (AISHE) 2021 published by the Department of Higher Education, Ministry of Education, GOI; All India Electricity Statistics (General Review 2022) published by the Central Electricity Authority, Ministry of Power, GOI; Basic Road Statistics of India 2018-19 published by the Transport Research Wing, Ministry of Road Transport & Highways, GOI; and National Multidimensional Poverty Index - A Progress Review 2023 published by the NITI Aayog, GOI.

II. Data and Methods

For the purpose of this study, infrastructure is divided into social infrastructure and economic infrastructure. Social infrastructure comprises various indicators of health and education infrastructure. Health infrastructure is represented by indicators such as, total number of hospitals (both public and private) per lakh population, total number of beds in hospitals (both public and private) per lakh population, total number of doctors per lakh population, and ratio of number of primary health centers (PHCs) with operating toilets to the total number of PHCs. Education infrastructure comprises indicators such as, total number of schools (both public and private) per lakh population, pupil teacher ratio (PTR) in schools, ratio of number of schools with operating toilets to the total number of schools, total number of colleges per lakh of population, and pupil teacher ratio in colleges. Economic infrastructure is measured through various indicators such as, power infrastructure (amount of energy used per thousand sq. km. area (KWh) and transmission and distribution losses of power (in percentage)), transport infrastructure (length of national and state highways per thousand sq. km. of area), telecommunication infrastructure (number of mobile phones per hundred people (mobile-density)), and financial infrastructure (total number of scheduled commercial banks (SCBs) per lakh population). To measure the socio-economic development of states and regions of the country, infant mortality rate (IMR), literacy rate (in percentage), gross enrolment ratio (GER) in higher education, urbanization rate (in percentage), number of persons living below poverty line per hundred people, per capita net state domestic product at current prices, consumption of energy per lakh population (KWh), and total state goods and services taxes (SGST) collected per lakh population are the selected indicators. Indices for social infrastructure, economic infrastructure, and socio-economic development are derived from their selected indicators by first normalizing them using the attainment method through the following formula:

$$Yscaled = \frac{Ya - Ymin}{Ymax - Ymin}$$

where, *Ya* is the actual value of a particular indicator of a state, *Ymin* is the value of least scoring state on the same indicator, *Ymax* is the value of best performing state on the same indicator, and *Yscaled* is the normalized value, between 0 and 1, of that particular state on the same indicator.

The above formula is used to normalize each indicator for every state. Normalized value ranges from 0 to 1. Normalization of data is required as various indicators are having different units of measurement. For arriving at scores of composite indices for each state, indicator wise normalized data for each state has been added and divided by the total number of indicators (Srivastava et al. 2023). Composite Index of Social Infrastructure (CISI), Composite Index of Economic Infrastructure (CIEI), and Composite Index of Socio-Economic Development (CID) are constructed from a total number of nine, five, and eight indicators, respectively.

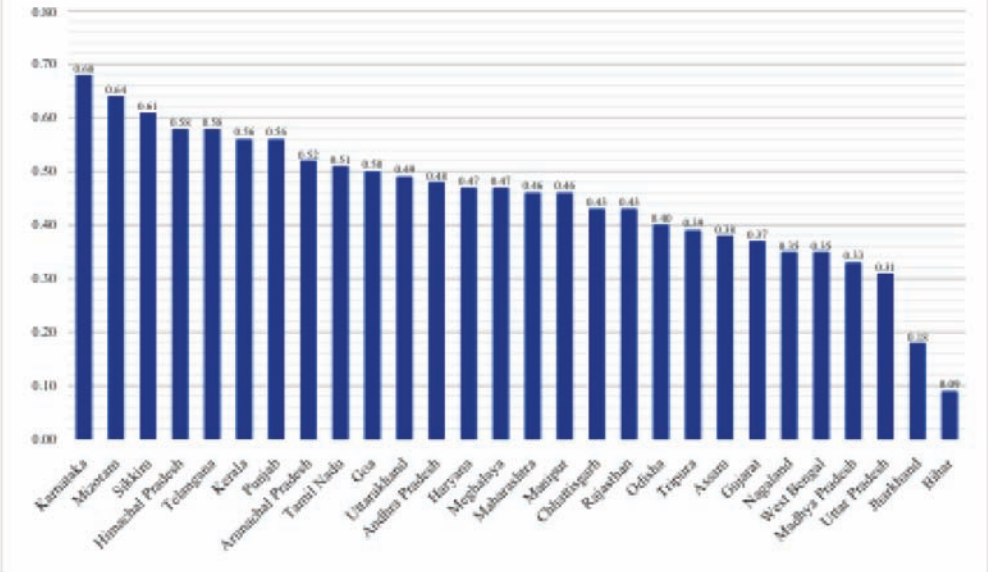
Further, Education Infrastructure Index (EII) and Health Infrastructure Index (HII) are also constructed for an in-depth analysis of social infrastructure across the states and regions.

III. Findings and Discussion

State-wise analysis:

Table 1 Figure 1 presents the composite index of social infrastructure measured on a vector of nine indicators for all the states of India. The figure clearly reveals that the availability of social infrastructure across states varies significantly (refer Figure 1), reflected by a CISI value ranging from 0.09 in Bihar to 0.68 in Karnataka, and with an average value of 0.43 and coefficient of variation (CoV) at 28.5%. There are sixteen states with higher than the average CISI value, and ten states with lower than the average CISI value. Rajasthan and Chhattisgarh are at the average position; Karnataka, Mizoram, and Sikkim are the top three states in terms of the availability of social infrastructure, whereas Bihar, Jharkhand and Uttar Pradesh are at the bottom; though, Uttar Pradesh (0.31) has far better social infrastructure than Jharkhand (0.18) and Bihar (0.09).

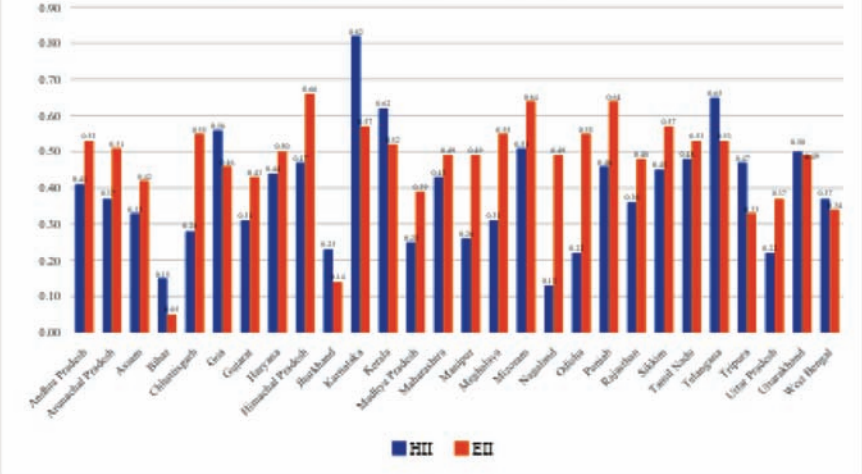
Figure 1: Composite Index of Social Infrastructure



Bihar is the most lagging state in social infrastructure, because it is at the bottom in the availability of education infrastructure as well as the second most lagging state in health infrastructure (refer Figure 2). This implies that Bihar needs to focus on improving both education and health infrastructure, possibly with more public-private partnership. Similarly, Jharkhand being the second most laggard state in social infrastructure, mainly because it is the second most lagging state in education infrastructure (0.14), though slightly better than Bihar (0.05), and among the bottom states in health infrastructure, also needs to focus on improving both education and health infrastructure, especially education infrastructure. It is observed that the education system in both Bihar and Jharkhand is in a dismal state; the student-teacher ratio in colleges as well as schools in Bihar (66 in colleges, 47 in schools) and Jharkhand (55 in colleges, 38 in schools) is the worst across all states in the country. Hence, these states urgently need to have more teachers in their colleges and schools. In fact, Jharkhand also faces acute shortage of doctors as number of doctors per lakh population in the state (17) is the lowest in the country. The states of Bihar, Uttar Pradesh and Chhattisgarh also face shortage of doctors as the number of doctors per lakh population is less than 40. Therefore, these states need to have more doctors to improve the health system in their states. On the other hand, Karnataka outperformed other states in social infrastructure, mainly due to its excellent health infrastructure, despite being at the fourth position in education infrastructure. Karnataka's policy of developing a robust healthcare system through increased private

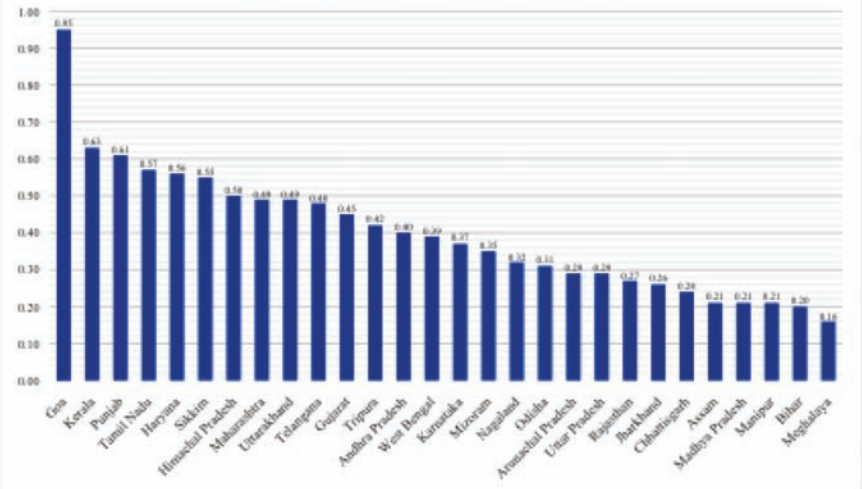
participation can be a model for other states, particularly the most lagging states, to follow. This will help to mitigate the problem of variability in health infrastructure across states of the country as variability across states in health infrastructure (CoV at 40%) is relatively higher as compared to education infrastructure (CoV at 29%).

Figure 2: Composite Health and Education Infrastructure Index



Economic infrastructure, measured in terms of the availability of power infrastructure, transport infrastructure, financial infrastructure, and telecommunication infrastructure, is very significant for pacing economic growth of any economy especially the developing ones (Singh 2022). Figure 3 presents the composite index of economic infrastructure for all the states of India. The figure clearly shows that the economic infrastructure across states varies significantly (refer Figure 3), reflected by a CIEI value ranging from 0.16 in Meghalaya to 0.95 in Goa, and with an average value of 0.40 and coefficient of variation (CoV) at 43.7%. There are twelve states with higher than the average CIEI value, and fifteen states with lower than the average CIEI value. Andhra Pradesh is at the average position; Goa, Kerala, Punjab, Tamil Nadu, and Haryana are at the top, whereas Meghalaya, Bihar, Manipur, Madhya Pradesh and Assam are at the bottom; though, the level of economic infrastructure is same for Assam, Madhya Pradesh and Manipur. It may be noted that the disparity in economic infrastructure across states (CoV at 43.7%) is significantly higher than that in social infrastructure (CoV at 28.5%), largely due to substantial difference in the level of economic infrastructure between Goa (0.95), the best performing state, and Kerala (0.63), the second-best performing state.

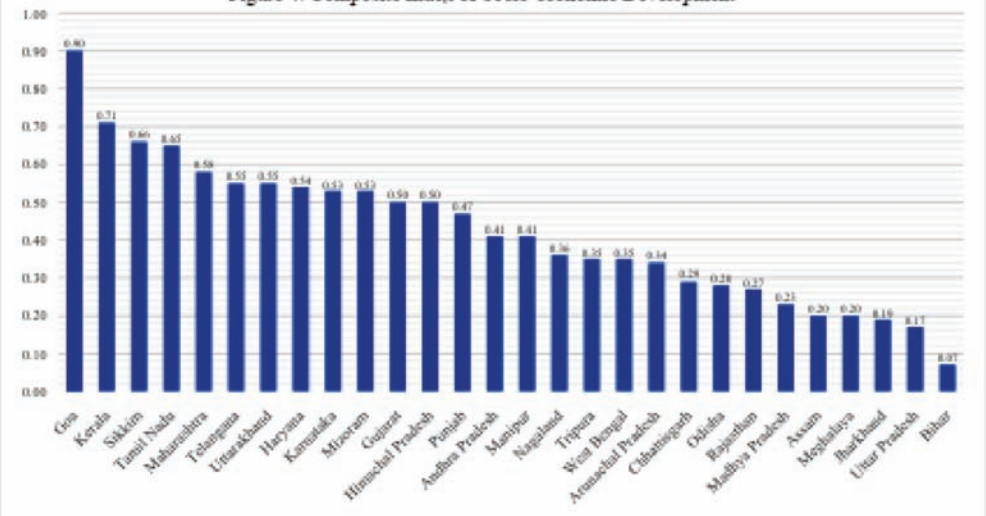
Figure 3: Composite Index of Economic Infrastructure



Bihar, Manipur, and Assam are witnessing an acute shortage of economic infrastructure in terms of availability of power, national and state highways, banking and telecommunication services (RBI 2022). For instance, there are only 6 scheduled commercial banks per lakh population in Bihar, 7 in Manipur, and 9 in Assam as compared to 43 in Goa, the best performing state. Also, mobile density, number of mobile phones per 100 people, in Bihar, Manipur, and Assam is 51.2, 74.4, and 68.9 respectively, which is far lower than that in Goa (170.4). Jharkhand, which was formed in the year 2000 after bifurcating Bihar, is also among the bottom states in economic infrastructure, due to its poor road infrastructure and low penetration of banking and telecommunication services. Among the bigger states, Madhya Pradesh, Assam, and Chhattisgarh also faced similar economic infrastructural bottlenecks. Meghalaya, the worst performing state in economic infrastructure, has poor network of highways (85.7 km per thousand sq. km. of area), banking services (11 scheduled commercial banks per lakh population), and telecommunication services (71.6 mobile phones per 100 people). On the other hand, all the indicators of economic infrastructure, such as the availability of power, national and state highways, banking and telecommunication services, in the top performing states, Goa, Kerala, Punjab, Tamil Nadu, and Haryana, are substantially ahead as compared to the laggard states. For example, mobile density has already surpassed the mark of 100 mobile phones per 100 people in these states; these states are also having more than 15 commercial banks per lakh population; highway density in these states, except Punjab, is more than 100 km. per thousand sq. km. area, in fact highway density in Goa and Kerala is above 150 km; as far as availability of power is concerned, all these states performed above average; in fact, power transmission and distribution losses are in the range of 10% to 20% for these states, unlike laggard states facing more than 25% of losses.

Socio-economic development level broadly depends on the availability and quality of social and economic infrastructure. Overall, India has a low level of socio-economic development measured by the levels of poverty, infant mortality, literacy, higher education, average income, power consumption, industrialization, and urbanization. Figure 4 presents the composite index of socio-economic development across the states of India. The figure clearly shows that the socio-economic development across states varies substantially, reflected by a CID value ranging from 0.07 in Bihar to 0.90 in Goa, and with an average value of 0.42 and coefficient of variation (CoV) at 45.4%. There are thirteen states with higher than the average CID value, and fifteen states with lower than the average CID value. Andhra Pradesh and Manipur are at the median with a CID value of 0.41; Goa, Kerala, Sikkim, and Tamil Nadu are the top performing states with a CID value of 0.65 or above, whereas, Bihar, Uttar Pradesh, Jharkhand, Meghalaya, and Assam are the worst performers having a CID value of 0.20 or below; though, the level of socio-economic development is almost same in Assam, Meghalaya and Jharkhand. It may be noted that the disparity in socio-economic development across states (CoV at 45.4%) is higher than the disparity in economic infrastructure (CoV at 43.7%) and social infrastructure (CoV at 28.5%), mainly due to significant difference in the level of socio-economic development between the best performing state, Goa (0.90), the second best performing state, Kerala (0.71), and the worst performing state, Bihar (0.07).

Figure 4: Composite Index of Socio-economic Development



The data clearly reveals that Bihar is in a dismal state of socio-economic development; it is the worst performing state with the highest poverty level and the lowest levels of average income, industrialization (measured as per capita SGST), per capita energy consumption, and GER in higher education. Bihar is also among the least performing states in literacy, IMR and urbanization. In general, most of the laggard states have poor indicators in almost all the parameters of socio-economic development. For example, all the five worst performing states in socio-economic development are among the bottom five states in average income, four of them are among the bottom five states in poverty level, and three of them are among the five least industrialized and urbanized states as well as having the lowest gross enrolment ratio in higher education. On the other hand, all the four top performing states, Goa, Kerala, Sikkim, and Tamil Nadu, have significantly better indicators on all the parameters of socio-economic development. These four states have the least poverty; two of these, Goa and Sikkim, are among the four states having the least infant mortality and highest per capita income; Goa, Kerala, and Tamil Nadu are among the four most urbanized states; and Tamil Nadu, Kerala, and Sikkim are among the top four states in terms of gross enrolment ratio in higher education.

Region-wise analysis:

Figure 5 presents the social infrastructure, economic infrastructure, and socio-economic development indices across the regions of the country. In terms of the availability of social infrastructure, there is a significant variation across regions, as CISI value varies from 0.26 in the eastern region to 0.56 in the southern region. Further, when we analyse the education and health infrastructure indices, we find acute shortage in the availability of health infrastructure in the eastern and the central regions, whereas, in the availability of education infrastructure, the eastern region not only lags the most, but also substantially behind the other regions (refer Figure 6). The southern and northern regions outplay other regions in the availability of health and education infrastructure; however, the southern region performs significantly better than the northern region in health infrastructure.

As is the case of social infrastructure, there is a significant variation across the regions in the availability of economic infrastructure, with CIEI value ranging from 0.25 in the central region to 0.63 in the western region. It is observed that the availability of economic infrastructure in northern and southern regions is same, with CIEI value of 0.49. The other regions, central, eastern, and north-eastern have relatively poor availability of economic infrastructure (refer Figure 5). As far as socio-economic development across regions is concerned, again there is a huge variation, in fact the highest, as CID value ranges from 0.22 in the eastern region to 0.66 in the western region. As figure 5 reveals, the central and the eastern regions are the most backward in socio-economic development, whereas, the western and southern regions are the most developed regions of the country. The differentials in the level of socio-economic development across regions is a cause of concern and a challenging issue to address.

Figure 5: Social infrastructure, Economic infrastructure, and Socio-economic development indices across regions

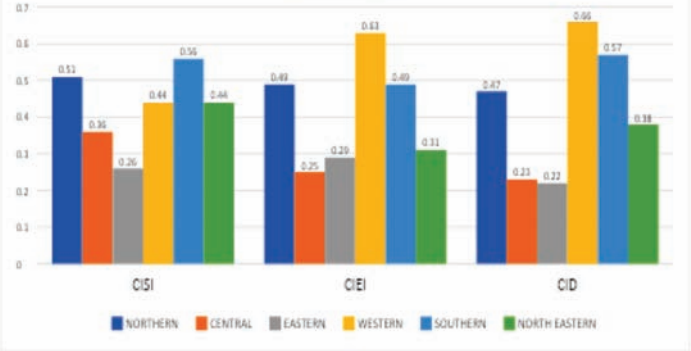
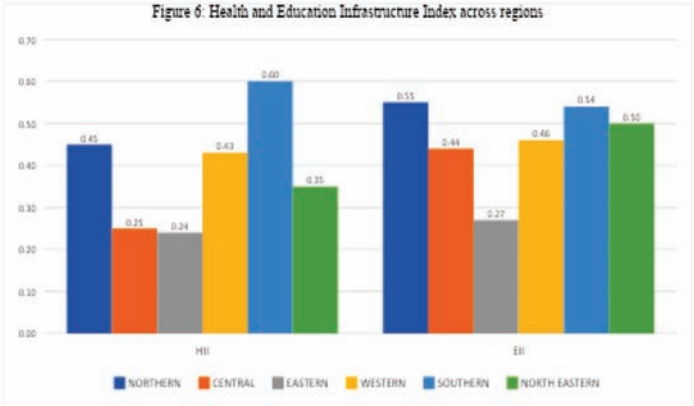


Figure 6: Health and Education Infrastructure Index across regions



Relationship between Infrastructure and Socio-economic Development:

As expected, both social as well as economic infrastructure are significant determinants of socio-economic development across the states in India (refer Figures 7 and 8). Socio-economic development (CID) is positively correlated with both social infrastructure (CISI) and economic infrastructure (CIEI). Correlation coefficient between CID and CISI is 0.71 with t-statistic of 5.13, and between CID and CIEI is 0.89 with t-statistic of 10.02. This shows that both the correlation coefficients are statistically significant at 1% level of significance. Consequently, there are major similarities in state rankings drawn from CID and CIEI vis-à-vis CID and CISI. There are six states, Goa, Kerala, Tamil Nadu, Gujarat, Arunachal Pradesh, and Assam, having identical ranking in CID and CIEI, unlike only one state, Bihar, in CID and CISI. It seems that there is a positive, though not very strong, relationship between social infrastructure and economic infrastructure; correlation coefficient between CISI and CIEI is just 0.52 with t-statistic of 3.10. As a result, there is a very little similarity in state rankings drawn from CIEI and CISI. For example, the best ranking state in economic infrastructure, Goa, is ninth ranked in terms of social infrastructure, whereas the best ranked state in social infrastructures, Karnataka, has fifteenth rank in economic infrastructure. Only one state, Odisha, has identical rank, i.e., eighteenth, in social infrastructure and economic infrastructure.

The study also uses regression analysis to estimate the relationship of socio-economic development with social and economic infrastructure. Table 1 presents the regression results of three different linear regression models. In Model 1, CID is regressed against CISI; in Model 2, CID is regressed against CIEI; and in Model 3, CID is regressed against both CISI and CIEI. In all the models, coefficient of independent variable(s), CISI and/or CIEI, are statistically significant at 1% level of significance. However, since Models 1 and 2 are nested in Model 3, we also performed F-test to identify the best model for the analysis. According to F-test, neither Model 1 nor Model 2 is statistically preferred over Model 3. F-test rejects the null hypothesis, at 1% level of significance, that the coefficient of CISI or CIEI in Model 3 is 0. Therefore, Model 3 is the best model to depict the relationship of socio-economic development with social and economic infrastructure across the states of India. According to the R2 value as well, Model 3 fits the data very well; as per this model, almost 88% variation in socio-economic development across Indian states can be explained by their social and economic infrastructure.

[1] 'A simple method to test the null hypothesis that the correlation coefficient is zero can be obtained using Student's t-test on the t-statistic , df = N-2; where r is correlation coefficient and N (= 28) is the number of observations. Hence, we can reject the null hypothesis that the correlation coefficient is zero at 1% level of significance since critical t-value is 2.78. Therefore, we can infer at 1% level of significance that the two series are correlated, and the non-zero correlation did not happen by chance.'

[2] 'F-test can be used to test the validity of restriction on coefficients. For example, whether coefficient $\beta = 0$ is valid or not can be tested using F-test. The F-test statistic is calculated as where is the value obtained from the unrestricted regression model, is the value obtained from the restricted regression model, r is the number of restrictions imposed, N is the number of observations and k is the number of parameters in the unrestricted regression model. This statistic follows F-distribution with r, N-k degrees of freedom. If calculated F value is greater than the tabulated one, we reject the null hypothesis of restriction on coefficients (Wooldridge 2010). In this case, when we compared Model 1 with Model 3, calculated F value is 76.84, and when we compared Model 2 with Model 3, calculated F value is 17.21. Since the tabulated F value for 1% level of significance with 1 degree of freedom in the numerator and 25 degrees of freedom in the denominator, $F_{1,\ 25;\ 0.01}$, is just 7.70, we reject the null hypothesis that the coefficient of CISI or CIEI in Model 3 is 0. Therefore, neither Model 1 nor Model 2 are statistically superior to Model 3'.

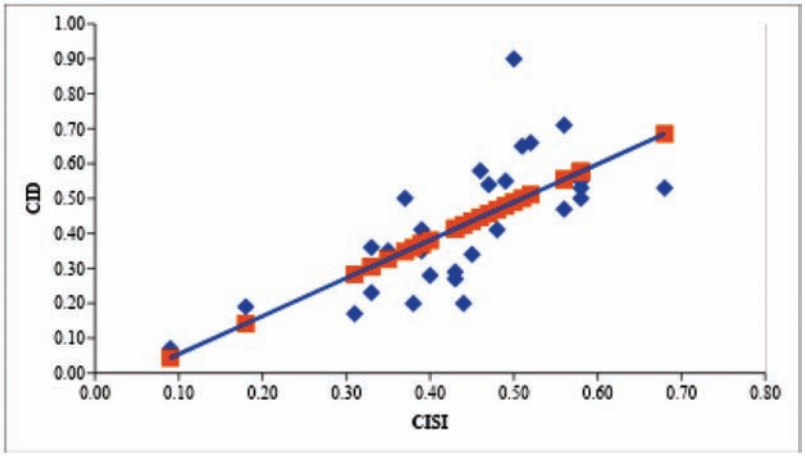


Figure 7: Relationship between Socio-economic Development (CID) and Social Infrastructure (CISI)

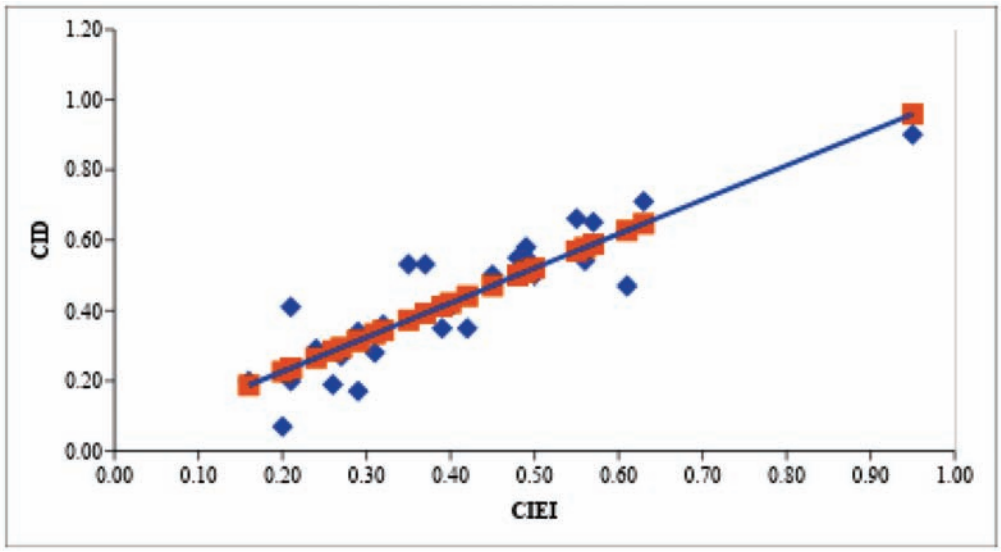


Figure 8. Relationship between Socio-economic Development (CID) and Economic Infrastructure (CIEI).

Table 1. Estimated Regression Equation (with SE in parentheses)

Model 1	CID = -0.055 + 1.088 CISI; (0.096) (0.212)	$R^2 = 0.503$
Model 2	CID = 0.031 + 0.977 CIEI; (0.731) (0.098)	$R^2 = 0.794$
Model 3	CID = -0.119 + 0.518 CISI + 0.785 CIEI; (0.049) (0.125) (0.090)	$R^2 = 0.878$

(source: Author's compilation)

Model 3 clearly shows that the coefficients of both CISI as well as CIEI are statistically significant. Moreover, estimated result reveals that economic infrastructure plays relatively a more important role than social infrastructure in determining the socio-economic development, as evident from the coefficient value of CIEI (0.785) and CISI (0.518). It is also observed that the states ranked higher in the availability of economic infrastructure have better levels of socio-economic development and vice versa. Moreover, the strong relationship between economic infrastructure and socio-economic development holds true for most of the regions as well. Hence, the policy of improving socio-economic development with greater investment in economic infrastructure is of paramount importance. In economic infrastructure, power infrastructure needs special emphasis, particularly tackling the problem of transmission and distribution losses, and capacity addition through investment in renewable energy sources. Further, statistical significance of CISI coefficient indicates that the adequacy of social infrastructure is also important for socio-economic development. Social infrastructure not only impacts socio-economic development but also affects the productivity of individuals and growth of the economy. In fact, to a large extent, inadequate availability of education and health infrastructure is the main cause of vicious circle of poverty. Therefore, there is a pressing need to improve the availability of social infrastructure, especially in the lagging states, in order to achieve equitable and sustainable socio-economic development.

IV. Conclusion

Adequate infrastructure is a prerequisite for the socio-economic development of a country. Infrastructure plays an important role in improving the quality of life, as well as it affects development by infusing investment and creating base for economic activities and income generation. Availability of infrastructure facilitates smooth functioning of all sectors of the economy as well as ensures reaping demographic dividend which eventually determines socio-economic development. In the context of India being a developing and the most populated country, this study ascertains that the availability of social and economic infrastructure across the states and geographical regions of the country is mostly inadequate and needs to be improved. The study finds that both social and economic infrastructure are key determinants of socio-economic development of the country.

State wise analysis shows that the availability of social and economic infrastructure varies significantly across states. Karnataka, Mizoram, and Sikkim are the top three states in terms of the availability of social infrastructure, whereas Bihar, Jharkhand and Uttar Pradesh are at the bottom. Bihar and Jharkhand are in dismal state; they urgently need to have more teachers in their schools and colleges and more doctors in their health centres and hospitals. The policy adopted by leading states to involve private participation in developing a robust healthcare system as well as strengthening education infrastructure can be a model for other states, particularly the most lagging ones, to follow. As far as economic infrastructure is concerned, Goa, Kerala, and Punjab are at the top, whereas Meghalaya, Bihar, and Manipur are at the bottom. In general, states facing acute shortage of economic infrastructure are hugely lagging in the availability of power, national and state highways, banking and telecommunication services. It is observed that the variation in social and economic infrastructure has led to more variation in socio-economic development across states. Goa, Kerala, and Sikkim are the top performing states, whereas, Bihar, Uttar Pradesh, and Jharkhand are the worst performers, though, the level of socio-economic development is almost same in Assam, Meghalaya and Jharkhand. In general, most of the laggard states have poor indicators in almost all the parameters of socio-economic development, such as, infant mortality rate, literacy rate, poverty rate, gross enrolment ratio in higher education, urbanization, average income, energy consumption, and industrialization. Bihar, the worst performing state, has the most dismal numbers in terms of energy consumption, industrialization, average income, poverty, and enrolment in higher education. It is also among the least performing states in literacy, IMR, and urbanization.

Region-wise analysis also shows a similar picture, as the northern, western, and southern regions are well developed vis-à-vis the central, eastern and north-eastern regions. The eastern region lags the most in the availability of social infrastructure, whereas the central region lags the most in the availability of economic infrastructure. With more or less the same level of socio-economic development, these two regions are the most backward regions, whereas the western and southern regions are the most developed regions of the country. The differentials in the level of socio-economic development across regions is a cause of concern and a challenging issue to address.

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ENTREPRENEURSHIP AND BUSINESS CONTRIBUTIONS TO PEACE-BUILDING: A BIBLIOMETRIC ANALYSIS

Dr. Mannat Singh* Amogh Talan**

Purpose: *This bibliometric analysis investigates the complex relationship between business, entrepreneurship, and peace-building, with a focus on how entrepreneurial and business activities contribute to global peace initiatives..*

Design/methodology/approach: *The study involves a systematic search of scholarly articles from the Scopus database, employing bibliometric techniques to analyze a wide array of methodologies, perspectives, and themes. Quantitative data were used to identify emerging trends, key authors, journals, and the geographic distribution of research in the field, while qualitative analysis explored the conceptual frameworks that underpin the literature.*

Findings: *The analysis reveals the multifaceted ways in which businesses and entrepreneurship contribute to peace-building, highlighting themes such as social entrepreneurship, corporate social responsibility, and the role of business in conflict resolution. The study identifies significant trends and regional focuses in the literature while also pinpointing gaps and potential areas for future research.*

Originality/value: *This study offers a comprehensive synthesis of existing literature on the relationship between business and peace-building, uncovering patterns that enhance the understanding of how entrepreneurial initiatives can be leveraged for sustainable peace.*

Keywords : *Entrepreneurship, business initiatives, peace-building, bibliometric*
JEL Code: *F51*

Introduction

The exploration of the interplay between entrepreneurship, business practices, and their impacts on peace, conflict, and development has emerged as a crucial research area in commerce and societal studies. This bibliometric analysis delves into the complex connections between peace-building, economic development, and entrepreneurship in conflict-affected regions. Scholars increasingly recognize how entrepreneurial efforts can influence social welfare in areas marked by violent conflict (Miklian & Medina Bickel, 2020; Tobias et al., 2013). Research by McMullen (2011) and Oetzel and Miklian (2017) highlights the role of businesses in promoting sustainable development and peace.

Entrepreneurship's importance in post-war recovery and state-building has been widely studied (Musa & Horst, 2019; Subedi, 2013). The relationship between entrepreneurship and peace is multidimensional, involving economic, social, and institutional factors (Joseph et al., 2022). Miklian and Schouten (2019) emphasize the need to broaden the understanding of business involvement in peace-building.

This study builds upon foundational research by Miller et al. (2019) and aligns with global initiatives like the United Nations Global Compact (2010), advocating ethical business conduct in conflict zones. By conducting a comprehensive bibliometric analysis, this research identifies emerging trends, prolific authors, and pivotal journals, providing a thorough synthesis of existing literature. It addresses significant gaps by examining corporate social responsibility, social entrepreneurship, and conflict-sensitive business practices. The study offers new insights into how businesses can act as catalysts for positive transformation in conflict-affected areas, contributing to ongoing discussions on entrepreneurship's role in peace-building and sustainable development.

Significance of Bibliometric Analysis in Peace-Building Research

Bibliometric analysis serves as a crucial tool in peace-building research, providing a quantitative method to explore the connection between entrepreneurship, business, and peace. This approach highlights the evolving role of entrepreneurship in post-conflict settings by mapping existing literature to identify key themes, influential works, and emerging trends (Mor Barak, 2020). Particularly in the interdisciplinary field of peace-building, bibliometrics helps

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uncover the intellectual framework by pinpointing significant authors and studies (Wadhwani et al., 2020). By analyzing citation patterns and co-citation networks, the study reveals the evolution of concepts, offering valuable insights for researchers, policymakers, and practitioners focused on sustainable development and peace.

I. Review of Literature

Bibliometric Analysis:

Bibliometric analysis is a reliable quantitative method used to evaluate academic landscapes, detect research trends, and identify key contributors within a discipline (Aria & Cuccurullo, 2017; Hicks, 1999). In this study, bibliometric analysis is applied to systematically explore the extensive literature on entrepreneurship, business, and peace-building, providing insights into the development of scholarly work, key themes, and influential contributors in this interdisciplinary field.

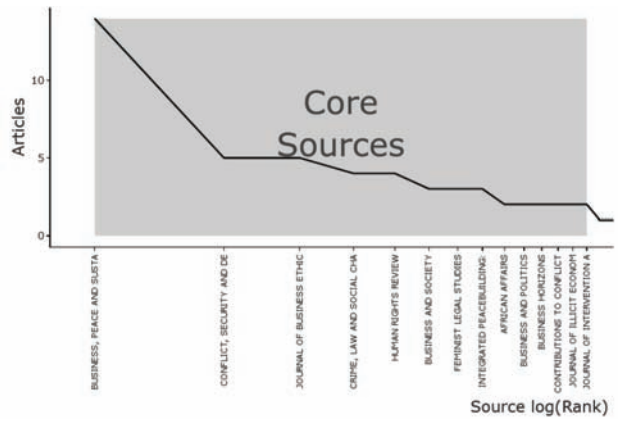
The Scopus database was selected for its comprehensive indexing across fields such as business, entrepreneurship, and peace studies (Franceschet, 2010). Using controlled vocabulary and keywords, a nuanced search string was created with Boolean operators to refine the queries. The search focused on titles and abstracts containing "business" and variations of "peace-building," ensuring relevant articles were captured. The analysis only included English-language, peer-reviewed journal articles, excluding conference papers and non-management or humanities journals, to maintain academic rigor.

A detailed analysis of publications from 1978 to 2023 yielded 157 scholarly documents. The data reveals a steady increase in research output, with 5% of publications between 1978 and 1987, rising to 40% from 2008 to 2017, and 30% in the recent 2018-2023 period. This upward trend highlights the growing academic focus on the intersection of entrepreneurship, business, and peace-building, establishing this research as a timely contribution to the field.

This analysis draws from 118 unique sources, ensuring a broad representation of scholarly perspectives on the relationship between business initiatives and peace-building efforts. The inclusion of materials from diverse journals and books enhances the understanding of this complex field. The growing influence of these documents is evident, with an annual growth rate of 3.64%, reflecting an expanding discourse. The average document age of 8.98 years highlights the recency of the literature, while the average of 9.561 citations per document suggests a moderate impact within the academic community.

A wide conceptual range is also evident, with 346 unique Author Keywords and 151 Keywords Plus, showcasing the diverse frameworks scholars use to explore the role of business in peace-building. Authorship patterns reveal collaboration, with 157 documents authored by 218 individuals, averaging 1.66 co-authors per paper. International co-authorships account for 18.47%, underscoring the global nature of research in this interdisciplinary field.

Core Sources by Bradford's Law



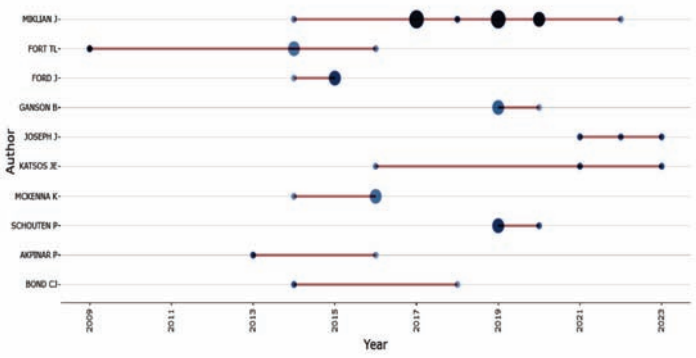
Bradford's Law helps identify the most influential journals in the fields of entrepreneurship, business, and peace-building by analyzing the dispersion of information. Zone 1, consisting of the 14 most frequently cited sources, includes the journal "Business, Peace and Sustainable Development," with the highest frequency (14 mentions), emphasizing its leading role in exploring the connection between business and sustainable peace. Other key journals in this zone include "Conflict, Security and Development" and the "Journal of Business Ethics," highlighting their importance in this interdisciplinary field.

Zone 2 encompasses a wider range of journals, such as "Business Horizons,""Journal of Peace Research," and "Journal of Education Policy," reflecting diverse perspectives on the business sector's involvement in peace-building. These sources contribute to broadening the academic discourse.

Finally, Zone 3, representing less frequently cited sources,

includes valuable contributions from journals like "World Development,""Turkish Studies," and "Strategic Analysis," which offer regional and strategic insights, further enriching the field's diversity.

Authors' production over time



A bibliometric analysis of scholarly contributions to the intersection of business, peace-building, and entrepreneurship highlights key authors and their impactful work over time. J. Miklian stands out as a significant contributor, with works like his 2022 publication in the Journal of Asia Business Studies, based on survey data from Myanmar, and another on the "Business-Peace Nexus" in the International Small Business Journal. The latter averages 2.4 citations per year, indicating its continued relevance. His 2019 research on ethnic cleansing in Myanmar and economic development, published in Conflict, Security and Development, averages 3.5 citations annually, further solidifying his impact. Miklian's other works from 2019 emphasize a broader understanding of the link between business and peace.

Another prominent figure, T.L. Fort, contributes to this dialogue through his exploration of leadership and peace in Business Horizons (2016), receiving an average of 0.889 citations annually. His research also addresses the relationship between cybersecurity and peace.

Joseph J. and Katsos J.E. make joint contributions to the field, examining entrepreneurship's role in peace-building, as evidenced by their works in Business and Society (2023) and Journal of Business Ethics (2021). Additionally, P. Schouten's study of global governance and the public-private divide in Journal of International Relations and Development (2020) remains influential, while B. Ganson offers new insights into the relationship between business and urban violence, particularly in Africa.

II. Research Methodology

Conceptual Framework:

- Entrepreneurship's role in peace-building has garnered significant academic interest, recognizing its potential to foster lasting peace in conflict-affected areas. This framework seeks to elucidate the intersection of entrepreneurship and peace-building, drawing on insights from scholars like McMullen (2011) and Miklian & Schouten (2019). It examines how entrepreneurial activities can drive post-conflict recovery.
- Entrepreneurship is viewed as a catalyst for economic, social, and environmental development in post-conflict societies. McMullen (2011) emphasizes a market-based approach, highlighting how entrepreneurship can spur inclusive economic growth, create jobs, and encourage local innovation—key components for rebuilding economies in conflict-affected regions. Social entrepreneurs also play a vital role by integrating social and environmental concerns into their business models, addressing social challenges, and promoting equitable development (Miklian & Medina Bickel, 2020).
- The interplay between entrepreneurship and the institutional context of post-conflict regions is crucial. Muhammad et al. (2016) note that understanding these dynamics can enhance peace-building initiatives' effectiveness. Furthermore, ethical business practices and conflict-sensitive strategies from the private sector contribute significantly to peace-building. By fostering inclusive economic growth and engaging in social and political reconstruction, businesses can act as agents of positive change (Miklian & Schouten, 2019).
- The United Nations Global Compact (2010) underscores Corporate Social Responsibility (CSR) as a vital tool for businesses to support peace, especially in conflict-prone areas. Integrating CSR into core business strategies helps companies build strong ties with local communities, mitigating negative social impacts.
- This framework acknowledges the sociopolitical and cultural nuances that affect peace-building through entrepreneurship. McMullen's (2011) market-based model and the varying strategies of social entrepreneurs (Miklian & Medina Bickel, 2020) demonstrate how entrepreneurial activities adapt across different regions. Thus, understanding local institutional factors, as

highlighted by Muhammad et al. (2016), is essential. The framework advocates for culturally adaptive strategies and collaboration among businesses, governments, and NGOs to enhance peace-building efforts (Miklian & Schouten, 2019).

Formulation of Propositions

Drawing upon the extensive body of literature examined in this research, a set of propositions is formulated to guide the investigation into the role of entrepreneurship in peace-building processes.

- **Proposition 1** posits that the engagement of micro, small, and medium-sized enterprises (MSMEs) in conflict-affected regions is a catalyst for economic development and social stability (United Nations Development Programme, 2004).
- **Proposition 2** extends the discourse by suggesting that the establishment of robust networks and collaborations between businesses, local communities, and international actors is fundamental for sustainable peace-building efforts (Miklian & Schouten, 2019).
- **Proposition 3** contends that the effectiveness of entrepreneurial initiatives in conflict zones is contingent upon the adoption of conflict-sensitive business practices (Reade, 2015).
- **Proposition 4** posits that institutional support and policy frameworks that facilitate entrepreneurship play a crucial role in fostering sustainable peace (Williams & Gurtoo, 2016).
- **Proposition 5** suggests that the dynamic interplay between multinational enterprises (MNEs), risk management strategies, and peace-building initiatives warrants further exploration (Oetzel & Miklian, 2017).

These propositions form the theoretical foundation for empirical investigation, guiding the research towards a deeper understanding of the mechanisms through which entrepreneurship contributes to peace-building efforts in diverse and challenging contexts.

WordCloud

A word cloud analysis offers a visual snapshot of the thematic landscape at the intersection of entrepreneurship, business, and peace-building. "Peace-building" appears 31 times, underscoring its central role in the discourse, while the prominence of "peace" highlights the importance of peace-related concepts in exploring the role of businesses in global stability.

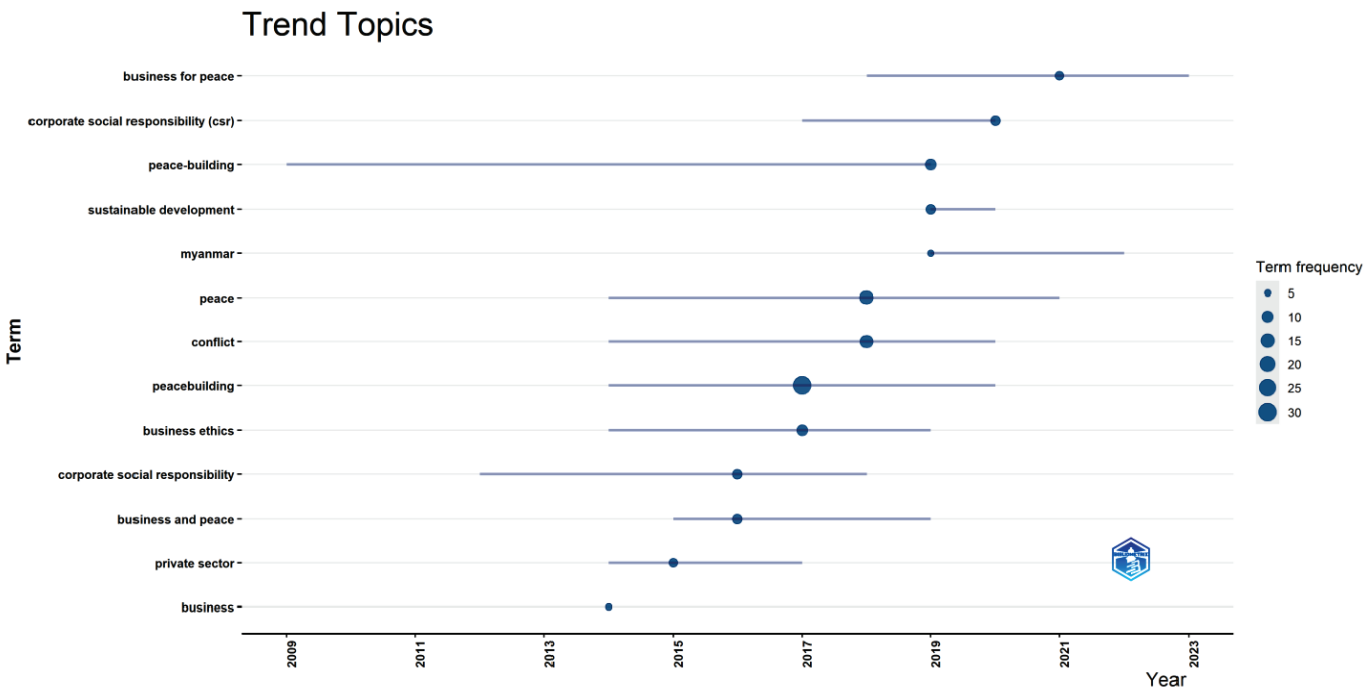
Keywords like "peace-building,""business ethics," and "conflict" reflect the multifaceted relationship between business and peace. The focus on "business ethics" points to the growing awareness of ethical considerations in business activities, especially in post-conflict settings. The recurring mention of "corporate social responsibility" (CSR) highlights the private sector's contribution to peace and social welfare.

Key terms such as "business for peace,""private sector," and "sustainable development" emphasize the proactive role corporations can play in fostering peace. "Economic development" and "transitional justice" further reveal the complex dynamics of using business to drive positive change in post-conflict areas.

Geographical references like "Myanmar,""Colombia," and "Democratic Republic of the Congo" point to the empirical basis of the research, while terms such as "gender,""women," and "ethnic conflict" reflect growing recognition of the importance of identity in peace-building efforts.

Finally, the inclusion of "mining,""MNCs,""international law," and "governance" illustrates the broader institutional frameworks that shape the conversation.

Trend Topics



This analysis explores the temporal evolution of key themes within the discourse on entrepreneurship, business, and their contributions to peace-building, shedding light on shifting scholarly priorities. "Peace-building" consistently emerges as a central theme, experiencing steady growth from 2014 to 2020, reflecting the increasing recognition of its importance in relation to business and entrepreneurial activities.

Similarly, "business ethics" maintains significant attention, highlighting ethical considerations within the business-peace nexus. Peaks in 2017 and 2019 underscore the ongoing focus on the ethical dimensions of business interactions in conflict zones.

The terms "peace" and "conflict" show a steady rise, with notable peaks in 2018 and 2021, underscoring their enduring relevance in the exploration of business's role in conflict resolution and peace efforts. Between 2015 and 2019, interest in the intersection of "business" and "peace" surged, signaling growing recognition of how businesses contribute to global peace.

The topic of "business for peace" peaked from 2021 to 2023, reflecting contemporary shifts toward businesses as active agents of positive change. "Corporate social responsibility" (CSR) saw heightened attention between 2016 and 2018, emphasizing the evolving discourse on businesses' societal roles.

The "private sector" also garnered consistent attention, with a peak in 2017, pointing to ongoing research into its impact on peace-building efforts. Regions like "Myanmar" have gained attention recently, indicating interest in specific contexts of business and peace.

Africa, with its history of instability, has witnessed growing recognition of entrepreneurship's role in promoting stability and peace. Local entrepreneurs and international stakeholders alike are increasingly focused on addressing conflict through economic empowerment and innovation (Golan-Nadir & Cohen, 2017; Kolk & Lenfant, 2015).

Co-occurance Network

This analysis uncovers intricate hierarchies, patterns, and connections among frequently discussed terms in the academic discourse on business and peace-building, offering deeper insights into the complexity of this field. Key clusters of related concepts are identified, each contributing uniquely to scholarly discussions.

Cluster 1 captures essential ideas like sustainability, corporate social responsibility (CSR), peace, and conflict. The prominence of "peace," with high betweenness and PageRank, emphasizes its centrality in the discourse, linking commercial operations to broader societal impacts. The co-occurrence of terms like conflict, CSR, and entrepreneurship highlights the complex interplay between business, organizational responsibilities, and conflict-affected environments.

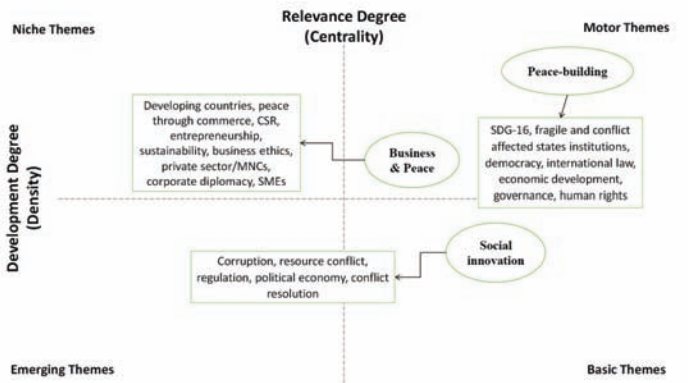
Cluster 2 delves into themes such as women, El Salvador, Guatemala, and international law. This suggests a targeted exploration of gender dynamics, regional experiences, and legal frameworks within peace-building, illustrating the interconnectedness of business and international relations in specific geopolitical contexts.

Cluster 3, the largest and most varied, explores governance, business ethics, CSR, and private sector engagement. "Peace-building" stands as a key concept, while the focus on CSR and business ethics underscores academic efforts to address the ethical implications of business operations in fostering stability and peace. The inclusion of governance reflects the role of institutional frameworks in achieving lasting peace.

Cluster 4, featuring terms like ethnic conflict, Myanmar, the Democratic Republic of the Congo, and sustainable development, highlights a regional focus, exploring how peace, sustainability, and business intersect in conflict zones.

This analysis demonstrates a shift from superficial debates to a deeper understanding of the ethical, regional, and governance-related complexities at the nexus of business and peace-building.

Thematic analysis



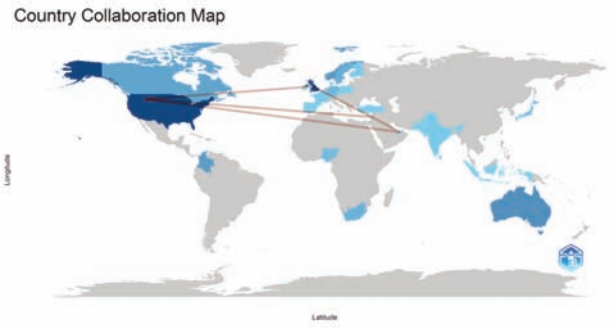
A thematic analysis of the dataset uncovers the complex network of concepts and perspectives within the domains of peace-building and business. The findings highlight both the frequency of certain themes and the intricate relationships shaping academic discourse in this field.

Business and Peace Cluster: Key terms such as "developing countries," "peace through commerce, " "CSR," "entrepreneurship," and "business ethics" underscore the growing recognition of businesses as drivers of peace. The frequent connection between business and peace marks a shift in viewing corporations not only as economic entities but also as agents of positive change in conflict-prone regions. The focus on "private sector/MNCs" reflects awareness of the global influence that corporations wield in conflict dynamics. The inclusion of "corporate diplomacy" and "SMEs" suggests that both large and small businesses play a role in fostering peace, with ethical considerations as a crucial factor in their strategies.

Peace-Building Cluster: Themes like "SDG 16,""fragile and conflict-affected states,""institutions,""democracy," and "economic development" emphasize that sustainable peace requires a systemic, institutional approach. The focus on SDG 16 shows a commitment to aligning business activities with global sustainable development goals.

Social Innovation Cluster: The cluster around "resource conflict,""corruption,""regulation," and "conflict resolution" highlights innovative approaches to addressing conflict through business practices. It suggests that social innovation in business goes beyond traditional frameworks, requiring flexible methods to tackle the root causes of conflict while promoting ethical business conduct.

Countries' collaboration world map



The Bibliometric data illustrates a multifaceted and worldwide network of research partnerships among nations making up the collaboration network. Lebanese and United Arab Emirates collaborations are noteworthy, as they illustrate a strong connection between the two countries. The collaborative endeavors of the United States encompass a wide range of countries, including the United Kingdom, Australia, Colombia, the Czech Republic, France, and Lebanon. The United Kingdom exhibits similar cooperative relationships with the United Arab Emirates, Australia, Colombia, Japan, and Lebanon. Norway maintains diplomatic ties with Belgium, Denmark, France, and South Africa, while Sweden maintains association with both Israel and Japan. Reflecting a collective dedication to the progression of knowledge and the promotion of global comprehension, this complex network of international collaborations highlights the interdisciplinary and cross-cultural character of entrepreneurship and peace-building research.

The bibliometric analysis and literature synthesis in this study highlight the crucial role of entrepreneurship in peace-building contexts. Entrepreneurship, as a dynamic force, can significantly contribute to development in conflict-affected regions. Scholars like Miklian and Schouten (2019) emphasize the need to expand traditional frameworks to integrate business and peace more effectively. Entrepreneurial initiatives sensitive to local conflict dynamics can address root causes and foster lasting peace (Reade, 2015).

Micro, Small, and Medium-Sized Enterprises (MSMEs) are vital in conflict zones, with the microfinance sector playing a key role in empowering these enterprises and creating stable economies (Morduch, 2000). MSMEs' role in peace-building should be recognized and supported by policymakers (United Nations Development Programme, 2004).

Institutional dynamics are also critical, as Muhammad et al. (2016) stress the need for nuanced approaches that consider socio-political contexts. Policymakers should focus on creating environments conducive to entrepreneurship (Oetzel et al., 2009). Corporations, beyond CSR, can adopt conflict-sensitive practices and engage with communities to promote peace and economic growth (Miller et al., 2019; Oetzel et al., 2012). Collaboration between researchers, policymakers, and practitioners is essential to transform academic findings into actionable strategies (Miklian & Schouten, 2019).

Much of the existing literature on conflict zones focuses on regions like the Middle East, South Asia, and Latin America, but African nations face unique challenges and opportunities. By incorporating African perspectives, policymakers can design more contextually relevant strategies for peace and sustainable development (Kanayo et al., 2013). This inclusion also empowers local business owners and communities, fostering greater responsibility in peace-building efforts.

Entrepreneurship should be seen as a catalyst for peace-building, transcending mere economic development. Muhammad et al. (2016) support the notion that entrepreneurship promotes local economies in conflict zones, creating jobs and fostering social stability. Micro, small, and medium enterprises (MSMEs) play a critical role in these efforts. Sserwanga et al. (2014) emphasize the social entrepreneurial dimension of MSMEs in post-conflict recovery, highlighting their community impact.

Oetzel and Getz (2012) underscore the importance of conflict-sensitive business practices, which are vital for success in conflict settings. Similarly, Acs and Szerb (2007) point out the role of institutional frameworks in supporting entrepreneurship and peace-building, while Miller et al. (2019) call for a deeper examination of multinational enterprises' contributions to sustainable peace.

III. Results and Discussion

This study provides a comprehensive comparative analysis of prior research on conflict resolution, peace-building, and entrepreneurship. By incorporating bibliometric analysis, it expands upon earlier works like McMullen (2011) and Miller et al. (2014), shifting the focus toward a more holistic understanding of the link between peace and business.

Recent studies, such as Oetzel and Miklian (2017) and Miklian and Schouten (2019), broaden the scope beyond purely economic aspects, emphasizing the role of entrepreneurship in conflict zones.

A key departure from earlier perspectives is the focus on Micro, Small, and Medium-sized Enterprises (MSMEs) as crucial agents of transformation in conflict-affected areas. Morduch (2000) and the United Nations Development Programme (2004) underscore the importance of microfinance, exemplified by the Grameen Bank's role in empowering women in Bangladesh (Yunus, 2007). Similar examples, like Kiva.org (Roberts, 2010) and Women's World Banking (Justino et al., 2018), highlight MSMEs' role in fostering peace through economic development. The study also emphasizes the importance of institutional dynamics in entrepreneurial success in conflict environments (Muhammad et al., 2016). Finally, contemporary research shows a shift toward corporations playing an active role in peace-building, as noted by Oetzel et al. (2012) and Miller et al. (2019), marking a shift from viewing corporate social responsibility as a peripheral concern (Nelson, 2000).

IV. Conclusion

The bibliometric analysis reveals extensive networks and co-authorship patterns, highlighting the growing trend of interdisciplinary collaboration in research on peace-building and entrepreneurship. Miklian and Schouten (2019) describe this collaborative shift as key to expanding the depth of knowledge in this field. The comparative analysis tracks how the focus has evolved from purely economic impacts to a more nuanced understanding of entrepreneurship's role in peace-building. By integrating insights from various methodologies, this research enhances our understanding of the intricate dynamics between entrepreneurship, institutions, and peace in conflict-affected areas. Building on frameworks by McMullen (2011) and Oetzel et al. (2009), the study provides fresh theoretical perspectives on how entrepreneurship contributes to peace. It also underscores the importance of institutional dynamics in entrepreneurial success in conflict zones (Muhammad et al., 2016). The research challenges traditional views of corporate social responsibility by portraying corporations as proactive agents of peace (Oetzel et al., 2012; Miller et al., 2019), contributing to a broader theoretical discourse on corporate engagement in conflict resolution. This research extends beyond traditional economic views of entrepreneurship in conflict areas, contributing new theoretical insights into its role in peace-building. By integrating bibliometric analysis with previous theoretical frameworks, it highlights entrepreneurship's multifaceted influence in promoting peace. Practically, the study offers strategic guidance for policymakers and entrepreneurs. Identifying thematic clusters via bibliometric analysis (Chen et al., 2012) helps policymakers prioritize interventions, particularly in supporting social entrepreneurship, which plays a key role in fostering lasting peace (Mair & Marti, 2009). Entrepreneurs in conflict zones can use these insights to adopt socially and environmentally sustainable practices (Miklian & Schouten, 2019). The research also emphasizes the need for collaboration among government, NGOs, and businesses to maximize peace-building efforts. Integrating African perspectives is crucial for ensuring contextually relevant and sustainable peace-building initiatives across the continent.

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VIABILITY OF FINANCIAL AND NON-FINANCIAL DISCLOSURES BY INVESTORS THROUGH CORPORATE REPUTATION SERVING AS A MEDIATOR

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Purpose:-*Investor interest in ESG could drive the development of laws and regulations that would encourage ESG performance in the long run . Whether the investor considers a company's financial and non-financial disclosure while making an investment decision is an enigma Additionally it is to be probed that whether corporate reputation mediates the relationship between financial disclosure and investment decision as well as non-financial disclosure and investment decisions.*

Design/Methodology/Approach :-*The author's research is based on signaling theory and theory of planned behavior. In this research paper, the authors took two independent variables,one dependent variable&one mediating variable. The empirical research is primarily based on primary data. The questionnaire has been distributed to the retail investors with the final sample size of 368.*

Findings:-*SPSS software has been used for demographic analysis whereas partial least squares structural equation modelling (PLS-SEM) has been used for hypothesis testing. The outcome of this paper suggests investment decision of investor has been influenced by financial disclosure and the researcher has also noted a significant connection involving ESG and investment decision. An additional study finding is that corporate reputation significantly mediates the connection with non-financial disclosure and investment as well as financial disclosure and investment.*

Originality/ Value:- *This study uniquely explores the mediating role of corporate reputation in the relationship between both financial and non-financial disclosures with investment decisions, providing new insight into how non-financial factors influence retail investor behavior. It addresses a key gap by exploring the combined effect of corporate reputation and disclosures on investment choices.*

Keywords : *Non-financialdisclosure;financial disclosure;Investment decision;Corporate Reputation;ESG(Environmental, Social and Governance), Partial least squares(PLS)*

JEL Code: *Q56, E16,G38*

Introduction

Reporting is a crucial tool for creditors, investors, management, and shareholders, serving various purposes. In India, reporting is divided into two main categories: financial and non-financial. The key financial disclosures include the income statement, balance sheet, and cash flow statement, which offer insight into a company's financial stability(Jao et al., 2020).These disclosures provide a quantitative foundation for evaluating investment opportunities and are regulated by IFRS and GAAP. However, in today's complex and dynamic corporate environment, financial reporting alone is no longer sufficient for businesses or investors. Non-financial disclosures are becoming increasingly important (Bocancia& Cozma, 2020). These disclosures primarily focus on environmental, social, and governance (ESG) factors. Investment decisions have been impacted by both financial and non-financial information and the major factor which influences investment apart from financial and non-financial is the corporate reputation.A company's corporate reputation serves as an intangible asset that reflects the opinions of stakeholders regarding its dependability, moral character, and general market position. An excellent corporate reputation has boosted investor confidence, which may result in more money coming into the company and therefore greater market values (Rounok et al., 2023).

The number of people investing in the stock market has increased in the past ten years. Volatile markets have made choosing an investment more difficult and confusing(W. Y.

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Lee et al., 2002).Three major groups of people which participate in the securities market such as public traded companies, individual traders and professional traders (An et al., 2018). Previous research has focused on institutional investors and their trading strategies because of their continued enormous investment volume and significant influence (JAKHAR & MOTWANI, 2019). Still, there is less research on retail investors. . As far as I know, few research models havemade this study which emphasized the role of ESG information plays in influencing investment decisions. One more important aspect which the author has attempted to find out is whether corporate reputation serves as a mediator in the investment decisions of retail investors. The mediating effect of corporate reputation is evident in how it connects financial factors to investment decisions and non-financial factors to investment decisions.

I. Literature Review

The existing literature extensively addresses the relationship between disclosures and investor behavior, primarily through the lens of thetheory of planned behavior(Ajzen, 1991) and signaling theory (Spence, 1973). Signaling theory suggests (Spence, 1973) that companies convey their financial health and performance through various signals, including financial and non-financial disclosures. Financial disclosure, such as profit &loss account, balance sheet and cashflow statements, provide a direct signal of a company's financial stability. In contrast, non-financial disclosure reflects the company's commitment towards mother earth & society.

Financial Disclosure and investment decisions

Over the last 20 years, there has been a significant surge in the quantity of accounting disclosure studies and publications. Through a literature review, the variety of accounting disclosure themes has been identified (Mahdi Sahi et al., 2022).previous study has described the real effect of financial reporting. The study reviewed 94 accounting & finances studies to know the effect of financial reporting. A review of literature indicates a relationship between financial metrics and investment decision. For example, studies from the Nigerian stock market identified key explanatory variables such as Return on Investment (ROI), Dividend Per Share (DPS), Earnings Per Share (EPS), and liquidity, with capital expenditure serving as a proxy for investment decisions (Nnubia, 2016). Another study has concentrated on Jordanian commercial banks. The primary data collection has been taken into consideration. The results demonstrated a favorable correlation between the financial information of Jordanian commercial banks & their investment selections (Saleh &Alghusain, 2018). Another literature has defined the importance of past financial performance and ratio analysis before buying stock of the company. As a result, investors are more inclined to invest when the company highlights opportunities in future-oriented disclosures rather than obstacles. On the other hand, Investor feel that managers may achieve success when a company is functioning well if they are realistic about the future. Investors spend more when the company concentrates on problems rather than possibilities (Emett, 2019).

Non-financial disclosure and investment decisions

Non-financial reporting is a wide-ranging term that incorporating several forms of reporting for instance CSR, GRI reporting, Sustainable development goals report, ESG report, greenhouse gas report, business responsibility reporting, integrating reporting, corporate citizen report, triple bottom line report, carbon report and so on(Turzo et al., 2022). Generally, three factors are considered in non-financial disclosure, such as environment, social, and governance. All the variables of non-financial reporting have been considered in this research paper. Existing literature has highlighted the significant relationship between the environment and investment decision.This literaturehas investigated preference of investor regarding ESG in Bangladesh. Investors have expressed interest in taking environmental practices into account while making investment decisions. Educated investors know that companies with a negative environmental impact were dangerous investments.

Mediating effect of corporate reputation

According to the signaling theory,CSR gives out positive signals that enhance the organization's image. Market action has influenced the firm's reputation and led to the decision of investors (Basdeo et al., 2006). A furtherarticleidentified that investors should invest in companies that have good reputation in both financial disclosure and non-financial disclosure.(Helm, 2007). Another research article has examined that how corporate reputation affects the trust and loyalty of customer(Walsh et al., 2009). Investors can make wise investment selections with the aid of a company's

reputation. Additional research has described the effect of online information on decision of investment (Bi et al., 2017). There is currently few research to show a direct relationship between ESG information and firm reputation (Rounok et al., 2023). To fill the research gap, it is valuable to investigate how corporate reputation influences investor decisions.

Gaps identified: There exists a notable gap which has been identified by the researcher that no researcher has considered both the financial and non-financial disclosure alongside corporate reputation at the same time while making the investment decision. In order to bridge this gap, the researcher has explored both financial and non-financial disclosure in a single framework with special reference to corporate reputation and how the same has influenced the decision of the investor. Bridging this gap could lead to a more comprehensive understanding of how investor sentiment and financial results are impacted by the convergence of business transparency, sustainability initiatives, and general reputation.

Objectives and Rationale of study

Previous studies have examined the impact of financial disclosure and non-financial disclosure separately. However, there is limited research investigating the combined influence of both types of disclosure on investor decisions. A key research gap is the lack of understanding of how corporate reputation mediates the relationship between financial and non-financial reports and investment decisions. Therefore, the objectives of this research focus on understanding the factors influencing retail investors' decision-making processes. First, the study aims to examine the impact of financial disclosure on investment decisions, exploring how transparent and accurate financial information affects investor behavior. Second, it seeks to investigate the influence of non-financial disclosures on investment decisions, assessing the importance of non-financial information in shaping investor choices. Thirdly, the research analyzes the mediating role of corporate reputation in the relationship between financial disclosure and investment decisions, determining how a company's reputation affects the influence of financial information on retail investors. Finally, the study evaluates the mediating effect of corporate reputation on the relationship between non-financial disclosureand investment decisions, identifying how corporate reputation shapes the impact of non-financial information on investors' decision-making.

Hypotheses

H01: There is no significant relationship between financial disclosure and investment decisions.

HA1: There is a significant relationship between financial disclosure and investment decisions.

H02: There is no significant relationship between non-financial disclosure and investment decisions.

HA2: There is a significant relationship between non-financial disclosure and investment decisions.

H03: Corporate reputation does not mediate the relationship between financial disclosure and investment decisions

HA3: Corporate reputation mediates the relationship between financial disclosure and investment decisions.

H04: Corporate reputation does not mediate the relationship between non-financial disclosure and investment decisions

Ha4: Corporate reputation mediates the relationship between non-financial disclosure and investment decisions

II. Research Design and Methods

Data Sampling

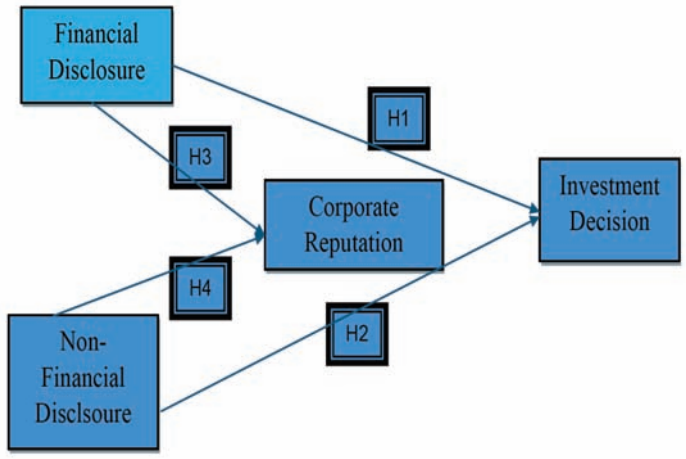
The investigation is based on empirical research. Empirical research depends only on observation or personal experience. It is a data driven study, with results that can be supported by experimentation or observation. The target population is retail investors. Purposive sampling was the method used to obtain the primary data for data gathering. Purposive sampling is non-probability technique where the researcher selects respondents based on specific characteristics or criteria that is relevant to the study. Only retail investors are eligible to complete this questionnaire.

The authors have distributed the questionnaire to friends, family, investment channels, LinkedIn, teachers at amity University, research scholars, IP University, banks and government accountants. Only 473 respondents have filled in the questionnaire. Subsequently, 38 respondents did not fit the requirements of being retail investors and 67 respondents were missing information.Thus,the final sample size is 368.respondents.

Survey Design

The questionnaire has been divided into three sections to meet the research objectives. The first section asked questions about the demographic of the respondents, including age, gender, educational background, occupation/profession, monthly individual income. The second section asked questions about the background of the study including average time period of your investment portfolio, rating investor knowledge, and expected rate of return in the field of investing. Inferential statistical analysis has been employed in the third section. The rationale for selecting 368 responses is that the researcher has 23 statements in hand and as per the thumb rule, the figures of respondent be at least 10 times of the statement.The rule of thumb is 23*10= 230 is minimum sample size for final analysis(TomassMHultt, 2021a). The 5-point rating scale has been applied from strongly negative to strongly positive. The current investigation has included SPSS and SEM for analysis. SPSS software has been applied for demographic study and background study. The association between the variables has been examined using SEM. The author has chosen PLS-SEM (partial least squares structural equation modelling) software program which is also known as SmartPLS.

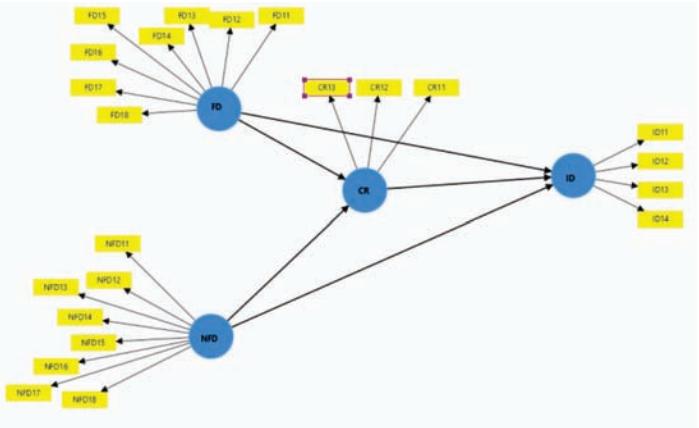
Research Model



Source:The Authors

Assessment of Measurement Model

The model includes four constructs with 23 significant items across four latent variables.The independent variable, financial disclosure, consists of eight items, labeled FD11 through FD18. The second independent variable, non-financial disclosure, also includes eight items, denoted as NFD11 through NFD18. Corporate reputation serves as a mediating variable, represented by three indicators: CR11, CR12, and CR13. The dependent variable, investment decision, comprises four items, labeled ID11 through ID14. A pilot test with 57 respondents was conducted to identify and eliminate unclear questions. The reliability of the measurement scale was confirmed with Cronbach's alpha coefficients ranging from 0.767 to 0.926 for the study variables.



III. Results and Discussion

Descriptive Analysis

The study analyzed the demographics and background of participants concerning financial and non-financial disclosures, focusing on variables such as age, gender, educational background, occupation/profession, monthly individual income, and expected rate of return.Data was gathered from retail investors, with fifty-two percent males and forty-eight percent females, offering a representative perspective of market investor. More than half of the respondents were aged forty to sixty years, indicating maturity and a deep understanding of financial and ESG factors. Maximum audience held post graduate degrees, and many worked in the government or private sectors, with a significant proportion of respondents earning between 70,000 to 1,00,000Rs and above 1,00,000Rs. Regarding investment experience, 67% of respondents reported having three to five years of experience, while many had over five years, suggesting a strong knowledge of financial markets. Additionally, most participants preferred long-term holdings over short-term or intraday trading. Higher income levels may encourage saving, leading to increased investments and potentially higher returns.

Table 1- Descriptive Statistics

S.no	Item	Description	Sample	Relative Frequency per Category (%)
1	Retail Investor	YES NO	368 38	91% 9%
2	Gender	Male Female Others	191 177 -	52% 48%
3	Age	20-40years 40-60years Above 60years	97 189 82	26% 52% 22%
4	Education	Matriculate Intermediate Graduate Post-Graduate Others	24 56 129 142 17	7% 15% 35% 39% 5%
5	Occupation	Government Private Self-employed Unemployed Students Others	99 110 76 23 38 22	27% 30% 21% 6 % 10% 6%
6	Monthly- Income	Below 30,000Rs 30,000Rs - 70,000Rs 70,000Rs - 1,00,000Rs Above 1,00,000Rs	24 81 148 115	7% 22% 40% 31%
7	Experience	Less than 3 years 3 – 5 years Above 5 years	26 131 211	7% 36% 57%
8.	Average Holding Period	Below 1 year 1year -3 years 3year – 5 years Above 5 years	42 31 167 128	11% 9% 45% 35%
9.	Expected Rate of Return	Less than 8% 8% to 15% 15% to 20% Above 20%	21 102 159 86	6% 28% 43% 23%

Source:-The authors.

Measurement Model

Structural equation modelling(SEM) has two segments such as measurement model and structural model. Factor loading, reliability and validity, and model fits are to be checked in the measurement modes. Hypotheses testing is analyzed with the help of structural model. The study includes four constructs: financial disclosure(FD), Non-financial disclosure(NFD), corporate reputation(CR) and investment decision(ID). The measurement model defines the relevant indicators for each latent variable. When a factor loading value exceeds 0.5, it indicates that the variable explains more than half of the variance in the indicator. All indicator values are above the 0.5 threshold, these results indicate that each construct adequately explains its corresponding indicators, and no statements need to be eliminated.

Table-2: Measurement Model

Variables	Statements	Factor Loading
Financial Disclosure	FD11	0.736
	FD12	0.820
	FD13	0.730
	FD14	0.702
	FD15	0.789
	FD16	0.777
	FD17	0.718
	FD18	0.789
Non-Financial Disclosure	NFD11	0.756
	NFD12	0.784
	NFD13	0.842
	NFD14	0.720
	NFD15	0.844
	NFD16	0.713
	NFD17	0.841
	NFD18	0.852
Corporate Reputation	CR11	0.890
	CR12	0.862
	CR13	0.911
Investment Decision	ID11	0.888
	ID12	0.891
	ID13	0.856
	ID14	0.860

Source:-The authors.

Reliability and Validity

The purpose of assessing construct validity and reliability is to determine the internal consistency of each construct using techniques like Cronbach's alpha and composite reliability. The study has incorporated four constructs, such as financial disclosure, non-financial disclosure, corporate reputation and investment decision. The rule of thumb for Cronbach alphaand composite reliability should be greater than 0.7. If the values of all the variables are greater than the set threshold limit, the internal reliability is considered satisfied. All the variables of AVE values are between 0.639 and 0.818. Every value has a cut-off greater than 0.50 hence meeting the requirements and demonstrating the reliability of the model.

Table 3 - Reliability and Validity

Variables	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Financial Disclosure	0.881	0.896	0.639
Non-Financial Disclosure	0.887	0.911	0.770
Corporate Reputation	0.865	0.866	0.818
Investment Decision	0.897	0.897	0.764

Source:-The authors.

Discriminant Validity

Each construct must be empirically distinct from one another in order to maintain the discriminant validity. The author has applied the Fornell-Larcker Criterion technique to calculate the discriminant validity. As a general guideline, discriminant validity is assessed when each variable's square root of the average variance is larger than another construct. Each latent variable was higher than the other variable.

Table 4 - Discriminant Validity

Variables	CR	FR	ID	NFR
CR	**0.888**			
FR	0.653	**0.934**		
ID	0.741	0.838	**0.974**	
NFR	0.709	0.868	0.914	**0.755**

Source:-The authors.

CR = Corporate Reputation, FR = Financial Disclosure, ID = Investment Decision, NFD = Non- Financial Disclosure.

Table 5- Model Fitness

	Saturated model	Estimated model
Standardized Root mean Square Residual	0.062	0.062
NFI	0.788	0.788

Source:-The authors.

R square

In this study, corporate reputation is mediating variable. Independent variables had a considerable impact on the corporate reputation variable with value of R-square as 0.784 and adjusted value of R-square is 0.731. Investing is a dependent indicator. On the other hand, investment decision making has obtained the value of R -square 0.578 with the adjusted R square value of 0.523.

Table 6 – R square

	R square	R square Adjusted
Corporate Reputation	0.784	0.731
Investment Decision Making	0.578	0.523

Source:-The authors.

Hypotheses Testing

In the seventh table, hypotheses testing can be classified into two categories such as direct hypothesis and indirect hypothesis. Direct hypothesis has been used between independent variable and dependent variable. Indirect hypothesis testing has been used through corporate mediation. As a thumb rule, the value of t-statistic should be greater than or equal to 1.96 for a hypothesis to be accepted. A p-value associated with the path coefficient is calculated at a 0.05 significance level to test the hypothesis (TomassMHultt, 2021b).

Table 7:- Hypotheses Testing

Hypotheses	Beta Value (β)	T-Statistics	P value	Results	Supported
Direct Effect					
Financial Disclosure -> Investment Decision	0.039	3.227	0.001	**Accepted**	**Yes**
Non-Financial Disclosure -> Investment Decision	0.024	5.367	0.004	**Accepted**	**Yes**
Indirect Effect					
Financial Disclosure -> Corporate Reputation -> Investment Decision	0.046	2.049	0.010	**Accepted**	**Yes**
Non-Financial Disclosure -> Corporate Reputation -> Investment Decision	0.036	6.166	0.000	**Accepted**	**Yes**

Source:-The authors.

H01: There is no significant relationship between financial disclosure and investment decisions.

HA1: There is a significant relationship between financial disclosure and investment decisions

The first hypothesis indicates that financial disclosure significantly and positively impacts investment decisions, with a p-value of 0.001 and a t-statistic of 3.227, exceeding the threshold of 1.96 for hypothesis acceptance. Thus, the null hypothesis is rejected, indicating that financial disclosure notably influences investment decisions among Indian investors.

H02: There is no significant relationship between non-financial disclosure and investment decisions.

HA2: There is a significant relationship between non-financial disclosure and investment decisions.

The second hypothesis indicates that non-financial disclosure significantly and positively impacts investment decisions. The null hypothesis (H02) was rejected, and the alternative hypothesis (HA2) was accepted, with a p-value of 0.004 (below 0.05) and a t-statistic of 5.367(above 1.96). Thus, it confirms that non-financial disclosure significantly influences investment decisions.

H03: Corporate reputation does not mediate the relationship between financial disclosure and investment decisions

HA3: Corporate reputation mediates the relationship between financial disclosure and investment decisions.

The third hypothesis indicate that corporate reputation significantly and positively mediates the relationship between financial disclosure and investment decisions. The null hypothesis was rejected, and the alternative hypothesis (FR → CR → ID) was accepted, with a p-value of 0.010(below 0.05), and a t-statistic of 2.049(>1.96). Thus, it confirms that corporate reputation plays a vital role in this mediation. Corporate reputation reflects how investors, stakeholders, employees, and customers perceive a company.

H04: Corporate reputation does not mediate the relationship between non-financial disclosure and investment decisions.

HA4: Corporate reputation mediates the relationship between non-financial disclosure and investment decisions.

The fourth hypothesis shows that corporate reputation significantly and positively mediates the relationship between non-financial disclosure and investment decisions. The null hypothesis was rejected, and the alternative hypothesis NFR -> CR -> ID was accepted, with a p-value of 0.000 (<0.05) and a t-statistic of 6.166, confirming the acceptance of the fourth hypothesis

Conclusions

The objective of our investigation is to examine how financial and non-financial disclosure affect investment decisions. The finding reveals that 90% of respondents knew of this disclosure, with70% being graduates and postgraduates. Most investors work in government or private sectors, earning between 70,000 and 100,000 Rs, and have over five years of investment experience. Participants with postgraduate degrees, particularly those working as accountants, tend to have higher incomes and a better understanding of disclosures, leading to greater expectations for returns. Additionally, corporate reputation influences investors' decisions to buy or sell stocks, as most believe well-regarded companies present strong investment opportunities. The study confirms that corporate reputation mediates investor choices.

Firstly, the research has discussed the direct effect of financial disclosure and non-financial disclosure while investing. Regarding ESG standards, investors want to promote environmentally friendly production because they want to see sustainable development. social disclosure has been interpreted as a sign of a company's dedication to sustainable business practices, which can boost revenue, staff satisfaction, and consumer loyalty. It helps avoid risks and identify companies with sustainable and responsible business practices. Social disclosure has boosted investor trust and eventually leads to smarter investment decisions. The outcome of the research has indicated that retail investors have given value to non-financial information and significantly impacted their investment decision. The finding of the result has explained that financial and non-financial disclosure have significant and positive impact on investment decisions.

The study has reviewed indirect effects with the help of mediating variable corporate reputation. Correct Information of Company has become essential to build reputation. Businesses that engage in CSR initiatives send positive indication to audiences worldwide, which helps those audiences build opinions about the companies'

reputations. These opinions have an impact on stakeholder outcomes. A strong financial and non-financial disclosure serves as a signal for the organization to acquire the confidence of its investors and to bring in new investors. Businesses with a positive reputation will gain a competitive edge as well as several strategic advantages. Due to positive reputation, investors become interested and ready to pay a premium price. The study confirmed that corporate reputation mediates a significant and positive relationship between financial and non-financial disclosure with investment decisions.

In conclusion, this study confirms the significant role of financial and non-financial disclosures in investment decisions, with corporate reputation serving as an effective mediator. The acceptance of all hypotheses demonstrates that corporate reputation enhances the impact of these disclosures on retail investors. Investors place substantial value on a company's reputation when evaluating reports, emphasizing transparency and trustworthiness. The research reveals that the combination of these disclosures and corporate reputation has both direct and indirect effects on investment decisions, strengthening investor confidence in the credibility of disclosures. These findings emphasize the need for transparent reporting practices that enhance corporate reputation and positively influence investor behavior. Ultimately, the study underscores the essential role of corporate reputation in fostering informed investment choices and the interconnectedness of accurate disclosures and reputational trust.

IV. Conclusion

In the light of the results, financial disclosure and non-financial disclosure have been released in the annual reports. It has improved transparency and closed the distance between companies and investors. The outcome should be significant to police makers, investors, managers and shareholders. Policymakers can drive the adoption of ESG disclosures in companies by introducing regulations and offering incentives. Adoption of non-financial disclosure can also help business since they can boost investor interest and improve financial performance. Investors are capable of making wiser choices about their investments by obtaining high-quality information and applying the proper analysis to it. Financial statements alone might not always disclose all possible risks, but non-financial reporting, especially on ESG issues, helps investors to know all the possible risks associated with the company. This covers hazards associated with labor laws, corporate governance and climate change.

It is pertinent to mention that the disclosures are an important tool to determine the performance of the company, and it is the responsibility of the managers to present the honest picture pertaining to the company both in financial and non-financial aspect. Managers play a pivotal role in linking the company to its stakeholders and the same is responsible for managing the reports of the company and is also responsible for major decisions of the company. Manager and the management of the company have a direct relationship with the reputation of the company Managers can improve their disclosure procedures and quickly address investor issues by using data analytics to monitor investor sentiment and feedback. It is right to say in the end that better the manager and management of the company, better is the reputation of the company and better is the investor trust that company can enjoy.

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THE SOCIAL SIZZLE: ROLE OF SOCIAL MEDIA AND CUSTOMER ENGAGEMENT IN THE FOOD TRUCK INDUSTRY

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Purpose: *The study aims to investigate social media's impact on the food truck industry. It focuses on understanding customer satisfaction, the influence of social media on business growth, its cost-effectiveness for marketing, and customer perception of food trucks.*

Methodology: *The study used a quantitative research method with a structured questionnaire. The data was analyzed using regression analysis.*

Findings: *It showed that social media can enhance food truck credibility and help businesses understand their target market.*

Originality: *It focuses on the intersection of social media and the food truck industry. While previous research may have explored social media's impact on businesses in general, this study specifically examines its influence on the unique context of food trucks.*

Keywords : *Service industry, Food truck, Business, social media, Customer.*
JEL Code: *D12, L82, L83, M31, O4*

Introduction

FOOD SERVICE INDUSTRY

The social media landscape has undeniably transformed the online food delivery industry. Existing research has shed light on how social media influences user experience, customer trust, and purchasing habits within this domain. Studies have explored the effectiveness of social media marketing strategies for online food delivery services and how consumer behavior is shaped by information access and online reviews.

However, there is a need to delve deeper into the long-term effects of social media on this sector. While current trends and user behavior are well documented, the lasting impact on aspects like brand loyalty and potential oversaturation from influencer marketing remain underexplored. Furthermore, the influence of social media algorithms on user choices and exposure to diverse food options is not fully understood.

Beyond the user experience, ethical considerations surrounding influencer marketing and user-generated content manipulation require further scrutiny. The potential for unrealistic portrayals of food and the impact on consumer health deserve attention. Additionally, the current research primarily focuses on customers and restaurants. Understanding how social media impacts delivery workers and their experiences within the online food delivery system is a crucial gap that needs to be addressed.

This study aims to investigate the effectiveness of leveraging social media, influencers, and local food bloggers in achieving these goals. By partnering with local food bloggers who possess established followings within the community, food trucks can gain valuable exposure to a targeted audience. These collaborations can introduce new customers to the unique offerings of the food truck and generate positive buzz through engaging content and reviews.

FOOD TRUCK AS AN INNOVATIVE BUSINESS IDEA

As an innovative business idea, a food truck can be an excellent option for those who want to start their own business in the food industry. Here are some ideas to make a food truck stand out:

- ***Experiment with unique cuisines:*** Instead of serving typical street food, try incorporating unique recipes and fusion cuisines to stand out from the crowd.
- ***Partner with local farms and suppliers:*** Use locally sourced and organic ingredients to offer fresh and healthy options to customers.
- ***Creative branding and marketing:*** Develop a creative and memorable brand identity that sets the food truck apart

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from competitors. Use social media and other online platforms to promote the business and connect with customers.

- ***Offer customizable menus:*** Allow customers to customize their dishes by choosing their own toppings, sauces, and ingredients. This can help create a personalized experience that customers will remember.
- ***Create a unique experience:*** Consider incorporating live music or entertainment, or offering fun activities like outdoor games to create a unique and memorable experience for customers.
- ***Collaborate with other businesses:*** Partner with local breweries or wineries to offer food and drink pairings, or collaborate with other food trucks to create special events or themed menus. By implementing these innovative ideas, a food truck can become a popular and successful business in the competitive food industry.

SOCIAL MEDIA AS A TOOL OF PROMOTION

Social media is an incredibly effective tool for promoting a food truck business. Here are some ways social media can be used to promote a food truck:

- ***Create a strong brand presence:*** Use social media platforms like Facebook, Instagram, and Twitter to create a strong brand presence for the food truck. This includes posting high-quality photos and videos, developing a consistent brand voice, and engaging with followers.
- ***Share promotions and specials:*** Use social media to share promotions and specials, such as limited-time menu items or discounts. This can encourage followers to visit the truck and create a buzz around the business.
- ***Highlight positive reviews and customer experiences:*** Share positive reviews and customer experiences on social media to build credibility and attract new customers. Photos and videos of satisfied customers enjoying the food can be particularly effective.
- ***Engage with the community:*** Social-media can be used to engage with the local community and build relationships with customers. This can include responding to comments and messages, participating in community events, and supporting local charities.
- ***Use social media advertising:*** Use targeted social media advertising to reach new potential customers in the area. This can help increase visibility and attract new customers to the food truck.

CUSTOMER: THE LINKING ELEMENT

Customers are the linking element between social media and a food truck because they provide the engagement and interaction that is essential for the success of both. Social media platforms like Facebook, Instagram, and Twitter allow food truck owners to connect and interact with their customers in real-time, allowing them to post updates, photos, and videos about their menu, location, and specials.

In turn, customers can use social media to follow their favorite food trucks, leave reviews, share posts, and tag their friends, which helps to increase the visibility of the food truck online. By engaging with customers on social media, food truck owners can build a community of loyal followers who are likely to visit the truck regularly and recommend it to others.

At the same time, the food truck itself provides the product or service that customers are looking for, which in turn creates the content that is being shared on social media. The food that is served at the truck is often visually appealing and shareable on social media, which can help the business to reach a wider audience. Customers are essential to the success of both a food truck and its social media presence. By creating a positive and engaging experience for customers both online and offline, food truck owners can build a successful and sustainable business.

I. Review of Literature

(Singh & Verma, 2020).This literature review undertakes a comprehensive examination of the multifaceted impact exerted by social media on online food delivery systems. The analysis delves into various aspects of the user journey, including user experiences, the formation of customer trust, purchasing habits, and decision-making processes. Furthermore, the review explores the strategic utilization of social media for marketing purposes within the online food delivery industry. This includes examining how social media platforms are leveraged for consumer behavior analysis and the cultivation of brand reputation. In addition to this in-depth analysis, the review presents a novel social media analytics framework. This framework harnesses Twitter data to glean valuable insights into customer sentiment and engagement levels in relation to online food delivery services.

By integrating these diverse perspectives, the review aims to provide a holistic understanding of the intricate interplay between social media and the online food delivery landscape.

(Wessel, 2012). In conclusion, this literature review provides an in-depth analysis of the transformation of street food into a mobile service using social media and the emergence of new social processes in food trucks. The review highlights the importance of understanding cognitive and behavioral differences related to social media use in urban environments and the need for flexible urban design that embraces emerging social processes.

(Hanaysha, 2021). This review examines the influence of social media advertising features on brand engagement and purchase intention within the fast-food industry. It focuses on four key features: targeting, interactivity, personalization, and social context. Targeted advertising enables fast-food companies to precisely reach their ideal customer segments. In contrast, interactivity and personalization features allow for two-way communication between brands and consumers, fostering a more customized experience. Finally, the strategic use of social context, encompassing elements like user-generated content and influencer marketing, can cultivate trust and credibility with potential customers.

(Briliana et al., 2021). This review examines the demographic characteristics of participants within existing research on food vlogger reviews and local street food consumption. It emphasizes the significance of comprehending the attitudes of Millennials towards these phenomena. By elucidating consumer behavior and preferences, particularly those of this key demographic, businesses can refine their marketing strategies and product offerings to achieve a more targeted and effective approach in reaching their desired audience.

(Shan et al., 2015). This review explores the transformative impact of social media on communication strategies employed by food and health organizations. Social media platforms have emerged as novel and interactive channels, facilitating communication with the public in unprecedented ways. By leveraging these platforms, organizations can foster transparency and accountability, while simultaneously promoting audience engagement. The interactive nature of social media allows for real-time feedback and dialogue, fostering a more collaborative and open relationship between organizations and the public they serve.

(Fondevila et al., 2017).This review underscores the growing importance of social media for businesses, encompassing fast-food restaurants, in fostering customer engagement and brand recognition. Social media platforms function as conduits for direct and immediate customer feedback, allowing businesses to refine customer experiences, address customer anxieties, and cultivate relationships with their target audiences.

(Russo & Simeone, 2017). The review highlights the growing influence of social media on consumer behavior in the food industry, particularly in terms of the availability of information and growing concerns about food quality and safety. Social media provides consumers with access to real-time information, reviews, and feedback from other consumers, enabling them to make more informed decisions about food and beverage products.

(Correa et al., 2019). The study examines the impact of social media on communication related to food risks. The study considers the perspectives of journalists, food regulators, and representatives of the food industry, outlining the advantages and concerns associated with social media use in this context.

(Yarış&Aykol, 2021). It highlights the growing importance of social media in the food industry, with consumers increasingly turning to these platforms for information and recommendations on restaurants. The study examines the impact of social media on consumer behavior, focusing on the factors that influence restaurant choices.

(Gupta et al., 2023).The research examines the growing importance of social media in the tourism industry, specifically in the realm of food tourism. The study finds that social media platforms, such as Instagram and TripAdvisor, have a significant impact on food tourists' perception towards food outlets. Tourists use these platforms to seek out information and recommendations on local cuisine, popular dishes, and food outlets.

(Seo et al., 2015). This literature review investigates the impact of source credibility and comment content on consumer responses to social media comments. The study analyzes how consumers react to negative and positive/mixed comments on social media when the source is highly credible and determines how the relationship quality between the consumer and the brand influences consumer responses.

OBJECTIVE OF THE STUDY:

- To know the satisfaction level of food truck customer.

- To know the impact of social media in scaling of food truck business.
- To evaluate whether social media is cost effective way of marketing.
- To know customers perception towards food truck.

1. HYPOTHESIS

H_{O1}: Social media, influencer, collaboration and partnership with local food bloggers will not increase visibility, credibility and patronage for food truck businesses.

H_{A1}: Social media, influencer, collaboration and partnership with local food bloggers will increase visibility, credibility and patronage for food truck businesses.

II. Research Design and Methods

In this study, we aimed to explore the impact of social media on the success of food trucks in the area of Bilaspur [Chhattisgarh]. The total area of Bilaspur is 205 sq. km and not every locality is associated with focused business, therefore, the research will be conducted by stratified random sampling covering most popular area.

1.1. SAMPLE SIZE

A sample of 130 customers of food truck who also uses social media was randomly selected. Participants were asked to complete an online survey where they provided with question related to food truck and their ambiance, price, quality, consumer satisfaction, customer perception etc. This primary data will help to prove the hypothesis and to fulfill the main objectives of the research.

1.2. TOOLS AND TECHNIQUES OF DATA COLLECTION

Data has been collected from both the sources, i.e., primary and secondary. Primarily, data has been personally collected through questionnaire by using Likert scale technique containing questions relevant for testing the visibility, credibility and patronage of the food truck business. A test run of the proposed tool was conducted on 30 customers to validate the data. Apart from the primary source, data has also been collected from published or unpublished journals, thesis, research paper, library books, electronic content etc. To check the reliability of the research instruments, tests like Regression has also been applied with the help of computer software like SPSS.

2. LIMITATIONS OF THE STUDY

- **Limited sample size:** The study's findings may not be generalizable to the entire Bilaspur customer base due to the inclusion of a limited number of participants.
- **Response bias:** The study relied on survey data, which can be susceptible to bias introduced by how participants respond to questions. For instance, participants might be more inclined to provide socially desirable answers or their memory of past behavior might be inaccurate.
- **Lack of platform-specific analysis:** The study didn't explore the specific social media platforms frequented by both customers and food truck owners, nor did it examine how these platforms are being utilized. Since different social media platforms have distinct user demographics and functionalities, their effectiveness for marketing and promotion can vary.
- **Generalizability to other locations:** The study's focus on food trucks within a single city limits its generalizability. The influence of social media on food truck success might differ in other cities with contrasting regulatory frameworks or food cultures.

III. Results and Discussion

DESCRIPTIVE ANALYSIS

S. No.	Variable	Group	Frequency	Percentage
1	Age	0-20	40	31
		20 to 40	64	49
		40 to 60	16	12
		Above 60	10	8
2	Gender	Male	50	38
		Female	79	61
		Other	1	1
3	Educational Level	Upto 10^{th}	21	16
		Upto 12^{th}	25	19
		Graduate	34	26
		Post Graduate	50	39

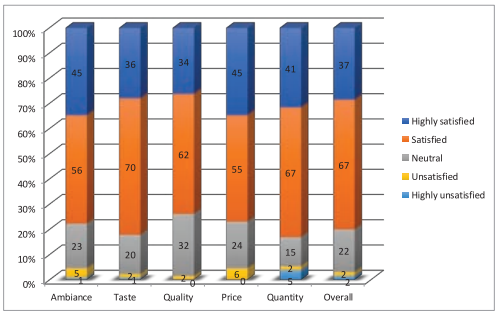
4	Marital Status	Married	40	31
		Unmarried	90	69
5	Monthly Income (in Rupees)	0 to 10,000	62	48
		10,000 to 20,000	26	20
		20,000 to 40,000	22	17
		40,000 to 60,000	12	9
		Above 60,000	8	6

- Age of the respondent: It shows how many individuals fall within specific age ranges. The distribution is broken down into age groups of 0-20, 20-40, 40-60, and 60 above. A data of 130 customer is collected which shows that 40 individuals falls into the 0- 20 range, 64 individuals in the 20-40 range, 16 individuals in the 40-60 range, and 10 individuals in the Above 60 range.
- Gender of the respondent: In the distribution of male and female respondents within the sample population it was observed that majorly female (61%) go to a food truck. This dominance would have been caused due to the flavorful taste offered by these fancy trucks. While male constitute to only 38% of the total customer base of a food truck. Only 1% customers belong to "others" category.
- Education level of the respondent: A descriptive analysis of educational level in the study concludes that out of the 130 respondents 20 people are 10th pass. 25 people are 12th pass. 34 people have completed their graduation and 51 people have completed their post graduate.
- Marital Status: The data of marital status, as showed in the table, concludes that out of the 130 respondent 40 people are married and 90 people are unmarried.
- Monthly Income: About 47.7% people fall in the category of 0-10000 group of monthly income. Next 20% fall the monthly income category of 10,000-20,000. 16.9% people belong to 20,000-40,000 income group. 9.2% individuals fall in 40,000-60,000 income groups and the least percentage belongs to 60000and above income group.

2.1. OBJECTIVE BASED INTERPRETATION

OBJECTIVE-1: To know the satisfaction level of food truck customers

Figure-1: Satisfaction level of food truck customers

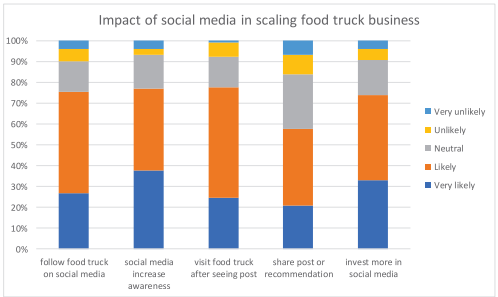


From the above graph we can easily say that a majority of the customers (37 out of 130) are highly satisfied with their food truck experience. Another 67 are satisfied. This means that 80% of the customers responded positively about their overall experience. Regarding Ambiance of food truck 45 customers are "Highly Satisfied". 56 respondents are satisfied and only 1 respondent is highly unsatisfied. Taste is also similar to Overall Satisfaction, a high percentage of respondents (70 out of 100) are satisfied with the taste of the food and 36 respondents are highly satisfied. In terms of Quality Customer satisfaction, 62 out of 100 indicating satisfaction and 34 are highly satisfied; most importantly no respondent is highly dissatisfied with the quality of food. Analyzing Price related satisfaction it is found that the highest percentage of highly satisfied customers (45 out of 100) is for price, indicating that a large portion of the clientele found the food truck offerings to be affordable, and only 6 are dissatisfied with the price. Satisfaction with quantity reflects that 41 respondents are highly satisfied with the portion sizes and only 15 respondents are neutral about the fact.

Overall, the data suggests that customers are generally very satisfied with the food truck experience, particularly the taste, and price of the food. There is room for improvement regarding ambiance and quantity based on the lower satisfaction levels in those categories.

OBJECTIVE-2: To know the impact of social media in scaling of food truck business

Figure-2: Impact of social media in scaling of food truck business

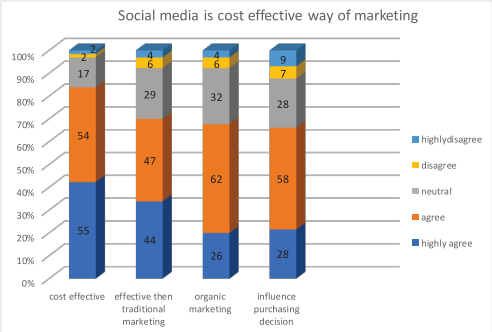


From the above graph we can easily say that a majority of the customers (63 out of 130) likely follow food truck on social media platform, whereas 35 follow it very likely and only 5 follows very unlikely. Regarding social media increase awareness 49 out of 130 customers very likely agree to it, another 51 likely agree and 5 very unlikely agree. Apart from it, 32 out of 130 customers very likely visit food truck after seeing post on social media, another 69 likely visit food truck and only 1 customer visit very unlikely i.e. 0.8%. Analysing how likely do you share posts or recommendation about food trucks on your own social media profile it is found that the highest percentage of likely sharing customer (48 out of 130), another 27 share very likely and only 9 share very unlikely. 43 out of 130 customer very likely think food truck should invest more in social media marketing, another 53 likely think and only 5 very unlikely think.

Overall, the data suggest that customers are likely satisfied with scaling sales of food truck business through social media.

OBJECTIVE-3: To evaluate whether social media is cost effective way of marketing

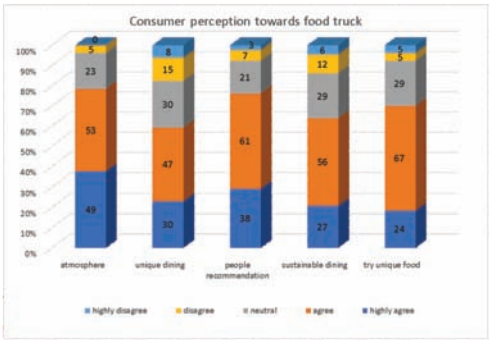
Figure-3: Whether social media is cost effective way of marketing



From the above graph we can conclude that 55 out of 130 customers highly agree that social media marketing is a cost-effective way for businesses to reach their target audience, another 54 agree to it and only 2 highly disagree. When we talk about social media as an effective marketing as compared to traditional marketing method 44 out of 130 highly agree to it, another 47 agree to it and only 4 highly disagree. Analysing that businesses should focus more on organic(unpaid) or paid social media marketing we concluded that 26 out of 130 highly agree to it, a majority of customer 62 out of 130 agree and only 4 highly disagree. Talking about social media influencing customers purchasing decision a less number (28 out of 130) highly agree, majority of customer (58 out of 130) agree to it and only 9 highly disagree. Overall we can say that social media is a cost effective way of marketing.

OBEJCTIVE-4: To know customers perception towards food truck

Figure-4: Customers perception towards food truck



From the above graph we can easily say that the atmosphere of food truck is important as 49 out of 130 customers highly agree and another 53 agree to it and only 5 disagree to it and 0 customer highly disagree. Talking about food truck offer a unique dining 30 out of 130 highly agree, another 47 agree and only 8 highly disagree. Regarding people recommending food truck based on their experience 38 out of 130 highly agree, another 61 agree and only 3 highly disagree. Talking about sustainable dining 27 out of 130 highly agree, another 56 agree and 6 highly disagree. Analysing that customer try new or unique food items offered by food truck 24 out of 130 customers highly agree, a majority of customer (67 out of 130) agree and only 5 highly disagree.

2.2. HYPOTHESIS BASED INTERPRETATION

H_{O1}: Social media, influencer, collaboration and partnership with local food bloggers will not increase visibility, credibility and patronage for food truck businesses.

H_{A1}: Social media, influencer, collaboration and partnership with local food bloggers will increase visibility, credibility and patronage for food truck businesses.

	Sum of Squares	df	Mean Square	F-Statistic	Sig.
Regression	42.673	3	14.224	29.192	< .05
Residual	61.396	126	.487		
Total	104.069	129			

Model Summary			
R	R Square	Adjusted R Square	Std. Error of the Estimate
.640	.410	.396	.69805

Table-3: Coefficients

Model	Unstandardised Coefficients		Standardised Coefficients	t-Value	Sig.
	B	Std. Error	Beta		
(Constant)	1.500	.326	---	4.607	.000
Do you agree that you follow local food influencers or bloggers on social media?	.047	.080	.045	.587	.558
Do you agree that you visit a food truck recommended by a local food influencer or blogger?	.163	.073	.190	2.237	.027
Do you agree that you trust recommendations or reviews about food trucks from local influencers or bloggers?	.430	.070	.501	6.190	.000

The statistics in the table suggest that the regression model has a good fit. The R-squared value is 0.410 which means 41%, indicating that the independent variables explain a large proportion of the variance in the dependent variable. The adjusted R-squared value is also high, suggesting that the model is not over fitting the data. The standard error of the estimate is .69850 which is relatively low, indicating that the data points are close to the fitted regression line.

Based on the ANOVA table, we can see that the F-statistic is 29.192 The significance level (Sig.) is < 0.05. Since the significance level is less than 0.05, we can reject the null hypothesis that there is no significant difference between the means of the groups. This means that there is evidence to suggest that collaboration between food trucks and social media influencers or bloggers has a significant impact on the credibility of the food truck business.

The coefficients in the table show the strength and direction of the relationships between the independent variables and the dependent variable. For example, the coefficient for the variable "Do you agree that you follow local food influencers or bloggers on social media?" is 0.047. This coefficient is positive, which suggests that there is a positive relationship between following local food influencers and customer trust in food trucks. However, the coefficient is also very small, which suggests that the relationship is weak.

Similarly, the coefficients for the other two variables ("Do you agree that you visit a food truck recommended by a local food influencer or blogger?" and "Do you agree that you trust recommendations or reviews about food trucks from local influencers or bloggers?") are also positive, but small.

IV. Conclusion

Social media has revolutionized the food truck industry. It not only expands their reach to a wider audience but also fosters a personal connection with customers. Platforms like Facebook, Twitter, and Instagram allow food trucks to keep followers updated on location, menus, and directly interact through comments and messages. This builds a unique and loyal customer base. Additionally, social media data analytics help food trucks identify their target audience and refine marketing strategies. As these platforms evolve, food trucks that adapt and leverage these tools will see further growth. However, it's important to acknowledge limitations in this study. The focus on a limited sample size in Bilaspur and reliance on survey data with potential response bias could affect generalizability. Additionally, the study doesn't explore the specific social media platforms used or how they're utilized, which can vary in effectiveness. Finally, focusing on a single city limits generalizability to other locations with different regulations and food cultures. Despite these limitations, the positive impact of social media on food trucks is clear. Future research that addresses these limitations can provide a more nuanced understanding of this dynamic relationship.

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A STUDY ON IMPACT OF FACTORS AFFECTING PREFERENCES OF INVESTMENT AVENUES BY THE MILLENNIALSIN SELECT CITIES OF KARNATAKA

Dr. Shyamala G.* Dr. R. Nalini**

Purpose: *The main objective of this paper is to understand the demographic and socio-economic profile of the millennials in select cities of Karnataka. Further, to identify and analyze the factors affecting the savings and investment decisions of the millennials in select cities of Karnataka and also to study the impact of factors affecting the preference of investment avenues of the millennials in select cities of Karnataka.*

Methodology:*The present study is exploratory in nature. The study is based on primary data. A survey was conducted for the study among the millennials in select cities, namely, Mysuru, Bengaluru, Mangaluru, Hubli- Dharwad from Karnataka state. 400 respondents were selected by using stratified random sampling technique. Various statistical tools and techniques have been applied in the study such as ANOVA, contingency coefficient, P value, Pearson correlation, factor analysis, chi-square, and Structural Equation Model (SEM) hypotheses set for the study are tested. SPSS version 20 and Stata 12 were used for data analysis to draw meaningful conclusion.*

Findings: *The study found that the millennials of selected cities prefer to invest in Bank Deposits, Gold, Insurance policies, provident fund, equity shares and mutual funds. They are less interested to invest in real estate, bonds and debentures and derivatives instruments (Futures, options etc.) due to lack of awareness. It was also found that majority of the respondents considered return, safety and security factors while making investment decisions. Further, all macro-economic factors jointly influenced investment decisions and the majority of the respondents considered inflation and global fluctuation as major macro-economic factors which influenced their decisions on investment.*

Originality / Value: *The value of this study is the analysing the factors affecting the savings and investment decisions by millennials and also study the impact of factors affecting their preference of investment avenues. A Structural Equation Model was built from primary data.Beta coefficient between Investment Attributes and selected investment avenues has been established. It showed the investors' preferences over the various investment avenues with respect to investment attributes.Investors can reduce their risk by diversification of their investments over the volatility in the capital market as it was found that majority of the respondents considered return, safety and security factors while making investment decisions and also this model identified the inflation and global fluctuation as major macro-economic factors which influenced their decisions on investment.*

Keywords : *Gross Domestic Savings, Awareness, Financial Decision, Millennials, Savings and Investment.*
JEL Code: *G11, G41*

Introduction

Savings and investment rates in the financial year (FY) 2021-22 were 30.2 per cent and 29.6 per cent, respectively (https://www.business-standard.com).In order to increase the rate of economic growth as well as to develop a self-reliant economy, more resources are required. In a country like India, savings and investments are essential to increase the capital formation of the country as well as to improve the standard of living of its people. Savings and investments of the nation are expressed in terms of Gross Domestic Savings (GDSs), which contain three major sources such as the household sector, the private corporate sector, and the public sector.

Savings basically cannot result in wealth creation as it omits omit inflation. Wealth creation needs an investment opportunity that helps us cover all the relative costs pinned to money. In India, millennials make up 34 percent (at 440 million) of the country's total population (https://bfsi.economictimes.indiatimes.com (2023)). The last few years have demonstrated that India has the world's largest millennial market, attracting millennials from all over the world. Millennials, or Generation Y, are people born

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between 1982 and 2000 (Agati, 2012). Currently, they constitute one-third of India's population, and 46% of the current workforce. Millennials have begun investing at a much earlier age compared to their parents (Mohammed Umair 2021). The Indian millennials also contribute to financial decision-making. As the main generators of income in their households, they are responsible for budgeting, prioritising purchases, and making investment decisions—and they are doing it differently from how their predecessors managed.

STATEMENT OF THE PROBLEM

Savings and investments made by the millennials constitute the basis for capital formation, as they make up one-third of the population of the country. Patterns of consumption, saving, and investment differ from one person to another. Indian millennials contribute a significant portion of savings to national income (You Gov-Mint Millennial Survey (Sep-Oct 2019)).Spending less than earnings as well as a planned savings and investment plan are important to meet the present and future financial requirements of millennials. Mobilisation of savings is required to create a prosperous future as well as to lead the economy in growth progress. There is a need for knowing the factors affecting investment avenue preferences of millennials at present in India in general, and Karnataka in particular as it is considered as one of the States with more potential for investment in the future. The outcomes of this study will also enable policymakers to draw a roadmap for creating awareness about the investment avenues for the millennials. Therefore, the present study is titled 'A Study on Impact of Factors Affect the Investment Avenues' Preference in Select Cities of Karnataka'.

NEED FOR THE STUDY

An interesting feature observed in successive generations is that the financial status of the younger generation is better than that of their parent' generation. At present the emerging economies like India and China are looked at by the whole world as youth population is the highest in these economies. As per 2021 census, one-thirds of India's population comprises of the youth 21 - 40years) by 2021and 34.38 per cent of Karnataka's population consists of youth. So, this 'demographic dividend' can be used for wealth creation to speed up economic growth of the nation. There is a need for knowing their preference for various investment avenues to create awareness about investment avenues in the youth. Therefore, the study focuses on factors affecting preferences for investment avenues by millennials in select cities of Karnataka.

I. REVIEW OF LITERATURE

This part of the paper brings out the results of review of literature made on the chosen topic based on few important studies conducted in the past:

Aashish Jain (2017) conducted a 'A study on Investment Preference' with 50 samples. It identified the individual investment against preferred investment avenues by conducting self-assessment test. The result revealed that 76% of the respondents were aware of investment avenues and remaining 24% of the respondents were unaware. It was found that there was no relationship between gender & investment avenues and there was significant relationship between income & investment avenues.

Srijanani and Vijaya (2018) revealed that women preferred risk free investments, while men preferred risky investments. Women investors tend to show less confidence in the investment decisions and hence have lower satisfaction level. It was also observed that the information available to male and female investors was different and hence there was a difference in their investment decisions.

Surajit Sarbabidya and Trina Saha (2018) conducted a study on 'students, bankers, nonbank financial institutions officials and faculty members of Britannia University of Bagladesh. The result revealed that relationship between the factors which affected investment decisions. The factors included 'risk factors, stockholder's whimsical attitude, earning per share, political instability and uncontrollable macroeconomic factors. The study concluded that these were the factors discouraging the investors of the stock market in Bangladesh.

RELATIONSHIP BETWEEN INVESTMENTS ATTRIBUTES, MACRO-ECONOMIC FACTORS, AND INVESTMENT AVENUES

The model is built on the assumption that investment attributes and macro-economic factors for savings and investment affect in the selection of the investment avenues chosen by the respondents. And the perceptions of respondents towards these two factors help in preferring the investment avenues. By establishing their relationship, it is possible to know the differences in perceptions of

respondents. Thus, this model helps in evaluating the savings and investment pattern of sample respondents (Figure-1).

II. Research Design and Method

The present study is exploratory in nature. The study is based on primary data. A survey was conducted for the study among the millennials in select cities, namely, Mysuru, Bengaluru, Mangaluru, Hubli- Dharwad from Karnataka state. Respondents were selected by using stratified random sampling technique. Primary data from 400 respondents was collected through structured questionnaire. To analyse the data collected from millennials and verify the hypotheses set, various statistical tools and techniques have been applied in the study such as ANOVA, contingency coefficient, P value, Pearson correlation, factor analysis, chi-square, and Structural Equation Model (SEM) hypotheses set for the study are tested. SPSS version 20 and Stata 12 were used for data analysis to draw meaningful conclusion.

OBJECTIVES

1. To understand the demographic and socio-economic profile of the millennials in select cities of Karnataka.

2. To identify and analyze the factors affecting the savings and investment decisions of the millennials in select cities of Karnataka.

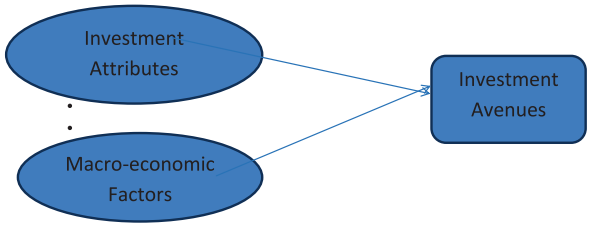
3. To study the impact of factors affecting the preference of investment avenues of the millennials in select cities of Karnataka.

OPERATIONAL MODEL

An operational model is built based on the research variables such as investment attributes for savings and investment, macro-economic factors and investment avenues.

- **Investment attributes:** Investment attributes for savings and investment include risk and returns, safety and security, liquidity, tax benefits, convenience, capital appreciation, social status, investment duration, and asset allocation.
- **Macro – economic factors:** Macro-economic factors include inflation, changes in market price of the investment, changes in government policies, changes on interest rate, possibility of insolvency of investing firms, performance of the invested company and Global fluctuation.

Figure -1 Operational Model of Research



The following investment avenues are considered for the study

1. Bank deposits
2. Post office savings schemes
3. Chit funds
4. Provident fund
5. Pension funds (like NPS)
6. Insurance policies
7. Jewellery
8. Mutual funds
9. Real estate
10. Equity shares
11. Bonds and debentures
12. Precious objects (Diamonds, pearls, art objects etc.)
13. Derivatives (Futures, Options etc.)
14. Gold coins

III. Results and Discussion

This part of the study deals with data analysis and interpretation. The data collected from primary source using a structured questionnaire has been tested for its reliability and the result is as under:

RELIABILITY ANALYSIS OF THE QUESTIONNAIRE:

Cronbach's Alpha Index was used to determine the reliability based on internal consistency of the questionnaire. Typically, items having a coefficient of 0.70 are considered adequate for the study. The outcome of reliability analysis of the variables is presented in Table.1.

Table.1:

Sl. No.	Variables	No. of Statements	Cronbach's Alpha
1	Investment attributes	10	0.906
2	Macro-economic factors	7	0.852
3	Investment preferences	14	0.778

Source: Primary Data

Millennials' Result of Reliability Analysis of savings and investment pattern Variables

Table.2: Demographic and Socio-Economic Profiles of Millennials

Sl.No	Demographic factors socio-economic factors	No. of respondents (Frequency)	Percentage
1	**GENDER**		
	a) Male	241	60.2
	b) Female	159	39.8
2	**AGE**		
	a) 21-25 years	72	18.0
	b) 26-30 years	103	25.8
	c) 31-35years	117	29.2
	d) 36-40 years	108	27.0
3	**PLACE**		
	a) Mysuru	80	25
	b) Bengaluru	80	25
	c) Mangaluru	80	25
	d) Hubli-Dharwad	80	25
	e) Belagavi	80	25
4	**MARITAL STATUS**		
	a) Married	234	58.5
	b) Unmarried	166	41.5
5	**EDUCATIONAL QUALIFICATION**		
	a) PUC	11	2.7
	b) Degree	106	26.5
	c) Post-Graduation	199	49.8
	d) Professional Degree	47	11.8
	e) Ph.D	37	9.2
6	**OCCUPATION**		
	a) Student	28	7.0
	b) Own business	204	51
	c) Professional	41	10.2
	d) Government employee	40	10.0
	e) Private employee	87	21.8
7	**FAMILY TYPE**		
	a) Joint	172	43.0
	b) Nuclear	228	57.0
8	**NO. OF EARNING MEMBERS**		
	a) One	66	16.5
	b) Two	168	42.0
	c) Three	110	27.5
	d) More than three	56	14.0
9	**NO. OF DEPENDNETS**		
	a) No dependent	35	8.8
	b) One	70	17.5
	c) Two	116	29.0
	d) Three	101	25.2
	e) More than three	78	19.5
10	**NATURE OF RESIDENCE**		
	a) Own house	131	32.75
	b) Rental / lease house	269	67.25
11	**MONTHLY INCOME**		
	a) Up to Rs.10000	6	1.5
	b) Rs.10001-20000	47	11.8
	c) Rs.20001-30000	88	22.0
	d) Rs. 30001-40000	60	15.0
	e) Rs.40001-50000	66	16.5
	f) Above Rs.50000	133	33.2
12	**FAMILY MONTHLY INCOME**		
	a) Up to Rs.20000	13	3.2
	b) Rs.20001-30000	25	6.2
	c) Rs.30001-40000	24	6.0
	d) Rs.40001-50000	36	9.0
	e) Rs.50001-60000	24	6.0
	f) Above Rs.60000	278	69.5
13	**FAMILY MONTHLY EXPENDITURE**		
	a) Up to Rs.10000	20	5.0
	b) Rs.10001- 20000	52	13.0
	c) Rs.20001- 30000	76	19.0
	d) Rs.30001- 40000	36	9.0
	e) Rs.40001-50000	65	16.2
	f) Above Rs.50000	151	37.8
14	**FAMILY MONTHLY SAVINGS**		
	a) Up to 10000	82	20.5
	b) Rs.10001 – 20000	65	16.2
	c) Rs.20001 – 30000	54	13.5
	d) Rs.30001 – 40000	30	7.5
	e) Rs.40001 – 50000	64	16.0
	f) Above 50000	105	26.2

Source: Primary Data

Demographic and Socio economic profile of Respondents

The Table-2 shows the demographic and socio-economic profile of 400 respondents from select cities such as Mysuru, Bengaluru, Mangaluru, Hubli-Dharwad and Belagavi in Karnataka state. 80 respondents have been taken from each city.

Gender wise distribution of respondents demonstrates majority (60.2%) of the millennials are 'Male'. Age wise distribution of samples reveal that 29.2% are 31-35 years.Distribution of respondents based on marital status shows that more than 58.5% are married. Out of the total 413 millennials, 49.8% respondents are post graduates. 51% of respondents are 'Private Employees'. Majority (57.0%) of the respondents are in Joint Families.Majority (42.0%) of the respondents have 'Two' earning members. 116 sample respondents (29.0%) have 'Two Dependents' in the family. Majority (67.25%) of the respondents are living in a 'Rental / Lease' house. 33.2% of the respondents' monthly income is 'Above 50,000'. Majority (69.5%) of the respondents' family monthly income is 'Above 60,000'. Majority (37.8%) of the respondents' family monthly expenditure is 'Above 50,000'. The majority (26.2%) of the respondents' monthly family savings is 'Above 50,000'and 20.5% have family savings of 'Up to Rs.10000'.

FACTORS AFFECTING THE SAVINGS AND INVESTMENT DECISIONS AMONG MILLENNIALS

i. INVESTMENT ATTRIBUTES

Hypothesis 1:

H_0: There is no significant difference in the investment attributes for savings and investment decisions among the millennials.

H_1: There is a significant difference in the investment attributes for savings and investment decisions among the millennials.

Table.3:

Index for factor considering while investment								
Factors considering while investment	N	Subset for alpha = 0.05						
		1	2	3	4	5	6	Level
Social status	400	.614375						0.614375
Asset allocation	400		.651250					0.65125
Tax benefits	400			.680625				0.680625
Capital appreciation	400			.707500	.707500			0.7075
Liquidity	400				.717500	.717500		0.7175
Convenience	400				.718750	.718750	.718750	0.71875
Investment duration	400				.722500	.722500	.722500	0.7225
Risk involved	400				.725625	.725625	.725625	0.725625
Return	400					.746875	.746875	0.746875
Safety and security	400						.748750	0.74875
Sig.		1.000	1.000	.050	.247	.055	.050	
ANOVA F-Test								
F: 19.350***, df: (9,3990), 0.000								

Source: Primary Data

Investment attributes for savings and investment (individual index)

The investment attributes for savings and investment of respondents are presented Table-3. The F-test is significant one per cent level indicating that there is a significant difference in the factors influencing saving and investment avenues by millennials. The Duncan test has created six sub-sets. The consideration of factors such as social status, allocation of assets and tax benefits while deciding savings and investment avenues of the respondents are significantly low, it is medium towards capital appreciation, liquidity, convenience, time period of investment and risk involved and the consideration of factors such as safety and security and also return while deciding savings and investment avenues are significantly high.

Factor Analysis

The consideration of factors is the major dimension while selecting the savings and investment avenues. The investment attributes for savings and investment have been analysed by using PCA (Principle Component Analysis). Ten factors have been considered for PCA namely: risk involved, return, safety and security, liquidity, tax benefits, convenience, capital appreciation, social status, investment duration and asset allocation.

Table.4:

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.918
Bartlett's Test of Sphericity	Approx. Chi-Square	3358.893
	Df	45
	Sig.	.000

Source: Primary Data

KMO and Bartlett's Test

Table-4 represents the Kaiser-Mayer-Olkin (KMO) and Bartlett's test. It was conducted to identify the adequacy of samples for factor analysis of factors determining while selecting the savings and investment avenues. The KMO value is 0.918 and greater than 0.5. Hence, the samples used for the present factor analysis are adequate.

Identification of factors for Each Component of factors:

Using principal component analysis, for factors determining while selecting the savings and investment avenues are identified under each component for which the value is greater than 0.7 (A factor loading approximately 0.7 is considered to be sufficient).

Component Matrix	
Factors	**Component**
	1
Risk involved	.785
Return	.858
Safety and security	.864
Liquidity	.836
Tax benefits	.797
Convenience	.855
Capital appreciation	.856
Social status	**.569**
Investment duration	.865
Asset allocation	.741
Extraction Method: Principal Component Analysis.	

Source: Primary Data

Component Matrix

Table-5 shows the component matrix. The factors identified under one component are presented above. All the 9 factors are identified except social status. Risk involved, return, safety and security, liquidity, tax benefits, convenience, capital appreciation, investment duration and asset allocation are identified under first component. Accordingly, risk and return in the investment, safety and security while investing, liquidity, tax shields, comfort while investing, earn more returns on capital, time period of investment and allocation of assets are the strong factors that jointly influence the factors considering while deciding about savings and investment at first place.

ii. MACRO-ECONOMIC FACTORS WHICH INFLUENCE THE RISK WHILE INVESTMENT

Hypothesis 2:

H_0: There is no significant difference in the macro-economic factors for savings and investment decisions among the millennials.

H_1: There is a significant difference in the macro-economic factors for savings and investment decisions among the millennials.

Table.6:

Macro-economic factors							
Duncan							
GRP IND	N	Subset for alpha = 0.05					
		1	2	3	4	5	Level
Insolvency of investing firms	400	.4419					0.4419
Changes in government policies	400		.5450				0.545
Changes in interest rate	400		.5513				0.5513
Performance of invested company	400		.5650				0.565
Changes in market price	400			.5956			0.5956
Inflation	400				.6650		0.665
Global fluctuation	400					.6950	0.695
Sig.		.117	.215	1.000	1.000	1.000	
ANOVA F-Test							
F: 66.706***, df: (7,3192), 0.000							

Source: Primary Data

Macro-economic factors which influence the risk while savings and investment (individual index)

Table-6 represents the macro-economic factors which influence the risk for savings and investment of respondents. The F-test is significant one per cent level indicating that there is a difference in the macro-economic factors influencing the risk for savings and investment. The Duncan test has created five sub-sets. Accordingly, the macro-economic factors which influence the risk for savings and investment of the respondents considering the factors i.e. possibility of insolvency of investing firms is significantly low, it is medium with respect to performance of the invested company and changes in government policies, interest rate and market price of the investment. At the same time, the factors such as inflation and global fluctuation are significantly high.

Factor Analysis

The factors which influence the risk for savings and investment are the major dimensions. The factors have been analysed by using PCA. There are seven factors have been considered for PCA namely; Inflation,changes in market price of the investment, changes of government policies, changes in interest rate, possibility of insolvency of investing firms, performance of the invested company, and global fluctuation.

Table.7:

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.831
Bartlett's Test of Sphericity	Approx. Chi-Square	1462.700
	Df	28
	Sig.	.000

Source: Primary Data

KMO and Bartlett's Test

Table-7 shows the Kaiser-Mayer-Olkin (KMO) and Bartlett's test. It was conducted to identify the adequacy of samples for factor analysis of factors which influence the risk while investment. The KMO value is 0.831 and greater than 0.5. Hence, the samples used for the present factor analysis are adequate.

Identification of factors for Each Component of Factors:

Using rotated matrix, which is also a promax procedure, factors which influence the risk while investment are identified under each component for which the value is greater than 0.7 (A factor loading approximately 0.7 is considered to be sufficient).

Table.8:

Structure Matrix		
Factors	**Component**	
	1	**2**
Inflation	.340	**.887**
Changes in market price of the investment	**.772**	.648
changes of government policies	**.813**	.476
Changes in interest rate	**.798**	.354
Possibility of insolvency of investing firms	**.823**	.360
Performance of the invested company	**.796**	.474
Global Fluctuation	.372	**.823**
Extraction Method: Principal Component Analysis.		

Source: Primary Data

Structure Matrix

Table-8 represents the factors which influence the risk while investment identified under two components. Out of eight factors all factors are identified Changes in market price of the investment, changes of government policies, Changes in interest rate, Possibility of insolvency of investing firms and Performance of the invested company are identified under first component. These identified factors are the strong factors jointly influence the risk in the investment at first place. Further, inflation and global fluctuation are identified under second component. These identified factors are the strong factors jointly influence the risk in the investment at second place.

STRUCTURAL EQUATION MODEL

Relationship among investment attributes, Macro-economic factors which influence the risk while investment and selected investment avenues

Hypothesis 3:

H_0: There is no significant relationship between investment attributes and investment avenues.

H_1: There is a significant relationship between investment attributes and investment avenues.

Hypothesis 4:

H_0: There is no significant relationship between macro-economic factors and investment avenues.

H_1: There is a significant relationship between macro-economic factors and investment avenues

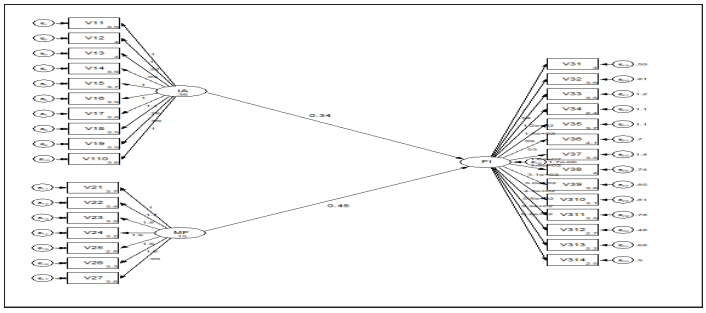
Structural Equation Model (SEM)

Number of observation = 400

Estimation method = Maximum Likelihood Estimator

Log likelihood: -13803.58

Figure-2



Source: Primary Data

SEM for Investment attributes, macro-economic factors and selected investment avenues

The Figure-2 shows the Structural Equation Model (SEM) model with the results of impact of investment attributes, Macro-economic factors which influence the risk for savings and investment on selected investment avenues. Investment attributes, Macro-economic factors which influence the risk for savings and investment and selected investment avenues are latent unobserved variables for which there are no own data set. Accordingly, the observed indicators have used to represent latent variables. The investment attributes are represented by risk involved (V11), return (V12), safety and security (V13), liquidity (V14), tax benefits (V15), convenience (16), capital appreciation (17), social status (V18), investment duration (V19), and asset allocation (V20). Macro-economic factors which influence the risk for savings and investment include inflation (V21), changes in market price of the investment (V22), changes in government policies (V23), changes in interest rate (V24), possibility of insolvency of investing firms (V25), self-manage performance of the invested company (V26) and global fluctuation (V27). The investment avenues are represented by Bank deposits (V31), Post office savings schemes (V32), Chit funds (V33), Provident fund (V34), insurance policies (V35), and Pension funds (like NPS) (V36), Jewellery (V37), Mutual funds (V38), Real estate (V39), Equity shares (V40), Bonds and debentures (V41), Precious objects (Diamonds, pearls, art objects etc.) (V42), Derivatives (V43), and gold coins (44).

The regression covariance unstandardized estimates are given by the model. The overall goodness fit of model is 0.9943. Accordingly, the model explains 99.98 percent of the reality of the population.

Table.9:

Sl.No	Variables	β	Sig.
1	Investment attributes	0.32	0.000
3	Macro-economic factors	0.45	0.000

Source: Primary Data

Beta Coefficient of Variables for selected investment Avenues of Savings and Investment of Respondents

The table- 9 represents the beta coefficient among Investment attributes for savings and investment, macro-economic factors which influence the risk for savings and investment, and selected investment avenues of respondent. It is found from the structural regression equations that the coefficient of investment attributes and macro-economic factors are positive and significant at one percent level. Therefore, investment attributes and macro-economic factors significantly explain the variation in investment avenues. Therefore, a unit change in the investment attributes and macro-economic factors will influence the risk for savings and investment that will bring 0.32, and 0.45 times of positive change in the preferences of investment avenues respectively.

Table.10:

Sl No	Investment avenues	Investment Attributes	
		B	Sig.
1	Bank deposits	0.22	0.021
2	Post office savings scheme	0.25	0.051
3	Chit funds	0.31	0.562
4	Provident fund	0.32	0.012
5	Insurance policies	0.35	0.012
6	Pension funds (like NPS)	0.23	0.012
7	Jewellery	0.32	0.003
8	Mutual funds	0.45	0.002
9	Real estate	0.38	0.045
10	Equity shares	0.22	0.031
11	Bonds and debenture	0.21	0.059
12	Precious objects (Diamonds, pearls, art objects etc.)	0.43	0.321
13	Derivative (futures, options etc.)	0.44	0.451
14	Gold coins	0.31	0.231

Source: Primary Data

Beta coefficient between Investment Attributes and selected investment avenues

The table-10 shows the beta coefficient between investment attributes and selected investment avenuesof respondent. It is found that beta co-efficient value is positive in all the cases. P-value is less than 0.05 in all cases except post office savings scheme, chit funds, bonds and debentures, Precious objects (Diamonds, pearls, art objects etc.), derivatives instruments and gold coins. Therefore, the null hypothesis 'investment attributes have no significant relationship with the selected investment avenues get rejected' in bank deposits, insurance policies, pension funds, jewellery, mutual funds, real estate and equity shares.

Table.11:

Sl No	Investment avenues	Macro Factors	
		β	Sig.
1	Bank deposits	0.12	0.002
2	Post office savings scheme	0.31	0.051
3	Chit funds	0.11	0.211
4	Provident fund	0.41	0.031
5	Insurance policies	0.34	0.023
6	Pension funds (like NPS)	0.35	0.043
7	Jewellery	0.32	0.032
8	Mutual funds	0.43	0.022
9	Real estate	0.45	0.043
10	Equity shares	0.12	0.035
11	Bonds and debenture	0.32	0.051
12	Precious objects (Diamonds, pearls, art objects etc.)	0.12	0.431
13	Derivative (futures, options etc.)	0.23	0.341
14	Gold coins	0.44	0.421

Source: Primary Data

Beta coefficient between Macro Factors and selected investment avenues

The table-11 represents the beta coefficient between macro-economic factors and selected investment avenues of respondent. It is found that beta co-efficient value is positive in all the cases. P-value is less than 0.05 in all cases except post office savings schemes, chit funds, bonds and debentures, precious objects (Diamonds, pearls, art objects etc.), derivatives instruments and gold coins. Therefore, the null hypothesis 'macro factors affecting the towards investment avenues have no significant relationship with the selected investment avenues get rejected' in the case of bank deposits, insurance policies, pension funds, jewellery, mutual funds, real estate and equity shares.

IV. Conclusion

To conclude, this study was aimed at analysing the demographic and socio-economic profile and factors affecting savings and investment decisions of the millennials in select cities of Karnataka, namely, Mysuru, Bengaluru, Mangaluru, Hubli – Dharwad and Belagavi. The study found that the millennials of these cities prefer to invest in Bank Deposits, Gold, Insurance policies, provident fund, equity shares and mutual funds. They are less interested to invest in real estate, bonds and debentures and derivatives instruments (Futures, options etc.) due to lack of awareness. It was also found that majority of the respondents considered return, safety and security factors while making investment decisions. Further, all macro-economic factors jointly influenced investment decisions and the majority of the respondents considered inflation and global fluctuation as major macro-economic factors which influenced their decisions on investment. So there is a need for SEBI to take initiatives to create awareness about less explored investment avenues by the millennials. If the millennial investors start to invest in various avenues, the wealth of the nation will increase and reach the desired economic growth.

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Air India vs Akasa Air: War for Talent

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The CEOs of Air India and Akasa Air exchanged their words on poaching of the pilots6. Akasa Air accused Air India for poaching their company pilots6. Dube said "40 pilots of the company left abruptly without completing the notice period". Due to the sudden exit, Akasa had to call off their operations in July and August 2023 and the market share of the company was affected badly41. Most of these pilots have joined Air India15. Then, Akasa accused Air India and a legal notice was sent to 19 pilots, who had joined Air India without completing the mandatory notice period39 and claimed 22 crores as compensation from each . Meanwhile, Akasa requested the Directorate General of Civil Aviation (DGCA) and the Ministry of Civil Aviation to intervene in the matter18. In September, Akasa sued the aviation watchdog for not supporting the same8. In response, a higher official from DGCA said that flight cancellations due to pilot' shortages were the respective airline's issues. It must be resolved by the respective airline not from the Civil Aviation Ministry side and DGCA53.

Air India

At first, Air India was known as Air-India (Annexure 1). It was started by the renowned business tycoon JRD Tata in 1932. He was the first licensed pilot in India and his dream was to make Air-India the first commercial airline in India. The airline's first service was flying mail on some routes in the same year. Slowly, the mail segment started growing and then the company started carrying passengers[14]. In 1938, Air-India was renamed Tata Airlines and started international operations. The first international route was Colombo, Srilanka. Subsequently, the airline's profit grew by tenfold. Later, the growth was sluggish as aircraft halted temporarily and were used for military purposes during World War II[46]. After independence, the Indian government took a 49% stake in Tata Airlines and renamed it as Air India. After five years, Air India and other airlines were nationalized by the government. JRD Tata did not like the move. However, later he became the chairman of the airline. Air India became a public limited company on 29, July 1946. In June 1948, Air India started a regular service to London and then Nairobi after two years. In 1962, it became the world's first all-jet airline. In 1977, Air India's chairman, JRD Tata was removed and the government took full control. Subsequently, changed the operations and management of the airline[46]. In 2007, Air India was merged with Indian Airlines. The objective was to streamline the operation, give efficient service and be competitive in the industry. However, it was not successful. Air India never made a profit after that merger. The loss for each day was Rs 23 crore[25]. Eventually, it went into a huge debt of Rs 61,000 crore[46]. Owing to the airline's poor performance, the growth started declining and it had been there for almost two decades[46]. On account of that, in 2018 the Indian government wanted to privatize Air India by selling 76% of its stake, however, none of the private players showed interest in buying[27].

Finally, after eight decades, Air India was acquired by the Tata Group from the government after many setbacks in 2021[25]. Tata Sons won a bid of Rs 18,000 crore to get the airline back under its group[25]. The Tata group had a great vision for Air India. Therefore, the company ordered 470 narrow and wide body planes from Boeing and AirBus with an expected total investment of around Rs 6.40 crore ($80 billion)[25]. Moreover, the company planned to hire 1000 pilots including captains and trainers in the coming months[52].

Akasa Air

Vinay Dube set up India's latest airline Akasa in November 2021. Akasa launched its first commercial flight on August 7, 2022[11]. The first service was from Mumbai to Ahmedabad[13]. Dube brothers were the co-founders of the Airline. Rakesh JhunJhunwala, a renowned person in India's stock market invested the money to start the airline. Former president of Indigo Airlines, Aditya Ghosh also was the co-founder of the airline[38]. The airline was one of the fastest-growing airlines in the last 120 years of global aviation and created the record. The airline added 20 planes in the commercial operations within a year[13]. In the first-year commercial operation, Akasa took 4.3 million passengers, operated 900 weekly flights and carried 25,000 tonnes of cargo[13].

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Since inception, the market share grew from 0% to 4.9% with a registered passenger's load factor of 84%[13]. Initially, the airline focussed on domestic operations. However, the company planned to expand in international markets like Middle East and Southeast Asia. For this, Akasa ordered 150 Boeing 737 MAX narrow-body planes[44]. Dube said Akasa had around 400 employees. Each month, the company planned to add 175 employees and completed the employee strength of 2000 by March 2023 with 18 Aircraft[21]. Generally, any airline operating with 20 aircraft is allowed to take international operations. As Akasa received its 20th plane on August 1 2023, it started its international operation on September 11 2023. Akasa operated 120 flights per day. Mostly the airline used B737 Max planes[19]. Based on the Economic Times report, Akasa wanted to increase its pilot strength to 900 by 2024-25 and planned to increase the aircraft count to 28 by March 28, 2024. For the next few years, 10-12 planes will be added annually[43]. The brand promised "Warm & efficient customer service, reliable operations, and affordable fare" and aimed to become the greenest airline in the country[11].

Indian Aviation Industry – Present

Indigo CEO, Pieter Elbers said that the Indian aviation market was highly competitive and gave good competition with global aviation[42]. Despite, the industry was growing rapidly, the market was still open. The majority of the people were not in a position to afford air travel as it was highly expensive. To support the middle-class people to travel, the government launched the UDAN-RCS scheme (Ude Desh Ka Aam Nagrik - The Regional Connectivity Scheme). It economically supports the customers to afford air travel[34]. In 2014, India had 74 Airports, in the last nine and half years, another 75 airports were added. Now, the country had 149 airports[55]. In India, the airfares were very attractive compared with other developed aviation markets[10]. In the financial year 2023, aircraft movements and passenger traffic touched 2.5 and 327.8 million respectively. Domestic passenger traffic was 76.73 million with 19.1% YoY growth and international passenger traffic reached 16.24 million with 35% YoY growth as of June 2023[33]. Among the airlines, Indigo maintained the highest market share in 2023[24]. The domestic market share of Indigo was more than 62% and planned for more international operations[42].

Domestic Market Share of Indian Airlines – as of October 2023[1].

Airlines	Market share
Indigo	62.6%
Akasa Air	4.2%
Spice Jet	5%
Air India	10.5%
Vistara	9.7%
AirAsia India	6.6%
Others	1.4%

Domestic airlines carried 1382.4 lakhs passengers when compared with 1,105.10 lakhs last year with an annual growth rate of 25.09%[24].

Indian Aviation Industry - Future

Based on the International Air Transport Association (IATA), the civil Indian aviation market was one of the largest in the world and it was growing fast. Indian domestic aviation market would become the third-largest by overcoming the UK market with a market size of $16.6 million by 2024. In 2023–24 union budgets, Rs 3113.36 crore was allotted to the civil aviation ministry. In May 2023, Mr. Scindia, civil aviation minister said that one lakh crore to be invested in developing airports in the coming months. The Airports Authority of India (AAI) planned to invest Rs 25,000 crore in augment facilities, build around 220 new airports, water aerodromes and helicopters in the next 5 years[33]. The Indian aviation market was expected to grow $40 billion by the fiscal year 2027 compared with $ 20 billion in the fiscal year 2020[48].

In June 2023, the Airbus's forecast was released. In 2042, 685 million people would be flying compared to 165 million in 2019. It made the Indian aviation market the third-largest after China and USA[48]. Based on the report of "Travel market in India", the Indian travel market worth was estimated to cross $125 billion by the financial year 2027. To accommodate this, India required 2380 commercial airplanes by 2038[34]. India was expected to overtake US and China by 2030[33].

The civil aviation minister Jyotiraditya Scindia said *"We are going to rapidly expand our connectivity and it is also our intent to try and establish the first international air hub in India". "As far as airlines are concerned, we need to concentrate on a great travel experience, increased OTP (On Time Performance) and make sure we have as many aircraft in the air," the minister said[55].*

Employee Poaching

Still, normalcy has not been restored in the aviation market

after the pandemic. Due to shortage of pilots, several operators could not operate enough aircraft. Domestic airlines of India take more passengers now than pre-covid[53]. As many growth opportunities in the aviation market, new aircraft were introduced by the airlines. Therefore, there was a huge demand for the pilots[7]. The CEOs of Air India and Akasa Air exchanged their words orally as well as written on poaching the pilots[6]. Akasa Air accused Air India for poaching their company pilots6. Dube said the company had 330 pilots in April 2023. Of them, 40 pilots left abruptly without completing the notice period or within less than 24 hours. Due to this sudden exit, Akasa had to call off their operations in July and August 2023 and the market share of the company was affected badly[41]. Again, in September 23, Akasa cancelled 24 flights per day and it spoiled the reputation of the company[32]. Most of these pilots have joined Air India[15]. Subsequently, Akasa accused Air India. The legal notice has been sent to 19 pilots, who have joined Air India without completing the mandatory notice period of six months[39] and claimed 22 crores as compensation from each pilot for cancelling and grounding the flights[32].

An Akasa Air spokesperson stated, "We have sought legal recourse only against a small group of pilots who abandoned their duties and departed without fulfilling their mandatory contractual notice period. This not only violated their contracts but also the country's civil aviation regulations. It is not only illegal but also unethical and self-serving, causing disruptions to flights in August, resulting in last-minute cancellations that inconvenienced thousands of passengers.[18]".

Dube alleged that pilots' exit without completing the notice period was unprecedented[41]. To counter Dube's allegation, Air India CEO Wilson said to the economic times that when any airline hires trained pilots, a notice period can't be enforced on them as they were trained by some other airlines. In this case, Akasa neither trained nor invested in training for their employees. Therefore, Akasa could not enforce the notice period on those employees[15].

"Further, that having initiated such actions within the last two years, it was a little surprising to us that Akasa now found the practice objectionable," the Air India chief said in the letter[32].

Wilson was surprised that Akasa's claim was objectionable as it was done by Akasa itself[7]. Moreover, he expected that Akasa would have to focus on investments to attract, retain and develop their employees so that healthy competition would continue. Meanwhile, Akasa requested the Directorate General of Civil Aviation (DGCA) and the Ministry of Civil Aviation to intervene in the matter[18]. However, DGCA did not respond. Therefore, Dube and senior executives of Akasa *"alleged Directorate General of Civil Aviation (DGCA) that Air India recruited their company pilots which was against industry regulations and it was affecting their operations very badly[39].* In September, Akasa sued some pilots as well as the aviation watchdog for not supporting the same[8].

In response, a higher official from DGCA said that

"The parties need to sort it out among themselves as we can't intervene until the court decides on the validity of the rule,"[39].

Flight cancellations and prices increase due to pilot' shortages were the respective airline's issues. It should be addressed by the respective airline not from the Civil Aviation Ministry side and DGCA[53]. So, there was no intervention from the Indian aviation watchdog on this issue. DGCA also responded that the pilots' exit was an internal matter between Akasa and its employees. So, DGCA did not have any role in this case[53]. later, there was a query to Dube on whether any pilot poaching agreement was to be made or not for the industry, he replied

"Not at all. Absolutely not. I am dead set against it. I think pilots like any other employees should be completely allowed to work with whatever airline they want and I don't believe that the airlines should collude on this topic at all. I don't think there is a need and I don't think it is right," he asserted[41].

Road Ahead

The flights of the Akasa were cancelled. The passengers struggled and the reputation of the company was spoiled. The existing employees were least bothered about the customers and reputation of the company. The objective of the notice period should not blemish the employer and employee. Is this the right way employees quit the organization? What about the work ethics of those employees?[49] It needs to be questioned and deliberated. Akasa bounced back from the issues. When pilots want to move from one airline to another, a sufficient notice period should be served by an employee. Now, Akasa faced the issue, tomorrow some other airlines would be facing the same. In the future, if things happen like this, pilots would take advantage. In such case what about the employer's role and reputation of the industry? Won't it be a great challenge for the employer and industry?[35].

Now, the industry is in a growing space. However, the pilot poaching was happening due to shortages of pilots. When the industry grows, does the country have a sufficient number of

pilots in the future? Is employee poaching a healthy sign? Does not it spoil the reputation of the industry? What would be the amicable solution? Should DGCA come forward to set up new regulations in this regard as the industry is growing rapidly in India?[35]

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