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Perception of Business Owners about the Factors Influencing the Use of Social Media as a Tool of Marketing by the Business Community of Bhutan

*-Mr. Indra Prasad Tirwai,
Mr. Shad Ahmad Khan*

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Forecasting the Return of Equity Market in GCC Economy: An Application of ARIMA Model

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Exploring Unique Marketing Paradigm - "NeuroMarketing: Today and Tomorrow"

*-Dr. Aashu Aggarwal,
Prof.(Dr.) Poonam Khurana*



Guru Gobind Singh
Indraprastha University



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New Delhi Institute of Management

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New Delhi Institute of Management

Affiliated to Guru Gobind Singh Indraprastha University
61, Tughlakabad Institutional Area, Near Batra Hospital

New Delhi – 110062.

Ph. 011-29962605/6

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From the Chairperson's Desk



Welcome to the Anusandhan, Vol IV, Issue 2 (August 2022) this time we are one step ahead as we are now indexed in Crossref and DOI, which is the need of the hour and hence is also provided to all the papers. This will help us in scoring high in performance measures and moving up in journal ranking lists. We also changed the cover page of the journal to reflect the changes for our readers.

This issue has six papers. First paper is by Indra Prasad Tirwa from Gedu College of Business Studies, Royal University of Bhutan, Bhutan and by Shad Ahmad Khan from College of Business, University of Buraimi, Oman on Perception of Business Owners about the Factors Influencing the Use of social media as a tool of marketing by the Business Community of Bhutan in which it was found that two factors influence the use of social media as a marketing tool namely technological factors and social media adoption.

The second paper is by Nivedita Agnihotri, Dr. Apra and Prof. Anupama from Punjabi University Patiala, Punjab in International Migration from Rural Punjab- An Analysis, it has been noticed that international migration has brought very notable changes in the migrant sending areas.

Third paper on Forecasting the return of equity market in GCC economy: An application of ARIMA modelis by Ms. Gaytri and Ms. Sabia from Amity University, Noida employs an autoregressive integrated moving average (ARIMA) and found various orders of autoregressive and moving average.

Fourth paper on A Comparative Study of Employees Motivation in Public and Private Hospitals of NCR by Ms. Laxmi Rani from Dr. A.P.J. Abdul Kalam Technical University, Lucknow and Ms. Jaya Gupta from NDIM, Delhi, India is to determine the motivating preferences of staff members working in public and private hospitals.

The fifth paper is An Empirical study on Gender perceptions towards UPI by Dr. Sunil Kumari from Government College, Meham, Haryana, India which shows Gender perceptions towards UPI.

The sixth paper is on Exploring Unique Marketing Paradigm - NeuroMarketing: Today and Tomorrow by Dr. Aashu Aggarwal and Prof.(Dr.) Poonam Khurana from Vivekananda Institute of Professional Studies, Delhi highlighting the concept as a significant contribution to the field of marketing which helps in examining the brain and other activities of the human body.

I congratulate the editorial team for their tireless efforts and wish all the best for achieving milestones in future.

Bindu
Mrs. Bindu Kumar
Chairperson, NDIM

From Editorial Desk



Welcome to the current issue of Anusandhan: NDIM's Journal of Business and Management Research, it is a compilation of excellent research articles. Now, Journal is indexed in crossref and Digital Object Identifier (DOI). Each paper will have DOI now. It is ensured that papers of preceding issues also bear DOI to get maximum benefit of citation. More details are available at <https://qtanalytics.in/journals/index.php/ANUSANDHAN>. We will strive to go for more indexing like UGC care listing and SCOPUS databases with due course of time.

We ensure our readers to improve timely on Journal citation and Indexing in future too. Thanks to Authors for choosing Anusandhan as a platform to publish their manuscripts and timely modifications to reach the accepted level of plagiarism, Reviewers of the papers for their unbiased review to improve the papers for quality, Proof Readers for checking all the grammatical and other corrections and last but not the least Readers of the Journal who are a source of motivation for all of us. With your help, Journal is able to highlight the outstanding work of researchers by publishing significant and edifying issues for providing open access. Journal does not charge any subscription fees and is freely available on the website.

Bringing issues on time with quality is teamwork. I am thankful to Ms. Swati and Ms. Jaya for proofreading the papers. Dr. Niraj Saxena, Principal NDIM and Logani Printers and publishers for providing technical support due to which we are able to bring the issue on time. Journal invites empirical research from the potential researchers for Feb 2023 Issue. Papers can be submitted on

<https://qtanalytics.in/journals/index.php/ANUSANDHAN/about/submissions>

Please Read the guidelines before submitting papers for speedy process. To get the best benefits out of this improvement, we encourage more empirical articles and critical review articles.

We are open to suggestions for continuous improvement. Any suggestions/review or for any related information, send us a mail on editor@ndimdelhi.in

A handwritten signature in blue ink that reads "Madhu".

Prof.(Dr.) Madhu Arora
Editor-in-Chief



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Contents

Sl.No.	Title	Pg. No.
1.	Perception of Business Owners about the Factors Influencing the Use of Social Media as a Tool of Marketing by the Business Community of Bhutan <i>-Mr. Indra Prasad Tirwai, Mr. Shad Ahmad Khan</i>	01-11
2.	International Migration from Rural Punjab- An Analysis <i>-Ms. Nivedita Agnihotri, Dr. Apra, Prof. Anupama</i>	12-21
3.	Forecasting the Return of Equity Market in GCC Economy: An Application of ARIMA Model <i>-Ms. Gaytri, Ms. Sabia Tabassum</i>	22-33
4.	A Comparative Study of Employees Motivation in Public and Private Hospitals of NCR <i>-Ms. Laxmi Rani, Ms. Jaya Gupta</i>	34-40
5.	An Empirical study on Gender perceptions towards UPI <i>-Dr. Sunil Kumari</i>	41-46
6.	Exploring Unique Marketing Paradigm - “NeuroMarketing: Today and Tomorrow” <i>-Dr. Aashu Aggarwal, Prof.(Dr.) Poonam Khurana</i>	47-61

Perception of Business Owners about the Factors Influencing the Use of social media as a tool of marketing by the Business Community of Bhutan

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Indra Prasad Tirwa¹ ; Shad Ahmad Khan²

¹Gedu College of Business Studies, Royal University of Bhutan, Bhutan

²College of Business, University of Buraimi, Oman

Abstract: *Social media (SM) has gained popularity in today's business environment. consumers themselves are more engaged in this marketing media. This research aims to identify the perception of business owners about factors influencing the use of social media as a marketing tool by the business community of Phuentsholing- the commercial capital of Bhutan. This study used convenience sampling techniques to determine the sample size. A total of 140 responded data was taken to conduct the study and analyzed. The main purpose of this paper is to know the difference in perception of business owners while using social media as their marketing tool. The findings revealed several factors namely social media adoption, literacy, cultural, technological factor, consumer pressure, and cost by the business community. This study found that two factors influence the use of social media as a marketing tool namely technological factors and social media adoption. The primary level business owners have adopted to use social media as their marketing tool as they think that social media is the best way to promote their business whereas, degree level business owners were found to be more technological based as they have extensive technical knowledge as well as have the ability to quickly learn and apply new information technologies.*

Keywords: Marketing tool, social media adoption, Literacy, Cultural, Technological factor, Consumer pressure, and Cost.

Introduction and Literature Review

Social media (SM) has made it possible to reach a wide range of consumers and engage them interactively (Nawi et al., 2019). We have chosen this research topic as we have identified some factors influencing the use of SM as a MT; some of the factors identified are SM adoption, literacy, cultural, network issue, technology, customer pressure and cost. The goal of our study was to investigate whether the identified factors are also influencing the use of SM as a MT by the business owners in Bhutan. Our study has investigated the perception of business owners about

factors that influence the usage of SM as a MT. Previous studies (Serben, 2014; Tripopsakul, 2018; Vinerean, 2013) shows that the use of SM as a MT has a positive impact on the business performance both financial and non-financial. Our study has used a quantitative descriptive approach.

Problem Statement

The use of SM has grown in popularity among teenagers. As there is an increase in the usage of SM, businesses have been given an opportunity as well as challenges in terms of determining the ways to reach their customers.

While some organizations struggle to connect with their customers effectively (Edwin&Oyza,2015). With the growth of SM activity the individuals perceptions towards the news, products, reviews etc have been significantly affected. (Gibson, 2016).Also, the businesses who get involved in SM are expected to increase their profitability (Edosomwan et al., 2011). As the statistics given by the SM website show, there is a wide range of scope on SM like facebook, Youtube, twitter, etc. In our research thesis we have mainly focused on how the business owner is affected by the SM and what are the factors that influence the SM. Researchers have listed various factors influencing SM as a MT and we have identified a few factors such as SM adoption, literacy,culture, technology, cost and customer pressure. Therefore, this study has examined if the factors such as, literacy, technology, cost, customer pressure, and culture influences the business owners of Phuentsholing Throm in adopting SM as a MT. To give a direction to this study following objectives have been set:

- To determine the factors influencing the perception of business owners on usage of SM as a MT.
- To study the difference in perception of business owners while using SMas MTs based on demographic variables.

This study will help the government and its allied agencies in devising policies and mechanisms in relation to information technology, communication, and other SM related rules and utilization plans.

Research Methodology

The research is designed as a descriptive analysis, to understand the factors influencing SM as a MT by the Business community in Bhutan. The

main intention behind research design is to provide an appropriate framework for our research. We have adopted descriptive research in order to find out whether the factors that are already identified are really affecting the business to use SM as a MT. The descriptive method of research is used to describe a population or situation accurately (Voxco's Descriptive Research guide). Furthermore, the data was collected through a close-ended questionnaire that was distributed among the business owners of Phuentsholing municipal area.

Sample Size and Techniques

In order to determine the sample size, a convenience sampling technique is used to select the respondent. In the first stage from 20 Dzongkhag Chukha Dzongkhag was selected. In second stage, out of 11 Gewogs, Phuentsholing Throm was selected and in third stage, from the trading category we have selected retailer business as a respondent by using convenience sampling techniques.

Table 1: Sample Table Showing the Total Number of Population of Different Business Category in Phuentsholing Throm

Sl. No.	Trading Category	Population
1	MTRC	344
2	Retailer	1176
3	Wholesale	179
	Total Population	1699

Sample size determination is the act of choosing the number of observations or replicates to include in a statistical sample (Qualtrics, 2022). Sample size for the study will be appropriate based on the factors including purpose of

study and population size. Sample calculation can be done in two ways that is when population is known and when population is unknown.

In our case, since the total population for retailers is 1176, we will determine sample size by using slovin formula.

$$n = \frac{N}{(1 + Ne^2)} \frac{N}{(1 + Ne^2)}$$

n= sample size required

N=population known (1176)

E= margin of error (0.05)

$$n = \frac{1176}{(1 + 1176 * 0.05^2)}$$

n= 299

Therefore, the sample size required is 299.

Data Collection Methods

We have adopted descriptive research design to conduct the research. We have collected only a total of 140 sample sizes from the Phuentsholing municipal area. These respondents were the business owners irrespective of the size of the business they were running. Although the targeted sample size was 299, the number of business owners were either not available, or not approachable by the research team, thus, the sample size 140 was processed for further investigation.

Data Analysis Methods

From the various analysis methods, mean analysis, one way ANOVA and independent t-test was appropriate for this study to analyze the data since the primary objective of this study is to study the perception of business owner about factors that influence the use of SM as a MT by using the identified factors such as SM adoption, literacy, technology, cultural, cost and customer pressure.

Data Analysis and Results

Descriptive Mean:

- This section answers question number one: “What is the perception of business owners regarding the usage of SM as a MT?”

Table 2: Overall Ranking of the Variables

	n	Mean	Std. Deviation
Customer Pressure	140	4.02	0.753
Social Media Adoption	140	3.76	0.617
Literacy	140	3.47	1.359
Technological	140	3.36	0.975
Cultural	140	3.25	0.972
Cost	140	3.04	1.123
Average mean		3.48	

From the above table (descriptive statistics) there are 140 respondents who use SM as a MT by the business owner. The mean value of customer pressure is 4.02 and business owners “agrees” that customer pressure influences the use of SM as a MT, as the mean value lies between 3.41-4.20

Table 2 shows that business owners are “not sure” whether technological factors influence the use of SM as a MT as the mean value for technological factor is 3.36 which lie between 2.61-3.40 (refer table 2). Also business owners are “not sure” whether culture influences the use of SM as a MT as the mean value for Culture is 3.25 which lie between 2.61-3.40 (refer table 2). Business owners are “not sure” whether cost influences the use of SM as a MT as the mean value for cost is 3.04 which lie between 2.61-3.40 (refer table 2). Therefore, the overall descriptive statistics shows that the business owners “agree” that factors

such as the SM adoption, literacy, culture, technological factor, customer pressure and cost influences the use of SM as a MT as the average mean for overall descriptive statistics is 3.48 which lies between 3.41-4.20

Table 3: Respondents Ranking on SM Adoption Questionnaire

	n	Mean	Std. Deviation
SM Adoption 5	140	4.3071	0.73843
Social Media Adoption 1	140	4.2	0.85831
Social Media Adoption 4	140	4.1286	0.82969
Social Media Adoption 2	140	3.5357	1.20795
Social Media Adoption 3	140	2.6429	1.2237
Total		3.76	

From table 3 it shows that business owners “strongly agree” to the SM adoption for questionnaire 5, “I feel SM helps to inform about my business in a wide range.” as the mean value for PSMA5 is between 4.21-5 (4.3) and has the highest mean value. Business owners are “not sure” regarding the questionnaire 3 of SM adoption, that is, “I feel using the SM platform is risky for advertising my product.” as the mean value ranges between 2.61-3.40 (2.64) and has the least mean value

Table 4: Respondents Ranking on Literacy Questionnaire

	n	Mean	Std. Deviation
Literacy 1	140	3.5214	1.44176
Literacy 2	140	3.4143	1.46904
Total	140	3.47	

From table 4 it shows that business owners “agree” to the literacy questionnaire one that is, “I feel education is necessary for my business to use SM as a MT.” as the mean value

for literacy questionnaire one lies between 3.41-4.20 (3.52) and has the highest mean value. Business owners also “agree” regarding questionnaire 2 of literacy, that is, “I feel that educational level also determines how well one uses the SM platform.” as the mean value ranges between 3.41-4.20 (3.41) and has the least mean value.

Table 5: Respondents Ranking on Culture Questionnaire

	n	Mean	Std. Deviation
Cultural 4	140	3.4857	1.28906
Cultural 3	140	3.2643	1.31188
Cultural 1	140	3.2357	1.31188
Cultural 2	140	3.0143	1.37807
Total		3.25	

From table 5 it shows that business owners “agree” to the cultural questionnaire 4 that is, “I feel that the influence of social media to adopt is because of language diversity.” as the mean value for cultural questionnaire 4 lies between 3.41-4.20 (3.48) and has the highest mean value. Business owners are “not sure” regarding the questionnaire 2 of cultural that is, “I feel cultural values are more important than using social media technologies.” as the mean value ranges between 2.61-3.40 (3.01) and has the least mean value.

Table 6: Respondents Ranking on Technological Factor Questionnaire

	n	Mean	Std. Deviation
Technological Factor 3	140	3.7286	1.07183
Technological Factor 2	140	3.3714	1.28266
Technological Factor 1	140	2.9786	1.34896
Total		3.36	

From table 6 it shows that business owners “agree” to the technological factor questionnaire 3 that is, “I feel the change in communication medium to contact customers made us adopt SM.” as the mean value for technological factor questionnaire 3 lies between 3.41-4.20 (3.73) and has the highest mean value. Business owners are “not sure” regarding questionnaire 1 of the technological factor questionnaire, that is, “I have extensive technical knowledge about technologies similar to social media.” as the mean value ranges between 2.61-3.40 (2.97) and has the least mean value.

Table 7: Respondents Ranking on Customer Pressure Questionnaire

	n	Mean	Std. Deviation
Consumer Pressure 3	140	4.1929	0.86412
Consumer Pressure 1	140	3.95	1.01304
Consumer Pressure 2	140	3.9286	0.94939
Total		4.02	

From table 7 it shows that business owners “agree” to the Consumer Pressure questionnaire 3 that is, “I feel social media marketing as an important part of business to outreach my customers.” as the mean value for Consumer Pressure questionnaire 3 lies between 3.41-4.20 (4.19) and has the highest mean value. Business owners also “agree” regarding the questionnaire 2 of Consumer Pressure that is, “I know my customers are ready to do business transactions via social media application.” as the mean value ranges between 3.41-4.20 (3.92) and has the least mean value.

Analysis of the data

Independent sample t-test:

This section answers question number two: “Which factors influence the usage of SM as a MT based on their demographic factors?”

Table 8: Overall Ranking of Variables Based on Demographic Factors that is ‘Gender’

Group Statistics					
	Gender	n	Mean	Std. Deviation	Std. Error Mean
Social Media Adoption	Male	65	3.77	0.652	0.081
	Female	75	3.76	0.588	0.068
Literacy	Male	65	3.23	1.398	0.173
	Female	75	3.67	1.298	0.15
Cultural	Male	65	3.22	1.011	0.125
	Female	75	3.28	0.943	0.109
Technological	Male	65	3.52	0.967	0.12
	Female	75	3.22	0.968	0.112
Customer Pressure	Male	65	3.99	0.839	0.104
	Female	75	4.05	0.675	0.078
Cost	Male	65	3.01	1.164	0.144
	Female	75	3.07	1.093	0.126

	Gender	Mean	Sig
Social Media Adoption	Male	3.77	0.496
	Female	3.76	
Literacy	Male	3.23	0.293
	Female	3.67	
Cultural	Male	3.22	0.423
	Female	3.28	
Technological	Male	3.52	0.721
	Female	3.22	
Customer Pressure	Male	3.99	0.272
	Female	4.05	
Cost	Male	3.01	0.511
	Female	3.07	

In the above table SM adoption shows the mean of SM adopted by the male and female business owners. The value as reflected shows that the mean of SM

adopted by male is higher (3.77) than that of female business owners (3.76). However, the result is not statistically significant because P-value is higher than 0.05(0.496).

Therefore, the overall analysis accepts the null hypothesis that is “No significant difference in the mean of SM adopted by the male and female business owners”.

In the above table customer pressure shows the mean of customer pressure influences the male and female business owners. The value as reflected shows that the mean of customer pressure influenced by females is higher (4.05) than that of male business owners (3.99). However, the result is not statistically significant because P-value is higher than 0.05(0.272).

Therefore, the overall analysis accepts the null hypothesis that is “No significant difference in the mean of customer pressure that influences the male and female business owners”.

Therefore, the p value is more than the significant level (0.05) for all the variables, this research accepts the null hypothesis. The difference between two means (male and female) is statistically insignificant and it is concluded that the two population means (male and female) are equal.

One way ANOVA

Table 9: Overall analysis of the variables based on their qualification level

		n	Mean	Std. Deviation	Std. Error
Social Media Adoption	primary	9	3.89	0.715	0.238
	secondary	29	3.72	0.631	0.117
	Higher	68	3.83	0.584	0.071
	Degree	28	3.86	0.38	0.072
	None	6	2.63	0.698	0.285
	Total	140	3.76	0.617	0.052

Literacy	primary	9	2.94	1.59	0.53
	secondary	29	3.38	1.443	0.268
	Higher	68	3.6	1.279	0.155
	Degree	28	3.52	1.378	0.26
	None	6	3	1.549	0.632
	Total	140	3.47	1.359	0.115
Cultural	primary	9	3.25	0.944	0.315
	secondary	29	3.19	1.056	0.196
	Higher	68	3.25	0.999	0.121
	Degree	28	3.32	0.775	0.147
	None	6	3.17	1.393	0.569
	Total	140	3.25	0.972	0.082
Technological	primary	9	3.33	0.667	0.222
	secondary	29	3.01	1.045	0.194
	higher	68	3.5	0.871	0.106
	degree	28	3.67	0.934	0.177
	none	6	2.11	1.186	0.484
	Total	140	3.36	0.975	0.082
Customer Pressure	primary	9	3.96	0.696	0.232
	secondary	29	3.97	0.669	0.124
	higher	68	4.13	0.703	0.085
	degree	28	4.01	0.844	0.159
	none	6	3.28	1.084	0.442
	Total	140	4.02	0.753	0.064
Cost	primary	9	2.78	1.064	0.355
	secondary	29	3.03	1.093	0.203
	higher	68	3.01	1.181	0.143
	degree	28	3.36	1.07	0.202
	none	6	2.33	0.606	0.247
	Total	140	3.04	1.123	0.095

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Social Media Adoption	Between Groups	8.382	4	2.096	6.36	0
	Within Groups	44.465	135	0.329		
	Total	52.847	139			
Literacy	Between Groups	5.186	4	1.296	0.7	0.6
	Within Groups	251.42	135	1.862		
	Total	256.605	139			
Cultural	Between Groups	0.291	4	0.073	0.08	0.99
	Within Groups	131.084	135	0.971		
	Total	131.375	139			
Technological	Between Groups	16.761	4	4.19	4.9	0
	Within Groups	115.476	135	0.855		
	Total	132.237	139			
Customer Pressure	Between Groups	4.206	4	1.051	1.9	0.11
	Within Groups	74.604	135	0.553		
	Total	78.81	139			
Cost	Between Groups	6.475	4	1.619	1.3	0.28
	Within Groups	168.768	135	1.25		
	Total	175.243	139			

The overall analysis accepts the alternative hypothesis H1 that is there is a significant difference in the perception of business owners on the SM adoption as a MT.

One way ANOVA on Hours Spent

Table 10: Overall Analysis of Variables Based on their Hours Spent

		n	Mean	Std. Deviation	Std. Error
Social Media Adoption	less than 1 hour	3	3.87	0.611	0.353
	1 hour	2	3.8	0.566	0.4
	2-3 hours	31	3.45	0.683	0.123
	3-5 hours	56	3.8	0.585	0.078
	more than 5 hours	48	3.91	0.558	0.081
	Total	140	3.76	0.617	0.052
Literacy	less than 1 hour	3	3.83	1.607	0.928
	1 hour	2	5	0	0
	2-3 hours	31	3.29	1.51	0.271
	3-5 hours	56	3.52	1.268	0.169
	more than 5 hours	48	3.44	1.371	0.198
	Total	140	3.47	1.359	0.115
Cultural	less than 1 hour	3	3.33	1.465	0.846
	1 hour	2	3.75	0.354	0.25
	2-3 hours	31	3.48	0.92	0.165
	3-5 hours	56	3.15	1.032	0.138
	more than 5 hours	48	3.2	0.924	0.133
	Total	140	3.25	0.972	0.082
Technological	less than 1 hour	3	3.89	1.018	0.588
	1 hour	2	3.33	1.414	1
	2-3 hours	31	3.25	0.919	0.165
	3-5 hours	56	3.36	1.021	0.136
	more than 5 hours	48	3.4	0.97	0.14
	Total	140	3.36	0.975	0.082
Customer Pressure	less than 1 hour	3	3.89	1.171	0.676
	1 hour	2	3.67	0.471	0.333
	2-3 hours	31	3.65	0.839	0.151
	3-5 hours	56	4.14	0.675	0.09
	more than 5 hours	48	4.16	0.705	0.102
	Total	140	4.02	0.753	0.064

Cost	less than 1 hour	3	3.67	1.528	0.882
	1 hour	2	3	0	0
	2-3 hours	31	3	1.155	0.207
	3-5 hours	56	2.93	1.051	0.14
	more than 5 hours	48	3.17	1.195	0.173
	Total	140	3.04	1.123	0.095

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Social Media Adoption	Between Groups	4.332	4	1.083	3.01	0.02
	Within Groups	48.515	135	0.359		
	Total	52.847	139			
Literacy	Between Groups	6.257	4	1.564	0.84	0.5
	Within Groups	250.348	135	1.854		
	Total	256.605	139			
Cultural	Between Groups	2.822	4	0.706	0.74	0.57
	Within Groups	128.553	135	0.952		
	Total	131.375	139			
Technological	Between Groups	1.323	4	0.331	0.34	0.85
	Within Groups	130.915	135	0.97		
	Total	132.237	139			
Customer Pressure	Between Groups	6.357	4	1.589	2.96	0.02
	Within Groups	72.452	135	0.537		
	Total	78.81	139			
Cost	Between Groups	2.695	4	0.674	0.53	0.72
	Within Groups	172.548	135	1.278		
	Total	175.243	139			

The overall analysis accepts the null hypothesis H_0 , that is there is no significant difference in the perception of business owners based on cost.

Findings, Conclusions and Recommendations

Findings

Findings revealed that there is a significant difference in SM adoption and technological factor based on the qualification level by the business owners. In terms of SM adoption, primary level has a higher influence in the use of SM as a MT. In terms of technological factor, degree level has a higher influence in the use of SM as a

MT. So, the primary level business owners will adopt the use of SM as a MT as they think that SM is the best way to promote their business whereas, degree level business owners will be more technological based as they have extensive technical knowledge as well as have the ability to quickly learn and apply new information technologies. It also revealed that there is no significant difference in terms of literacy, culture, customer pressure and cost based on the qualification level which was perceived by business owners.

Findings from an independent sample t-test revealed that there is no significant difference in influencing the use of SM as a MT. So therefore, overall analysis of the variables accepts the null hypothesis that is “There is no significant difference in the factors influencing the use of SM as the MT based on the gender”.

Conclusions

With the growing technology ways of operating business is also changing, with the research” Perception of Business Owners about Factors Influencing the use of SM as a MT by Business Community of Phuentsholing” our study wanted to investigate whether the identified factors like SM adoption, literacy, cultural, technological, consumer pressure and cost are influencing the use of SM as a MT by the business owner of Phuentsholing Throm. Our study’s main objective is to study the perception of business owners about the factors that influence the usage of SM as a MT and the difference in perception of business owners about the factors influencing the usage of SM as a MT based on their demographic factors. Our research has adopted a quantitative approach, where we collected our data using the data collection method of questionnaire.

Our research’s sample size was determined using the Slovin formula and it came to 299 but we could only collect a total of 140 data from business owners of Phuentsholing Throm as we couldn’t get more response from the business owners. The data analysis method that our study used was mean analysis, one way ANOVA and independent t-test.

Finally the findings revealed that there was significant difference in SM adoption and technological factors based on the qualification level by business owners. And the findings also revealed that there is no significant difference in terms of literacy, culture, customer pressure and cost based on literacy, culture, customer pressure and cost based on the qualification level which was perceived by business owners. The findings from an independent sample t-test revealed that there is no significant difference in factors influencing the use of SM as the MT based on gender. From the findings of one way ANOVA the two factors that are SM adoption and technologies shows that there is significant difference in the perception of business owners about the use of SM as the MT based on the qualification or education level. On the other hand the two factors such as SM adoption and customer pressure shows that there is a significant difference in the perception of business owners about the use of SM as the MT based on the hours spent by them.

Recommendations

The responses to the study and the interpretation of the data collection have led to several recommendations and suggestions. With the assistance of this study, the following recommendations and suggestions can be made:

- The study covers only

Phuentsholing area as its result cannot be generalized. Therefore, we recommend that future researchers conduct similar research covering all the business in Bhutan. As a result, future researchers could use a bigger sample size to obtain more reliable and representative results.

- The study has taken only six variables such as SM adoption, literacy, culture, technology, customer pressure and cost. Therefore, we recommend future researchers to conduct research on similar topics taking other factors influencing SM as Mts.

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International Migration from Rural Punjab- An Analysis

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Ms. Nivedita Agnihotri, PhD Research Scholar, Punjabi University Patiala, Punjab, India.

Dr. Apra, (co-Author) - Assistant prof. at Govt. Vikram College, Patiala, Punjab, India.

Prof. Anupama, (Co-Author) - Professor and Head of the Department of Economics, Punjabi University Patiala, Punjab, India.

Abstract: *This study is designed to analyze the overall causes and impacts of migration. This study examines those determinants of international migration which inspire the people of low income in less developed countries to migrate to high income developed countries. This Research is purely based on primary data which has been collected from the fifteen villages of two districts of Punjab namely Jalandhar and SBS Nagar. The primary aim of this research was to know about the impacts of international migration on rural Punjab. During the survey it has been noticed that international migration has brought very notable changes in the migrant sending areas. As the thinking level of migrants' family members had changed a lot and remittances sent by NRIs also improved their financial conditions enormously. Remittance recipient households utilize these remittances for various motives such as for repayment of loan, for construction purposes, to purchase household goods and for donation purposes also.*

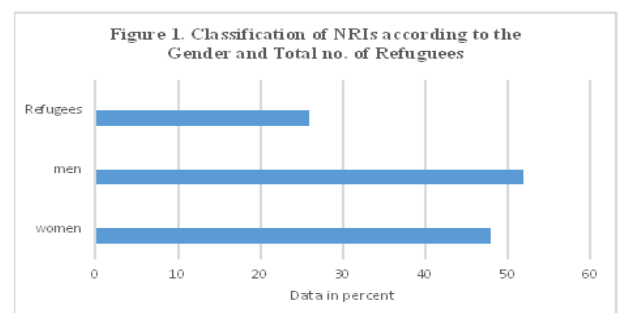
Keywords: International Migration, low income countries, Remittances, Utilize, donations.

Introduction

Migration is a movement when people migrate from one area to another with the aim of settling permanently or temporarily in the new area. People start moving to one spot then onto the next because of their different causes, like for marriage, for higher education and for more work employment opportunities. Today, migration is mostly a matter of private interest; to fulfill their various motives people migrate from under developed countries to developed countries. (Park, 1928).

Over the last 50 years, global migration from developing countries to developed countries has steadily increased. According to the World Migration Report, the total number of international migrants in 2019 was 272

million, accounting for 3.5 percent of the world's population. Of these international migrants, 48percent were women and 52percent were men. The total number of refugees is about 26 million, the highest since the record began in 2020 (Figure 1). Turkey was the largest recipient of millions of refugees, primarily from Syria (World Migration Report, 2020).



Source- World Migration Report, 2020.

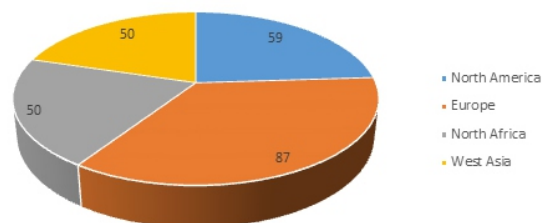
Since the mid-1990s, regional conflicts have increased the proportion of migrants to OECD (Organization for Economic Co-operation and Development) countries. Refugees and asylum seekers make up the majority of these migrants. Migration plays an important role in increasing the population of the host country. They face the majority of foreign births in the total number of births. In 1999, new migration trends were observed in some destination countries. For example, most people migrated to the United Kingdom instead of Japan or Canada. Note that Australia, Sweden, the United States and France accept family-related migrants, and the United Kingdom and Canada accept employment-related migrants (OECD, 2001)

Among the major regions of the world, the largest number of international migrants, about 87 million, in 2020 resided in Europe. North America hosted 59 million, which is the second largest number of migrants, North Africa and Western Asia followed with 50 million. About two-thirds of all international migrants live in high-income countries, compared to only 31 percent in middle-income countries and about 4 percent in low-income countries. India is the top source of international migrants, according to the data of 2020, with 18 million people born in India residing in other countries (United Nations, 2019).

Among the major regions of the world, Europe had the foremost number of international migrants in 2020, at around 87 million. North America has accepted 59 million, the second highest number of migrants, followed by North Africa and West Asia with 50 million (figure 2). About two-thirds of all international migrants live in high-income countries, but only 31 percent in middle-income countries and about

4 percent in low-income countries. According to 2020 data, India is a major source of international migrants, as 18 million Indian-born people lived in other countries (UN, 2019).

Figure 2. Classification of International Migrants residing in the different regions of the world



Source- United Nations Report, 2019.

Concept of Brain-Drain- Migration also leads to the acquisition of the brain. The IOM (2011) defines brain drain as the transfer of human capital from developing countries to developed countries. These migrants have the skills, savings and efficiencies available in developing countries (hometowns). Many migrants from developed countries have returned to India due to the international crisis, 9/11 attacks, attacks on Australian students, and other related issues. These talented migrants can create new industries, manage old and sick industries, and make a profit in their hometowns. The savings of these migrants can also be used for better resource use, helping India establish a strong position in the international market. Highly skilled migrants also have excellent knowledge of information technology. This knowledge will help you develop your IT center. They can improve India's image in the international market by sharing knowledge and expanding new business networks. Migration changes the way migrants think about their families in many ways. When people migrate from one country to another, he / she learns a lot about the new

environment and culture. A new culture and environment permeates his thoughts and lifestyle, and years or years later, his family also visits the foreign country where their family migrated. They also learn a lot from the new environment (Dubey & Mallah, 2015).

International migration from Punjab began in the colonial era. The proportion of Punjab migrants at the world level is steadily increasing. Most Punjab migrants preferred to migrate to the western countries of the developed world, but some of the less educated low-income earners migrated to the Gulf countries. These migrants also send money to their families (like remittances). This is very helpful for the development of the country of origin (Kapuria & Birwal, 2017).

Punjab is a state in northwestern India. It borders Pakistan, Jammu & Kashmir, Himachal Pradesh, Haryana and Rajasthan. Many have migrated from Punjab over the years, especially from the Doaba region, which consists of four districts: Kapurthala, Hoshiarpur, Jalandhar and Shaheed Bhagat Singh Nagar (Nawan Shahar) (Saha, 2009). These districts have a long history of migration from rural areas, especially during the post-independence period. Originally most of the people in the region preferred to move to the UK, but gradually this trend changed and various skilled and semi-skilled people moved to other industrialized countries such as the United States, Australia and Canada etc. (Saha, 2012).

Significance of the Study- The main goal of this research is to look at how international migration affects migrants' families in rural Punjab as well as their home countries. Migrants' and their families' lifestyles alter as a result of migration. This research will look at the overlapping effects of migration direction, remittance flow,

frequency and pattern of utilization. This research will aim to uncover the interconnections between the ownership of physical and human capital. As a result, the findings of this study will be useful to policymakers, planners, administrators, and researchers in understanding why out-migration has various effects on different people with diverse personal circumstances.

Objectives: The main objectives of this study are to examine the causes behind migration, to analyze the expenditure on migration and to measure the impact and utilization of remittances.

Data and Methods- This research is mainly based on primary data. Primary data has been collected using a well-structured questionnaire through a survey method. The survey has been conducted with a sample of 375 households in the fifteen villages of two districts namely Jalandhar and SBS Nagar of Punjab.

Review of Literature

Faini (1994) explained that workers' remittances represent a sizable component of international trade flows in goods and services. Based on the secondary data, he found out that in 1988, workers' remittances were equal to \$ 65 billion, accounting for almost eight percent of worldwide trade in services for developing countries; in particular, the importance of remittances is often substantial. This is typically the case when such countries have been at the origin of large scale migrations. For Maghreb countries, for instance, workers' remittances totalled \$ 2.3 billion in 1988. In Morocco alone, they reached \$ 1.45 billion, accounting for 44 percent of merchandise exports and contributing more than phosphates to total foreign exchange earnings. Furthermore, this study describes how

remittances provide a substantial contribution to foreign exchange earnings for many developing countries. At the same time, it was shown how workers' remittances are affected by key macroeconomic variables such as interest rates and particularly exchange rates. Both sets of regressions indicate a substantial impact of the real exchange rate. This study also suggests that remittances are negatively related to income in the migrants' home country. This finding would seem to suggest that altruistic considerations are a major determinant of remittance behavior.

Neil (2003) summarized a report of a meeting on "Using Remittances and Circular Migration as Drivers for Development" hosted by the Center for Comparative Immigration Studies at the University of California San Diego on April 11-12, 2003. In this meeting, the issues related to migration and development have been discussed and the main aims of this meeting were to resume those concepts of migration that continue to reverberate, and build upon them with new ideas and open a discussion on the remittances, as drivers of economic development. In this meeting the expert found that remittances are the larger flows to the developing countries than any official development support. In developing countries, remittances are an efficient way to raise the income of the poor, because remittances are directly spent by the emigrant's family. Furthermore the interventions to make remittances a more effective development tool must be incentive based, rational and informed by further research. Well informed policies should be made by the government to efficiently manage migration and boost its benefits.

Dustman et al. (2007) investigated the socio-economic impact of migration and summarized the characteristics of

migrants in the United Kingdom and especially in Wales. The proportion of working-age migrants in Wales has been observed to be relatively low compared to other parts of the United Kingdom. In other parts of the UK, non-white migrants had significantly lower employment rates than white Welsh migrants, but unlike other parts of the UK, the average wages of these two groups were about the same. The study also reported that among non-white migrants in the United Kingdom and Wales, Indians have higher employment rates than black Africans. Low-skilled migration is used to make up for temporary or seasonal labor shortages. Countries such as Finland, Greece and Hungary have introduced several schemes to encourage the entry of seasonal agricultural workers.

Singla & Allamraju (2010) recently discovered that personal remittances to India have a very strong impact on the balance of payments. As migrants become more dependent on sending money through formal channels, the cost of sending money through these channels is decreasing. Remittances are also considered as an important source of global development funding. According to this study, there is an urgent need to develop a comprehensive database of remittance flows in India to investigate remittance savings and investment patterns, and appropriate policies for investigating macroeconomic issues are also needed.

Considering the importance of international migration, Koczan et al. (2021) identified the impact of international migration on inclusive growth. They said that international migration has played a decisive role in the development of the migrant economy. Developing countries in particular have been influenced in several ways. Relocation resulted in a

loss of human capital, which was compensated by raising the income level of the households receiving the remittance. Migrants also tend to improve performance, generate new ideas and apply their expertise. They contributed to the long-term budget balance and helped stimulate international trade. The study concluded that migration brings both opportunities and challenges to both the country of origin and the country of destination. Therefore, it is the job of politicians to master the challenges and to take the advantage of opportunities.

Table 1: Distribution of Sampled Households and the number of NRIs according to the Destination of the Emigrants

Particular	USA & Canada	Australia & New Zealand	UK	Europe	Asia	Total
Jalandhar and SBS Nagar						
Households	119	37	63	58	98	375
	(31.73)	(9.87)	(16.8)	(15.47)	(26.13)	(100)
NRIs	231	47	89	97	115	579
	(39.9)	(8.12)	(15.37)	(16.75)	(19.86)	(100)

Source: Primary Survey, 2019. Figures in () are percentages.

Table 1 shows the distribution of households belonging to NRIs in the selected district. Of the 375 households surveyed, a total of 579 have migrated abroad. From the table above, we can see that 231 of the 119 households (39.9 percent) migrated to the United States and Canada, compared to 8.12 percent for Australia and New Zealand as destination countries. The remaining 52 percent of NRIs, 15.37 percent, 16.75 percent, and about 20 percent of NRIs moved to the United Kingdom, Europe, and Asia, respectively.

Table 2: Distribution of Sampled Households, according to the Total Family Members Living Abroad

Particular	USA & Canada	Australia & New Zealand	UK	Europe	Asia	All
Jalandhar and SBS Nagar						
Male	66.67	78.72	79.77	77.32	93.91	76.68
Female	33.77	21.27	20.22	22.68	6.09	23.31

Source: Primary Survey, 2019. Values given in table are percentages.

To begin with, Table 2 shows the country and gender distribution of people who have migrated. The combined data from both districts show that of the total number of family members who have migrated, a large majority are men, as we can see that around 67 percent, 79 percent, 80 percent, 77 percent and 94 percent of the members who migrated to the United States and Canada, Australia and New Zealand, the United Kingdom, Europe and Asia, respectively, are men. The proportion of migrant men is even higher in each group, it is much higher in the case of Asian countries than in other countries, but the situation is different in the US and Canada, where the proportion of migrant women is only half from the men members of this group.

Table 3: Distribution of the number of NRIs according to the Reasons for Living Abroad

Particular	USA & Canada	Australia & New Zealand	UK	Europe	Asia	All
Jalandhar and SBS Nagar						
No work	12.55	6.38	6.74	14.43	13.91	11.74
Not enough work	26.84	23.4	38.2	32.99	66.96	37.3
Education	15.58	1.06	3.37	-	-	10.88
To follow family	23.38	10.64	34.83	40.21	10.43	24.35
Luxurious life style	25.54	25.53	20.22	26.8	4.35	20.72
Attraction	19.48	31.91	29.21	25.77	5.22	20.21
Wage difference	7.79	19.15	22.47	20.62	57.39	22.97
Spouse	18.18	14.89	24.72	11.34	1.74	14.51

Source: Primary Survey, 2019. Values given in the table are percentages.

There are many reasons to play an important role in the migration. This may be due to the lack of decent employment opportunities in their home country, forcing them to go abroad in search of a better job. Some students prefer to go abroad for higher education, some follow their families, and some are based on marriage. For Punjab, these patterns can be observed from Table 3.

This table shows that in the two sample districts, 11percent and 14.51 percent migrated for higher education and marriage, respectively. Most people (37.3percent) migrated because they did not have enough work in their home countries, and 24.35 percent migrated with the help of their families or to follow them. Luxurious lifestyle attracts about 41 percent of migrants. Low wages are also another major cause of migration, as people feel that they are not fully rewarded for their efforts and therefore prefer to move to other countries where they receive satisfactory wages. About 23 percent of NRIs are migrated due to wage gaps between their country of origin and their destination.

Migration Cost, Remittances and other impacts of Migration

When people think of leaving the country, they have to spend a lot of money on various migration processes, which include visa fees, agent contract fees, tuition fees, etc. In general, spending on migration to industrialized countries is significantly higher than spending on migration to Gulf countries. Sometimes, poorly trained and innocent workers often fall into the trap of fraudsters because of the high cost of hiring due to lack of transparency. Therefore, in these situations, they have to suffer losses, resulting in increased migration costs

(Khadria, 2006). Therefore, it is important to consider the scope and structure of migration costs in the study area.

Table 4: Distribution of NRIs according to the Expenditure on Migration and Remittances by NRIs

Particular	USA & Canada	Australia & New Zealand	UK	Europe	Asia	All
Jalandhar and SBS Nagar						
Expenditure	412,641	544894	235,168	217,887	124,000	306,140
Remittances	404,935	595,745	353,933	407,216	264,348	385,044

Source: Primary Survey, 2019. Values given in the table are average values.

Figure 4 shows per member expenditure incurred by the family to send them abroad and the amount of remittances they receive from them annually. A quick view tells that the expenditure on migration is actually compensated in about two years. Thus, the cost of the migration will be recovered in about two years. The combined picture of both districts table demonstrates that the average expenditure for the Asian countries group is lowest among all the groups; it is around Rs.1.24 lakh as against the receipts of Rs.2.64 lakh of annual remittances. The main reason for the lowest expenditure on migration to Asian countries is that the visa process and ticket fees of Asian countries are simple and low, so a number of lower middle class people prefer to migrate to Asian countries. The countries like Australia and New Zealand have shown not only the highest expenditure (Rs.544,894) incurred on a member for sending him abroad but also the highest amount of receipts of remittances (Rs.595,745) per NRI member among two districts. The total average expenditure of all the groups stands for Rs.306,140 and the average remittances of all groups are Rs.385,044.

Remittances from NRI are very important for the development of developing and underdeveloped countries, raising the level of investment and building cultural and social networks. In the case of Punjab, the state government recognizes that the funds sent by NRI contribute significantly to the development of the state's economy by improving the lifestyles of many families (Chanda and Ghosh, 2013).

Table.5: Distribution of NRIs according to the Change in Thinking of Migrant

Particular	USA & Canada	Australia & New Zealand	UK	Europe	Asia	All
Jalandhar and SBS Nagar						
Yes	62.34	65.96	49.44	58.76	15.65	50.78
No	-	-	4.49	5.15	46.96	10.88
Moderate	37.66	34.04	46.07	36.08	37.39	38.34

Source: Primary Survey, 2019. Values given in the table are percentages.

It was nice to know that in both of the districts; most of the migrants' families noticed a pleasing change in their behavior and way of thinking. It is observed that in both districts, migration has brought about a positive change in the way of thinking of 50.78 percent of migrants, but only a moderate impact on 38.34 percent of migrants. This means that some migrants have changed their attitudes, but in some cases they have the same rigorous thinking as before they migrated. It's a little sad to know that about 11 percent of migrants couldn't change their mindset after migration. Most of these migrants showed no signs of changing their attitudes (46.96 percent) came from Asian countries, and a few from the United Kingdom (4.49 percent) and Europe (5.15 percent). There are two basic reasons for this. Migrants to such destinations do not experience cultural change, as

Gulf countries are already considered to follow orthodox social norms. The second reason is that it is not easy to analyze opinions on many issues, as some migrants have just recently migrated to their destination country.

Table 6: Distribution of Households according to Receipt and Non-Receipt of Remittances

Particular	USA & Canada	Australia & New Zealand	UK	Europe	Asia	All
Jalandhar and SBS Nagar						
HH Receiving Remittances	89.91	78.38	96.82	84.48	100	91.73
HH Not Receiving Remittances	10.08	21.62	3.17	15.52		8.27

Source: Primary Survey, 2019. Values given in the table are in percentages.

From the above table it can be easily seen that most of these households receive remittances from NRI relatives. In both districts, about 92 percent of households receive remittances and 8 percent are non-recipients. This percentage is higher for migrant households belonging to the United Kingdom (96.82 percent) than households belonging to the United States and Canada (89.91 percent), Australia and New Zealand (78.38 percent), and Europe (84.48 percent). This figure shows that all households belonging to Asian countries receive remittances. A quick look at households that have not received remittances reveals that approximately 21.62 percent of NRIs households belonging to Australia and New Zealand have not received remittances. This percentage is 10 percent in the United States and Canada, 3 percent in the United Kingdom and 15.52 percent in Europe groups.

Table 7: Distribution of households according to the Utilization of Remittances

Particular	USA & Canada	Australia & New Zealand	UK	Europe	Asia	All
Jalandhar and SBS Nagar						
Business	8.41	13.79	11.47	12.24	15.31	11.92
Farm machinery	13.08	34.48	19.67	18.37	15.31	17.44
House construction	47.66	48.27	68.85	46.94	62.24	55.52
Household Goods	74.77	89.65	88.52	79.59	88.77	83.14
Medical services	57.94	65.52	55.74	63.26	52.04	57.27
Education services	16.82	44.83	34.43	24.49	41.84	30.52
Social and family function	54.2	82.76	81.97	59.18	80.61	69.77
Repayment of loan	19.63	44.83	13.11	30.61	26.53	24.13
Donation	34.58	27.59	40.98	46.94	14.28	31.1

Source: Primary Survey, 2019. Values given in table are in percentages.

In addition, Table 7 shows the distribution pattern of remittance usage. When people receive remittances, they use it for various purposes such as purchasing agricultural tools and household goods, education, and for social and family functions. Including all migrant households, it is investigated that more than 75 percent of households in all groups are remitted and use remittances to buy household items. This is the one with the highest remittances usage of all five groups. The second major use of remittances is for social and family functions, accounting for about 70 percent. As we know, Indians spend a lot of money on social and family opportunities, especially for marriage. In our country, marriage is regarded as concrete evidence of the socio-economic status of the family. As a result, upper middle class families spend a lot of money on weddings, and competing middle class families also spend huge amounts on their children's weddings. Therefore, this is the main cause of the second most important remittances used in home countries. The use of remittances

in medical services (57 percent) and home construction (about 56 percent) is very similar in NRI households. When middle-class and middle-class people receive remittances, they spend money for property, household goods purchases, or social ceremonies, whereas middle-class people use remittances for construction purposes.

The results show that in both districts, more than 60 percent of households belonging to the UK and Asian countries use remittances for construction purposes. The use of remittances for the purchase of agricultural machinery is very low (17.44 percent), and it has been observed that remittances are the least used for business purposes. In the group wise distribution we can see that 17 per cent, 45 per cent, 34 per cent, 24 percent and about 42 percent households use their part of remittances for education services also respectively from the first to fifth group of countries. The findings also revealed that out of all households, 24 percent households use remittances to repay the loan and 31 percent use it for the donation purpose.

Findings and Conclusion- Findings of the study reveal that people migrate to abroad due to their various motives like to study abroad, for marriage purpose or due to the lack of suitable employment opportunities in India. It is observed that migration has brought some progressive changes in the life of migrants' family members especially for women. Women living in home countries have got much freedom than before. During the survey it has been noticed that expenditure on migration is compensated by remittances in the majority of the households. Households who receive remittances use it for purchasing household goods, for construction, social and family functions and for donation purposes also.

From the above study it can be concluded that migration has both the positive and negative impacts, but the negative impacts of migration are very few as compared to positive impacts. Migration plays a very crucial role in the development of host and home countries, as host countries utilize the potential of young minds and home countries benefit by remittances. These remittances play a significant role in raising the standard of living of receiving families, areas and also helpful to solve the balance of payment problems of the country.

Suggestions

To keeping in view the above research it is suggested that government of home countries, should use remittances for productive purposes, and government should aware people that they should use remittances for more developmental purposes like to build schools, hospitals or other charitable institutes rather than extravagant expenditure on lavish marriages and family functions.

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Forecasting the Return of Equity Market in GCC Economy: An Application of ARIMA Model

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Ms. Gaytri, Ph.D Scholar, ACCF, Amity University, Noida

Ms. Sabia Tabassum, Ph.D Scholar, ABS, Amity University, Noida

Abstract: Investment is nothing but looking for the best available opportunities to put your money in with minimum risks involved. To fulfil this rationale forecasting and predicting volatility is one of the most effective techniques. Our study aims to forecast the return of the equity market among countries of the GCC (Gulf Cooperation Council) using the ARIMA model. This study employs an autoregressive integrated moving average (ARIMA) and found various orders of autoregressive and moving average. This provides an insight to the investors and portfolio managers.

Keywords: GCC, Equity Market, Forecasting, ARIMA.

1. Introduction

Equity market indices work as a barometer for economic performance. Forecasting and predictions cover substantial research in the financial market and help researchers and the community to identify underlying gaps and problem-solving. We can draw inferences based on predictions which further helps in policy implications for society at large. GCC (Gulf Cooperation Council) is a group of six middle eastern countries popularly known for its capacity for crude oil and natural gas production worldwide. Emerging as one of the most promising and developing economies and a recent favorable destination for investors, GCC's geographical character of bordering the Persian Gulf established it as a promising nation connecting it to the USA and Europe as major business allies. Forecasting the equity market will suggest policy implications on how GCC's potential as a non-energy economy can be harnessed through strategic investments for sustainable economic growth. Whenever oil price

sneezes entire GCC catches a cold, oil prices have always been a catalyst for the movement of the stock market across various economies, GCC has often faced regional and socio-political turmoils over decades, and Covid 19 pandemic proved to be a black swan event which affected each sector, economies, and our daily lives.

In the extant literature review, we have found various pieces of evidence for predictions and examinations of returns of GCC stock and equity indices. Further adding to the variability of studies linkages between oil price shocks and equity market has also been among favourite studies, how various economic and social crises across decades have impacted returns and performance of GCC economy crisis. (Yousaf et al., 2022; Yadav et al., 2022; Ashok et al., 2022; G.R. Irfan et al., 2022) using bivariate VAR and BEKK GARCH model to examine returns and effect of dynamic linkages among GCC share market.

(Umar et al., 2021) examines dynamic linkages between oil price shocks and

GCC, BRICS economy for the period of 2005 to July 2020 covering all major crises including the most recent one Covid 19 pandemic.

While doing a literature review, we found no use of the ARIMA application in forecasting the GCC economy. Our aim through this study is to work on this novelty and analyze the impact of the recent crisis of Covid 19 Pandemic on the equity market.

Our paper aims to forecast selected equity indices price of six GCC constituting economies using daily adjusted closing prices for the period of Dec 2019 to March 2022. For empirical purposes, major MSCI equity indexes for each country are considered. For forecasting purposes, the autoregressive integrated moving average (ARIMA) model (Box and Pierce, 1970).

Forecasting volatility is a major effective tool in the hands of investors, portfolio managers and countries to manage their portfolios through diversification and hedging for optimum risk return objectives.

This paper is structured as follows: Section 2 presents the current and similar research while section 3 explains the data and methodology to be employed in this paper. Section four provides the empirical result and discussion. In the end, policy implication and conclusion are provided.

2. Literature review:

Yadav & Gupta, (2021) investigates the future stock prices of five of the world's biggest exporting countries (China, Germany, Hong Kong, the USA, and Japan). ARIMA model is used to investigate predicting patterns and behaviour. This research compares a

trend stationary ARMA (p, q) elective cycle to a unit-root trial of an ARIMA (p – 1, 1, q) with float invalid unit root measure, where the request for the time arrangement is accepted knowing via past measurable testing or applicable information. The study concludes that an investor can get a higher return by investing in Hong Kong stocks, but they must exercise caution while investing in the remaining member stocks. In Nayak et al., (2016) research for stock market trend prediction, two models were developed: one for daily forecast and the other for monthly prediction. The models are built using supervised machine learning algorithms. The model forecasts the price movement on T_n by taking into account all of the available historical data, i.e., from the beginning to T_{n1} , T_{n2} , ... T_n , where T_n denotes prediction transaction data. It derives the sentiment from social media data and news. Then uses sentiments that have been extracted with historical data to create a prediction model.

In (Akaike, 1974) the greatest likelihood technique is used to solve the identification problem. They examined stationarity and anticipated stock return using modified closing prices from January 1, 2001 to May 30, 2020, with the help of ARIMA and ADF models, respectively. The results show that the ARIMA model is accurate, has enough predictive power to anticipate future values. In this a thorough examination of the maximum likelihood estimate (MLE) leads to the definition of an estimate x , which is beneficial for this type of multiple regression analysis. The situation is ideal, the new figure is referred to as the minimal estimate. Zhu, (2020) investigates the detailed process of developing a stock price prediction model in this study. The stock price prediction algorithm was constructed using daily price data from the NYSE (New York Stock Exchange) and the NSE (Nigeria Stock

Exchange). The method of developing these predictions is the ARIMA model used for short-term stock market forecasting is also detailed in this research. The findings based on real-world data showed that the ARIMA model has a potential to offer the investors a value and also short-term forecast that could help us make an investment decision.

(Chung Roy C.P., n.d.) evaluates the pattern of variations and interruptions in China's industrial growth using a Univariate ARIMA model. Using time-series data, we can learn about the predictions of the industry. The ARIMA model is a mathematical model that calculates the probability of interruptions. It can assist in determining whether the global financial crisis is still ongoing causes what impact on China's industrial growth and the nature of the effect firms will thrive from this. This research provides with the knowledge that will help them deal with and withstand the storm of financial calamity. The ARIMA model's applications, its analyses with and without intervention have been routinely used in a variety of ways, including flexible manufacturing simulation and system scheduling in this research.

The purpose of this study is to provide an effective method for improving stock volatility predictability by combining two major predictors: oil volatility and stock market volatility(Zhifeng, n.d.). The "kitchen sink" method of market implied volatility is used, the combination strategy, which employs two predictors simultaneously, outperforms not just univariate regression models, but also multivariate regression models. Individual forecasts for oil volatility or stock market implied volatility are available, as well as a convex

combination of the two. When we consider the business cycle, the improvement in predictability is equally remarkable. In addition, the reliable test based on the forecasting technique is effective across a range of lag lengths and macro information. Hagenau, (2012) presents its findings as, combination of advanced Feature Extraction methods with the feedback-based Feature Selection to improve performance. Also enhanced sentiment and classification accuracy Feature Selection has a big impact on analytics. They show that using this method can greatly improve classification accuracy, when used in conjunction with a complex feature type. This is since the method allows users to choose from a variety of options. As a result, the number of semantically meaningful traits is reduced.

Jarrett, (2011) in his paper, shows ARIMA Intervention time series analysis may be used as an analytical and forecasting tool. This study's data source is the PACAPCCER China Database, which was created by The Pacific Basin Capital Markets Research Center (PACAP) located at SINOFIN and the University of Rhode Island (USA), The China Center for Information Service Inc is a subsidiary of the China Center for Information. Peking University's Center for Economic Research (CCER) (China). The Chinese stock market price index was created using a mathematical algorithm. The ARIMA Intervention Analysis Methods produced a suitable environment for one to examine and form conclusions regarding the index's behaviour throughout time. The outcomes of the research were that China was a part in the global financial crisis, according to reports. It has an impact on both its inventory and manufacturing industry.

Kamalavalli T, n.d. (2020) utilizes

multivariate time series, linear models ARIMA/SARIMA time-series based prediction models that are unable to recognize the under dynamics situation. As a result of the findings, by implementing CNN and LSTM Neural Networks, it demonstrated better performance when compared to other models. Time-series prediction problems can be solved using networks. Various time series are examined in this work. To predict the returns for the S&P 500, models are compared to neural networks. In addition, this paper shows that neural networks are well suited for time series analysis. Jupyter notebook 6.0.3 was used to conduct the research. The simulations and codes were Python 3.6.5 was used, with tensorflow 1.15.0 and keras 2.3.1 as dependencies.

The main goal of this research is to forecast emerging economy stock returns (Yadav & Khera, n.d.). For the same, the adjusted daily closing prices of eleven countries are taken into account over a five-year period. The ARIMA is a type of average which is used in this. The average (ARIMA) was used to forecast these countries' stock returns. The different ARIMA orders have been used to forecast the stock return. It was discovered that after applying the ARIMA model, the stock price increased. The return of Korea, the Philippines, and Turkey is not predictable because of their autoregressive and regressive natures. The terms that move are zero. Investing in those stocks can yield an abnormal return which is able to be predicted. Mondal et al., (2014) and Sharma et al., (2021) investigates the efficiency of the ARIMA model of fifty-six India's equities of various sectors in their research. For the set empirical study, they chose data from the previous twenty-three months. They chose the ARIMA model because of its ease of use and widespread

acceptance. In addition, they have measured the influence on forecast accuracy using various possible preceding period data. The ARIMA model was compared and parameterized using the AIC. The ARIMA model's accuracy in predicting stock prices is above 85% across all sectors, which is impressive and suggests that ARIMA has a high level of prediction accuracy.

Our goal is to use a time-series ARIMA model to estimate future stock market indices (Banerjee, 2014). For six years (2007-2012), they gathered data of the monthly closing prices of stocks of the sensex and attempted to construct a model based on them. A suitable model that would assist them in predicting the Indian equity market indices that have not been observed. In their research they exhibited the use of the ARIMA model that is focused on "Where we forecast future stock indexes with a strong performance influence on the Indian economy's performance". Among the many models, they found ARIMA (1, 0, 1) to be the best, based on the fact that it meets all of the requirements for the excellent fit unlike the rest. In Al-shiab, (2006) research between 4/1/04 and 10/8/04, ASE general daily index was used to test the univariate ARIMA forecasting model. To determine the optimal model, many diagnostic tests were carried out describing the information. A time series was created using the ASE daily general index. The ARIMA is a mathematical model used in this. Economic forecasting based on time series can be done in five ways: Exponential smoothing methods and single-equation regression, autoregressive integrated models, simultaneous-equation regression models, vector auto-regression (VAR) and moving average models (ARIMA), examining the actual data throughput

the same period. During the anticipated period, it appears that the ASE's performance has deteriorated. As a result, the forecast did not match market performance. In a nutshell, the ASE most closely resembled the EMH weak type.

We compiled a comprehensive literature review on projecting various series from December 2019 to March 2022. We have conducted research on GCC stock market forecasting during this period. Only a few research on GCC countries were found using the ARIMA model. Therefore, there is a void, which prompted us to conduct research on projecting the stock return of these economies.

3. RESEARCH METHODOLOGY

3.1 Objective

To forecast the return of the equity market among countries of the GCC

3.1 DATA:

Table 1: Description of the selected equity indices of GCC countries.

Variables	Country	Indices	Source
Tadawul All Share Index	Saudi Arabia	TASI	Bloomberg.com
DFM General Equity	UAE	DFMGI	Bloomberg.com
MSCI Qatar Equity	Qatar	MIQA000PQA	Bloomberg.com
Kuwait Main Market 50	Kuwait	BMK50	Bloomberg.com
MSCI Oman Equity	Oman	MIOM000POM	Bloomberg.com
Bahrain All Share Equity	Bahrain	BAX	Bloomberg.com

3.2 ECONOMETRIC MODEL:

A general modification of an ARMA model yields the ARIMA model. This model is used to forecast time series

data in order to gain a further understanding of the data or to forecast values of the series (forecasting). When there is evidence of non-stationarity in the data, ARIMA models are used. ARIMA models are written as ARIMA (p, d, q), where p, d, and q are non-negative integers, p is the autoregressive model's order (number of time lags), d is the degree of differencing (the number of times the data has had past values subtracted), and q is the moving-average model's order. First step is to check the stationarity of the data by using ADF test, commonly known as ADF test. If the data is not stationary, efforts then are made by differencing the data again and again to make it stationary, but if it is stationary in the first moment, we can directly proceed to the next step of model identification (Yadav et al., 2020; Yadav and Pandey, 2020; Yadav & Arora, 2020). From the model identification, its forecasting and diagnosis R studio software has been used.

ARIMA Model

It is fashioned as a blend of past values and error terms which is depicted in this equation

$$Y_t = \alpha + \beta_1 Y_{t-1} + \beta_2 Y_{t-2} + \beta_3 Y_{t-3} + \dots + \beta_p Y_{t-p} + e_t + \theta_1 e_{t-1} - \theta_2 e_{t-2} - \theta_3 e_{t-3} - \dots - \theta_q e_{t-q}$$

where Y_t are the series values and e_t are the error terms; β_i ($i = 1, 2, \dots, p$) and θ_j ($j = 1, 2, \dots, q$)

are the model parameters. p and q are integers denoting orders of autoregressive and moving average polynomials.

4. Empirical Results and Discussions: -

Table 2: Descriptive statistics of selected equity indices of GCC

Indices	Country	Min	Max	Mean	Std Dev	Skew	Kurtosis	Adf Test	Arima Order
Tadawul All Share Index	Saudi	-0.087	0.0683	0.0008	0.0114	-2.085	17.57	0.01	(2,0,3)
DFM General Equity	UAE	-0.087	0.0706	0.0004	0.0137	-1.117	10.882	0.01	(3,0,3)
MSCI Qatar	Qatar	-0.139	0.043	0.0005	0.012	-3.456	40.525	0.01	(0,0,0)
BKP Kuwait Premier Market	Kuwait	-0.116	0.0614	0.0005	0.0128	-3.49	31.6	0.01	(0,0,1)
MSCI Oman Equity	Oman	-0.125	0.043	0.0007	0.0115	-3.153	32.877	0.01	(1,2,1)
Bahrain All Share Equity	Bahrain	-0.06	0.0342	0.0004	0.0067	-1.959	17.528	0.01	(0,1,2)

From Table 2. The minimum return of each stock indices of GCC is negative while the maximum value is positive and significant. The highest volatility is observed in the case of UAE whereas the lowest volatility is observed in the case of Bahrain. The daily return series exhibits negative skewness for all series, which indicates that there exists asymmetry volatility. Further, we notice that the majority of returns are leptokurtic, Qatar reflects the highest Kurtosis whereas UAE carries the lowest kurtosis rate. Skewness and kurtosis signify the rejection of normality in distribution. Referring to the Augmented Dickey-Fuller (ADF), it found that the series is stationary as its p-value is less than 0.05. Therefore, the volatility can be captured in these series. Figures 1 and 2, display the graphical inspection of raw series and log return series respectively. On this note, it can infer that each raw series of GCC equity indices has the presence of

a stochastic trend. To remove this trend, it is converted into log difference which is shown in figure 2. It signifies that there is a presence of volatility clustering. Volatility clustering refers to the tendency of high changes to be followed by high changes and low changes followed by low changes (Sharma et al., 2020). Further, the estimated model for Saudi is ARIMA (2, 0, 3) in which AR comes out to be two which explains that stock returns of Saudi can be forecasted based on the previous two days. I stand as 0 which shows stationarity of natural log returns series at level. MA comes out to be three which represents that the stock returns of Saudi are affected by the error term of the previous three days. The estimated model for UAE is ARIMA (3, 0, 3) in which AR comes out to be three which explains that stock returns of UAE can be forecasted based on the previous three days. I stand as 0 which shows stationarity of natural log

returns series at level. MA comes out to be three which represents that the stock returns of UAE are affected by the error term of the previous three days.

The predicted model for Qatar is ARIMA (0, 0, 0) in which AR comes out to be 0 which explains that the stock returns of Qatar cannot be forecasted based on previous days. I stand as 0 which shows stationarity of natural log returns series at level. MA also comes out to be 0 which represents that the stock return of Qatar is not affected by error terms of

previous days. While the model for Kuwait is calculated at (0, 0, 1) in which AR comes out to be 0 which explains that stock returns of Kuwait cannot be forecasted based on previous days. I stand as 0 which shows stationarity of natural log returns series at level. MA comes out to be one that represents that the stock returns of Kuwait are affected by the error term of the previous day.

ARIMA orders for Oman and Bahrain respectively are (1,2,1) and (0,1,2).

Figure 1: Time series plot of raw series 1) Saudi Arabia 2) UAE 3) Qatar 4) Kuwait 5) Oman 6) Bahrain.

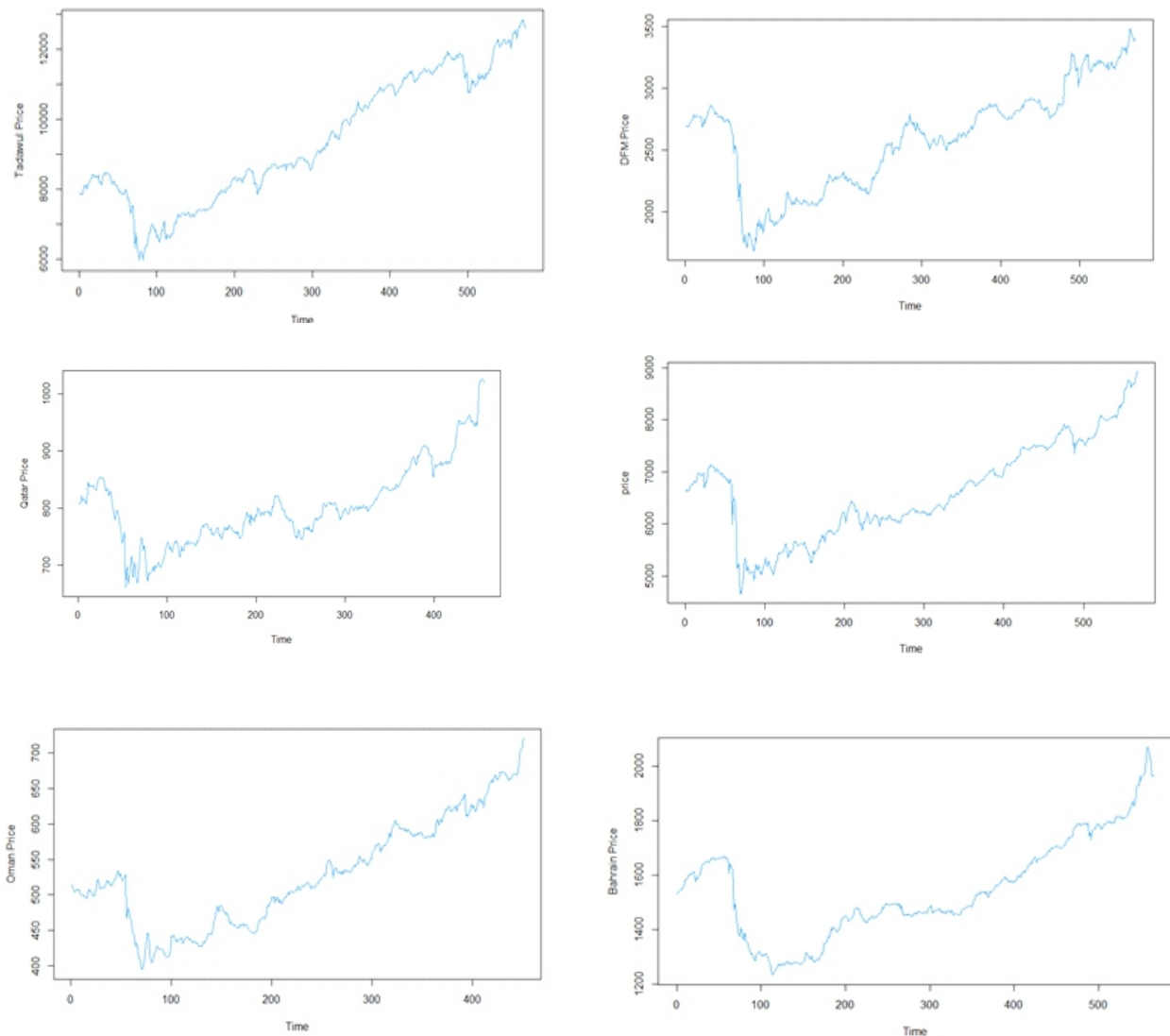
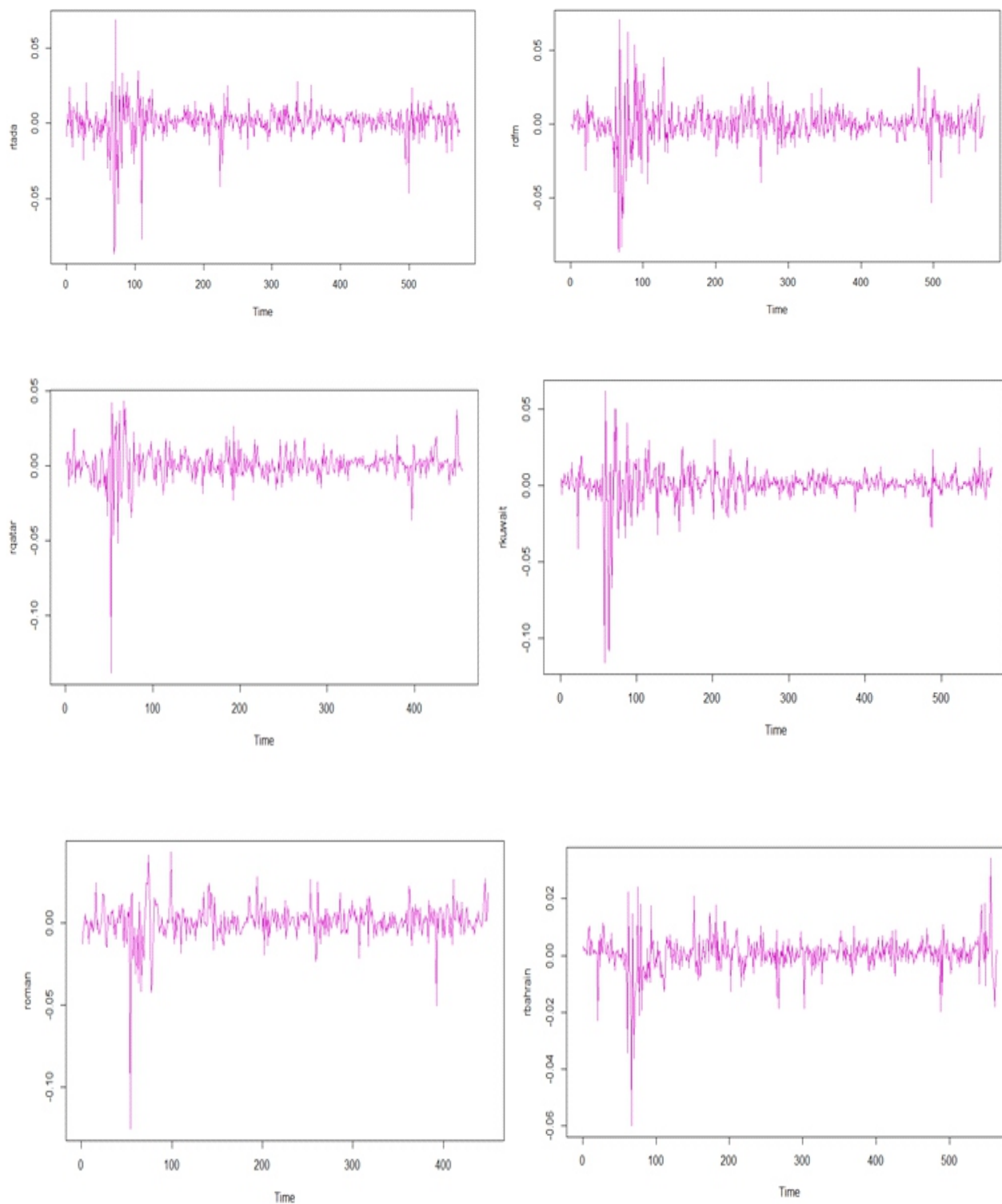


Figure 2: Time series plot of log return of constituent series 1) Saudi Arabia 2) UAE 3) Qatar 4) Kuwait 5) Oman 6) Bahrain.



4.1 Diagnostic robustness checking of the model:

For autocorrelation in a time series the Ljung-Box test to validate hypotheses is used. The null value, The H0 hypothesis states that the residuals are distributed randomly. The alternative hypothesis is that the residuals are serially correlated and not independently distributed. The Ljung–Box test (named after Greta M. Ljung and George E. P. Box) is a statistical test that determines whether any of a collection of time series autocorrelations are different from zero. It is a portmanteau test since it evaluates "overall" randomness based on a lot of lags rather than assessing randomness at each individual lag. In this we see p-value of all the indices are much smaller than .05 that is the significance level, thus we can reject the null hypothesis, indicating the time series does contain an autocorrelation.

Figure 3: Shows autocorrelation of 1) Saudi Arabia 2) UAE 3) Qatar 4) Kuwait 5) Oman 6) Bahrain.

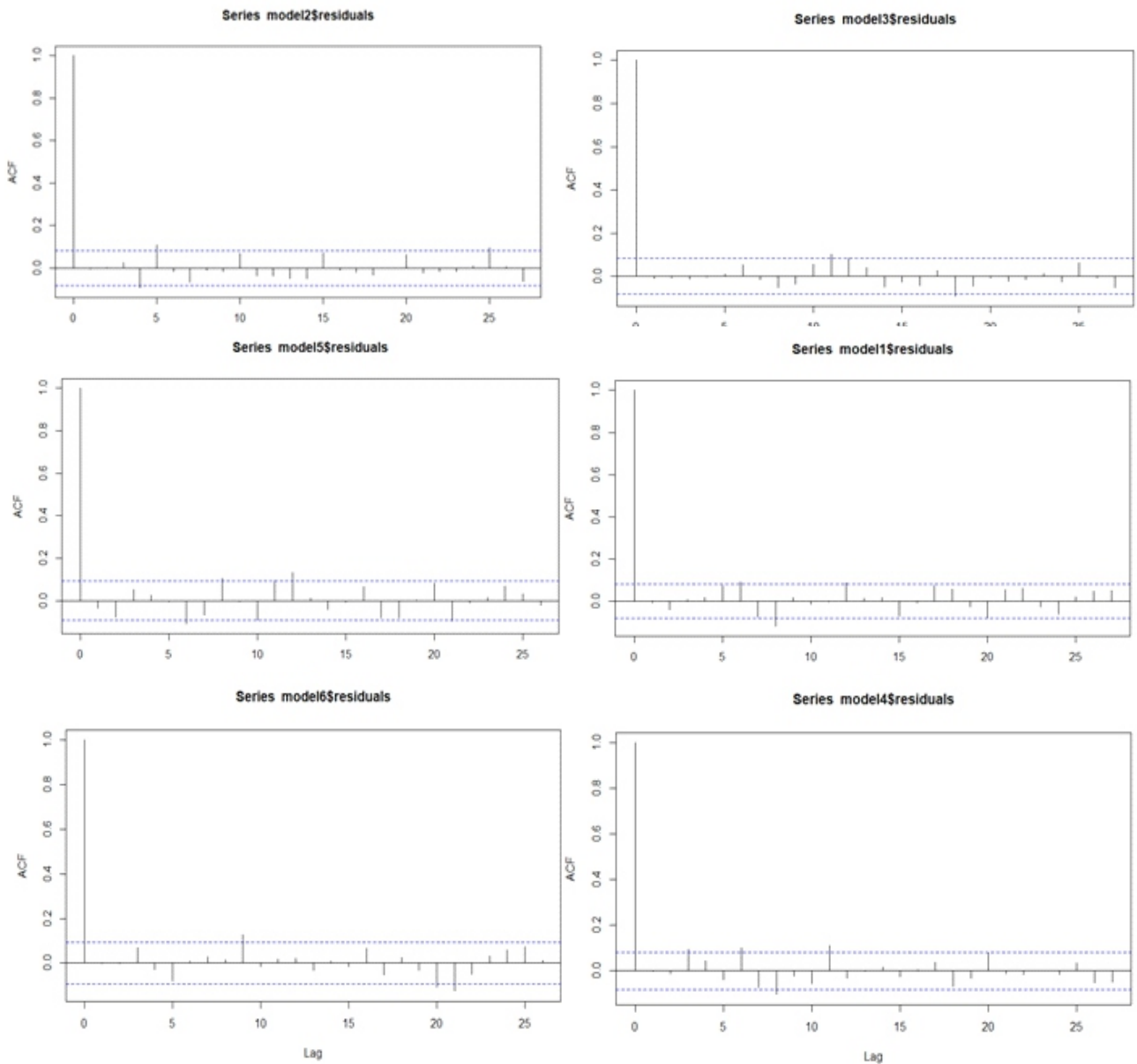
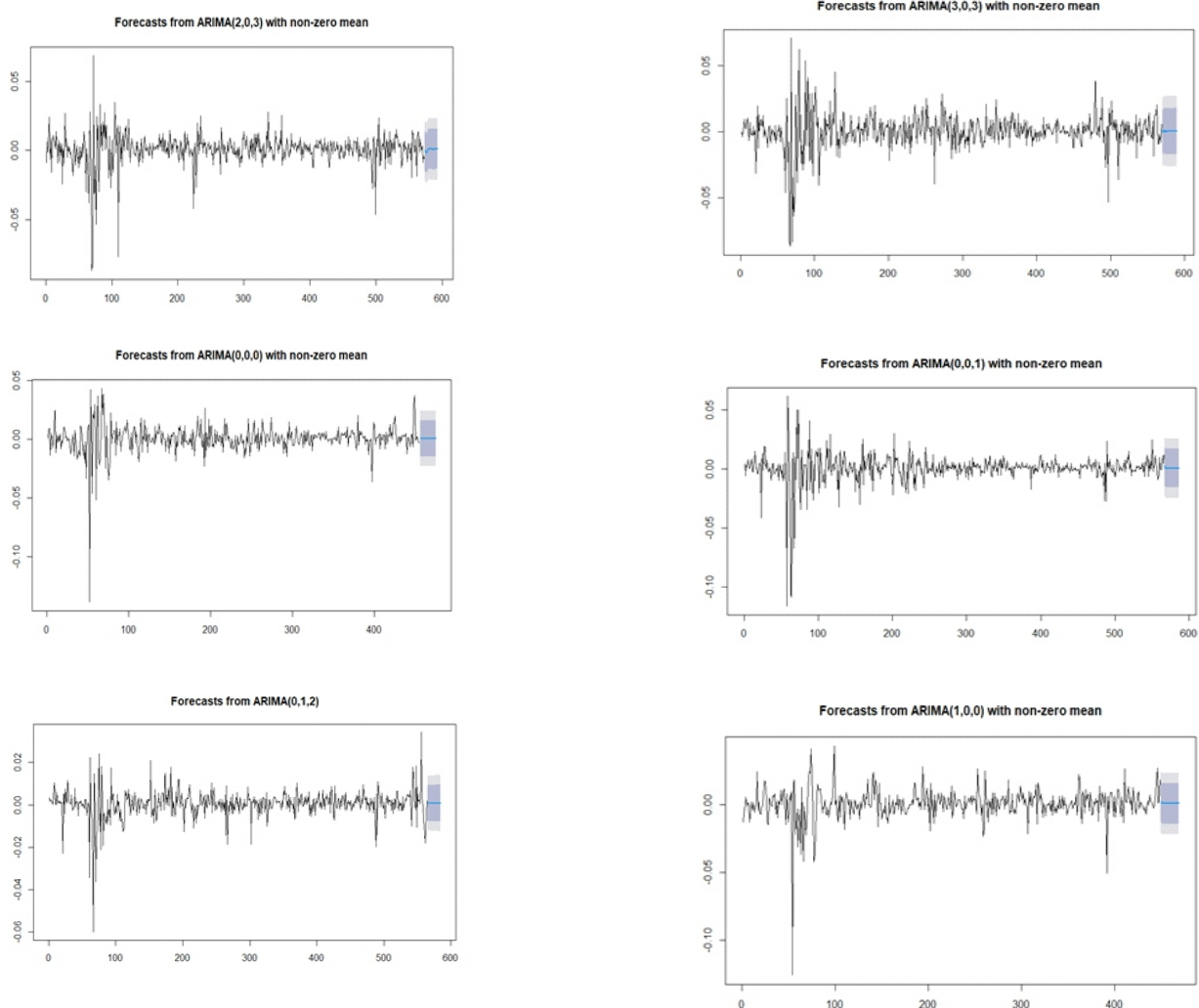


Table 3: Result of Ljung-Box test

Country	Indices	X- squared	DF	P- Value
Saudi Arabia	Tadawul All Share Index (TASI)	34.071	10	0.00018
UAE	DFM General Equity	12.417	10	0.2581
Qatar	MSCI Qatar Equity	132.85	10	< 2.2e-16
Kuwait	BKP Kuwait Premier Market	19.004	10	0.04021
Oman	MSCI Oman Equity	74.442	10	6.11E-12
Bahrain	Bahrain All Share Equity	27.376	10	0.00227

Figure 4: Shows forecasted plots of 1) Saudi Arabia 2) UAE 3) Qatar 4) Kuwait 5) Oman 6) Bahrain.

5. Conclusion and Policy Implications

Equity market of any country is a platform for investors' savings and investment targets. Results of the ARIMA model have an effective level of predictability which means ARIMA is one of the best suited models to predict volatility. P value of coefficient of AR (Auto Regressive) and MA (Moving Average) of all constituent series is significant (less than 5 percent).

Further adding to the scope of study different groups of economies like BRICS, ASEAN, OPEC can be considered, neural network model can be used to forecast in addition to ARIMA model.

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A Comparative Study of Employees Motivation in Public and Private Hospitals of NCR

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Ms. Laxmi Rani, Research Scholar, Dr. A.P.J. Abdul Kalam Technical University, Lucknow

Ms. Jaya Gupta, Assistant Professor, NDIM, Delhi, India

Abstract: *The propelling force that encourages someone to act and maintain their conduct is called motivation. At first, people believed that finance was the only element that could inspire workers, but there are actually a variety of other considerations as well. Individual preferences for these elements may differ. While some people choose non-financial factors, others favour financial factors. The current study is sought to discover the preferences of the elements influencing the overall motivation of personnel working in both commercial and public hospitals. For this study, a questionnaire was used to perform the investigation. There were two sections to the questionnaire: Part (A) and Part (B). Ten components of motivation served as foundation for the questionnaire, and participants were asked to rate these criteria in order of significance. The goal of the study was to determine the motivating preferences of staff members working in public and private hospitals. With the use of LR, the motivating variables were determined. Managers and other policy makers should be able to use the study to build employee incentive policies.*

Keywords: Motivation, Factors, Private Hospitals, Public Hospitals, Survey.

Introduction

The Latin word "movere," which means to move, is where the word "motivation" first appeared. We are propelled to take action through motivation. Similar to a steering wheel, it directs motion in the desired direction. Motivation is the psychological process that starts, controls, and keeps going voluntarily towards goal-oriented behaviours. Motivation is a factor that pushes people to act and maintain their behaviour. For every organisation, one of the most difficult tasks is to motivate personnel. As a result, employees play a crucial role in inspiring others to deliver the desired performance and please clients. If employees are happy and satisfied with their jobs, they will offer

their best effort and the business will prosper. Conversely, if employees exhibit bad behaviour in the form of absenteeism and high labour turnover, productivity in the organisation will be negatively impacted. Workplace motivation is advantageous to both the organisation and the employees.

An employee who is happy and motivated delivers within the organisation their best work with exceptional performance. It is the responsibility of management to inspire employees by comprehending their demands. Motivating workers to produce their best work is important. Prior studies have shown that the initial stage in creating motivation is to identify the needs of the workforce. It is crucial for any type of firm to

comprehend the elements that drive its personnel. Understanding the variables that motivate people and improve job satisfaction can aid in the effective application of chosen tactics to maximise production and improve employee and customer satisfaction.

Managers have a responsibility to foster an environment where workers are inspired to perform to the best of their abilities. If a manager doesn't create this kind of workplace, it will lower employee satisfaction, which could lead to subpar productivity, a high absenteeism rate, and high staff turnover. In order to reduce attrition rate of personnel and increase productivity in firms, it is crucial to discover and analyze the factors motivating such employees.

Literature Review

Kuswati 2020 According to this study employee motivation significantly affects productivity. A well-motivated person will always have a high productivity rate, while a demotivated individual's productivity will be impacted severely. According to a 2019 study by Babaeinesami, monetary incentives are crucial drivers of employee motivation. In the case study, frontline staff selected service, autonomy, organisational policy, supervision, and advancement were termed as the top five most important motivational elements. According to Kahsay & Nigusie (2018). The intrinsic incentives of restaurant employees—affiliation, power, and achievement—are the subject of a 2017 study by Lee and Kim. According to research on these three motivators, knowledge-sharing behaviours should be influenced by employees' demands for accomplishment, affiliation, and power in that order: requirements for achievement should be met primarily, needs for affiliation should come second, and needs for power should

come after all prior have been met. According to Nabila S. Ben Slimane's (2017) research, job satisfaction is positively correlated with task importance, job autonomy, and feedback. According to research, managers should take non-financial considerations into account when creating motivational tactics since knowing the right motivational variables increases job satisfaction and boosts productivity. According to Chatterjee and Priya (2016), there is a strong correlation between employee involvement in decision-making, job satisfaction, and employee dedication and productivity. The research by Adjei et al. (2016) found that the most significant intrinsic motivational factors for health workers are job satisfaction, a positive work environment, and logistical support, while the most significant extrinsic motivational factors are compensation, access to transportation, and housing.

According to Cruz et al (2014) 's research, working part-time has a positive impact on job happiness, however having a longer service history has no effect. Job satisfaction increases if family dependence on employee salaries is high. The best ways to inspire employees and raise productivity, according to Elarabi & Johari (2014), are generous compensation, an effective incentive programme, and good management. Adzei and Atinga (2012) looked into the significance of both monetary and non-monetary motivators on employee engagement and retention rates in Ghana's district hospitals. The outcome showed that monetary incentives are more powerful motivators than non-monetary incentives. Only three of the four factors—leadership abilities and supervision, accessibility to infrastructure and other resources, and opportunities for ongoing professional development—were

thought to be the most effective motivators in this study. Bajwa et al. (2012) researched and analysed the elements that spur healthcare professionals to accomplish their clinical responsibilities in hospitals. Although all the criteria studied in the study were significant, the most crucial element for motivation, particularly among the younger age, was feedback. According to research by Giannikis and Mihail (2010), full-timers prioritize extrinsic rewards, whereas part-timers prioritize intrinsic benefits. The best motivator, according to Kaithapalli and Gundala (2009), is decent pay, followed by a fascinating job and praise for one's efforts. The motivational factors of employees with various demographic profiles varied. According to research by Maroudas et al. (2008), demographic factors like gender, work experience, and age influence the choice of motivators, but most employees could be encouraged by monetary rewards and opportunities for personal growth provided by their employers in the form of seminars, conferences, workshops, and other events. In their 2008 study, Islam and Ismail looked at the six most crucial elements that motivate workers in different Malaysian firms. Vilma and Egle's (2007) study found no appreciable differences in the motivational elements of executives and nurse practitioners in private health care organisations. According to Dimitris Manolopoulos (2007), fair pay and job stability are the most common forms of motivation in Greece, where managers mostly use extrinsic rewards to encourage staff members so that their performance may be evaluated. The findings of Snape and Snape (2006) point out that rather than creating new incentives, efforts should be concentrated on resolving the hygiene factors. In the public and private sectors of the UK, Louise Smith (1999) sought to identify the most effective techniques for inspiring the low-paid workers. According to research,

employee-centered programmes are the best way to increase employee motivation and satisfaction. Wong et al (1999) demonstrated that there exist no association between demographic variables and extrinsic factors but intrinsic determinants of motivation for employees with varied demographic features were observed as different.

Research Methodology

Research Design: Cross Sectional

Data collection Technique:
Convenience Sampling

Data Collection Tool: Questionnaire
(online)

Sample Size and characterization: 100 respondents working in Private and Public sector Hospitals

Herzberg's theory and job-related factors of Kovach for employee motivation were used as base theories for structuring the questionnaire on a 5 point Likert Scale. Questionnaire was prepared on the basis of ten factors of motivation. These ten motivating factors are consider for the research-

- Appreciation for work
- Participation of employee
- Sympathetic help in personal problems
- Work of interest
- Opportunities for advancement and development
- Discipline
- Loyalty to employees
- Working conditions
- Job security
- Fair wages

Mean was used to analyse the data.

Data Analysis and Interpretation

Table 1: Profile of the respondents

Variable	Frequency	Percent
Gender		
1. Male	72	72
2. Female	28	28
Age Group (Years)		
1. 18-30	24	24
2. 30-40	28	28
3. 40-50	24	24
4. More than 50	24	24
Higher level of Education		
1. Graduate	44	44
2. Post Graduate	44	44
3. Ph.D.	12	12
Marital Status		
1. Single	21	21
2. Married	79	79
Type of Company		
1. Manufacturing	24	24
2. Service	76	76
Monthly Income		
1. Upto 15000	5	5
2. 15000-30000	11	11
3. 30000-50000	44	44
4. Above 50000	40	40
Type of Hospital:		
1. Public	30	30
2. Private	70	70

Table 2: Mean, S. D. and ranking of the motivating factors in Private Hospitals-

Motivators	Mean	S.D.	Rank
Appreciation for work	3.98	0.40912	5
Employee participation	3.96	0.46234	6
Sympathetic help with personal problems	3.46	0.5231	10
Interesting work	3.62	0.32104	9
Opportunities for advancement and development	4.12	0.4235	3
Loyalty to employees	3.82	0.50167	7
Working conditions	4.07	0.32309	4
Discipline	3.65	0.34587	8
Job security	4.32	0.40567	2
Fair wages	4.56	0.40765	1

Mean value of fair wages in private hospitals is maximum (4.56), so fair wages is the first motivating factor. Mean value for job security is second highest (4.32), So job security is the second motivating factor in private hospitals. Mean value for opportunities for advancement and development, working conditions and appreciation for work are 4.12, 4.07 and 3.98 respectively. So, opportunities for advancement and development, working conditions and appreciation for work are the 3rd, 4th and 5th motivating factors respectively.

Table 3: Mean, S. D. and ranking of the motivating factors in Public Hospitals-

Motivators	Mean	S.D.	Rank
Appreciation for work	4.23	0.4132	3
Employee participation	3.56	0.36985	8
Sympathetic help with personal problems	3.92	0.40178	6
Interesting work	3.48	0.50612	9
Opportunities for advancement and development	4.16	0.33872	4
Loyalty to employees	3.86	0.40987	7
Working conditions	3.98	0.38054	5
Discipline	3.25	0.50234	10
Job security	4.82	0.40216	1
Fair wages	4.56	0.32182	2

Mean value of job security in public hospitals is maximum (4.82), so job security is the first motivating factor. Mean value for fair wages is second highest (4.56), So fair wages is the second motivating factor in public hospitals. Mean value for appreciation for work, opportunities for advancement and development, and working conditions are 4.23, 4.16 and 3.98 respectively. So, appreciation for work, opportunities for advancement and development, and working conditions are the 3rd, 4th and 5th motivating factors respectively.

Conclusion

Success or failure of a company not only depends on customer service, business processes and technology of a company. It also depends on employees who are supposed to plan and execute it. So the success and failure of a

company depends on its employees. Only a well-motivated and satisfied employee can give best performance but motivational factors may vary from person to person. According to this research, Motivational factors are almost the same for employees of public hospitals and private hospitals. Good wages, job security, opportunities for advancement and growth, full appreciation of work done and good working conditions are the 1st, 2nd, 3rd, 4th and 5th motivating factors respectively for employees of private hospitals. Job Security, fair wages, appreciation for work, opportunities for advancement and development, and working conditions are the 1st, 2nd, 3rd, 4th and 5th motivating factors respectively for employees of public hospitals. So we can say that not only money but non-financial factors are equally important to motivate the employees. The present work has provided "guidelines" that should be considered while developing employee motivation programs.

In the future similar types of works can be carried out in other countries with different demographic and employment factors.

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An Empirical study on Gender perceptions towards UPI

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Dr. Sunil Kumari, Assistant Professor, Government College, Meham, Haryana, India

Abstract: *This study is an empirical study on gender perceptions towards UPI. Five points likert scale is used to prepare a structured questionnaire. Primary data was based on 643 persons out of which 310 males and 333 females were found eligible in the form of completed questionnaires. Reliability statistics is up to mark and data is suitable for further analysis. T-Test statistics show no significant difference between gender perceptions towards UPI. Limitation of the study is that study is based on only gender perception. Age wise, education wise and other demographic variables can be studied in future studies.*

Key Words: Empirical, Gender, UPI, Problems, Customer, Satisfaction

Introduction:

UPI stands for Unified Payments Interface which merges a lot of bank related services, into a single mobile application of banks. It has become so simple and common that laymen in India are also using it in day to day operations. The National Payments Corporation of India (NPCI) is the company in-charge of the RuPay payment infrastructure, which is comparable to Visa and MasterCard. The Immediate Payments Service (IMPS) is another NPCI project. UPI transactions are protected by a highly secured encryption format that is difficult to decrypt. Every day, the IMPS network of the NPCI processes millions in transactions. With the advent of UPI technology, this is projected to skyrocket. Every transaction is verified using a two-factor authentication approach similar to OTP. For validation, however, UPI PIN will be used instead of OTP. The UPI applications' primary goal is to promote digital transactions and pave the way for a cashless economy. Users can avoid carrying cash or plastic money by using UPI. Their smartphone will

handle all the transactions.

Literature Review

The statistics showed by M. Arora and M. P. Yadav (2018) states that the factors that influence customer satisfaction change significantly depending on the age group. The steps that must be completed in order for digital wallets to operate effectively are more of an issue for Generation Y. Insecure payment methods, problems using them, and limited working assistance are significant differences between age groups. The current study suggests adding security precautions to improve the adoption of e-wallets. Yadav, M., and M. Arora (2019) customer satisfaction is positively correlated with e-wallet solutions but negatively correlated with e-wallet problems. According to M. Arora (2018), utilising a digital wallet to make payments is dangerous. Additionally, they find it difficult to function. Gandhi, M., Gupta, N., & Rawat, S. (2019) states there is a significant association in overall mean agreement on job satisfaction between the various populations. Khurana, P., Arora, M., &

Yadav, M. P. (2017) stresses on providing female students lower-interest college loans could help empower women by providing distinctive domestic upliftment projects for housewives, banks can play an important role in women's empowerment. Singh, S., Chaudhary, S., & Arora, M. (2015) the impact of age on consensus on growing security risk solutions is significant. Singh, S., & Arora, M. (2014) state that when it comes to boosting mobile banking, unmarried respondents place a larger importance on different types of risks and related solutions than married respondents. Arora, M., & Lochab, A. (2018) the average agreement on consumer satisfaction in mobile banking varies significantly across educational institutions. S. Singh, S. Chaudhary, and M. Arora (2014) been concerned about the well-being of others in their research. Benefits of Human Development Research Lochab, Arora, Madhu, and Anshu (2019) were studies as well as in A Lochab and M Arora (2018) also. The consequences of different generations may differ. M Arora and M Mittal (2020) believe that project-based education can help with the continuous development of technological advances, and that human resources are an important part of it Arora M (2012).

There is no study on Customer Satisfaction in UPI so An Empirical study on Gender perceptions towards UPI, is an effort to fill the gap.

Table A: Scale used in Study

Authors	Year	Scale	Cronbach Alpha
Singh, S., & Arora, M.	2014	1. Unsafe mode of payments	0.773
		2. Difficult to Use	
		3. Inadequate Working Assistance	
		4. Not Reliable	
		5. Restricted Choice	
		6. Slow Speed of Data Transmission	
		7. Receiving of Fake SMS and Scams	
Singh, S., & Arora, M	2014	1. Efficient Management of Funds	0.89
		2. Easy to Use	
		3. Status Symbol	
		4. Economical	
		5. Reduction in the waiting time for any transaction in the wallet	
		6. Quickness	
		7. Service Efficiency	
		8. Valuable	

Source: compiled from Literature Review

Research Methodology

Study is descriptive in nature. Secondary data for literature review and primary data for empirical analysis is conducted from 643 respondents. Questionnaire was sent to 1000 people. Some responses were incomplete and were removed during the screening process. 643 responses were complete and found suitable for further analysis. Random sampling method is used. T-test is used to test the statistics for 5 percent level of significance and confidence level 95 percent. Overall response rate is 64.3 percent.

Objectives of the study:

Main objective of the study is an Empirical study on Gender perceptions towards UPI. To achieve the main objective following objectives are portrayed:

- To know gender perception towards problems faced in UPI
- To analyze gender wise customer satisfaction in UPI
- To provide suggestions to improve UPI experience in Males and Females

Hypothesis (H_0): Null hypothesis is considered for the study.

(H_0) = There is no significant difference assumed in the perception of Gender for customer satisfaction in UPI.

Table B: Gender wise distribution of respondents:

Gender	Number
Male	310
Female	333
Total	643

Source: Survey

Table B shows there are 310 male respondents and 333 female respondents in the study.

Results and Discussions

Table 1: Scale Reliability Statistics of Problems faced by customers in UPI

	N	Mean	sd	Cronbach's α
Problems faced by customers in UPI	643	3.9	0.52	0.773

Source: Survey

As observed in Table 1, Mean of N=643 respondents perception towards problems faced in UPI is 3.90, Standard deviation =.520, Cronbach's α =.773, data is internally consistent as Cronbach's $\alpha > .7$ is treated as reliable.

Table 2: Scale Reliability Statistics of Customer satisfaction in UPI

	Mean	sd	Cronbach's α
Customer satisfaction in UPI	3.38	0.867	0.89

Source: Survey

As observed in Table 1, Mean of N=643 respondents perception towards problems faced in UPI is 3.38,

Standard deviation =.867, Cronbach's α =.890, data is internally consistent as Cronbach's $\alpha > .7$ is treated as reliable.

Table 3: Item Reliability Statistics of Problems faced by customers in UPI

	if item dropped Cronbach's α
1. Unsafe mode of payments	0.865
2. Difficult to Use	0.882
3. Inadequate Working Assistance	0.864
4. Not Reliable	0.869
5. Restricted Choice	0.875
6. Slow Speed of Data Transmission	0.876
7. Receiving of Fake SMS and Scams	0.887

Source: Survey

Table 3 shows Cronbach's α , if one item is dropped from scale. If Unsafe mode of payments is dropped, then Cronbach's α =.865, if Difficult to Use is dropped, then Cronbach's α =.882, similarly If Unsafe Inadequate Working Assistance, then Cronbach's α =.864, if Not Reliable is dropped, then Cronbach's α =.869, if . Receiving of Fake SMS and Scams is dropped, then Cronbach's α =.887. This indicates that no single statement can affect overall results. All statements together show reliability.

Table 4: Item Reliability Statistics of Customer satisfaction in UPI

	if item Cronbach's α
1. Efficient Management of Funds	0.759
2. Easy to Use	0.771
3. Status Symbol	0.784
4. Economical	0.73
5. Reduction in the waiting time for any transaction in the wallet	0.731
6. Quickness	0.731
7. Service Efficiency	0.748
8. Valuable	0.73

Source: Survey

Table 4 shows Cronbach's α , if one item is dropped from scale. If Efficient Management of Funds is dropped, then Cronbach's α = .759, if Easy to Use is dropped, then Cronbach's α = .771, similarly. If Status Symbol is removed, then Cronbach's α = .784, if economical is dropped, then Cronbach's α = .730, if . valuables are dropped, then Cronbach's α = .730. This indicates that no single statement can affect overall results. All statements together show reliability.

Table 5: Independent Samples T-Test

Variables	T-Statistic	df	p
Problems in Using UPI	0.377	641	0.706
Customer Satisfaction in using UPI	0.184	641	0.854
Suggestions to Improve experience of UPI	0.377	641	0.706

Source: Survey

Table 5 shows value of independent T test in males and females, about Problems in Using UPI, T-Statistic = .377, degree of freedom (df) = 641, and p value = .706, it shows there is no significant difference in perception of males and females towards Problems in Using UPI.

Also T-Statistic = .184, degree of freedom (df) = 641, and p value = .854, it shows there is no significant difference in perception of males and females towards Customer Satisfaction in Using UPI.

Similarly T-Statistic = .377, degree of freedom (df) = 641, and p value = .706, it shows there is no significant difference in perception of males and females towards Suggestions to Improve experience in Using UPI.

Table 6: Imperical Results

	Group	N	Mean	SD	SE
Problems in using UPI	Male	310	3.9	0.485	0.0276
	Female	333	3.89	0.551	0.0302
Customer Satisfaction in using UPI	Male	310	3.37	0.836	0.0475
	Female	333	3.387	0.823	0.0451
Suggestions to boost experience in UPI	Male	310	3.9	0.485	0.0276
	Female	333	3.89	0.551	0.0302

Source: Survey

Table 6 shows Group Descriptive of two groups, Male (N=310) and Female (N=333), Mean for problems in using UPI is 3.90 is more for males than Mean for problems in using UPI is 3.89 for females perception. It shows Male respondents have more problems in UPI than female respondents.

Mean for Customer Satisfaction in using UPI is 3.387 is more for females than Mean for problems in using UPI is 3.37 for male perception. It shows Female respondents have more Customer Satisfaction in UPI than male respondents. But as per statistical test of significance at 5 Percent level, no significant difference is found, so null hypothesis is accepted.

Conclusion

This study examines how gender affects perceptions of UPI empirically. 310 male and 333 female subjects out of a total of 643 people were discovered to be eligible in the form of a questionnaire that was filled out. The reliability statistics are satisfactory and the data is appropriate for further study. According to T-Test statistics, there is no discernible difference in how men and women view the experience of UPI. Therefore, the null hypothesis stands accepted. This study is based on gender perception only, so it can be considered as a limitation too. But it provides further scope of study for other demographic variables like age, income, marital status, area of residence etc.

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Exploring Unique Marketing Paradigm - “NeuroMarketing: Today and Tomorrow”

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Dr. Aashu Aggarwal, Assistant Professor- Vivekananda Institute of Professional Studies- Technical Campus, Delhi.

Prof.(Dr.) Poonam Khurana, Professor- Vivekananda Institute of Professional Studies- Technical Campus, Delhi.

Abstract: *The modern age of fundamental marketing is creating an information age. Gone are those days when the primary concern of businesses was large production and mass consumption, where the stores were full with inventory and presented the customers with a wild discount. The emergence of modern information technology has made everything within reach for the consumers to compare their preferences with the competitors only a click away. Marketing is not all about selling a product or reaching out to customers but about making a trustworthy and loyal relationship along with customer satisfaction by creating an impressive product. The neuromarketing technique has paved the way for a new age of marketing where more research and studies are being conducted to know the consumers in detail.*

Neuromarketing is an emerging discipline in the area of marketing and social science research representing an amalgamation of three popular disciplines; Psychology, Marketing, and Neuroscience. Neuromarketing offers a deeper understanding of consumer thought processes deriving out of the subconscious mind which is beyond the scope of traditional methods of marketing. While the traditional forms of marketing only explain how a consumer responds to marketing stimuli, neuromarketing answers both the “how” and “why” aspects of consumer behaviour.

This paper introduces the readers to this emerging yet unexplored field of marketing by highlighting its evolution, techniques, and scope in the real world. Further, the study brings forward the ethical concerns faced in the application of neuroscientific techniques for the study of consumer behaviour. The review highlights the concept as a significant contribution to the field of marketing which helps in examining the brain and other activities of the human body. However, the lack of privacy, trust, and harm associated with the use of neuroscientific techniques raise serious concerns about its application.

Keywords: Neuromarketing, Neuroscience, Ethics, Consumer Behaviour

1. INTRODUCTION

Understanding the needs of consumers is not at all a simple task. For certain needs, consumers themselves are not really conscious, and thus, effective marketers have to be keen on diagnosing and analysing their

unstated needs. Marketing is always believed to play a significant role in decoding the various aspects of consumer behaviour. Creativity or innovation is another different segment that enriches the study and application of the marketing concept. Innovation means something new or unruly which

could change the perspective of complete phenomena. They thus involve all three major hindrances which are uncertainty, risk, and complexity. The term innovation has its own characteristics namely idea, concept, solution, and market. Ideas are those cognitive processes happening within an individual that will help in future derivation and evaluation of the thought processes. The concept deals with the analysis of those ideas and interpreting the best possible choices or solutions as per the situation. The solution is the next step where the correct interpretations are tested and a new product is developed. Lastly, the market is the final place where we can find the result of novelty emerging in the thought process. Hence, each phase has its own unique characteristics were the initial phases are more creative and less structured in nature while the final phases are more focused and process-oriented.

The neuromarketing technique has paved the way for a new era of marketing where more research and studies are conducted to know the consumers in detail. Marketers are hence keener on how individuals choose to invest their available resources like time, money, and effort. The concept focuses more on the brain activity of consumers who make decisions on what is to be purchased, why it is purchased, where it is purchased, how often it is purchased, and finally how often it is being used. Research on the cognitive thought process shows that there is a huge disproportion between what consumers think and what they say they think. Consumer psychology thus acts as a helpline to the producer right from the stage of product development to the stage of marketing it.

Neuromarketing is an incredible scientific marketing technique that has

sparked immense geeks from brands and researchers and all who urge to know more about consumer behaviour. The technique helps to gather high-quality information on consumer behaviour and their cognitive thought process. This particular advantage has attracted the attention of innumerable marketing scholars. Hence, this new technique of interpreting complex human thought processes is crucial to evaluate more about a new product or service and how the consumers react and respond to these offerings.

The whole neuromarketing concept is an asset and positive addition to the field of marketing. This scientific technique enables the researchers to get a proper insight into the consumer minds and their cognitive thought processes. Neuromarketing can overcome the failures faced in traditional marketing campaigns being used for ages. Neuromarketing marks a new revolution in the field of strategic marketing. It has emerged as an interesting area of study where academicians and research scientists use neuroscience techniques to examine marketing strategies and their impact on consumer behaviour. The term neuromarketing was first introduced by Ale Smidts in 2002. It is a scientific discipline that represents a combination of consumer behaviour and neuroscience. Neuromarketing aims to understand how consumers make subconscious decisions about choosing a particular brand. As proposed by Martin Lindstrom in *Buyology*, the purchase decisions are not as rational as people think, nor have they ever been so in the past. Consumer decisions are influenced by a set of complex feelings, emotions, beliefs, attitudes, and values that cannot be measured through surveys. More often, walking by a supermarket, customers pick products based on thoughts and emotions which they are largely

unaware of. They are often attracted to a particular brand without really knowing the reason behind it (Lindstrom, 2008). Additionally, the authors reveal that even satisfied customers leave the firm often, where the explanation for such behaviour lies inside one's brain (Dapkevičius Melnikas, 2009). The extant literature underlines that the traditional methods of marketing fail to gather subconscious information from consumers (Calvert & Brammer 2012; Spanjaard et al., 2014) which leads to the poor prediction of consumer behaviour thus causing a mismatch between the market research findings and the actual consumer behaviour showcased at the point of purchase (Agarwal & Dutta, 2015). Traditional theories of marketing use qualitative research techniques to examine consumers' perceptions, motivations, and decision-making processes (Richie & Goeldner, 1994). However, the theories and models used traditionally in consumer research have evolved intensely throughout the last few years (Bagozzi et al., 1999) leading to the emergence of new theories, tools, and techniques capable of integrating the emotional aspects of human behaviour. The need to gain deeper insights into consumer behaviour gave birth to the new field of marketing popularly addressed as "neuromarketing". The roots of neuromarketing dates back decades ago to the neuroscientist Antonio Damasio who asserted that not only the rational part but humans make use of the emotional part of their brains to make decisions. The authors explain that the striatum in the brain gets used to new stimuli quickly and tends to react only to the unexpected (Coy, 2005). The study provides a neural-based explanation of why marketing experts exhort firms to "delight" consumers rather than just simply satisfying them. The framework of neuromarketing aims to develop a

sound neuropsychological theory that will allow people to understand consumer behaviour by combining the neuroscientific techniques, behaviour theories, experimental models, and designs acknowledged by consumer psychology (Plassmann et al., 2012). Neuromarketing is a branch of cognitive neuroscience that depends largely on the ability to visualise how the human brain sees choices and makes decisions (Burne, 2003; Shah, 2005). It is a qualitative research technique that employs the application of neuroscience techniques to marketing stimuli and has emerged as a form of market research that offers a substantial advantage over the traditional forms of market research (Kosslyn, 1999; Taher, 2006). The neuroscience techniques help understand how the state of the brain and other physiological mechanisms are linked to consumer behaviour and decision-making (Stanton et al., 2017). Among many Microsoft, Hyundai, Yahoo, and PayPal are some of the prominent examples of companies using neuromarketing (Burkitt, 2009). Neuromarketing offers strong insights and technological advances in market research, especially in the context of consumer behaviour (Genco et al., 2013). As an innovative field of science, neuromarketing is quickly becoming one of the most valuable research tools to offer modern marketers insights into human thought processes and how it functions in different circumstances (Taher, 2006). Many neuromarketing academicians have published conceptual (Butler, 2008; Garcia & Saad, 2008) and review (Schneider & Woolgar, 2012; Fortunato et al., 2014; Cruz et al., 2016) papers in the area of neuromarketing research.

The concept gained attention as to have a favourable user experience, it is important to know and understand the users' needs, wishes, and cognitive

abilities. The adoption and exploration of neuromarketing have led to an improved understanding of consumer behaviour. However, for a successful application, the field of neuromarketing calls for interdisciplinary cooperation between neuroscientists, academicians, and marketing professionals that comprehend consumer behaviour (Alasdair, 2005). Though there is no universally accepted differentiation between consumer neuroscience and neuromarketing, there is a general agreement amongst the authors that the former represents the academic branch of the discipline while the latter deals more with the application of neuroscientific tools in the business context (Agarwal & Dutta 2015; Harris et al., 2018). This paper interprets the term neuromarketing as a field that deals with the application of neuroscientific techniques to examine and understand the subconscious aspects of human behaviour of which humans are generally unaware. Neuromarketing uses neuroscientific tools to analyze biological signals and biomedical images to evaluate physiological responses to communicative stimuli (Stasi et al., 2017)

2. NEUROMARKETING: AN EVOLUTIONARY REVIEW

The term “neuromarketing” is a combination of two words “neuro” and “marketing” depicting the merger of two disciplines, namely “neuroscience” and “marketing”. The concept of neuromarketing was first coined and referred to by Ale Smidts in the year 2002 as “the study of the cerebral mechanism to understand consumer behaviour to improve marketing strategies” (Boricean, 2009, p. 119). Neuromarketing aims to adapt theories and methods from the field of neuroscience and combine them with the theories and methods from marketing, economics, and psychology

to develop neuro scientifically sound explanations for the influence of marketing on consumer behaviour (Lim, 2018). It is a new field of marketing that aims to study the consumers’ response to marketing stimuli (Kumar and Singh, 2015). Neuromarketing is an evolving branch of neuroscience where researchers deploy medical technology and methods to predict consumer reactions to a certain product, brand, or advertisement. Neuromarketing is widely represented as a combination of three major disciplines; neuroscience, marketing and psychology whose primary function is to explore and investigate the consumer’s subconscious mind to understand the decision-making process (Javor et al., 2013; Khushaba et al., 2013; Sebastian, 2014). It encompasses the application of neuroscientific methods to the subject of marketing (Cruz et al. 2016; Lee et al. 2017, 2018). Neuromarketing reveals insights and information beyond what is revealed by traditional techniques such as surveys, experiments, focus groups, and ethnography to enhance the marketing theory and practice (Yoon et al. 2012; Plassmann et al., 2015) or improve the accuracy of predictions of consumer behaviour (Boksem Smidts, 2015; Venkatraman et al. 2015). Neuromarketing is distinguished from consumer neuroscience in the sense that the former restricts itself to industrial applications while the latter deals with academic research (Plassmann et al., 2012). Since the emergence of the concept of neuromarketing, multiple definitions have evolved, each explaining the concept differently. Some scholars studied neuromarketing as “the application of neuroscientific methods to analyse and understand human behaviour about markets and marketing exchanges” (Lee et al., 2007,

p. 200), while some conceptualize it as “the application of findings from consumer neuroscience within the scope of managerial practice” (Hubert & Kenning, 2008, p. 274). It depicts “the intersection of consumer behaviour and cognitive neuroscience” (Garcia & Saad, 2008, p. 398). Neuromarketing is knowledge of mechanisms used to process information received from the brain to arrive to offer a better understanding for company decision-

makers (Pop & Lorga, 2012) and “a field that focuses on the marketing implications from understanding the interaction of cognition and emotions in human behaviour based on neuroscientific methods” (Javor et al., 2013, p. 3). Neuromarketing as explained sometimes is “an extension of traditional marketing methods that seeks a deeper level of manipulation based on instinctive responses” (Nemorin, 2017).

Table 1: Evolution of the concept of neuromarketing

Author & Year	Definition of Neuromarketing
Lee et al. (2007)	Involves the application of neuroscientific methods to analyze and understand human behaviour about markets and marketing exchanges
Garcia & Saad (2008)	Depicts the intersection of consumer behaviour and cognitive neuroscience
Hubert & Kenning (2008)	Deals with the application of findings from consumer neuroscience within the scope of managerial practice
Javor et al. (2013)	focuses on studying the interaction of cognition and emotions in human behaviour based on neuroscientific methods
Khushaba et al. (2013); Sebastian (2014)	Combination of three disciplines neuroscience, marketing, and psychology
Kumar & Singh (2015)	Studying consumer’s responses to marketing stimuli
Nemorin (2017)	extension of traditional marketing methods that seeks a deeper level of manipulation based on instinctive responses

3. TECHNIQUES OF NEUROMARKETING: AN OUTLINE

Neuromarketing uses various neuroscientific techniques to study consumer behaviour. The list of techniques available is quite long with each carrying its own set of advantages and disadvantages. The authors classify these techniques according to the process and the tools involved. According to the authors, neuromarketing techniques fall into two major categories namely, neuroimaging and non-neuroimaging (Martínez-Navarro et al., 2019). The neuroimaging techniques are the ones involving brain activity and include fMRI, EEG, SST, PET, and MEG. The non-neuroimaging techniques do not

use brain activity but other aspects of the subconscious behaviour and include techniques such as facial coding, eye tracking, galvanic skin response, implicit response testing, and FENG.

3.1 Neuro-Imaging Techniques 3.1.1 Functional Magnetic Resonance Imaging (fMRI)

fMRI measures the amount of oxygen consumed by the mind in the different quarters of the cerebrum which shows how the cerebrum is reacting to the changes in brain behaviour as per the stimuli (Stasi et al., 2018). fMRI allows the researchers to measure the neural activity inside the brain via oxygen usage (Madan, 2010). It measures the

amount of deoxygenated haemoglobin (Huettel et al., 2004) and shows the active regions of the human brain when a stimulus is given (Cabeza & Nyberg, 2000). It is a widely available technique (Morin, 2011) that allows neuroscientists to simultaneously scan the brain of multiple subjects (Kenning Linzmayer, 2011; Montague et al., 2002). Reportedly, scientists used fMRI to study consumers' preference for beverage products such as Coca-Cola and Pepsi (McClure et al., 2004). However, fMRI is an expensive technique that restricts its application (Ariely&Berns, 2010; Pradeep, 2010).

3.1.2 Electroencephalography (EEG)

EEG test measures the electric currents sent by one brain cell to another. EEGs measure brain activity at the scalp using multiple electrodes placed on the scalp of the participant (Madan, 2010). It is an X-ray which is highly convenient due to its portability. The test is superior to MRI as it is portable i.e., it can test peoples' responses in public places like shops or cinemas (Stasi et al., 2018). Though this technique is quite old, it is still used conveniently to measure changes in the electric field in brain regions (Ariely & Berns, 2010; Morin, 2011). EEG has been used to study how consumers process television commercials (Rothschild et al., 1986) and see whether the consumers remember the advertisements (Rothschild & Hyun, 1990).

3.1.3. Positron Emission Tomography (PET)

PET is a spatial imaging technique that uses radioactive particles that flow through a person's body and help identify the stimulated part of the brain. PET is considered an expensive and invasive technique leading to a smaller number of researchers using this technique (Tovino, 2007). Due to its high cost, the technique has been

rarely used in neuromarketing-specific research (Sebastian, 2014). Before the launch of fMRI, PET was the most widely adopted method for functional neuroimaging. But because of the associated demerits such as high cost, low special resolution, and invasiveness, the technique is used less now in neuroscience research (Lee et al., 2017).

3.1.4 Steady-state topography (SST)

SST is the major cerebrum mapping activity that allows an expert to get a buyer's reaction to stimuli. It enables the experimenter to pick up information from the subliminal mind of the customer (Stasi et al., 2018). The technique provides high temporal resolution and can continuously track rapid changes occurring in the brain activity with a high tolerance for noise and physical disturbance over extended periods (Gray et al., 2003). However, the technique is restricted by limited spatial resolution (Bercea, 2012).

3.1.5 Magnetoencephalography (MEG)

MEG is a neuroimaging technique that registers attractive movements in the cerebrum with a helmet that contains 100 sensors going up to a maximum of 300 sensors (Ariely&Berns, 2010; Kenning & Plassmann, 2005; Solnais et al., 2013). MEG provides a decent temporal resolution to detect small changes in the movement of the mind (Bercea, 2013). However, the technique is not that convenient and has high installation costs compared to EEG. Also, it offers relatively low spatial resolution (Morin, 2011).

3.2. Non -Neuroimaging Techniques:

3.2.1 Facial coding

Facial coding is a non-neuroimaging technique that studies facial expressions rather than studying brain activity. The technique identifies the

minutest of developments in the muscles when the individuals respond to marketing stimuli (Bercea, 2013).

3.2.2 Eye-tracking

This technology is used to track the positioning of eyes as their focus shifts along the surface of a certain visual trigger. Eye-tracking has been successfully used to examine how consumers judge the authenticity of different foods (Ares et al., 2013). Eye-tracking is a technique used to study the movements of the eyes as a subject is exposed to visual stimuli.

3.2.3 Galvanic Skin Response (GSR)

GSR is used by the researchers to examine the intensity of excitement that occurs in a customer after he is exposed to external stimuli such as an advertisement, a movie trailer, or maybe a new product. The technique is based on the electrical activity occurring in the participant's skin. GSR helps understand human behaviour by attaching electrodes to the fingers of an individual which are sensitive to the change in local skin conductance because of sweat (Fontanella et al., 2012). GSR helps the advertisers to measure the adequacy of the marketing behaviour and make alterations if the desired behaviour is not achieved (Bercea, 2013). GSR allows the evaluation of different states related to emotion, attention and cognition (Vecchiato et al., 2010).

3.2.4 Facial electromyography (fEMG)

fEMG is a technique that focuses on measuring and identifying the intentional and automatic movements of facial muscles to comprehend the feelings resulting from a certain external appearance. The technique uses facial sensors to record the electrical reactions delivered by the contraction of muscles. The technique has been used to track positive and

negative emotional reactions when a person is subjected to a stimulus (Wolf et al., 2005). The technique was used to study the purchase behaviour and psychophysiological responses of consumers to different price levels (Somervuori & Ravaja 2013).

3.2.5 Implicit Response Tests (IRT)

These tests are the type of devices that give unconscious data on the attitude or behaviour of the customers when exposed to a marketing stimulus. These tests are used to get insights into the inbuilt behaviour of the customers when exposed to two compared characters or brands (Bercea, 2013).

4. NEURO MARKETING: SCOPE AND APPLICATIONS

Neuromarketing research focuses on understanding the facts and insights about consumer buying behaviour. They probe into the fundamentals of non-conscious interpretations of consumers choices. The scope of neuromarketing is diverse in a marketing context. They use highly advanced tools and techniques to guide the researcher and articulate the preferences emerging from the subconscious minds of consumers.

The goals of neuromarketing studies are to obtain objective information about the inner workings of the brains of consumers without resorting to the subjective reports that have long been the mainstay of marketing studies (Dapkevičius & Melnikas, 2009). The use of neuroimaging in the area of marketing research encompassing product development, advertising, sales, loyalty programs, customer service, and market research is becoming more prevalent (Zurawicki, 2010). Neuromarketing techniques have been actively used by companies to study the impact of their marketing strategies on various dimensions of consumer behaviour.

I. Testing advertising effectiveness: Neuromarketing helps in analysing the effectiveness of advertising campaigns run by companies to stimulate positive consumer behaviour. Though conventional testing uses methods such as interviews, focus groups and other traditional tools of market research (Fugate, 2007) neuromarketing uses scientific tools and techniques to examine advertising effectiveness. Frito-Lay used neuromarketing in one of its advertising campaigns for its famous Cheetos brand wherein the company used electroencephalography (EEG) and focus groups to evaluate customers' responses to a new advertising campaign. Surprisingly, in the focus group the participants reported that they disliked the advertisement while during EEG done on the same set of participants, researchers observed positive brain activity showing that participants liked the ad (Burkitt, 2009). It helps the advertisers to see whether the brand can meet the emotional instinct of the customers (Gill & Singh, 2020).

II. Testing product appeal: Neuromarketing is widely adopted by marketers to test the product's appeal to potential customers. Product designers commonly make use of consciously generated consumer preferences to identify which product designs appeal the most to the target customers. In such a scenario, consumers are easy to be influenced by normative expectations and social influences.

III. Predicting consumer choice: Recent research work seems to herald the power of neuromarketing in predicting consumer choice, such as fMRI (Knutson et al. 2007; Soon et al. 2013) and EEG (Telpaz et al., 2015) were successfully used to predict individuals' choices and purchase

decisions. Authors reveal that brain activity can predict consumers' choice of food goods above and beyond what is self-reported information about preferences (Knutson et al., 2007) neuromarketing has a lot to contribute to traditional marketing research techniques (Venkatraman et al., 2015).

IV. Testing Celebrity endorsement's effectiveness: Studies explain how neuromarketing helps in analysing the impact of celebrity endorsements on consumer behaviour. The auditory and visual stimuli of the celebrity cause hormonal secretion which results in a positive emotional response and feeling of trust (Fugate, 2007).

V. Studying consumer behaviour: Neuromarketing is used to investigate how the different marketing stimuli affect the buying decisions of the consumers (Venkatraman et al., 2015). The use of neuroscience techniques, it is argued, facilitates a more direct understanding of how brain states and other physiological mechanisms are related to consumer behaviour and decision-making (Stanton et al., 2017). Neuromarketing helps measure the intensity of emotional attachment to a brand and the effect of stimuli that need to be applied at the point of sale to encourage purchases (Kühn et al., 2016).

5. NEUROMARKETING: ETHICAL CONSIDERATIONS

The last few decades have witnessed a surge of interest in the impact of marketing activities on society, especially concerning ethical issues within marketing. However, since its introduction, neuromarketing has evoked discussions about ethical concerns regarding its application in the study of human behaviour. The use of technology that probes into the inner functioning of the human brain raises severe ethical concerns. The authors propose that the ethical concerns

revolving around the use of neuromarketing mainly fall into two major categories: a) protection of consumer autonomy and b) protection of various parties who may get exploited or harmed because of neuromarketing (Murphy et al., 2008). The undisputed criticism about neuromarketing since its introduction includes the use of unethical research practices, unethical applications of technology, and manipulations of consumers. The most frequently observed ethical objection to the use of neuromarketing refers to the risks of harm and violation of human rights. The pertinent harms encompass both immediate effects on the individual customer as well as the long-term effects on society as a whole (Stanton et al., 2017). Because of the ethical implications of designing advertisements to intentionally cause desired neurological effects, consumer protection groups and academicians also view this domain of neuromarketing with caution (Alert, C. 2003). Some authors believe that brain imaging is likely to be used in ways that would infringe the privacy of individuals to a completely unacceptable level (Editorial, 2004). Ethical concerns arise due to a lack of knowledge, understanding, and consent amongst targeted customers (Wilson et al., 2008). Another commonly perceived ethical concern is the fear amongst customers that neuromarketing can be used not just to predict but influence consumer choice. Issues concerning consumer privacy are to an extent inherent in almost all of the methodological approaches (such as biometric technology, and facial recognition) adopted by marketing academicians (Singer, 2015). In research conducted to study the perceptions of marketing academics, neurologists, and marketing professionals about neuromarketing it was found that all

the three surveyed parties agreed that neuromarketing is not a manipulative way to sell unnecessary goods/services and ethics is an important area of debate across all the parties (Eser et al., 2011). The authors state that combining the commercial principles of economics with the learning principles of neuroscience and psychology along with proficient ethics being applied to the field of marketing is crucial to having positive outcomes (Madan, 2010).

6. NEUROMARKETING: CHALLENGES

Despite all the attention neuromarketing has received to date, the challenges faced in its application are still high. The researchers believe that since it is impossible to find people who have identical thoughts in the world neuromarketing is more of science fiction than reality (Hubert, 2010). Thoughts are changeable and vary according to individual experiences, character, and values. Not just the application, the interpretation of the results seems to be very difficult considering the scientific approach that neuromarketing uses. As observed, the meaningful interpretation of data and integration of knowledge itself is a serious challenge in the scientific level (Illes& Racine, 2005). Moreover, the high cost, time requirements, and scarcity of resources are other problems posing constraints to the deployment of neuromarketing in the real world.

7. CONCLUSION:

Being an interdisciplinary research domain, neuromarketing helps understand consumer behaviour and the reasons behind a particular behavioural action. The past decade led to the development of a strong base for the study and research of two evolving disciplines, consumer

neuroscience, and neuromarketing. The various interdisciplinary groups worldwide pursue this field of research and work on more challenging marketing problems (Agarwal & Dutta, 2015). However, despite all the attention that neuromarketing has gained over the last few years the subject remains an unexplored and disputed area of research and application. Neuromarketing research is still evolving and needs more research to be conducted to study the various aspects of the subconscious mind of humans. Various reasons inhibit the use of neuromarketing and the application of brain imaging methodologies in marketing science. Through the lens of marketing academics, neuroscience and cognitive psychology can be intimidating subjects (Lee et al., 2007). Considering the lacunae, the purpose of this research work was to offer insights into the development of neuromarketing as a field of research and application.

The central concept of neuromarketing is strongly linked to the brain activities focused on understanding the consumers' subconscious mind and the reasons underlying the showcased behaviour responses to the marketing stimuli. Companies involved in neuromarketing research offer their clients brain-based information about consumers' preferences thereby bypassing the focus groups and other traditional marketing research methods because directly looking into one's mind is a way better predictor of consumer behaviour than surveys or interviews. The authors highlight the significance of measuring unconscious responses of the brain capable of being measured only through neuromarketing techniques (Calvert & Brammer, 2012). The rationale behind the increased acceptance of neuromarketing is the wide consensus that most consumers' decisions are

framed in the subconscious mind. In contrast to the traditional marketing methods of research which are largely based on introspection and verbal reports, neuromarketing has been more objectively developed for understanding what happens inside the black box i.e., the human brain (Camerer et al., 2005). However, as the concept is still in its evolution and the details lack clarity, the application of neuroimaging technologies in marketing research has not been so ethically convincing. Though traditional theories on consumer behaviour considered emotions secondary, the latest disciplines of neuromarketing and neuroscience highlight the important role that emotions play in explaining consumer behaviour (Hubert 2010; Martín-Santana et al. 2019).

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