ARTHA-VIKAS

UGC Approved Journal List No. 11398

Indexed in 1) Information Matrix for the Analysis of Journals (MIAR)
2) EconLit (/indizadaen/0004-3567/eocnlit)

ICDS anuales

ICDS 2019: 6.5 (http://miar.ub.edu/2016/issn/0004-3567)
ICDS 2018: 6.5 (http://miar.ub.edu/2015/issn/0004-3567)
ICDS 2017: 4.5 (http://miar.ub.edu/2014/issn/0004-3567)
ICDS 2016: 4.5 (http://miar.ub.edu/2013/issn/0004-3567)
ICDS 2015: 4.477 (http://miar.ub.edu/2012/issn/0004-3567)
ICDS 2014: 4.477 (http://miar.ub.edu/2011/issn/0004-3567)
ICDS 2013: 4.477 (http://miar.ub.edu/2010/issn/0004-3567)
ICDS 2012: 4.477 (http://miar.ub.edu/2009/issn/0004-3567)
ICDS 2011: 4.477 (http://miar.ub.edu/2009/issn/0004-3567)
ICDS 2010: 4.477 (http://miar.ub.edu/2009/issn/0004-3567)

R. N. No. 15058/67 **ISSN : 0004-3567**

A biannual refereed Journal of Economic Development published by the Department of Economics, Sardar Patel University, Vallabh Vidyanagar - 388 120, Gujarat, India.

1. ARTHA – VIKAS is interested primarily in publishing articles on **economic development in general and rural development in particular.** It publishes, in the main, the results of the research work done in the various institutions located at Vallabh Vidyanagar. It also welcomes articles from outside.

2. EDITORIAL COMMUNICATION, books and periodicals for review and communications regarding advertisements should be addressed to the Managing Editor, Artha-Vikas, Department of Economics, Sardar Patel University, Vallabh Vidyanagar - 388 120, Gujarat, India.

3. Individual and Institutional SUBSCRIPTION RATES to the Journal are Rs 75-00 or £ 15 or US $ 30-00 and Rs 150-00 or £ 25 or US $ 40 respectively (50% discount would be given to the subscribers of the developing countries). Payment of annual subscription should be made by Demand Draft only. The Draft must be in favour of the Registrar, Sardar Patel University, Vallabh Vidyanagar. It should be payable at any bank having branch at ANAND/VALLABH VIDYANAGAR/VITHAL UDYOGNAGAR.

4.

5. The Journal also invites advertisements.

   Advertisement Tariff : Full Page Rs 2500 / US $ 250
   Half Page Rs 1500 / US $175

सत्तावनवाँ वोल्यूम : नं. १,२ जनवरी–जून और जुलाई–दिसंबर २०२१ VOL. LVII : No. 1, 2 : JAN.-JUNE & JULY-DEC. 2021

R. N. No. 15058/67 ISSN : 0004-3567

ARTHA - VIKAS

अर्थ – विकास

Bi-annual peer-reviewed and refereed journal
Published since 1965

JOURNAL OF ECONOMIC DEVELOPMENT

University Press

POST GRADUATE DEPARTMENT OF ECONOMICS
UGC CENTRE FOR ADVANCED STUDIES
SARDAR PATEL UNIVERSITY, VALLABH VIDYANAGAR

ARTHA - VIKAS
अर्थ – विकास

(JOURNAL OF ECONOMIC DEVELOPMENT)
Published since 1965

R.N. No. 15058/67 **ISSN : 0004-3567**

VOL. 57 JANUARY-JUNE & JULY - DECEMBER-2021 NO. 1 & 2

CONTENTS

OUR CONTRIBUTORS

Janvi Joshi	Assistant Professor, Shri Jairambhai Patel Institute of Business Management & Computer Application, Gujarat Technological University, Gandhinagar
Krunal Joshi	Associate Professor, Shri Jairambhai Patel Institute of Business Management & Computer Application, Gujarat Technological University, Gandhinagar
Imlak Shaikh	Management Development Institute Gurgaon, Gurugram 122001, Haryana, India
Feral K. Gandiyawala	Ad-Hoc Lecturer, Vimal Tormal Poddar Commerce College, Surat, Gujarat
Kamini Shah	Associate Professor, Department of Business Studies, Sardar Patel University, Vallabh Vidyanagar
Ranchhod Gagal	Assistant Professor in Economics, Government Arts and Commerce College, Rapar, Kachchh, Gujarat
Sheeba Kapil	HoD, Finance, Indian Institute of Foreign Trade, Ministry of Commerce, Delhi, India
Puneet Kaur Dhingra	Research Scholar, Indian Institute of Foreign Trade, Ministry of Commerce, Delhi, India
Saloni Devi	The Business School, University of Jammu, Babasaheb Ambedkar Road, Jammu, Jammu and Kashmir, India
Garima Kohli	The Business School, University of Jammu, Babasaheb Ambedkar Road, Jammu, Jammu and Kashmir, India
Shailja Khanduri	Doon Business School, Mi-122, Behind Pharma City, Selaqui Industrial Area, Dehradoon, Uttarakhand
Vishakha Gandhi	Assistant Professor, Nirma University, Ahmedabad, Gujarat and Research Scholar, P.G. Department of Economics, Sardar Patel University, Vallabh Vidyanagar, Gujarat

INSTRUCTIONS TO CONTRIBUTORS

1. Soft copy of the paper may be submitted by Email on arthavikas@gmail.com.
2. There are no charges for publication in Artha-Vikas.
3. If the author wishes, the paper may be submitted in hard copy accompanied by a soft copy in a CD or pen drive.
4. Paper submissions must be accompanied by the filled in and scanned Declaration cum Copyright form available on https://www.spuvvn.edu/academics/publications/
5. Papers must be submitted ONLY in the format given in the Template on webpage https://www.spuvvn.edu/academics/publications/
6. Papers not confirming to the Template of Artha-Vikas shall be returned to the author for revision.
7. The first page of the submitted paper should contain the Tile and the Abstract, but should not contain any information that could identify the author/s.
8. The paper should not exceed 10 thousand words (including Tables and appendices).
9. Tables/graphs must be placed in-text at their proper place in the paper. They must not be given as appendices.
10. References should be cited in the style prescribed in the publication manual of the American Psychological Association (APA). The author/s may take help from website-https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/refer ence_list_electronic_sources.html
11. Papers submitted for *Artha-Vikas* cannot be withdrawn after the completion of the first round of review.
12. More information on the Journal's review process can be found on https://www.spuvvn.edu/publication/arthvikas/peer%20Review%20Process%201.pdf
13. Corresponding author shall be sent hard copies of the journal in which their article has been published; one each for every author.
14. The current issue of the journal shall also be placed on SPU website as a PDF copy, from where it could be freely downloadable.

PEER REVIEW PROCESS

1. The received papers shall be put through software for plagiarism test.
2. If a submitted paper was found to have Similarity Index of 30% and above, the paper will be summarily rejected. If it was less than 30%, it would be returned to the author for revision. Upon re-submission, the paper should confirm the following standards: 1) Similarity Index less than 10% and 2) Less than 40 consecutive words of similarity in any paragraph. If the re-submission does not confirm with the above standards, it would be rejected.
3. The editors check the papers for their suitability for publication in terms of their relevance to the journal.
4. The received papers are checked for confirmation with Artha-Vikas Template. Submissions that are not according to the prescribed format are returned to the author for revision according to the format.
5. If found suitable the papers are sent to a reviewer who is generally from the area of specialization on which the paper is based.
6. *Artha-Vikas* employs double blind review system where both the reviewers as well as the authors remain anonymous to each other.
7. The reviewer may accept, reject or suggest a minor/major revision in the manuscript with regard to its style of presentation and/or content.
8. Suggestions and comments from the reviewer are shared with the authors. Authors are given a specific time limit within which they may make the suggested changes and resubmit the paper.
9. The revised paper it is again sent to the same reviewer to ensure that the comments are incorporated to his/her satisfaction.
10. After final recommendation of acceptance by the reviewer, the paper is published.

POLICY ON ETHICS

1. Plagiarism in all its forms is unacceptable. The author/s is/are solely responsible for any issues related to plagiarism.
2. The Editorial Board is not responsible or liable for any consequences arising from inaccurate or misleading information or data /opinion/statement in the paper.
3. Anyone who has made a significant contribution to the paper has to be listed as an author in the proportion of his/her contribution. Minor contributors also must be acknowledged.

Any support from a third party/institution/ funding agency for the research must be duly acknowledged (including the grant number or other reference number if any).

Printer, publisher and owner of this English language biannual journal:
Registrar, Sardar Patel University, Vallabh Vidyanagar - 388 120 (Gujarat)
Type - setting and printing at Sardar Patel University Press, Vallabh Vidyanagar - 388 120
Editor: Dr H. P. Trivedi, Head, PG Department of Economics, Sardar Patel University,
Vallabh Vidyanagar - 388 120 (Gujarat)

Covid-19 Pandemic and Herding behavior in Manufacturing & Service Sectors: Evidence of Indian stock market

Janvi Joshi* and Krunal Joshi**

Abstract

The current situation of India is getting worse day by day due to the covid19 pandemic. Covid19 had affected all the sectors very highly and had given a major impact on India's stock market also. People who are close to stock market can understand the crash of it. This paper attempts to examine the herding behavior in Manufacturing and service industries sectoral indices from 1st January 2015 to 31st December,2020 by dividing the database into two parts: Pre covid 19 pandemics and During covid 19 pandemics. We have majorly selected 10 sectoral indices from Indian stock market to study the herding behavior. The present study employs the Christie and Huang (2000) model to trace out the presence of industry herding behavior in the Indian stock market with reference to Sensex index. The findings of the study showed that manufacturing sectors have herding behavior during the covid-19 pandemic.

Keyword: *Covid-19, Herding behavior, Indian stock market, CSAD*

JEL classification: *D91, G11, G41*

Introduction

With respect to investment in stock market, there are various instruments and theories for investment decision. As per some of the theories (Fama,1970), investors are rational. As per standanrd finance, investors receive information, they update their beliefs correctly. Further given their beliefs, they make choices that are acceptable. In traditional finance, Markets are efficient in the sense that prices reflect intrinsic values and investors are not confused by information processing errors. While Behavioral finance argues that investors possess a number of irrational behaviors. Behavioural finance studies how the emotion and psychology of the investor affects investment decisions. Behavioural finance helps explain why and how markets might be inefficient, and how emotions and mental errors can cause stocks and bonds to be over or under valued.

One of the potential clarifications for the deviation in stock prices, high unpredictability in stock returns, strange misfortunes and insecurity in financial market is the impact of herding conduct among the financial backers on the stock costs. To follow the particular group means herding behavior. Banerjee (1992) has discussed herding in different social and financial circumstances, where individuals settle on accomplishing something since every other person is doing as such, without giving a very remarkable idea that they have, which may perhaps legitimize accomplishing something very unique. It is normal that during typical conditions, when market and monetary conditions are probably going to be steady, investors take ration decision based on available information(Mertzanis& Allam, 2018), however during the emergency time frame they will in general stifle their private data and follow the group choices.

The COVID-19 flare-ups in December 2019 in China, in the city of Wuhan. Later it keeps on spreading across the world. On January 20, 2020, the World Health Organization (WHO checked the circumstance and delivered day by day reports about the new instances of disease and passing numbers in the Chinese locale and outside of China. WHO has a worldwide concern pronounced crisis? Because of this declaration, first in Shanghai securities exchange surged 8% low on seven day stretch of February 2020, and the shock quickly spread over global fianancial sectors. At first disregarded by the vast majority of the nations, the COVID-19 impact raised

* Corresponding Author and Assistant Professor, Shri Jairambhai Patel Institute of Business Management & Computer Application, GTU, Gandhinagar

** Associate Professor, Shri Jairambhai Patel Institute of Business Management & Computer Application, GTU, Gandhinagar

serious worry since the contamination quickly outside of China. WHO pronounced more the 90,000 individuals are influenced in excess of 60 nations in the first week of February,2020. In India, January 30, 2020, was the primary instance of Covid recognized in the territory of Kerala by an outsider individual from Italy. Later it began huge spread in the public. The Central Government stepped up of cross country Lockdown on March 24 2020, and it is as yet reaching out to more weeks. This Lockdown has been the most severe to contain the pandemic; this infection alarm influences whole financial and economic policy. The present circumstance makes herding psychology in the stock market investors, to understanding herding psychology in the stock trade has gotten significant consideration by market analysts and investors in the stock trade. Trusting Covid-19 as nothing not exactly a social and a financial emergency for the entire world, this paper is endeavor to analyze the herding behaviour inclination of investors in manufacturing and service industries in India securities exchange during Covid-19 period. The cross-sectional outright deviation (CSAD) measure as proposed by Chang, Cheng and Khorana (2000) has been utilized to study the herd behavior in 10 sectoral indices of manufacturing and service.

Theoretical Background

Lately, the herd psychology of investors in the capital business sectors has been drastically inspected. The essential strategies for herding have not been concentrated straightforwardly in the herding literature; in opposition to traditional models, Researchers have discovered techniques in a particular market or gathering of market players to recognize the herding conduct by clustering investor decisions. The accompanying research papers on herding psychology and the effect of COVID-19 on securities exchanges are chosen. The examinations picked either in light of the contribution that they added to significant progress of research or due to their significance correlation with this review. Firstly(Lakonishok J. a., 1992) Proposed a quantitative way to check the herding behavior among pension fund managers. Research didn't exhibit the herding behavior of Pension fund managers.

Afterward, this methodology created by (Lakonishok J. a., 1992) is generally utilized in different investigations to study herding psychology among indian and foreign investors. (Christie, 1995) Suggested another methodology called the Cross-Sectional Standard Deviation (CSSD) to investigate herding behavior in the stock market by taking individual stock returns looking to overall market and impact of one of the event.re-visitations of return to the market in case of significant value changes. The review was completed on the grounds that, under market pressure, individual investors suppress their viewpoints and take speculation choices dependent on a market agreement. The review applied the technique for return scattering on day by day and month to month perceptions by New York stock exchange and Amex companies during the year 1962-88.The research analyzed that price movement increased significantly which is in line with asset price models. The research showed that over span of time price movements has increased significantly.

(Chang, 2000) The review asserted that the Indian securities exchange doesn't comply with the herd psychology. The herd behavior was examined during different situation of the market like bullish and bearish period, high and low trading volume, pre-crisis and post-crisis. (Demirer, 2006) The Chinese market was inspected by thinking about individual inventories and sectoral perceptions. The examination endeavored to research at industry level herding of the Chinese stock trades in Shanghai and Shenzhen. The research showed no indications of herding at the level of the sectors. The researchers additionally say that Chinese stock exchange investors take rational decision for investment.

The research shows that herding psychology in developed nations has been less studied, not many investigations have been completed up until now, particularly in arising nations in India. There were still no authoritative discoveries from the tests. In addition, not many audits have been found to dissect the Herding psychology of the effects of COVID-19 on the Indian securities exchanges of manufacturing and service industries.

Data and Methodology

This study examines the herding behaviour using the daily closing prices of stocks that constituents the sectoral indices of BSE (see Table 1) which are majorly divided into manufacturing and service industries. The sectoral indices of BSE represent the whole industry- wise economy. Table 1 presents the details of the sample for the study, indicating industry index, industry name corresponding to industry index, the abbreviation of industry name used in the analysis and the number of companies that constitute the index corresponding to the industry.

WHO declared the Covid 19 pandemic as a PHEIC on 30th January,2020 to warn all the countries about its spread in the world and later as a pandemic on 11th march,2020. To detect the herding behavior impact on sectoral indices, we divided the full sample as pre covid-19 and during covid-19 based on cutoff date 30th January,2020 when WHO announced covid19s as PHEIC.

1. Pre Covid-19 Peroid: 1st January, 2015 to 30th January, 2020
2. During Covid-19 (outbreak) Period: 31st January, 2020 to 31st December, 2020

Table 1: Selected Sectoral Indices of S&P BSE and the Number of Constituent Stocks (N)

Indices	Manufacturing-Sector	N	Indices	Service-Sector	N
S&P BSE AUTO	Automobile	16	S&P BSE IT	Information technology	51
S&P BSE FMCG	Fast-moving consumer goods	63	S&P BSE Finance	Finance	110
S&P BSE REALTY	Real estate	10	S&P BSE BANKEX	Banking	10
S&P BSE HEALTHCARE	Healthcare	70	S&P BSE Telecom	Telecommunication	13
S&P BSE INFRA	Infrastructure	31	S&P BSE Energy	Energy	21

**Source: Authors' compilation from BSE website*

More than five years of database was used before covid 19 pandemic for 10 inustries to study the herding psychology of investors. We assumed that Indian stock market was in nomal trading phase before covid 19. All the datasets for sectoral indices were collected from yahoofinance and dataset was analyses using SPSS and eview software.

There are two major models to detect the herding behavior, CSSD and CSAD.One of the major defects in the Cross-Sectional Standard Deviation (CSSD) approach used to express the degree of dispersion is the assumption that there is a linear relationship between the dispersion in stock returns and the return on market portfolios, as the changes in the dispersal of stock revenues have been similarly affected in the market return. Chang and Zheng (2010) proposed a new approach to examining herding 6ehavior, using the CAPM model, Cross-Sectional Absolute Deviation (CSAD).so in our research, to detect the herding behavior in stock market, CSAD model (Chang, Cheng & Khorana, 2000)was used. The CSAD model for the detection of herding behavior is statistically defined as follows:

$$CSAD_t = \frac{\sum_{t=1}^{N} |R_{i,t} - R_{m,t}|}{N} \quad (1)$$

Here, CSAD represents the absolute value of deviation of indices returns from market return.Here Ri,t represents the indice i's return at t time period while Rm,t represents market return at t time period. Following the Lee et al. (2013) study, we examine the herding behaviour using the modified regression model as per the following equation:

$$CSAD_t = \beta_0 + \gamma_1 R_{m,t} + \gamma_2 |R_{m,t}| + \gamma_3 R^2_{m,t} + \varepsilon_t \quad (2)$$

Here, Rm,t represents the absolute market returns at day t and it represents the magnitude not the direction of stock market. R2m,t represents the squared value of the Rm,t. There is a non-linear relationship exists because of herding behavior. As per Chang et al. (2000), herding behavior exist in the market if ?3 coefficient value is negative and significant.

Results and Outcomes

Descriptive Statistics

The descriptive statistics of the variables are given in Table 2. The column for the standard deviation (Std.Dev) shows that the service industries have the highest value at 0.006177, followed by the manufacturing industries stock at 0.005647 during covid 19 which denotes the market is more volatile. A higher standard deviation may suggest that markets have unusual cross-sectional variations due to unexpected events. Not surprisingly; both manufacturing and service industries have the lowest standard deviation value at 0.003424 and 0.003503 respectively before covid 19. Further both industries have positive skewness, which shows the distribution is not symmetric. Furthermore, all kurtosis statistics are significantly higher than 3, implying that there is a higher probability of extreme market movements in the direction of losses than of profits and data is leptokurtic. The Jarque-Bera Lagrange multiplier test statistics confirm the existence of non-normal distributions in all cases, as all test statistics are significant at the 1% level for all returns series.

Table 2-Daily CSAD Descriptive

	Pre Covid-19		During Covid-19	
	Manufacturing Industries	**Service Industries**	**Manufacturing Industries**	**Service Industries**
Mean	0.006557	0.006465	0.010077	0.010402
Median	0.005747	0.005729	0.008664	0.008848
Maximum	0.028151	0.034872	0.040227	0.038349
Minimum	0.000894	0.000881	0.00141	0.001654
Std. Dev.	0.003424	0.003503	0.005647	0.006177
Skewness	1.56234	1.875429	1.689015	1.304141
Kurtosis	6.798955	9.990037	7.417441	5.150988
Jarque-Bera	1243.053	3233.006	323.4227	119.5376
Probability	0.0000	0.0000	0.0000	0.0000
Observation	1233	1233	251	251

Source: Author's calculation

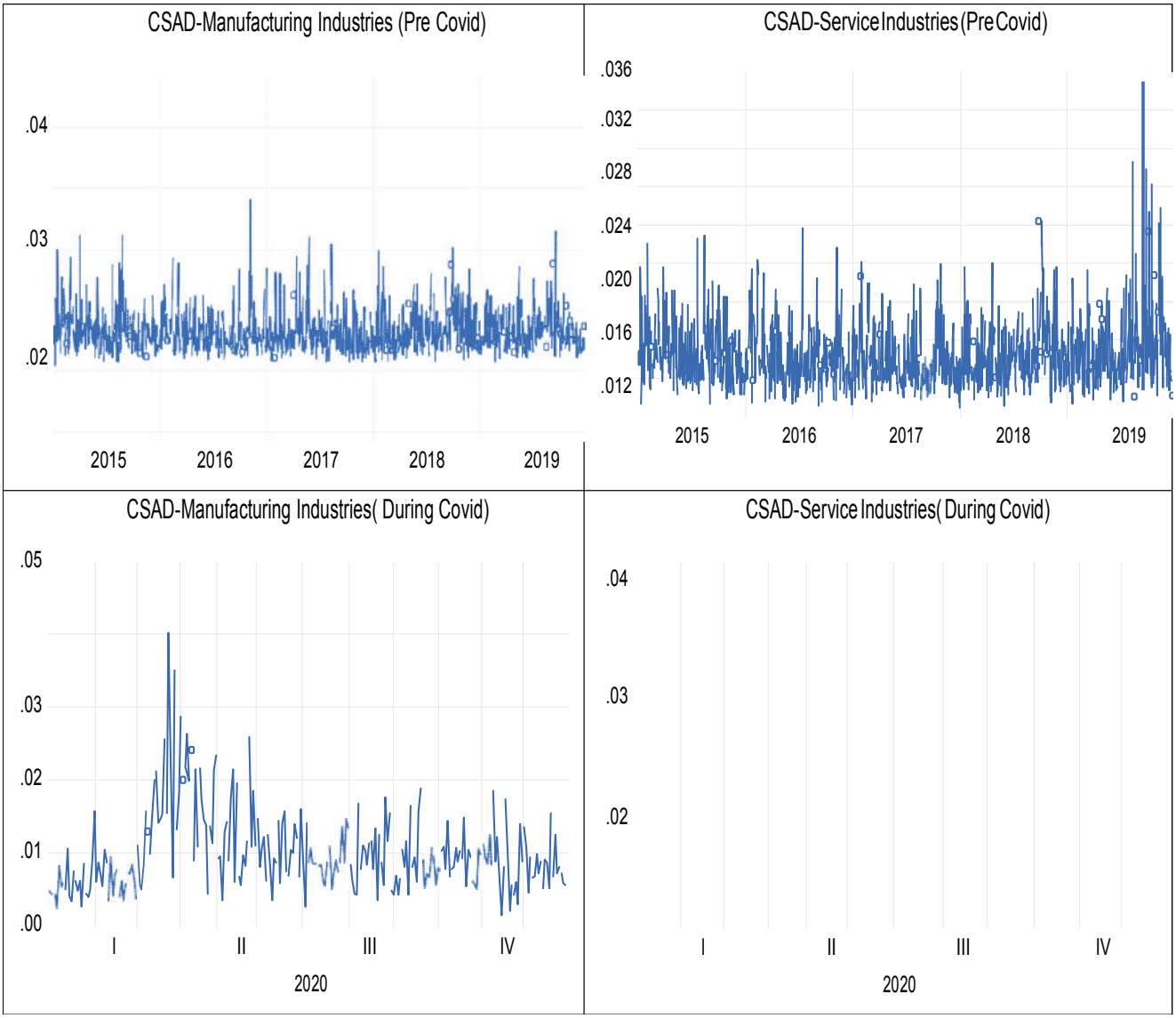
Herding Behaviour in the Indian Stock Market

In this paper, the Cross-Section Absolute Deviation (CSAD) measure is used as a proxy for herding, inspired by the capital asset pricing model. The rate of asset returns is obtained by taking the first difference of the natural logarithm of daily price data for two consecutive days, and multiplying by 100.

Figs. 1 show the trends in the CSAD for each manufacturing industries and service industries stocks for the Pre covid 19(namely 1st January,2015 to 30th January,2020) and during covid-19 (namely 31st March,2020 to 31st December,2020). As per the figs-1 both industries shows more volatility during covid-19 as compare to pre covid-19 situation.

Table 3 provides the regression result for composite manufacturing and service industries before covid 19 as per equation 2.Negative and significant coefficient of???? denotes herding behavior in that market. As per the model, both sectors are experiencing anti-herding behavior. F test statistic gives significant results which shows the overall model is good fit.

Figure 1: Herding Behavior -Pre covid-19 and During covid-19



Source: Author's calculation

Table 3:Regression Results of CSAD and Market Return (Rm) of Daily Returns -Pre covid 19

	Manufacturing Industries	Service Industries
β_0	0.581(34.951***)	0.571(33.080***)
γ_1	-0.005(-0.470)	0.027(2.373*)
γ_2	0.072(2.339*)	0.088(2.774**)
γ_3	4.040 (4.024***)	2.542(2.439*)
F-stat	44.365***	31.063***
Adj R2	0.096	0.068

Source: Author's calculation
Notes: *t-Statistics are given in parentheses.* Significant at 0.05**Significant at 0.01***Significant at 0.001*

We are more interested in investigating the effect of covid 19 outbreak on both industries. Estimated coefficient $\gamma 3$ is found negative and significant in manufacturing industries shows the herding behavior presents in manufacturing industries during covid 19 outbreak.While service sectors coefficient is not significant which shows Anti-herding behavior in service industries.

Table 4:Regression Results of CSAD and Market Return (Rm) of Daily Returns-During covid 19

	Manufacturing Industries	Service Industries
β_0	0.660(14.602***)	0.777(13.811***)
γ_1	0.017(1.073)	0.021(1.105)
γ_2	0.321(7.929***)	0.240(4.763***)
γ_3	-1.360(-2.938**)	-0.953(-1.655)
F-stat	47.167***	17.768***
Adj R2	0.356	0.168

Source: Author's calculation
* Significant at 0.05**Significant at 0.01***Significant at 0.001
Notes: *t-Statistics are given in parentheses.* Significant at 0.05**Significant at 0.01***Significant at 0.001*

Conclusion

COVID-19 is a pandemic in numerous ways that have affected the world, especially the financial sector. Most of the research based on how this pandemic affects financial markets have been minimal and recent. The goal of this study was to investigate more closely the conduct of the COVID-19 pandemic on the manufacturing and service industries capital market or not? Usage of both industries selected companies Data by cross-cutting Absolute Deviation (CSAD) for the period from January 2015 to December 2020. The findings of CSAD have shown that the Covid- 19 pandemic herding in Indian markets is on the rise. Pre-covid there was

no herding behavior in both industries while during covid-19 manufacturing industries have herding behavior while service industries is having anti-herding behavior. In India there was lockdown which had impacted majorly on manufacturing industries. This suggests that Indian capital market investors have been watching the market performance in terms of risk and return.. In a simple example of in herding behavior, less-informed investors may understand the outcome, following more informed ones which turn contributed to the erratic behavior of capital markets. Fear and confusion about the consequences of a pandemic will lead the less educated to give up their views and adopt the more informed ones. The current study has helped to provide a new proof of investor behavior in developing countries such as India and has helped small retail investors to gain more from this.

Limitation and Scope of the Study

The given studies have included overall two industries. Further research can be done which include individual industry wise herding behavior to identify the impact of covid-19 on individual industry.

References

Banerjee, A. V. (1992). A simple model of herd behavior. *The Quarterly Journal of Economics, 107*(3), 797–817.

Chang, E. C., Cheng, J. W., & Khorana, A. (2000). An examination of herd behavior in equity markets: An international perspective. *Journal of Banking & Finance, 24*(10), 1651–1679 Chiang, T. C., & Zheng, D. (2010). An empirical analysis of herd behavior in global stock markets. *Journal of Banking & Finance, 34*(8), 1911–1921

Christie, W., & Huang, R. (1995). Following the pied piper: Do individual returns herd around the market? *Financial Analysts Journal, 51*(4), 31–37.

COVID-19 public health emergency of international concern (PHEIC) global research and innovation forum (2020, February 12). World Health Organization. Retrieved June 15, 2021, from https://www.who.int/publications/m/item/covid-19-public-health-emergency-of- international-concern-(pheic)-global-research-and-innovation-forum.

Demirer, R., &Kutan, A. M. (2006). Does herding behaviour exist in Chinese stock markets?

Journal of International Financial Markets, Institutions and Money, 16(2), 123–142.

Fama, E. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance, 25*(2), 383-417. https://doi.org/10.2307/2325486

Lakonishok, J., Shleifer, A., &Vishny, R. W. (1992). The impact of institutional trading on stock prices. *Journal of Financial Economics, 32*(1), 23–43.

Lee, C.-C., Chen, M.-P., & Hsieh, K.-M. (2013). Industry herding and market states:Evidence from Chinese stock markets. *Quantitative Finance*, 13(7), 1091–1113.

Mertzanis, C., & Allam, N. (2018). Political instability and herding behaviour: Evidence from Egypt's stock market. *Journal of Emerging Market Finance, 17* (1), 29-59. https://doi.org/ 10.1177/ 0972652717748087.

Pandemic Covid-19 and Investor's fear: Evidence from Option's Volatility Index

Imlak Shaikh*

Abstract

Pandemic Covid-19 induced uncertainty has disrupted the global financial markets and investor's sentiment. We aim to discuss the outbreak of pandemics on the major global equity market during the infection period January-June 2020. Our study considers Option's based implied volatility index (VIX), number of Covid-19 infections, and policy uncertainty to uncover the effects of a pandemic on the investor's sentiment. We find that investor's anxiety appears to higher gauged in terms of VIX and further indicates over-reliance on the call and put options to hedge market holdings. The policy uncertainty and new infection cases have adversely impacted the rise of expected market volatility. During the uncertainty period, market participants have paid an excess premium over protecting their portfolio need more volatility products for risk management.

Keywords:*COVID-19;Disease outbreak news;Equity market; Uncertainty: VIX*

JEL Classification: *G10: G11: G14*

Introduction

The recent jump in the VIX level in connotation with the Disease Outbreak News(DONs) raised an unprecedented uncertainty premium, reflected in the Option's fair observed market price. Baker et al. (2020a) published an early study on the influence of Covid-19 on the US equity market volatility, and their text analyticsdisplays that the corona pandemic has caused an incredible surge in the equity market since late February 2020. Hence, the present work takes the opportunity to explain the ex-post and contagious effects of Covid-19 on the global equity market.

The stock market jumps occur due to unexpected economic and political events;for example, stock market movement by ±2.5% is regarded as jumps (Baker et al., 2019). Based on the text-based equity market volatility (EMV) tracker, Baker et al. (2019, 2020b) show that SPX jumped 18 times within the 22 trading days of the corona pandemic development. The authors' EMV-enabled tracking framework confirms the unprecedented influence of Covid-19 on the US equity market and one of the potenteffects on the market ever in history. The plausible reasons for such market disturbance were worsening public health, time-based, and diffusional long-lived effects, worldwideeconomy,interconnection, and socialdistancing. The idea expressed here attracts various government policies to combat such issues, and the policy uncertainty does have a more significant impact on the cognitive process of the market agents. Hence, we present investors' reactions to the pandemic in the USA and other major equity markets.

Does infectious disease and investment are related? The answer is yes, e.g., pandemic infection causes lower labor productivity, leads to lower growth, and affects market agents' risk-taking behavior (Laxminarayan and Malani, 2006). Moreover, economic crises and pandemic infections are also linked with each other; there is a long-lived impact of the financial crisis on infectious disease (Suhrcke et al., 2011). Likewise, Sands et al. (2016) insist on the proper database on health crises so as it can be used for economic and financial forecasting.

There have been many studies in the event study literature, for example, dividend announcements, corporate deals, and change in capital structure, in which stock prices quickly impound that public information.

* Management Development Institute Gurgaon, Gurugram 122001, Haryana, India

In event studies, stock price responses to such new information are chronological; hence, any irregular stock price changes associatedwith outbreak news can be measured, timed, and detected. Under the assumptions of market efficiency, the market response must be swift and complete. Most importantly, asymmetrical price change must be deprived of any delay as of information arrival. It is assumed that DONs Covid-19 is not part of information' leakage', so no helpful prediction can be made.

Some of the prominent studies, e.g., Chen et al. (2007), Chen et al. (2009), and Wang et al. (2013 conducted empirical studies in relation to effects of major pandemic crises, e.g., SARS, H1NI for the Taiwanese economy and financial markets and found an asymmetric impact industry-wise. The effects are more pronounced in healthcare stocks and tourism. For example, Ichev and Marin? (2018)explored theeffect of the Ebolainfectionand showed that Ebolaaugmentedthe risk ofobserved Option's implied volatility.

Unlike the previous studies, Bash and Alsaifi (2019) investigate the effects of the recent disappearance of Jamal Khashoggi and the uncertainty that occurred in the Saudi Stock Exchange. They find that such uncertain events have created fear among the investors, and the event has induced a greater amount of uncertainty with CAR returns across all stock. Also, Kowalewski and Spiewanowski (2020) study the mining's share reaction on the potash mine catastrophe. They find that human-made and natural disaster events contain information to explain the stock of greenfield firms. In a window of two days from the disaster, they find a drop of about 1.15% in the value of mining companies.

Baker et al. (2020a) present text analyticsin relation toCovid-19 outbreak for the USA market. The textual analysis shows that the recent market crash has exceeded the realized volatility level of October 1987, the great slump during 1929-30, and the Global Financial Crisis 2008-09. The authors have offeredexceptional work on the infectious disease outbreaks such as Covid-19growth and Covid-19 tempted uncertainty. On the relative analysis among numerousepidemicgrowths in the past, none of the epidemic events has exaggeratedthe performance of the equity market as significantly as Covid-19.

Current media hype and attention (e.g., Larry 2020; Karabell, 2020; Perry and Zweifel (2020) report that Covid-19 has shown an adverse impact on the FX markets and Equity markets and depicting pandemic induced global recession, and further crude oil price volatility, supply chain uncertainty and contagious impact on the tourism and travel industry.

Earlier studies,considering the Chinese equity market to report early evidence of Covid-19 impact, show that growth of the infection cases negatively affects stock returns across the industry (Al-Awadhi et al., 2020).The contribution of the work is to extend earlier literature on investor sentiment with the uncertainty of the global pandemics in the equity market.

Data description and descriptive analysis

Our study considers daily closing prices of implied volatility index of major 12 stock markets and dailyCovid-19 infection cases across the countries. The initial Covid-19 outbreak period ranges from January 2020 to March 2020, and the estimation window consists of January 2018 to March 2020. Moreover, we consider the EPU index to evaluatethe uncertainty induces byCovid-19. The data related to the equity market and EPU sourced from Bloomberg and Covid-19 cases from European Centre for Disease Prevention and Control (ECDPC) cases.

Figure 1: Covid-19 infections cases across countries

Figure 2 : Important volatility indexes (VIX)

Figure 1 exhibits the daily Covid-19 infection cases across the sample countries; one can see that the first case was reported in Wuhan, China, in the month of December 2019. During the initial outbreak, China reported 80K plus infections during January-February 2020, and later it has grown exponentially across other countries. For example, Italy, Germany, and the USA have reported the highest number of infections.

Figure 2 shows the temporal plot of implied volatility indexes of various countries; a fear gauge index measures investor sentiment in the near term. One can see VIX has been ranging from 30-80% during the infection period to less than 30%. The options-based investor's fear index spike indicates worry and nervousness of market participants amid the Covid-19 outbreak.

Empirical model

We develop the following regression model to unearth the effects of Covid-19 on the equity market considering volatility indexes, EPU, and Covid-19 daily cases.

$$VIX_t = Intercept + a_1 R_t + a_2 JAN2020 \text{ x } Covid-19 + a_3 FEB2020 \text{ x } Covid-19 + a_4 MAR2020 \text{ x } Covid-19 + a_5 COVID19_t^{China} + e_t \quad (1)$$

$$VIX_t = Intercept + b_1 R_t + b_2 Covid-19 \text{ x } EPU + b_3 JAN2020 + b_4 FEB2020 + b_5 MAR2020 + e_t \quad (2)$$

Where,

VIX_t= is the volatility indexes of various stock markets, measured in daily changes

Intercept= is the classical intercept coefficient measures ambiguity other than Covid-19 outbreak

JAN2020= dummy variable for the month of Covid-19 outbreak in the month of January, likewise dummies created for February and March.

$Covid-19$ = is the daily Covid-19 infection across sample countries

$COVID19_t^{China}$= is the Covid-19 cases in China

The eq. (1) in our empirical model measures the effects of disease outbreaks on the major equity markets during the Jan-March, considering the interaction term Covid-19 and respective infection cases. The eq. (2) considers the EPU index and Covid-19 cases and their impact on the investor sentiment. All daily Covid-19 cases considered in the estimation are $1+log(Covid\text{-}19\text{-}cases)$. Our empirical hypothesis is that 'Covid-19 induced uncertainty affect investor's sentiment (VIX)'. Hence the slope associated with the regressor should appear positive and statistically significant.

Results and discussion

Table 1shows the estimation results during the DONs period, a period of contagious spread of the pandemic disease first reported in the Wuhan city, China, and transmitted across the globe in the first quarter of 2020. We tap this event in our regression model by settingup an indicator variable that indicatesthe DONs period,that is, January-March 2020. The coefficient associated with the intercept term and returns are calculated as per our hypothesis. Now looking at the effects of the interaction of the dummy and daily cases of COVID-19 on the investor'ssentiment, through January-February 2020, it seems that stock market volatility was under control and going towardsa normal level. But after the exponential rise in the Covid-19 cases in other countries, it directed to increase in the investor's anxiety and fear. The coefficient associated with the March month appears positive and statistically significantindicates that Covid-19-induced uncertainty has impacted the investor's sentiment. The unprecedented rise in the VIX level also implies that investors have rushed towards buying more putoptions. Abearish rally in the market necessitated an extraordinary riskpremium. We also control the estimation

process with the growth of the COVID-19 cases in China with other markets; the reason is that China is the largest trading partner with the sample countries. It is seen that ifthe slope of the total number of cases of COVID-19 of China is estimated to be positive, it indicates a rise in the expected stock market volatility of other markets.

Table 1 Regression results on the on the outbreak of Covid-19

	Australia		Europe		France	
Regressor	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	1.32E+01	56.91*	1.55E+01	50.56*	1.50E+01	51.66*
$Intercept$	-1.31E+01	-0.51	-1.44E+02	-4.69*	-1.22E+02	-4.56*
$Index\ Return$	-5.49E-01	-1.83**	-4.77E-01	-3.07*	-2.16E+00	-3.28*
$JAN2020x Covid-19$	-7.02E+00	-3.17*	-2.70E-02	-0.74	-1.05E-01	-0.32
$FEB2020x Covid-19$	2.92E-02	2.73*	1.19E-03	2.39**	7.60E-03	2.45**
$MAR2020x Covid-19$	1.85E-04	3.38*	2.60E-04	2.73*	2.16E-04	2.86*
	Italy		Japan		Korea	
Regressor	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
$Intercept$	1.99E+01	56.63*	1.82E+01	47.36*	1.49E+01	65.73*
$Index\ Return$	-7.40E+01	-4.35*	-8.21E+01	-4.47*	-6.47E+01	-3.31*
$JAN2020x Covid-19$	-1.37E+00	-5.99*	-6.21E-01	-2.35**	1.93E-01	1.20
$FEB2020x Covid-19$	-3.27E-03	-0.09	-5.34E-01	-1.41	7.23E-04	0.14
$MAR2020x Covid-19$	7.00E-03	3.82*	1.80E-01	2.31**	2.91E-03	2.95*
$Covid-19-China$	1.60E-04	2.05**	2.24E-04	3.20*	1.30E-04	1.44
	Germany		China		India	
Regressor	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
$Intercept$	1.65E+01	57.97*	1.98E+01	47.98*	1.57E+01	49.90*
$Index\ Return$	-1.39E+02	-4.17*	-1.03E+02	-2.63*	-2.67E+01	-0.56
$JAN2020x Covid-19$	-1.13E+00	-3.33*	-4.97E-05	-0.07	-7.93E-01	-1.05
$FEB2020x\ Covid-19$	-2.40E-01	-0.64	-2.73E-05	-0.16	-5.10E+00	-2.15**
$MAR2020x\ Covid-19$	6.06E-03	3.07*	1.72E-01	2.20**	3.61E-01	3.26*
$Covid-19-China$	2.59E-04	2.72*	--	--	2.13E-04	2.32**
	Mexico		South Africa		USA	
Regressor	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
$Intercept$	1.62E+01	70.43*	1.79E+01	73.75*	1.61E+01	74.33*
$Index\ Return$	-1.74E+01	-2.22**	2.11E-01	0.02	-7.53E+01	-5.59*
$JAN2020x Covid-19$	-2.59E+00	-10.31*	-2.88E+00	-9.17*	-7.01E-01	-0.47
$FEB2020x\ Covid-19$	-3.60E+00	-5.79*	-1.20E+01	-3.20*	-1.01E+00	-3.78*
$MAR2020x\ Covid-19$	-1.50E+00	-1.96**	7.05E+00	1.36	1.36E-03	9.44*
$Covid-19-China$	2.49E-05	2.82*	1.86E-04	3.56*	2.97E-04	23.44*

[Table shows the regression output of the eq. (2), in this regression model an interaction indicator variable has been added to uncover the effects of Covid-19 during the first quarter of 2020, Standard errors & covariance are consistent of HAC of Newey-West, Significant @ *1%, **5%, ***10% level]

Table 2 Covid-19 induced uncertainty and investor sentiment

Panel A: Covid-19 cases and policy uncertainty								
	USA						Europe	
	VXD		VIX		VVIX		VSTOXX	
Regressors	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	1.64E+01	45.71*	1.61E+01	40.48*	9.67E+01	76.67*	1.58E+01	50.81*
Index Return	-8.14E+01	-4.49	1.25E+02	6.28*	2.35E+02	3.28*	-1.38E+02	-5.96*
$Covid-19$xEPU	1.91E-06	10.05*	1.81E-06	6.65*	2.97E-06	5.70*	8.38E-07	3.30*
$JAN2020$	-2.56E+00	-3.64*	-2.17E+00	-2.96*	-3.03E+00	-1.29	-2.39E+00	-3.58*
$FEB2020$	2.85E+00	0.97	2.95E+00	1.06	5.43E+00	1.69***	1.70E+00	0.66
$MAR2020$	3.17E+01	8.12*	3.61E+01	6.08*	5.11E+01	4.46*	3.32E+01	4.27*
Panel B: Covid-19 cases and policy uncertainty during DONs period								
	USA						Europe	
	VXD		VIX		VVIX		VSTOXX	
Regressors	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	1.74E+01	27.99*	1.72E+01	24.54*	9.83E+01	69.69*	1.65E+01	31.53*
Index Returns	-1.34E+02	-3.72*	1.85E+02	4.53*	3.23E+02	5.10*	-2.28E+02	-3.55*
$JAN2020$x$Covid-19*EPU$	-3.02E-02	-2.27**	-2.80E-02	-1.89***	-3.13E-03	-0.12	-1.69E-03	-2.09**
$FEB2020$x$Covid-19*EPU$	3.61E-03	2.62*	3.26E-03	2.33**	5.71E-03	4.02*	2.24E-04	5.32*
$MAR2020$x$Covid-19*EPU$	5.79E-06	5.95*	6.15E-06	4.90*	9.64E-06	4.47*	2.38E-06	4.19*

[Table shows the regression output of the eq. (3) in relation to economic policy uncertainty (EPU), in this regression model an interaction indicator variable has been added to uncover the effects of Covid-19 during the first quarter of 2020, Standard errors & covariance are consistent of HAC of Newey-West, Significant @ *1%, **5%, ***10% level]

Table 2 exhibits the empirical outcome of COVID-19-induced economic uncertainty and its likely impact on investor sentiment. We demonstrate the potentialeffects of uncertainty using the EPU index (Baker et al., 2016) for the USA and the UK. Panel A of Table 7 shows the coefficient of *Covid19xEPU* and found them to be positive and significant for the variants of VIX of the USA and Europe. It indicates that the pandemic outbreak has resulted in a rise of economic and political uncertainty,for example,a decrease in the bond yield, bailout package for industries, and other social measures (Baker et al., 2020c). Panel B presents the impact of economic uncertainty due to COVID-19 during the DONs period, and it is seen that February and March 2020 have shown a massive rise in the general VIX level concern of macroeconomic uncertainty.

Table 3 shows the modeling of the volatility of the VIXacross major 12 countries. The aim of fitting the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model is to check on the persistence of volatility in the equity market because of theinfectious disease outbreak. In the mean equation on the left-hand side, we take a log-transformed daily change in the VIX and fit the most popular GARCH model. There is the persistence of volatility during the DONs period (i.e.,the first quarter of 2020) since the coefficient related to ARCH and GARCH parameters appears to be positive and statistically significant. One of the important lessons from the empirical findings is that the developments in the Covid-19 cases have disrupted the investor's sentiment. A fearful investor searches for the best risk mitigation product, and here we can see that options act as the best hedge against the likely movement of the financial markets.

Table 3 Regression results on the modelling of volatility of volatility index

[Table shows the estimation results on the basic GARCH model. On the left-hand side of the mean equation is log-transformed daily change in the volatility index and regressorsCovid-19 cases in home country and China, expressed with indicator variable DONs, Significant @ *1%, **5%, ***10% level]

Conclusion

In this article, we attempt to explain the effects of Covid-19 on the global equity market,considering the temporal data during the initial outbreak of pandemic infections.Pandemic Covid-19 induced uncertainty has disrupted the global financial markets and investor's sentiment. We aimed to discuss the outbreak of pandemics on the major global equity market during the infection period January-June 2020. Our study considers Option's based implied volatility index (VIX), number of Covid-19 infections, and policy uncertainty to uncover the effects of a pandemic on the investor's sentiment. We presented our work in augmented dummy OLS regression and modeled volatility of the VIX using a conditional volatility framework.

The daily cases of Covid-19 during January-February 2020 and stock market volatility remained under control and going towards a normal level. But after the exponential rise in the Covid-19 cases in other countries, investor anxiety and fear increased.The unprecedented rise in the VIX level also implies that investors have rushed towards buying more putoptions. A bearish rally in the market necessitated an extraordinary riskpremium.It indicates that the pandemic outbreak has resulted in a rise of economic and political uncertainty, for example, a decrease in the bond yield, bailout package for industries, and other social measures.

We find that investor's anxiety appears to higher gauged in terms of VIX and further indicates over-reliance on the call and put options to hedge market holdings. The policy uncertainty and new infection cases have adversely impacted the rise of expected market volatility. During the uncertainty period, market participants have paid an excess premium over protecting their portfolio need more volatility products for risk management.

References

Al-Awadhi, M., A., Al-Saifi, K., Al-Awadhi, A., & Alhamadi, S. (2020). Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. *Journal of Behavioral and Experimental Finance*, 100326 https://doi.org/10.1016/j.jbef.2020.100326.

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The quarterly journal of economics*, 131(4), 1593-1636 https://doi.org/10.1093/qje/qjw024.

Baker, S. R., Bloom, N., & Terry, S. J. (2020c). Does Uncertainty Reduce Growth? Using Disasters as Natural Experiments. *NBER*, http://people.bu.edu/stephent/files/BBT.pdf.

Baker, S. R., Bloom, N., Davis, S. J., & Kost., K. J. (2019). Policy News and Stock Market Volatility. *National Bureau of Economic Research*, No. w25720 https://doi.org/10.3386/w25720.

Baker, S. R., Bloom, N., Davis, S. J., Kost, K., Sammon, M., & Viratyosin, T. (2020a). The unprecedented stock market reaction to COVID-19. *White paper-Becker Friedman Institute for economics at UChicago*, 1-12 https://stockmarketjumps.com/files/COVIDMarketReaction.pdf.

Baker, S., Bloom, N., Davis, S. J., & Terry, S. J. (2020b). COVID-Induced Economic Uncertainty. *National Bureau of Economic Research*, No. w26983 https://doi.org/10.3386/w26983.

Bash, A., & Alsaifi, K. (2019). Fear from uncertainty: An event study of Khashoggi and stock market returns. *Journal of Behavioral and Experimental Finance*, 23, 54-58 https://doi.org/10.1016/j.jbef.2019.05.004.

Chen, C.-D., Chen, C.-C., Tang, W.-W., & Huang, B.-Y. (2009). The positive and negative impacts of the SARS outbreak: A case of the Taiwan industries. *The Journal of Developing Areas*, 281-293 https://www.jstor.org/stable/40376284.

Chen, E.-T. J., & Clements, A. (2007). S&P 500 implied volatility and monetary policy announcements. *Finance Research Letters, 4(4)*, 227–232.

Ichev, R., & Marinč, M. (2018). Stock prices and geographic proximity of information: Evidence from the Ebola outbreak. *International Review of Financial Analysis,*, 56, 153-166 https://doi.org/10.1016/j.irfa.2017.12.004.

Karabell, Z. (2020, March 02). *A Stock Market Crash Was Coming, Coronavirus Was Just the Spark.* Retrieved from https://time.com/: https://time.com/5793506/a-stock-market-crash-was-coming-coronavirus-was-just-the-spark/

Kowalewski, O., & Śpiewanowski, P. (2020). Stock market response to potash mine disasters. *Journal of Commodity Markets*, 100124, https://doi.org/10.1016/j.jcomm.2020.100124.

Larry, C. (2020, March 03). *Coronavirus' impact on financial markets.* Retrieved from Refinitiv Perspectives: https://www.refinitiv.com/perspectives/market-insights/coronavirus-impact-on-financial-markets/

Laxminarayan, R., & Malani, A. (2006). Economics of infectious diseases. *The Oxford handbook of health economics*, 1-20 https://doi.org/10.1093/oxfordhb/9780199238828.013.0009.

Perry, S., & Zweifel, P. (2020, January). *The economic cost of the coronavirus.* Retrieved from https://www.am.pictet/en/globalwebsite: https://www.am.pictet/en/globalwebsite/global-articles/2020/expertise/multi-asset/impact-of-coronavirus-on-financial-markets 1/5

Sands, P., Turabi, A. E., Saynisch, P. A., & Dzau, V. J. (2016). Assessment of economic vulnerability to infectious disease crises. *The Lancet*, 388(10058), 2443-2448 https://doi.org/10.1016/S0140-6736(16)30594-3.

Suhrcke, M. S., McKee, M., Tsolova, S., Basu, S., Abubakar, I., Hunter, P., & Rechel, B. (2011). The impact of economic crises on communicable disease transmission and control: a systematic review of the evidence. . *PloS one,* , 6(6) e20724 https://dx.doi.org/10.1371%2Fjournal.pone.0020724.

Wang, Y.-H., Yang, F.-J., & Chen, L.-J. (2013). An investor's perspective on infectious diseases and their influence on market behavior. *Journal of Business Economics and Management*, 14(sup1), S112-S127 https://doi.org/10.3846/16111699.2012.711360.

Financial Planning and Financial Control among Female Teachers of Higher Education Institutions of Surat District

Feral K. Gandiyawala* and Kamini Shah**

Abstract

Financial planning and financial control are part of financial literacy that play an important role in making a person's life pleasant and affluent. Thus, it becomes necessary to understand the level of it for a better understanding of financial literacy. A descriptive and exploratory research design has been adapted for the present study to understand the level of financial planning and financial control among female teachers with the help of ANOVA and Cramer's V test on 300 responses. The study observes that respondents are taking financial decisions independently without seeing their higher education, age, income, marital status, designation and stream of education.

Key Words: *Financial Planning, Financial Control, Female Teachers*

Introduction

In the world of today, people are seeking new things day-to-day and want to make life comfortable and pleasant. Still, to obtain these things a person must be financially affluent. If a person is financially literate and has gumption, he can increase his wealth. Thus, financial literacy is one of the reasons for financial development. Financial literacy explains how to increase earnings, how to distribute an income between expenses and savings, how much savings to use for investment, which investment avenues give the maximum rate of return, how much money will be needed after retirement, how much health insurance is needed etc.

Meaning of Financial Literacy:

'For common financial investors, financial literacy means the knowledge of financial rules & regulations, financial management, and financial fundamentals.' (Financial Industry Regulatory Authority, 2009)So, financial literacy means knowing about the financial information which can be used by a person for the management of his money and financial growth by investing with the help of his skills and experience.

Significance of Financial Literacy:

Financial literacy is very momentous for understanding rivalry in financial markets. There are various financial products available in the financial markets. So an individual can get confused about selecting suitable financial products because of a lack of information. The selection of the wrong financial instrument under such confusion can lead to huge financial loss. Often, a financially illiterate person becomes a victim of financial frauds and malpractices therefore financial knowledge helps in making an efficient financial decision. Financial literacy plays an important role in making a person's life pleasant and affluent.

Review of literature

A) Global level

Michaud, (2017) thought that a worker requires financial information to make a good financial decision and improve his possessions. The researcher suggested that a financial consultant should advise a worker regarding savings, investments, etc. according to his financial capacity. (Michaud, 2017)**Breitbach&Walstad, (2016)**

* Ad-Hoc Lecturer, Vimal Tormal Poddar Commerce College, Surat, Gujarat, India.

** Corresponding Author & Associate Professor, Department of Business Studies, Sardar Patel University, Vallabh Vidyanagar-388 120, Gujarat, India.

explored two concepts for young adults: 1. Proficiency in finance 2. Financial Behavior. The researcher proves that in the United States younger adults have low financial literacy as compared to middle age or older age adults. But the relationship between financial. (Breitbach & Walstad, 2016) **Ben David-Hadar, (2015)** disclosed that design, comport and awareness of finance are a part of financial literacy. The researcher establishes that educators belonging to non-commercial fields have lower financial literacy as compared to those in the commercial field. The financial features of families of educators also influence their financial literacy. He suggested improving educators' financial literacy. (Ben David-Hadar, 2015) **Fisk, (2015)** pointed out that financial literacy differs between feminine and masculine genders. After conducting the research, a vast difference in financial literacy was observed between the two genders. It was also observed that all women, married, unmarried or widows, have lower financial knowledge as compared to men. (Fisk, 2015)

B) Domestic level

Jain et al., (2020) scrutinized the fiscal management of females in south Bangalore. According to women's behavior, the ratio of their money spent was higher than their money saved. A low-risk investment like fixed deposit and insurance is used by women for investing their savings. Therefore, it was concluded that the maturity to handle financial matters is insufficient in women. (Jain, Bhat, K, & Adiga, 2020) **Bordoloi, (2019)** investigated the monetary proficiency of working women belonging to poor sections (that is, servants, street vendors, and daily wage base) of Guwahati City. Communal and commercial factors are considered for research work. As a result, it was found that there is low financial literacy among these women. It was also found that financial literacy in these poor section women was affected by their era, earnings and marital status; but the same was not affected by their profession and financial studies. The researcher recommended arranging the workshops and seminars free of cost for poor section women for improvement of their financial literacy. (Bordoloi, 2019) **Agarwal et al., (2017)** give an opinion to increase the financial literacy rate among people. For that purpose, financial governors should take steps for increasing the financial knowledge of people and including financial information in the academic syllabus. (Agarwal, Choudhary Kureel, & Yadav, 2017) **Gupta, (2017)** divided financial literacy into two, 1). General financial knowledge like types of bank accounts, simple interest & compound interest, inflation, etc. 2). Specialized financial knowledge like equity & preference share, bonds, debenture, mutual funds, insurance policy, etc. At last, this paper proved that the level of financial literacy is higher in males as compared to females in Delhi. Besides, Demographic variables affect a persons' financial literacy. (Gupta, 2017)

Research gap

The review of literature represented many studies on financial literacy. Previous researchers had covered financial knowledge, financial attitude, money management, financial decision-making skills, wealth maximization in financial literacy. The researcher did not come across any studies on understanding the financial planning and financial control of female teachers of higher education institutions of the Surat District in the literature review. Therefore, the research problem identified is to understand the level of financial planning and financial control among the female teachers of the higher education institution of the Surat District.

Research Methodology

A. Scope of the study:

The study is focusing on studying the level of financial literacy among female teachers who are working in colleges and universities of the Surat District.

B. The objectives of the study:

1. To understand the relationship of demographic and socio-economic aspects of female teachers of higher education institutions of Surat District and their financial literacy.

2. To analyze relationships with different components of financial literacy i.e. financial planning and financial decision.

3. To study the effect of financial behavior on the financial decision-making skills of female teachers of higher education institutions of Surat District.

C. The hypothesis of the study

Hn01 to 06: There is no significant association between financial planning and demographic factors of Higher Education, Age, Monthly income, Marital status, Designation and Education stream of female teachers of higher education institutions of Surat District.

Hn07 to 12: There is no significant association between financial decision-making skills and demographic factors of Higher Education, Age, Monthly income, Marital status, Designation and Education stream of female teachers of higher education institutions of Surat District.

D. Research Design

The present study has used exploratory and descriptive designs of research. This design aims to discover the level of financial planning and financial control among female teachers and the effect of financial literacy on the behavior and decision-making skills of female teachers.

Sample design and Sample size

For the research, Female teachers who are working in colleges and universities of Surat District are considered as a population. The study follows a non-probability convenience sampling technique for sample selection. The questionnaire which was prepared in Google Form was sent by email and WhatsApp mobile application to 500 female teachers but 358 responded to it. Out of these 58 were removed because some questionnaires were filled partially by female teachers. Therefore, the analysis of the study was done on the 300 sample size.

Variables of the study: Financial Planning and Financial Decision.

Tools & Techniques: The study uses the SPSS (Statistical Package for Social Sciences) software for the statistic assessment.

- Frequency Distribution: Frequency analysis is used for distributing demographic factors and financial components of financial literacy concerning female teachers of higher education institutions of the Surat District.
- Chi-square test and Cramer's V test: To analyze Financial Decision of Female teachers with demographic factors.

Data Analysis and Interpretation

A. Financial Planning

Table 1 : Financial Planning of Female Teachers

Sr. No.	Statements	Yes	No
1	Do you have life insurance?	243 (81%)	57 (19%)
2	Do you have a retirement plan?	146 (48.7%)	154 (51.3%)
3	Do you have health insurance?	241 (80.3%)	59 (19.7%)
4	Have you planned how to the growth of your capital?	172 (57.3%)	128 (42.7%)
5	Do you have a future financial plan for your children's study and marriage purposes?	180 (60%)	120 (40%)

Table 2 : Mean and Standard Deviation of Financial Planning

	Life insurance	Retirement plan	Health insurance	Growth of your capital	Plan for child
Mean	1.19	1.51	1.20	1.43	1.40
Std. deviation	0.393	0.501	0.398	0.495	0.491

Above table represents the mean value of overall respondents of financial planning with all respected variables. It can be said that the mean value of life insurance is 1.19 which is nearly "1" and it belongs to "Yes" which means the majority of respondents have financial plans related to life insurance. After that, health insurance follows it respectively. The mean value of retirement plan, growth of capital, and plan of a child is 1.51,1.43 and 1.40 respectively which was not near to "1" which means the majority of the respondents have no financial plan about it.

B. Financial Decision

Table 3 : Financial Decision of Female Teachers

Sr. No.	Statements	Strongly Disagree - 1	Disagree - 2	Neutral - 3	Agree - 4	Strongly Agree - 5
1.	I take financial decisions with the help of a financial consultant.	9	29	47	104	111
		3%	9.7%	15.7%	34.7%	37%
2.	I check past track records and plans of a company before investing in it.	7	23	45	161	64
		2.33%	7.67%	15.00%	53.67%	21.33%
3.	For debt investment, I always check the rate of interest.	3	25	90	106	76
		1%	8.3%	30%	35.3%	25.3%
4.	For long-term investment, a mutual fund is more profitable and less risky.	9	39	65	102	85
		3%	13%	21.7%	34%	28.3%

Table 4 : Mean and Standard Deviation of Financial Decision

	Financial Consultant	Past track record	Check Rate of Interest	Long Term inv. Mutual Fund
Mean	3.93	3.84	3.76	3.72
Standard Deviation	1.087	0.926	0.959	1.102

Above table observed the mean value of overall respondents of financial decision with all respected variables, it can be said mean of a financial consultant is 3.93 which is near to "4" means the majority of the respondents choice agree on the option for making a financial decision with the help of a financial consultant. The mean value of past track record, to check the interest rate and long-term investment, is 3.94, 3.76, and 3.72 respectively, which are near to "4", which means most respondents select the "agree" option.

C. Demographic Analysis concerning Financial Planning

H01: There is no significant association between financial planning and the higher education of female teachers.

Table 5 : Chi-square test for Financial Planning and Higher Education

Sr. No.	Financial Planning Statements	Chi-square value	DOF	P-value	A decision about H_{01}
1	Lifeinsurance	13.074	2	0.001	**Rejected**
2	Retirementplan	16.930	2	0.000	**Rejected**
3	HealthInsurance	4.555	2	0.103	Failedtoreject
4	Growthofyour capital	2.197	2	0.333	Failedtoreject
5	Futurefinancialplanforthechild	6.639	2	0.036	**Rejected**

Table 5 expresses the output of the Chi-square test between financial planning and the highest education of respondents at a 5% significance level. The p-value of life insurance, retirement plan, and future financial plan for children is less than 0.05. It means p-value<0.05. So, the hypothesis for these variables is rejected as per the study. It is found that there is some significant association between life insurance, retirement plan, and future financial planning for children with the highest education of respondents of the study. In the test, the P-value related to health insurance and the growth of your capital is higher than 0.05. It means the p-value > 0.05 so that Ho is Fail to reject. The study found that there is no significant association between health insurance and the growth of your capital with the Highest education. It might also conclude that health insurance and the growth of your capital are independent of the highest education of the study.

The Cramer's V test for the associated factor of insurance, retirement plan, and future financial planning for a child of financial planning is shown in table below.

Table 6 : Cramer's Value

Statement		Value	Approximate Significance(p-value)
	Life insurance	0.209	0.001
	Retirement plan	0.238	0.000
	Future financial plan for the child	0.149	0.036
N of ValidCases		300	

Table 6 shows Cramer's value of associate factors of financial planning with the highest education. It can be seen that the value of Cramer's V is significant with 0.001, 0.000, and 0.036 for life insurance, retirement plan, and future financial planning for child respectively. The degrees of association between these variables are 20.9%, 23.8%, and 14.9% with the highest education.

Financial Planning and Age

H02: There is no significant association between financial planning and the age of female teachers.

Table 7 : Chi-square test for Financial Planning and Age

Sr. No.	Financial Planning statements	Chi-square value	DOF	p-value	Adecision about Ho.
1	Life insurance	41.986	3	0.000	**Rejected**
2	Retirement plan	56.085	3	0.000	**Rejected**
3	Health Insurance	9.605	3	0.022	**Rejected**
4	Growth of your capital	13.002	3	0.005	**Rejected**
5	Future financial plan for the child	38.640	3	0.000	**Rejected**

Table 7 expresses the output of the Chi-square test between financial planning and the age of respondents at a 5% significance level. The Pearson Chi-square value for all the factors of financial planning is less than 0.05 with a degree of freedom 3. It means p-value < 0.05. Therefore, the hypothesis is rejected for all statements of financial planning. It is found that there is some relevant association between financial planning and the age of female teachers. It might be also concluded that financial planning and age are highly dependent on each other. Cramer's V test for all associated factors of financial planning with age is shown as follows:

Table 8 : Cramer's Value

Statements		Value	Approximate Significance (p-value)
1	Life insurance	0.374	0.000
2	Retirement plan	0.432	0.000
3	Health Insurance	0.179	0.022
4	Growth of your capital	0.208	0.005
5	Future financial plan for the child	0.359	0.000
N of Valid Cases		300	

Table 8 shows Cramer's value of associate factors of financial planning with age. It can be seen that the value of Cramer's V is significant with 0.000, 0.000, 0.022, 0.005, and 0.000 for life insurance, retirement plans, health insurance, capital growth, and future financial planning for children respectively. The degree of association between these variables is 37.4%, 43.2%, 17.9%, 20.8%, and 35.9% respectively with age.

Financial Planning and Monthly Income

H03: There is no significant association between financial planning and the monthly income of female teachers.

Table 9 : Chi-square test for variable Financial Planning and Monthly Income

Sr. No.	Financial Planning statements	Chi-square value	DOF	P-value	A decision about Ho.
1	Life insurance	33.712	4	0.000	**Rejected**
2	Retirement plan	80.827	4	0.000	**Rejected**
3	Health Insurance	7.687	4	0.104	Failedtoreject
4	Growth of your capital	22.544	4	0.000	**Rejected**
5	Future financial plan for the child	31.776	4	0.000	**Rejected**

Table 9 expresses the output of the Chi-square test between financial planning and the monthly income of respondents at a 5% significance level. The p-value of life insurance, retirement plan, capital growth, and future financial plan for children is less than 0.05. It means the p-value <0.05. So, the hypothesis for these variables is refused. It is found that there is some association between all the factors of financial planning except health insurance and the monthly income of respondents of the study. The p-value is more than 0.05 for health insurance. So, the hypothesis fails to reject only for this factor of financial planning.

Table 10 : Cramer's Value

Statement		Value	Approximate Significance (p-value)
	Life insurance	0.335	0.000
	Retirement Plan	0.519	0.000
	Growth of your capital	0.274	0.000
	Future financial plan for the child	0.325	0.000
N of Valid Cases		300	

Table 10 shows Cramer's value of associate factors of financial planning with monthly income. It can be seen that the value of Cramer's V is significant with 0.000, 0.000, 0.000, and 0.000 for life insurance, retirement plan, capital growth, and future financial planning for child respectively. The degrees of association between these variables is 33.5%, 51.9%, 27.4%, and 32.5% respectively with monthly income.

Financial Planning and Marital Status

H04:There is no significant association between financial planning and the marital status of female teachers.

Table 11 : Chi-square test for variable Financial Planning and Marital Status

Sr. No.	Financial Planning statements	Chi-square value	DOF	P-value	A decision about Ho.
1	Life insurance	31.489	2	0.000	**Rejected**
2	Retirement plan	28.901	2	0.000	**Rejected**
3	Health Insurance	13.766	2	0.001	**Rejected**
4	Growth of your capital	22.57	2	0.000	**Rejected**
5	Future financial plan for the child	56.253	2	0.000	**Rejected**

Table 11 expresses the output of the Chi-square test between financial planning and the marital status of respondents at a 5% significance level. The Pearson Chi-square value for all the factors of financial planning is less than 0.05 with a degree of freedom 2. It means p-value <0.05. The hypothesis is refused for all statements of financial planning and hence, it is found that there is some significant association between financial planning and the marital status of respondents. It might be also concluded that financial planning and marital status are highly dependent on each other.

Table 12 : Cramer's Value

Statement		Value	Approximate Significance (p-value)
	Life insurance	0.324	0.000
	Retirement Plan	0.310	0.000
	Health Insurance	0.214	0.001
	Growth of your capital	0.275	0.000
	Future financial plan for the child	0.433	0.000
N of Valid Cases		300	

Table 12 shows Cramer's value of associate factors of financial planning with marital status. It can be seen that the value of Cramer's V is significant with 0.000, 0.000, 0.001, 0.000, and 0.000 for life insurance, retirement plan, health insurance, capital growth, and future financial planning for children respectively. The degree of association between these variables is 32.4%, 31.00%, 21.4%,27.5%, and 43.3% respectively with marital status.

Financial Planning and Designation

H05: There is no significant association between financial planning and the designation of female teachers.

Table 13 : Chi-square test for variable Financial Planning and Designation

Sr. No.	Financial Planning statements	Chi-square value	DOF	P-value	A decision about Ho.
1	Life insurance	20.236	6	0.003	**Rejected**
2	Retirement plan	32.856	6	0.000	**Rejected**
3	Health Insurance	7.359	6	0.289	Failedtoreject
4	Growth of your capital	4.511	6	0.608	Failedtoreject
5	Future financial plan for the child	15.063	6	0.020	**Rejected**

Table 13 expresses the output of the Chi-square test between financial planning and designation of respondents at a 5% significance level. The p-value of life insurance, retirement plan, and future financial plan for children is less than 0.05. It means the P-value <0.05. So, the hypothesis for these variables is refused. It is found that there is some association between these factors and the designation of respondents of the study. The p-value is greater than 0.05 for health insurance and capital growth. So, the null hypothesis fails to reject health insurance and the growth of capital.

Table 14 : Cramer's Value

Statements		Value	Approximate Significance (p-value)
	Life insurance	0.260	0.003
	Retirement Plan	0.331	0.000
	Future financial plan for the child	0.224	0.020
N of Valid Cases		300	

Table 14 shows Cramer's value of associate factors of financial planning with the designation. It can be seen that the value of Cramer's V is significant with 0.003, 0.000, and 0.020 for life insurance, retirement plan, and future financial planning for child respectively. The degrees of association between these variables are 26%, 33.1%, and 22.4% respectively with the designation.

Financial Planning and Stream of Education

H06: There is no significant association between financial planning and the education stream of female teachers.

Table 15 : Chi-square test for variable Financial Planning and Education Stream

Sr. No.	FinancialPlanningstatements	Chi-square value	DOF	p-value	A decision about Ho.
1	Life insurance	3.037	3	0.386	Failedtoreject
2	Retirement plan	15.408	3	0.000	**Rejected**
3	Health Insurance	4.709	3	0.194	Failedtoreject
4	Growth of your capital	5.336	3	0.150	Failedtoreject
5	Future financial plan for the child	2.462	3	0.482	Failedtoreject

Table 15 expresses the output of the Chi-square test between the financial planning and education stream of respondents at a 5% significance level. The p-value of life insurance, health insurance, capital growth, and future financial plan for children is greater than 0.05. It means p-value >0.05. So, the hypothesis fails to reject these statements. It is found that there is an independent association between all the factors of financial

planning except the retirement plan and the education stream of respondents of the study. The p-value is less than 0.05 for the retirement plan. So, the hypothesis is rejected only for this statement of financial planning.

Table 16 : Cramer's Value

Statement	Value	Approximate Significance (p-value)
Retirement plan	0.227	0.000
N of Valid Cases	300	

Table 16 shows Cramer's value of associate factors of financial planning with the education stream. It can be seen that the value of Cramer's V is significant with 0.000 for the retirement plan. The degree of association between the retirement plan and the education stream is 22.7%.

D. Demographic Analysis concerning Financial Decision:

Financial Decision and Highest Education

H07: There is no significant association between financial decisions and the higher education of female teachers.

Table 17 : Chi-square test for variable Financial Decision and Higher Education

Sr. No.	Financial Decision statements	Chi-Square value	DOF	P-value	A decision about Ho.
1	Help of financial consultant	9.890	8	0.273	Failedtoreject
2	Record and Plan of investing Co.	1.282	8	0.996	Failedtoreject
3	By the rate of interest	3.364	8	0.902	Failedtoreject
4	Long term investment	5.669	8	0.684	Failedtoreject

Table 17 represents the output of the Chi-square test between the financial decision and the higher education of respondents at a 5% level of significance. It can be said that thevalue of p for the overall financial decision is higher than 0.05. It means p-value > 0.05. Thus, the hypothes is fails to reject. So, there is no significant association between all factors of financial decisions and higher education.

Financial Decision and Age

H08: There is no significant association between financial decisions and the age of female teachers.

Table 18 : Chi-square test for variable Financial Decision and Age

Sr. No.	Financial Decision statements	Chi-square value	DOF	P-value	Adecision aboutHo.
1	Help of financial consultant	19.870	12	0.070	Failedtoreject
2	Record and Plan of investing Co.	10.057	12	0.611	Failedtoreject
3	By the rate of interest	19.710	12	0.073	Failedtoreject
4	Long term investment	17.233	12	0.141	Failedtoreject

Table 18 represents the output of the Chi-square test between the financial decision and age of respondents at a 5% level of significance. In the table, the p-value of the overall financial decision is greater than 0.05. It means p-value >0.05. Hence, the hypothesis fails to reject. So, there is no significant association between all factor's financial decisions concerning the age of respondents.

Financial Decision and Monthly Income

H09: There is no significant association between financial decisions and the monthly income of female teachers.

Table 19 : Chi-square test for variable Financial Decision and Monthly Income

Sr. No.	Financial Decision statements	Chi-square value	DOF	P-value	A decision about Ho.
1	Help of financial consultant	12.951	16	0.676	Failedtoreject
2	Record and Plan of investing Co.	23.118	16	0.111	Failedtoreject
3	By the rate of interest	22.943	16	0.115	Failedtoreject
4	Long term investment	17.304	16	0.366	Failedtoreject

Table 19 represents the output of the Chi-square test between the financial decision and monthly income of respondents at a 5% level of significance. In the table, it can say that the p-value of overall factors financial decisions is greater than 0.05. It means p-value >0.05. Hence, the hypothesis fails to reject. So, there is no significant association between all factor's financial decisions concerning the monthly income of respondents.

Financial Decision and Marital Status

H10: There is no significant association between financial decisions and the marital status of female teachers.

Table 20 : Chi-square test for variable Financial Decision and Marital Status

Sr. No.	Financial Decision statements	Chi-square value	DOF	p-value	A decision about Ho.
1	Help of financial consultant	10.851	8	0.210	Failedtoreject
2	Record and Plan of investing Co.	1.368	8	0.995	Failedtoreject
3	By the rate of interest	4.400	8	0.819	Failedtoreject
4	Long term investment	3.920	8	0.864	Failedtoreject

Table 20 represents the output of the Chi-square test between the financial decision and marital status of respondents at a 5% level of significance. It can be said that the p-value of the overall factors of financial decisions is greater than 0.05. It means the p-value > 0.05. Thus, it fails to reject the hypothesis at a significant level of 5%. So, there is no significant association between all factor's financial decisions concerning the marital status of respondents.

Financial Decision and Designation

H11: There is no significant association between financial decisions and the designation of female teachers.

Table 21 : Chi-square test for variable Financial Decision and Designation

Sr. No.	Financial Decision statements	Chi-square value	DOF	p-value	A decision about Ho.
1	Help of financial consultant	33.981	24	0.085	Failedtoreject
2	Record and Plan of investing Co.	25.648	24	0.371	Failedtoreject
3	By the rate of interest	18.242	24	0.791	Failedtoreject
4	Long term investment	16.732	24	0.860	Failedtoreject

Table 21 expresses the output of the Chi-square test between the financial decision and designation of respondents. In the table, the p-value of all factors of financial decisions is higher than 0.05. It means the p-value >0.05. Hence the hypothes is fails to reject at a significant level of 5%. So, there is no significant association between all factors financial decisions concerning the designation of respondents.

Financial Decision and Stream of Education

H12: There is no significant association between financial decisions and the education stream of female teachers.

Table 22 : Chi-square test for variable Financial Decision and Education Stream

Sr. No.	Financial Decision statements	Chi-square value	DOF	p-value	A decision about Ho.
1	Help of financial consultant	20.658	12	0.056	Failedtoreject
2	Record and Plan of investing Co.	19.315	12	0.081	Failedtoreject
3	By the rate of interest	19.787	12	0.071	Failedtoreject
4	Long term investment	18.328	12	0.106	Failedtoreject

Table 22 shows the output of the Chi-square test between the financial decision and education stream of respondents at a 5% level of significance. It can be said that the value of p for the overall financial decision is higher than 0.05. It means the p-value > 0.05. Hence, the study fails to reject the hypothesis at a significant level of 5%. So, there is no significant association between all factor's financial decisions and the education stream.

Findings

The study is based on the financial literacy of female teachers. Financial literacy depends upon financial components. After analyzing various financial components with each other and with socio-demographic variables, the study gives the outcomes as follow:

- As per the study of financial planning, it is obtained that an average 81% of respondents have a financial planner about the health and life insurance; an average 59% of respondents have financial plans about the growth of their money and the financial needs of the children; only average 49% respondents have retirement financial plan. It means most of the respondents are not aware of their retirement plans. The study identified demographic factors- higher education, age, monthly salary, marital status, designation- that are influenced by the financial planning of the respondents but the stream of education was not influenced by the financial planning of the respondents. It is proved by the chi-square statistical tool. With the help of Cramer's value, it is found that financial planning is associated with an average of 19% with education, an average of 31% with age and marital status, an average of 36% with monthly income, and an average of 27% with the designation of the respondents.
- According to the frequency analysis of financial decisions, it is found that most of the respondents gave positive reactions to different statements of financial decisions because of its mean value near "4" as per table 8. With the help of the Chi-square Test, it is proved that all the variables of the demographic factors were not created an effect on the process of making financial decisions for the respondents. It means respondents are taking financial decisions independently without seeing their higher education, age, income, marital status, designation and stream of education.

Conclusion

Financial literacy is very helpful for the management of money. Without financial literacy, no one can be organized their earnings between expenses and savings, applied to save on different investment products which were most beneficial for the growth of their money. Thus, financial literacy is the path to handling financial matters.

- For removing deficiency related to financial planning, the female teachers can take to help of financial consultants for their retirement plan, investment plan, growth of money.
- As per the study, it is found that the female teachers had fear of investing high risky investment avenues. Female teachers can improve their financial investment knowledge with the help of investment advisers. So, female teachers change their behavior as per the understanding of high risky investment tools and also remove the nervousness related to investingin high risky investment avenues.

As per the study, The conclusion made is those female teachers are less aware of their retirement financial plan which is part of their Financial Planning. Another important conclusion obtained is that Female teachers are not interested in investing their savings in risky investment avenues which can be considered as Financial Decision Making. With the help of improved knowledge, female teachers can better plan their finances for various goals and requirements including Retirement Planning. Further, improved financial knowledge and planning will lead to better financial decision making which can prepare female teachers to make investments in risky financial instruments as and when required.

Limitations of the study:

- The area of the research was confined to the Surat District of Gujarat state.
- The study covers only 300 sample size.
- During the selection of the sample, sampling error must be possible.

Further scope of the study:

The present study gave importance to the components of financial literacy. The level of financial literacy among female teachers is the main purpose of the study.

- For further research, the study can be extended geographically to different districts, states, and the whole country.
- Future researchers can study a different role of female teachers- for the improvement of financial literacy among their students, for the management of their household money by saving and investments in various tools.
- The study can be done to understand the level of financial literacy among male teachers, individuals, students, working women, businessmen, etc.

References

1. Agarwal, P., Choudhary Kureel, R., & Yadav, D. (2017). A Study on Future Plan for Increasing Financial Literacy Among People. *Global Journal of Finance and Management, 9*(1), 29-38. Retrieved from http://www.ripublication.com
2. Ben David-Hadar, I. (2015). An Analysis of Personal Financial Literacy Among Educators. *Journal of Financial Education, 41*(1), 50-89. Retrieved October 14, 2019
3. Bordoloi, A. (2019, December). Financial Literacy and the Working Women of the Unorganised Sector with Special Reference to Guwahati City. *International Journal of Innovative Technology and Exploring Engineering, 9*(2), 4350-4354. doi:10.35940/ijitee.B7746.129219
4. Breitbach, E., & Walstad, W. B. (2016). *Financial Literacy and Financial Behavior among Young Audlts in the United States.* (E. Wuttke, J. Seifried, & S. Schumann, Eds.) Verlag Barbara Budrich.
5. Financial Industry Regulatory Authority. (2009, March 11). *NASD investor literacy research: Executive summary*. Retrieved from http://www.finrafoundation.org/surveyexecsum.pdf

6. Fisk, P. C. (2015, 03 04). Gender gap in financial literacy transcends national borders. *Monthly Labor Review*.

7. Gupta, S. (2017, January). To measure the level of Financial literacy among individuals of Delhi. *Indian Journal of research, 6*(1), 833-837.

8. Jain, P., Bhat, S., K, M., & Adiga, K. (2020). Financial Literacy of Women in South Bangalore. *17 th AMIS International Conference Management*, (pp. 205-210). Kozhikode, Kerala.

9. Michaud, P.-C. (2017, November). The value of financial literacy and financial education for workers. *IZA world of labor*. doi:10.15185/izawol.400

Correlation between Literacy and Sex Ratio in Gujarat: A Geographical Analysis

Ranchhod Gagal*

Abstract

This paper is an attempts to analysis the "Correlation between literacy and sex ratio in Gujarat". Literacy is the very most important and useful indicator of society and social development. Education is universally recognized as main component of human development. Literacy affected on the various aspects of population such as fertility, mortality, migration and also sex ratio. The knowledge of gender gap is essential for the understanding condition of women in society.According to census of India, "A person aged more than 6 years and who can both read and write with understanding in any language has taken as a literate". The census of India defines the literacy rate as a proportion of literates to total population in age group 7 year and above. Literacy is the heart of basic education for all and essential for eradication, poverty reduction, mortality, curbing population growth, achieving gender equality and ensuring sustainable development peace and democracy. Thus, the analysis of literacy and sex ratio is immense significant. According to 2011 census, the total population of Gujarat state is 604 lakh, the sex ratio is 919 and literacy is 78.03.This paper revealed that there is negative correlation between literacy and sex ratio in Gujarat.

Keywords: Sex ratio, Population, Education, Gender, Geography

Introduction

Literacy is refers to the ability to read for knowledge, write coherently and think critically about the written word. The population commission of United States defines, "the ability of both read and write a simple message with understanding in any language a sufficient basis for classifying a person as a literate". According to census of India, "A person aged more than 6 years and who can both read and write with understanding in any language has taken as a literate". The census of India defines the literacy rate as a proportion of literates to total population in age group 7 year and above. Literacy is the heart of basic education for all and essential for eradication, poverty reduction, mortality, curbing population growth, achieving gender equality and ensuring sustainable development peace and democracy.

The sex composition is also important demography components for the human development. The sex composition of a population is usually expressed in terms of sex ration. i.e., number of females per thousand males in any particular area. An important social indicator to measure the extent of prevailing equity between males and females in a society at a given point of time. It is also influence marital status, manpower, GDP, planning related to educational and medical services, housing etc. It's also influence the overall demographic composition of population.Presented paper is attempts analysis to know correlation between literacy and sex ratio base of 2011 census data.

As per census 2011, total population of Gujarat 604 lakh and literate population reported 78.03 percent it more 4 percent point than India. Overall sex ratio in Gujarat is 919 as per census data 2011.

Area of study

Gujarat is a state on the western coast of India with a coastline of 1600km - most of lies on the "Kathiawar" peninsula and a population in excess of 60 million. The latitude of Gujarat is 22.309425, and the longitude is 72.136230. It is the fifth largest Indian state by area and the ninth largest state by population. Gujarat is bordered by Rajasthan to the northeast, Dadra and Nagar Haveli and Daman and Diu to the south, Maharashtra

* Assistant Professor in Economics, Government Arts and Commerce College, Rapar, Kachchh, Gujarat

to the southeast, Madhya Pradesh to the east and the Arabian Sea and the Pakistani province of Sindh to the west. Its capital city is Gandhinagar, while its largest city is Ahmedabad. The economy of Gujarat is the fifth largest state economy in India with 13.14 lakh Cr. (US$180 billion) in GDP and a per capita GDP of 1.74 lakh (US$2400). Gujarat ranks fifteenth among Indian states in human development index

Objectives

a. To study the spatial pattern of literacy rate in Gujarat state.

b. To study the spatial pattern of sex ratio in Gujarat state.

c. To analyze the correlation between spatial pattern of literacy and sex ratio in the Gujarat state.

Data and methodology

a. Present paper is based on the secondary source of data. To fulfill this objectives data regarding area of literacy and sex ratio of overall Gujarat state is obtained from census of India 2011reports.

b. The collected data is processed to analyze the pattern of literacy rate and sex ratio in Gujarat state.

c. The districts of Gujarat are grouped into five categories i.e. very high, high, medium, low and poor sex ratio on the basis of simple statistical method. To analyze spatial pattern of literacy, the same technique is applied for calculation.

d. Suitable maps and diagrams are used to illustrate the facts.

e. Spearman's rank difference method is used for analyze the correlation between literacy and sex ratio.

Definition of literacy rate

According to WHO, "The proportion of the adult population aged 15 years and over which is literate, expressed as a percentage of the corresponding population, total or for a given sex, in a given country, territory, or a geographic area, at a specific point in time, usually mid-year. For statistical purposes, a person is literate who can with understanding both read and writea short simple statement on his/her everyday life.

In short, the literacy rate is defined by the percentage of population of a given age group that can read and write.

Spatial pattern of literacy

Gujarat as a whole has 78.03 literacy as per census 2011 but the district level literacy rate is various from district to district ranges from 58.82 to 85.53.

Very high literacy

The districts which have the literacy rate 85.00 and above are included into high literacy category. Very high literacy was reported in the Surat and Ahmedabad.

High literacy

The districts which have literacy rate ranges from 77.00 to 84.99 are included in the high category. High literacy was recorded in the districts of Anand, Gandhinagar, Navsari, Mahesana, Kheda, Bharuch, Vadodara, Rajkot and Valsad.

Medium literacy

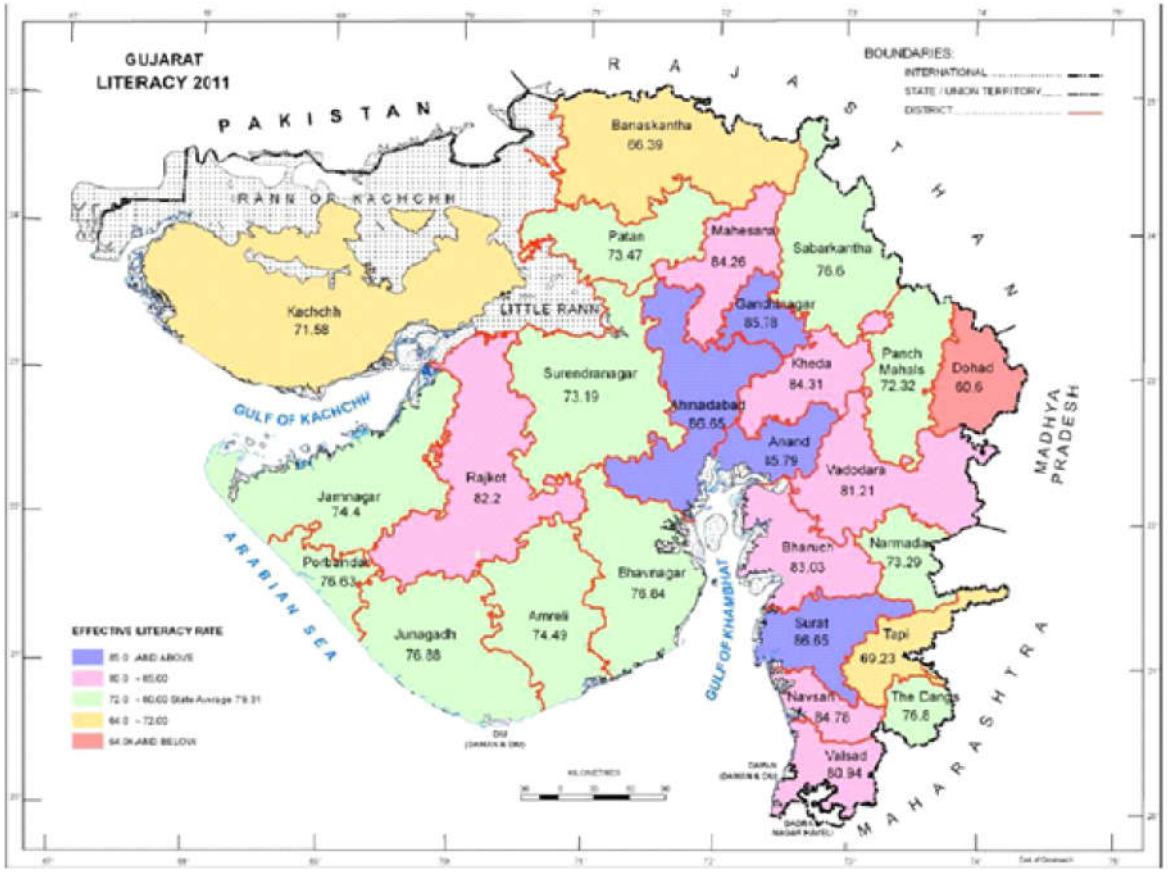
The district which have literacy rate ranges from 69.00 to 76.99 are included in the medium category. Medium literacy was reported in the districts of Junagadh, Sabarkantha, Porbandar, Bhavnagar, The Dang, Amreli, Jamnagar, Narmada, Patan, Surendranagar, Panchmahal, and Kachchh.

Low literacy

The districts which have literacy rate ranges from 61.00 to 68.99 are included in the low category. Low literacy was recorded in the Tapi and Banaskantha districts.

Poor literacy

The district which have the literacy rate 60 or below are included in poor category. Only one Dahod district has the poor category in the state.



Source: www.mapsoftindia.com

Definition of sex ratio

In relation to the sexual status of population in a country, the ratio of male to female is important. Generally, the number of males and females is not equal in any country. It means that many a time, in comparison to females, the number of males is high. In the census of India, the male female ratio is measured as the number of females per 1000 males.

Spatial pattern of sex ratio

Gujarat as a whole has 919 number of female population per thousand of male population as per census 2011 but the district level sex ratio is various from district to district ranges from 787 to 1007. There are large gap between low and high sex ratio.

Very high sex ratio

The districts which have the sex ratio 991 and above are included into high sex ratio category. Very high sex ratio was recorded in the Tapi and The Dang districts (Above 1000).

High sex ratio

The districts which have sex ratio ranges from 961 to 990 are included in the high category. High sex ratio was recorded in the districts of Dahod, Amreli, Narmada and Navsari.

Medium sex ratio

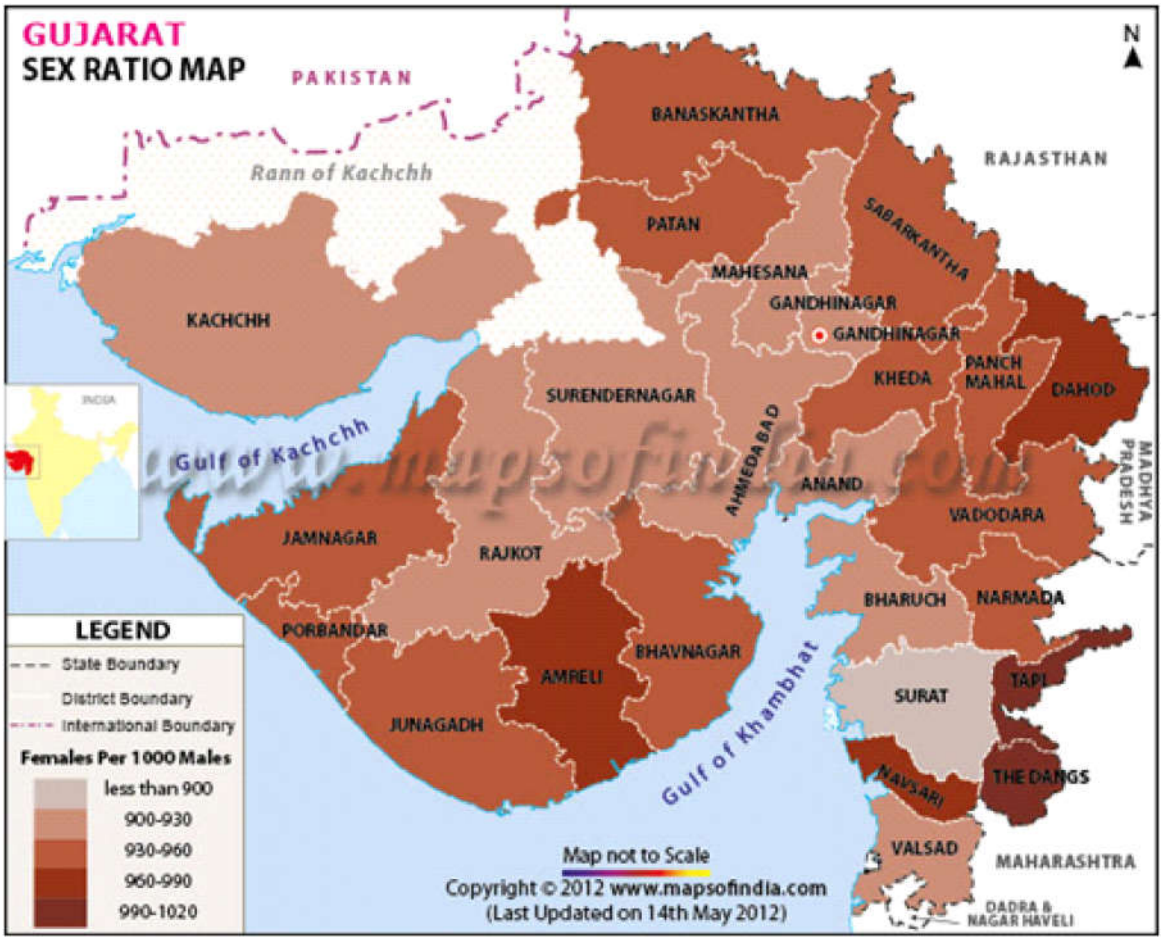
The district which have sex ratio ranges from 931 to 960 are included in the medium category. Medium sex ratio was recorded in the districts of Junagadh, Sabarkantha, Porbandar, Panchmahal, Kheda, Jamnagar, Banaskantha, Patan, Vadodara and Bhavnagar.

Low sex ratio

The districts which have sex ratio ranges from 901 to 930 are included in the low category. Low sex ratio was recorded in the districts of Surendranagar, Rajkot, Mehsana, Anand, Gandhinagar, Valsad, Bharuch, Kachchh and Ahmedabad.

Poor sex ratio

The district which have the sex ratio 900 or below are included in poor category. Only one district Surat (787) has the poor category in the state.



Source: www.mapsoftindia.com

Literacy rate and sex ratio by districts in Gujarat (As per census 2011)

State/ Districts	Literacy rate	Rank in State	Sex ratio	Rank in State
Gujarat	**78.03**	--	**919**	--
Kachchh	70.59	23	908	22
BanasKantha	65.32	25	938	12
Patan	72.30	20	935	13
Mahesana	83.61	6	926	18
SabarKantha	75.79	13	952	7
Gandhinagar	84.16	4	923	20
Ahmadabad	85.31	2	904	23
Surendranagar	72.13	21	930	16
Rajkot	80.96	9	927	17
Jamnagar	73.65	18	939	11
Porbandar	75.78	14	950	8
Junagadh	75.80	12	953	6
Amreli	74.25	17	964	4
Bhavnagar	75.52	15	933	15
Anand	84.37	3	925	19
Kheda	82.65	7	940	10
PanchMahals	70.99	22	949	9
Dahod	58.82	26	990	3
Vadodara	78.92	10	934	14
Narmada	72.31	19	961	5
Bharuch	81.51	8	925	19
The Dangs	75.16	16	1,006	2
Navsari	83.88	5	961	5
Valsad	78.55	11	922	21
Surat	85.53	1	787	24
Tapi	68.26	24	1,007	1

Source: Census of India, 2011, New Delhi: Government of India

Correlation between literacy and sex ratio

The spearman's rank difference method used for the calculation of the correlation between literacy and sex ratio in Gujarat. It is observed that there is rather moderate and negative correlation i.e. r= -0.514 between the literacy and sex ratio in Gujarat state.

Conclusion

After this analytical study, there were wide disparities in relationship between literacy and sex ratio in Gujarat in 2011.The highest literacy rate was found in Surat district (85.53), but in the sex ratio, this district (787) included lowest three districts of States. Reason behinds it, Surat is only rapid developing city of Gujarat so, most of population are migrated from other states.Lowest literacy rate was found Dahod district reported 58.82. In the sex ratio, Dahod district in thetop3rdranks.Ahmedabad and Surat are industrial developed belt low sex due to male migration from all Indian states due to employment. Same situation in sex ratio of Kachchhdistrict, was found 908, after earthquake 2001, Kachchh is emerging area in industrial development and investments.

The correlation between literacy and sex ratio found rather moderate and negative, means high literacy cannot prove improvement in gender equality.

References

Agarwal S. N. (1973): India's population problem, Tata McGraw Hill publishing, New Delhi.

Aktar, Nasim (2013): "Correlation between literacy and sex ratio in West Bengal: A geographical analysis", Review of research, Vol-2, Issue-4.

Census of India (2011): Final Population Totals, Series1, India Registrar General and Census Commissioners; India.

Devina S, (2015), "An analysis of literacy and gender trends in Gujarat", Research Gate.

Sule, B.M. and barkade, A.J. (2012), "Correlation between literacy and sex ratio in Solapur district of Maharashtra - A geographical analysis", Social growtn, Vol-1, Issue-4.

Jhingan, M.L., Bhatt, B.K. and Desai, J.N. (2016), "Demography (3rd edition)", Vrinda publications (P) LTD., Delhi.

Yadav, N.(2015), "Correlation between literacy and sex ratio in Rajasthan: A geographical analysis", IJEDR.

Unveiling influence of Home macroeconomic factors on Indian Outbound Mergers and Acquisitions

Sheeba Kapil and Puneet Kaur Dhingra***

Abstract

Indian enterprises have succeeded in climbing the ladder of outward M&A transactions and out-performing everyone's expectations post 1990s. This paper aims to recalibrate the empirical literature of India's outbound M&A by considering the impact of home country macroeconomics variables. This study attempts to examine the impact of the homecountry's macroeconomic factors on the deal volume of outward M&A from 1990 to 2019. Bivariate regression and quantile regression approach is used to examine the impact of selected macroeconomic factors on outward M&A deal volume.The study found that the selected macroeconomic variables gross domestic product, population, exports, imports, interest rates, international reserves, human capital, trade openness, patents, exchange rate and per capita GDP influences the deal volume especially at high percentiles. The home country companies prefer to go outside specially when macroeconomic indicators change at their higher level. The empirical analysis of this paper provides policy makers a better understanding of determinants of outbound M&A transactions by Indian firms, to formulate push policies to encourage the same. Quantile regression has not been applied to any of the extant research to test the impact of home country macroeconomic factors on outbound M&A deals by Indian companies, thus explaining multiple modes in behaviour of Indian outbound M&A activities.

JEL classification: F21, F23, G34, P45

Keywords: Outbound M&A; India, OFDI, Determinants

Introduction

The 20th century witnessed a strong activity of Mergers and Acquisitions (M&A) across the globe during several times (Scherer and Ross, 1990).Through cross-border M&A, multinational firms strengthened their international position on foreign markets: cross-border M&A progressively replaced Greenfield Investments in Foreign Direct Investment (FDI) over the 1990's. During this period, about 80% of FDI transaction value took the form of M&A. Therefore, facing this major change in FDI composition, it becomes legitimate to enquire cross-border M&A when examining the decision of international expansion with respect to macroeconomic factors that will influence the investment decision. Hence, this study delves to find the impact of Indian economy's macroeconomic factors on outbound M&A behavior of Indian companies.

The increase in overseas acquisitions by Indian firms can be seen as their response to a globalized competition since 1990s. With liberalization and changes in trade, industry, foreign investment and technology policy regime, previously protected Indian companies are exposed to global competition at once. Indian firms increasingly realized that their existing technological and other capabilities accumulated with predominant dependence on protected home markets and under the import substitution policy regime of the past are clearly inadequate to cope with this new competition unleashed by a more liberalized business environment. They are forced to improve their competitive strength immediately and enlarge their position in the world markets. Indian companies realized that adopting a longterm competencies building strategy with large investment in R&D, advertising, etc. is relatively more risky and costly than pursuing the route of overseas acquisitions.

* Corresponding Author and Research Scholar, Indian Institute of Foreign Trade, Ministry of Commerce, Delhi, India

** HoD, Finance, Indian Institute of Foreign Trade, Ministry of Commerce, Delhi, India

Mergers and acquisitions in India are largely driven by multinational enterprises is well recognized (Kumar 2000; Bhoi 2000), the less known fact is the growing intensity of Indian enterprises to acquire business enterprises overseas. Out of an estimated $287.68 billion value of cross-border M&As involving India as a seller as well as purchaser during 1990-2020, nearly 40 percent amounting to $113.76 billion has been accounted by cross-border acquisitions (i.e purchases) made by Indian enterprises. Indeed, in the late 1990s the value of cross-border acquisitions by Indian firms had continuously accelerated from $57.6 million in 1990 to over $3.7 billion in 2018 (Table 1).

Table 1: Value of M&A deals in India

YEAR	*Value of M&A deals in India (Purchaser) (UDS Million)*	*Value of M&A deals in India (Seller) (UDS Million)*	*Total value of M&A deals in India (USD Million)*	*Purchases as a % of total value of deals*
1990	57.6	5	62.6	92.01%
1995	25.3	224.1	249.4	11.29%
2000	589.0	708.4	1,297.4	45.39%
2005	1,939.0	697.5	2,636.5	73.54%
2010	26.642.0	5,612.6	32,254.6	82.59%
2015	-612.5	1,323.4	710.9	-86.16%
2020	3,705.6	27,211.3	34,283.4	11.98%
1990-2020	113,768.6	173,913.8	287,682.4	39.54%

Determinants Of M&A

Over the years, many researchers have come up with theories or applications of the existing theories to explain the growth trajectories of these OFDIs, effect of various factors on expansion of emerging countries' multinationals (individually or in certain groups), their motives, challenges and spillovers (Dunning&Narula, 1994; Hymer, 1960; Aulakh, 2007; Bloningen, 2005; Kalotay, 2005; Kumar, 2007; Buckley et al., 2007; Makino et al., 2002; Douma et al., 2006; Lien et al., 2005). It was Dunning who had published earliest factual work that sought to explain outward foreign direct investment from America and its benefits to UK's economy, but Hymer's work in 1960 made a concrete attempt to elucidate the emergence of outward foreign direct investment. According to his research, major motive behind these Trans National firms were to gain opportunities out of oligopolistic control of the market and locational advantages. Dunning (1980) went to explain in length the determinants of outward foreign investment through his Eclectic theory, popularly known as O-L-I paradigm, which primary constitutes of 3 pillars, ownership advantages, location advantages and internalization advantages. (Rasiah et al., 2010)

After Dunning, subsequent researches have built up a base for capturing drivers of outward foreign direct investment flows from emerging economies. Determinants of outward foreign direct investment from emerging economies has been categorized in two sub divisions, macroeconomic determinants and firm level determinants.

Macroeconomic factors are liable for either encouraging or discouraging firms making foreign investments. MNCs are exposed to two sets of macroeconomic determinants, first are home country determinants, also known as push factors for investing overseas, and second set consists of host country determinants which work as pull factors for investing overseas. Every MNC is constantly interacting with its home and host country environment, and hence these factors are responsible for creating a conducive atmosphere for overseas investments to take place (Gammeltoft et al., 2010). These country specific factors are dynamic in nature, i.e. they continuously evolve with the country's level of development, as a consequence of its policies, natural endowments, market

potential and action of economic agents. Firms utilize these country specific assets to develop and organize their own production process efficiently, so as to serve domestic and foreign markets profitably (Pantelidis and Kyrkilis, 2005).

Home Country Determinants

Market Size

Home country's development related variables serve as explanatory variables for any country's investment outflows. There exists a strong positive relationship between development level of home country and its outward foreign direct investment(Chen, 2015). Economic development enables a firm to develop competence and specific strengths which can be fruitfully exploited by investing abroad. Empirical studies done on developed countries by Barry et. al. (2003), Bellak (2001), and Buckley and Castro (1998) as well as on a mix of developed and developing countries by Dunning and Narula (1994) and Tolentino (1993) confirm the existence of association between market size and outward investment flows.

Market size of a country is indicated by its GDP. Hence when a firm is operative in a home country marked by high GDP, it is successfully able to exploit economies of scale. Actual market demand could not be measured by GDP of a country, hence per capita GDP has been taken as a variable in many studies to measure the size of market demand or consumers' economic well-being of a home country (Buckley et al., 2006; Deng, 2004; Taylor, 2002; Zhang, 2003, Kayam, 2009).

Interest Rates

Capital abundance is a mandate for making investment overseas, especially when investment is made in capital intensive sectors. Amplitude of Capital is directly linked with the prevailing interest rates in the home economy, bearing an inverse relation. As per Krykilis and Pantelidis (2003), low interest rates in home country, results in capital abundance and thus reduces the opportunity cost of capital. Deducing from the above statement, companies with large capital base would hunt for profitable investment ventures abroad, this leads to increase in the investment flows abroad, proposing negative association between home interest rates and OFDI flows.

Pantelidis and Kyrkilis, (2005), stated that a firm always chooses to invest in those projects that offer higher expected return over its cost of capital. And when cost of capital of a firm decline, expanse of economically viable projects increases, allowing firms to make investments. Also, if the cost of borrowing is lower, leverage exposure of company may rise, thus leading the firm to pursue larger investment projects. Hence applying this phenomenon to foreign investments, as the cost of borrowing decreases in home country, the opportunity cost of capital becomes lower subsequently and hence investing abroad becomes more attractive and viable.

Exchange Rate

Currency appreciation facilitates investment flows overseas, as the buying capacity of the currency increases in real terms. Aliber (1970) encompassed that companies whose countries' currency is strong, have better financial backing for supporting their foreign investments than companies whose countries' currency is relatively weaker. As a consequence of appreciation of home economy's currency, the capital requirements of investing abroad lowers, thus enabling easier capital acquisition than in case of depreciated home currency. Along with this, appreciation of home currency also curtails the relative attractiveness of exports as a mode of expanding overseas, thus companies turn towards choosing OFDI for exploring markets abroad. Bhasin et al. (2013) also support this inference and states that "Appreciation of the home country currency makes exports less competitive as they become relatively expensive for foreign buyers. So OFDI becomes cheaper mode for servicing foreign market."

Human Capital

Competent human capital possession gives a company powerful edge which makes them capable of acquiring various competitive advantage. All major business operation activities like management, marketing, organization and R&D functions mandates the presence of skilled and competent personnel. As per Tolentino (2008) skilled and educated labor is a mandatory requirement for majority of managerial functions, and opulence of this factor is an eminent determinant pushing home economy firms to make foreign investments. Proportion of higher education personnel in the population of a country gives an approximation of the human capital factor in that country (Pantelidis and Kyrkilis, 2005; Bhasin & Jain, 2013). Saad et al. (2014), in their research, analysed the home country determinants for OFDI flows from Malaysia, and states that investment flows overseas from developing countries is a consequence of lack of management know-how knowledge, thus driving Malaysian firms to invest abroad in order to overcome this prevalent limitation. Emerging economies suffer from shortage of skilled personnel, thus making human capital an incompetent push force for OFDI. This creates an immediate need for these economies to identify ways to boost the development of sound education infrastructure.

Openness Of Economy

Smooth and voluminous flow of foreign direct investment is a direct consequence of the degree of openness of an economy towards unrestricted capital flows. There are few reasons leading to this, firstly, liberal capital regime with absent or minimal control promotes greater flow of funds across economies (Scaperlanda, 1992). Secondly, an economy with existing export orientation allows companies to gather knowledge about demand and supply conditions of proposed host destination, their legal system, prevalent business practices, know how required to sustain foreign operations, etc. All these constitutes the necessary background for switching of internationalization mode from exporting to setting up or acquiring business facilities overseas (Kogut 1983; Buckley et al., 2007, Goh, 2011). As per Buckley (2007), OFDI is also viewed as a supportive strategy to give some backing to domestic exporters and stimulating higher earnings for them. Thirdly, companies may resort to investing in host economies whose export give a tough competition to native firms of home economy. Here OFDI takes a pure form of retaliation to cope up with import competition (Pantelidis and Kyrkilis, 2003; Banga, 2007).

Technological Capability

Firms' ability to indulge in organization and production of technological input is in turn dependent upon the firms' home country environment, in terms of its legal and patent systems, presence of skills and inputs, government policies, market structure, scientific research, incentives for education. Hence this emerges as a critical advantage of firms to make foreign investments, as firms' technological capability helps them build ownership-specific advantages, upon which the firm can capitalize to invest abroad.

In case of developing countries, minting of new technologies may not always be possible, but framing policies for building technological capacity may fetch positive spillovers. Lall (2001) stated that technological advancement heavily relies on technological efforts made and firms' absorption capacity. Thus, to benefit from the diffusion of international technology stimulated by globalization, making indigenous innovation efforts became mandatory for emerging economies (Das, 2013; Fu et al., 2011). Therefore, countries making policies supportive of such technological efforts, will be more successful in creation of country-specific competitive advantages from international technology diffusion, thus facilitating outward investment flows. In contrast to the above arguments, Saad et.al. (2014) postulated that developing economies facing disadvantage at the technological front, make outward investments in order to compensate for the same by merging with or acquiring foreign firms (Child and Rodrigues, 2005; Luo and Tung, 2007; Rugman and Li, 2007).

Inflation rate

Inflation rate measures the rate of change in price level and purchasing power of a country's currency.

High rate of inflation may discourage OFDI partially because it inflates country's input prices, and also because it reduces the real value of earnings for outward investing firms, as devaluation of domestic currency is a repercussion of high inflation (Buckley et al., 2007; Bajo-Rubia and Sosvilla-Rivero, 1994; Adinuur, 2013; Xaypanya, Rangkakulnuwant, and Paweenawat, 2015). In Pradhan's (2011) research, a country inflation had a positively significant impact on OFDIs from emerging firms in India and China. Buckley's results were in confirmation with those of Pradhan's for Chinese OFDI.

Geographic distance

Geographic distance between home and host country serves as an important variable in encouraging or discouraging investment flow, hence its role cannot be ignored (Bormann et al., 2005; Rajan, 2008; Hattari and Rajan, 2010). As per prediction of the gravity model, geographical spread of emerging nations' OFDI flow is negatively related to the physical distance from the destination country (Pradhan, 2011; Loungani et al., 2002; Morris and Jain, 2015; Ramasamy et al., 2012). Another argument is that, geographic distance affects trade and not FDI as transportation costs are a recurring component of exporting business, while FDI is a one-time process, thus geographically closer markets can be served by exports while distant ones through OFDI (Buckley et al., 2012; Buckley and Casson, 1981).

Methodology

This study considers several key factors that could in?uence an Indian ?rm's decision to invest abroad, out of all the previously studied home country macroeconomic factors, this paper aims to test the relevance of most pertinent determinants in today's scenario for Indian outbound M&A via quantile regression. This study is based on the secondary source of data consisting annual observations on Indian economy for the period of 1990-2019. The table below exhibits the various dependent and independent factors taken up in this paper

Table 2: Description of Dependent and Independent Variables

Variables	Constructs	Description	Unit
Dependent variable: Outward cross-border mergers and acquisitions	M&A Deal Volume	Number of total outbound M&A deals in a Year by Indian firms	Units
	Market Size	by Gross domestic Product, GDP per capita and Population of a Host Country	USD Million (GDP & GDPPC) & Units (Population)
	. Liberalization of India's capital outflows	International Reserves with RBI	USD million
	Trade Openness	Free flow of trade i.e Total Exports and Total Imports	Total exports and Imports as Percentage of GDP (Total Exports Percentage and Total Imports Percentage) & TO = (Total exports + Total imports)/GDP
	Inflation	GDP deflator represents the inflation or the purchasing power in a country	Percentage of Nominal GDP over Real GDP

Independent Variables	Interest Rate	Interbank Interest rate, Lending interest rate and Central bank rate	Percent, not seasonally adjusted
	Exchange rate	Real Effective Exchange rate measures the host country's currency against basket of foreign currencies	Index 2015=100 Not seasonally adjusted
	Strategic assets	Total patent applications filed by residents of India	Unit
	Human Capital	Literacy rate in India	School enrolment, primary and secondary (gross), gender parity index (GPI)
	Political stability	Political stability and absence of violence or terrorism measures perceptions of the likelihood of political instability.	Performance score from -100 to 100. The highest score reflects the best situation.
	Geographic Distance	It is the physical distance between India and host country	Kilometres
Dummy Variable	Recession	Recession in Indian Economy post 2007	0 if year is 2007 or lessor and 2008 onwards its 1

Source: Author's Definition for this study

Unit Root Test

It is found in the literature that most of the series in finance and economics are non-stationary in nature. In other words, most of the economic series are random walk i.e., non-stationary series (Brooks, 2002). In this study, the data of economic time series are collected and ADF unit root test is applied to examine the nature of unit root behaviour in the studies.

Any econometric model applied on non-stationary time series would be considered as spurious model. Thus, if the selected time series are found to be non-stationary, they are needed to be transformed to become stationary series so that statistical models can be applied on those series. The result of the unit root is shown below in the table.

Bivariate Regression

To study the relationship between the outbound M&A deal volume by Indian firms in global market and the macroeconomic indicators of Indian economy, the bivariate time series regression analysis is applied on the included variables. The bivariate regression has the M&A deal volume as dependent variable and different macro-economic indicators as independent variables *(GDP Growth Rate, Change in GDP per capita , Population growth rate, Change in Interbank Interest Rate, Change in Lending interest rate, Change in Central bank interest rate, Change in Real effective Exchange Rate, International Reserves growth rate, Change in Trade openness,Change Exports as percentage of GDP, Change in Imports as percentage of GDP change, Change in Inflation, Change in Human Capital, Change in Patent Applications by residents, Change in Political stability and Recession as control variable)* in the study. The regression model can be expressed as:

$$M\&A\ Deal\ Volume\ (Y_i) = \alpha + \beta_1 * X_i + e$$

Where Y is the dependent variable (M&A Deal volume), ? is the intercept and ? is the slope coefficient, Xiindicates the different macroeconomic indicators. Following hypothesis is assumed to be tested with the help of regression analysis:

Hypothesis: "There exists no significant impact of home macroeconomic indicators on the outbound M&A Deal volume of the Indian firm"

Quantile Regression

In linear OLS regression, the deal volume as a dependent variable is predicted with the help of selected independent variables. Here, the conditional mean of deal volume is estimated using the changes in the average values of independent variables. However, the linear regression OLS modelis not able to explain the behaviour of deal volume due to certain limitation such as the assumption of linear relationship between selected dependent and independent variables and the linear regression fails to explain the deal volume if the dependent variable has multiple modes in behaviour. Thus, the quantile regression is highly effective as it explains the deal volume at different percentiles due to the changes in different percentiles in independent variables.

In the study the behaviour of deal volume in M & A of the selected Indian companies is examined using quantile regression model. The macroeconomic indicators of Indian economy are assumed to be independent variables in the quantile regression.

Results

Unit Root Test

The result of the unit root is shown below in the table.

Table 3: Results of Unit Root Test (Augmented Dickey Fuller Test)

Variables	*ADF test*		*Status*
Deal Vol	-3.265	-5.572*	Stationary at first difference
Log of GDP	-1.309	-5.092*	Stationary at first difference
GDP per capita	-1.841	-5.401*	Stationary at first difference
De-trended Population	-3.897*		Stationary at level
Interbank Interest Rate	-1.632	-5.482*	Stationary at first difference
Lending interest rate	-2.687	-5.329*	Stationary at first difference
Central bank interest rate	-1.632	-5.482*	Stationary at first difference
Real effective Exchange Rate	-4.785*		Stationary at level
Log of International Reserves	-1.163	-4.438*	Stationary at first difference
Trade openness	-0.473	-4.799*	Stationary at first difference
Exports as percentage of GDP	-0.596	-5.734*	Stationary at first difference
Imports as percentage of GDP	-0.544	-4.383*	Stationary at first difference
Inflation	-1.987	-3.227*	Stationary at first difference
Human Capital	-2.692	-5.358*	Stationary at first difference
Patent Applications by residents	0.776	-6.124*	Stationary at first difference
Political stability	-3.866*		Stationary at level

Source: Author's Calculations

The results indicates that most of the series re found to be random walk at level. However, after first transformation, the series became stationary. The result reported that Real effective exchange rate and Political stability are found to be stationary at level, Rest of the series are found to be stationary at first difference. After analysing the series to be stationary, the advance econometrics model can be applicable on the stationary series.

Bivariate Regression

Theresult of bivariate regression analysis is shown below:

Table 4: Results of Bivariate Regression

Dependent Variable	Independent Variable	Regression Coefficient	Std. Error	t-Statistic	F stats	R Square
M&A Deal Volume	GDP Growth Rate	337.584	158.219	2.133**	4.55**	14.42%
	Change in GDP per capita	0.121	0.075	1.610	2.592	8.76%
	Population growth rate	4078.943	4196.991	0.971	0.944	3.38%
	Change in Interbank Interest Rate	-2.445	6.027	-0.405	0.164	0.6%
	Change in Lending interest rate	-5.359	5.020	-1.067	1.139	4%
	Change in Central bank interest rate	-2.445	6.027	-0.405	0.164	0.6%
	Change in Real effective Exchange Rate	1.647	1.166	1.412	1.994	6.8%
	International Reserves growth rate	99.898	89.282	1.118	1.251	4.4%
	Change in Trade openness	312.853	163.001	1.919**	3.683**	12%
	Change in Exports as percentage of GDP	7.988	3.508	2.277**	5.184**	16.11 %
	Change in Imports as percentage of GDP	4.349	2.854127	1.523	2.321	7.91%
	Change in Inflation	5.336	2.864	1.863**	3.471**	11.39%
	Change in Human Capital	-145.769	313.154	-0.465	0.216	0.79%
	Change in Patent Applications by residents	0.004	0.011	0.367	0.135	0.49%
	Change in Political stability	37.614	61.295	0.613	0.376	2.44%
	Recession as control variable	-21.392	33.249	-0.643	0.413	1.51%

Source: Author's Calculations

The results of regression analysis with M&A Deal volume of the Indian firm as a dependent variable and *macroeconomic indicators* as independent variable. The results indicate that p value of the t statistics in case of all the selected variables *(GDP Growth rate, Change in trade openness, Change in Exports as percentage of GDP, Change in Inflation)* is found to be less than five percent significance level. Thus, at ninety-five percent confidence level the null hypothesis that *"There exists no significant impact of macroeconomic indicators on the M&A Deal volume of the Indian firm"* can be rejected. The results reported that these *macroeconomic indicators* have significant positive impact on the *M&A Deal volume of the Indian firm.* The F statistics for all these variables are found to be significant indicating that the regression model is statistically fit.

Quantile Regression

The quantile regression is applied with the five level of percentiles namely 20th percentile, 40th percentile, 50th percentile, 60th percentile and 80th percentile. The deal volume in M&A is expected to be different at the different changes occurs in economic indicators. The deal volume is expected to change with higher changesin economic indicators of the India. The results of the quantile regression for each economic indicator are shown below:

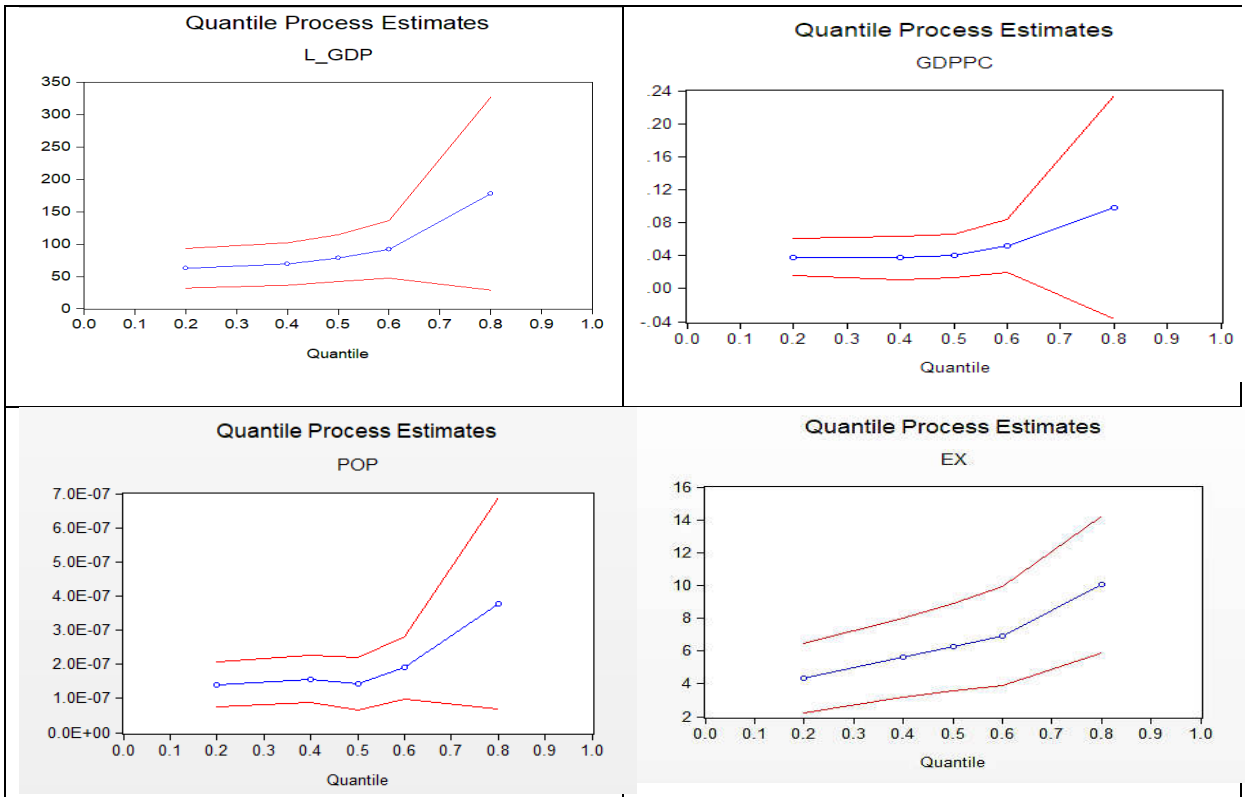
Table 5: Results of Quantile Regression

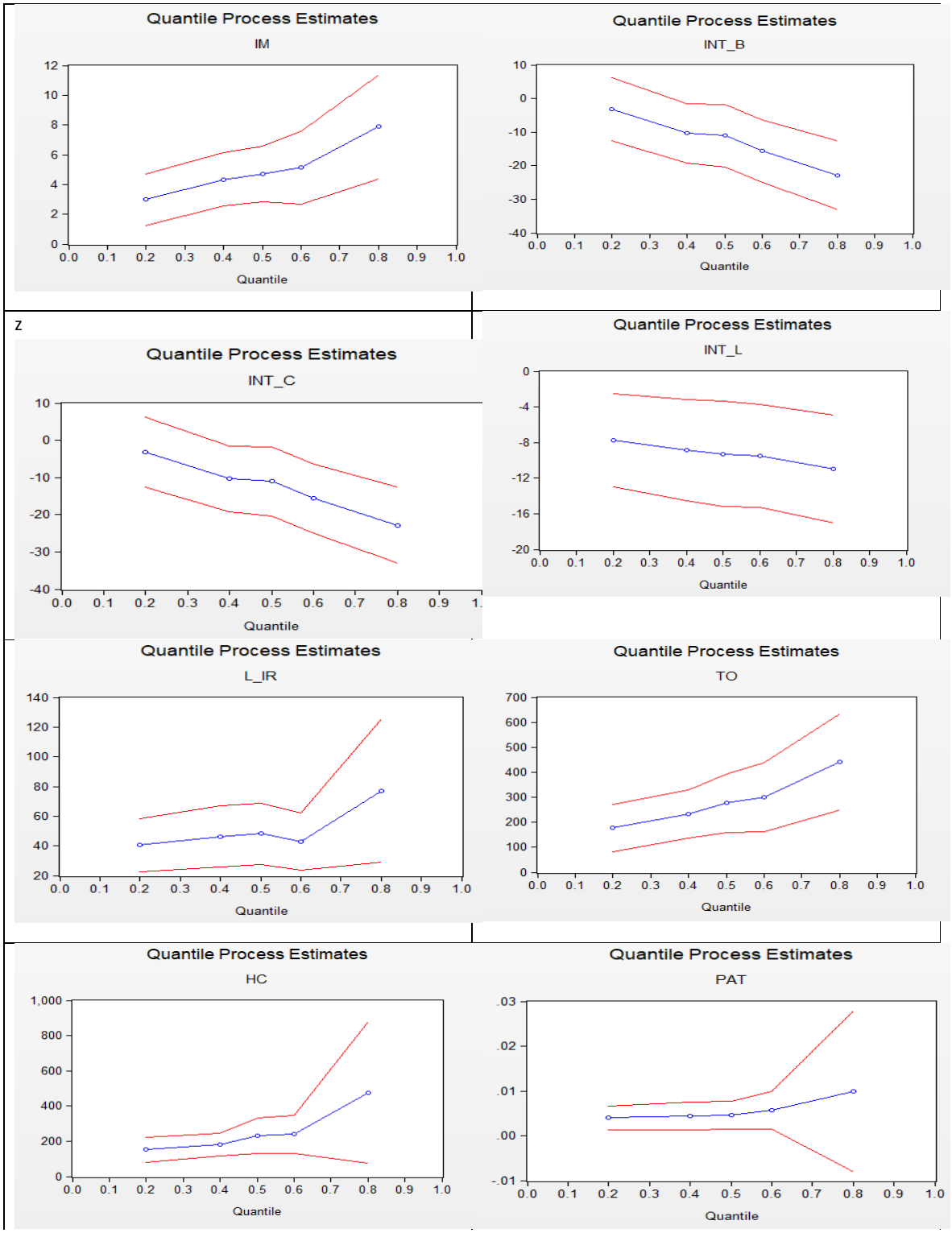
Quantile Process Estimates				
	Quantile	Coefficient	Std. Error	t-Statistic
L_GDP	0.200	62.637	15.652	4.001**
	0.400	69.223	16.767	4.128**
	0.500	78.448	18.436	4.255**
	0.600	91.918	22.722	4.045**
	0.800	177.90	76.075	2.338**
GDPPC	0.200	0.038	0.011	3.332**
	0.400	0.037	0.013	2.773**
	0.500	0.039	0.013	2.921**
	0.600	0.051	0.016	3.149**
	0.800	0.098	0.069	1.426
POP	0.200	1.40E-07	3.36E-08	4.180**
	0.400	1.57E-07	3.55E-08	4.432**
	0.500	1.43E-07	3.87E-08	3.692**
	0.600	1.90E-07	4.71E-08	4.028**
	0.800	3.78E-07	1.58E-07	2.392**
EX	0.200	4.353	1.091	3.989**
	0.400	5.610	1.228	4.567**
	0.500	6.243	1.354	4.608**
	0.600	6.922	1.548	4.470**
	0.800	10.067	2.130	4.725**
IM	0.200	2.984	0.886	3.368**
	0.400	4.340	0.908	4.776**
	0.500	4.690	0.950	4.937**
	0.600	5.125	1.256	4.078**
	0.800	7.877	1.792	4.395**
INT_B	0.200	-3.272	4.805	-0.681
	0.400	-10.333	4.519	-2.286**
	0.500	-11.047	4.723	-2.338**
	0.600	-15.619	4.725	-3.304**
	0.800	-22.833	5.226	-4.369**
INT_C	0.200	-3.272	4.805	-0.681
	0.400	-10.333	4.519	-2.286**
	0.500	-11.047	4.723	-2.338**
	0.600	-15.619	4.725	-3.304**
	0.800	-22.833	5.226	-4.369**
INT_L	0.200	-7.764	2.666	-2.912
	0.400	-8.828	2.902	-3.041**
	0.500	-9.284	3.008	-3.086**
	0.600	-9.492	2.957	-3.209**
	0.800	-10.971	3.073	-3.570**

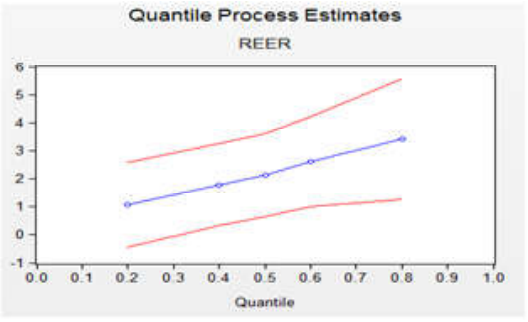
L_IR	0.200	40.369	9.153	4.410**
	0.400	46.274	10.482	4.414**
	0.500	48.144	10.488	4.590**
	0.600	42.807	9.712	4.407**
	0.800	77.130	24.583	3.137**
TO	0.200	177.078	48.024	3.687**
	0.400	233.285	49.165	4.744**
	0.500	276.740	60.042	4.609**
	0.600	299.682	70.362	4.259**
	0.800	441.241	98.259	4.490**
HC	0.200	152.972	36.482	4.193**
	0.400	181.723	32.360	5.615**
	0.500	231.327	52.136	4.436**
	0.600	238.547	55.015	4.336**
	0.800	476.775	204.551	2.330**
PAT	0.200	0.003	0.001	2.937**
	0.400	0.004	0.001	2.830**
	0.500	0.004	0.001	2.829**
	0.600	0.005	0.002	2.694**
	0.800	0.009	0.009	1.086
REER	0.200	1.065	0.768	1.385
	0.400	1.793	0.752	2.382**
	0.500	2.130	0.755	2.820**
	0.600	2.606	0.822	3.169**
	0.800	3.422	1.099	3.111**

Source: Author's Calculations

Quantile regression graphs







Source: Author's Calculations

The deal volume is found to be significantly influenced by the gross domestic product, population, total exports, total imports, international reserves, trade openness and human capital of Indian economy at all the selected percentiles (reported in table). While gross domestic product per capita, and patents are significant at 20th, 40th, 50th and 60th percentile, and exchange rate is significant at 40th, 50th, 60th and 80th percentile. The results indicates that deal volume increases with the increase in all these variables of Indian economy. It means that the deal volume of M&A is highly responsive at higher level of changes in these variables. The figures in table 6 of all variables is upwards sloping indicating the increase in deal volume at higher level of these factors in India.

The deal volume is found to be significantly influenced by the interest rates (interbank interest rate, lending interest rate and central bank rate) of Indian economy at 40th, 50th, 60th, and 80th percentiles (reported in table). The results indicates that deal volume increases with the decrease in interest rate of the country and vice versa. It means that the deal volume of M&A is highly responsive at higher level of changes in interest rate. The figures in table 6 of interest rate is downwards sloping indicating the increase in deal volume at lower level of interest rate in India.

Conclusion

This paper attempted to gauge the impact of home macroeconomic variables on outbound M&A deals by Indian companies. The implications of the findings of this study will not just be useful for government policies aimed at promoting OFDI from India but also for emerging multinational corporations to formulate strategies to spread their business overseas.

As per the results of quantile regression, there is positive a significant influence of market size on the outbound M&A deal volume of Indian companies as GDP, population and GDP per capita all tend to signal an increase in deal volume with increase in these variables at higher percentiles. This is in sync with this notion that economic development enables a firm to develop competence and specific strengths which can be fruitfully exploited by investing abroad (Bhasin et al., 2013; Chen, 2015; Buckley et al., 2006; Deng, 2004; Taylor, 2002; Zhang, 2003).

Trade openness and liberalization also being a positively significant determinant of overseas acquisitions by Indian firms, reconfirms the research results of Bhasin et. al. (2013), Das (2013), Haiyan (2017). Trade openness have been approximated by proportion of total trade (export and import) to GDP of India, total exports, total imports and accumulated international reserves by RBI (Das, 2013; Pantelidis&Krykilis, 2005; Bhasin & Jain, 2013). India Government thus needs to take initiative in framing liberal trade policies, resulting in rising proportion of trade activities and thus increased outward cross border acquisitions. Also, Indian firms having prior experience of exporting to a host country, generally develops the necessary background of knowledge regarding the destinations legal system, prevalent business practices and other essential know-hows of sustaining a successful business model, thus this export experience acts as a motivator for making such foreign investment.

The significant and positive impact of real effective exchange rates on volume of outbound M&A from India substantiates the earlier studies by Pantelidis and Kyrkilis (2003 & 2005) and goes well with the theoretical background (Aliber,1970) which argues that countries whose currencies are stronger, pushes firms to invest overseas, lowering the capital requirement of investing abroad thus making outbound acquisitions easier on financial front. Indian government policies and decisions must aim at strengthening rupee at the global level, promoting exports and increasing the accumulation of international reserves will ultimately lead to betterment of India's balance of payments, thus contributing towards appreciation of rupee. Also, Indians firms should look forward to successful investment in countries whose currency is weaker, thus lowering the operating and investing cost resulting in higher profit figures.

Indian interest rates are significant and have an inverse impact on outward cross-border M&A deals by Indian firms. This is a boon for an economy which is seeking capital abundance for investing abroad. Prevalent

low interest rates in home country, results in capital abundance and thus reduces the opportunity cost of capital. Deducing from the above statement, companies with large capital base would hunt for profitable investment ventures abroad, this leads to increase in investment overseas (Haiyan, 2017; Clegg, 1987; Prugel, 1981; Lall, 1980; Grubaugh, 1987;Pantelidis and Kyrkilis, 2005).

Hence the findings of the paper establish key takeaways for our Indian companies as well as policy makers for 'going-out' and realizing high quality development, thus benefiting the economy and our society at large.

References

Andinuur, J. A. M. E. S. (2013). Inflation, Foreign Direct Investment and Economic Growth in Ghana (Doctoral dissertation, University of Ghana).

Aliber, R. Z. (1970). Speculation in the flexible exchange revisited. Kyklos, 23(2), 303-314.

Aulakh, P. (2007): Emerging multinationals from developing economies: motivations, paths and performance, Journal of International Management, vol. 13, Nº 3, Amsterdam, Elsevier.

Bajo-Rubio, 0. and Sosvilla-Rivero, S. (1994). 'An Econometric Analysis of Foreign Direct Investment in Spain, 1964-89', Southern Economic Journal 61, 104-20.

Barry, F., Görg, H., & McDowell, A. (2003). Outward FDI and the investment development path of a late-industrializing economy: evidence from Ireland. Regional Studies, 37(4), 341-349.

Bellak, C., &Altzinger, W. (2001). The impact of direct and indirect FDI in Eastern Europe on Austrian trade and employment. Trade and Investment in a Globalising World: Essays in Honour of H. Peter Gray., Pergamon Press, Kidlington, 86-112.

Bhasin, Niti & Jain, Vandana (2013), 'Home Country Determinants of Outward FDI: A Study of Select Asian Economies', SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2206739.

Bhoi, B. K. (2000). An Indian Experience. Mergers and Acquisitions, Reserve Bank of India Occasional Papers Vol. 21, No. 1."

Blonigen, B. A. (2005). A review of the empirical literature on FDI determinants. Atlantic Economic Journal, 33(4), 383-403.

Borrmann, C., Jungnickel, R., & Keller, D. (2005). What gravity models can tell us about the position of German FDI in Central and Eastern Europe.

Brooks, C. (2002). Introductory Econometrics far Finance. Cambridge.

Buckley, P. J., & Casson, M. (1981). The optimal timing of a foreign direct investment. The Economic Journal, 91(361), 75-87.

Buckley, P. J., & Castro, F. (1998). A time-series analysis of the locational determinants of FDI in Portugal. In Proceedings of the Annual Conference of the Academy of International Business, Vienna.

Buckley, P. J., Clegg, L. J., Cross, A. R., Liu, X., Voss, H., & Zheng, P. (2007). The determinants of Chinese OFDI. Journal of international business studies, 38(4), 499-518.

Buckley, P. J., Cross, A. R., Tan, H., Voss, H., & Liu, X. (2006). An investigation of recent trends in Chinese outward direct investment and some implications for theory. Centre for International Business University of Leeds Working Paper.

Buckley, P. J., Forsans, N., & Munjal, S. (2012). Host-home country linkages and host-home country specific advantages as determinants of foreign acquisitions by Indian firms. International Business Review, 21(5), 878-890. http://dx.doi.org/10.1016/j.ibusrev.2011.10.001

Chen, C. (2015). Determinants and motives of outward foreign direct investment from China's provincial firms. Transnational Corporations, 23(1), 1-28.

Child, J., & Rodrigues, S. B. (2005). The internationalization of Chinese firms: a case for theoretical extension? Management and organization review, 1(3), 381-410.

Clegg, J. (1987), Multinational Enterprises and World Competition, Macmillan, London

Das, K. C. (2013). Home country determinants of outward FDI from developing countries. Margin: The Journal of Applied Economic Research, 7(1), 93-116.

Deng, P. (2004). Outward investment by Chinese MNCs: Motivations and implications. Business horizons, 47(3), 8-16.

Deng, P. (2004). Outward investment by Chinese MNCs: Motivations and implications. Business horizons, 47(3), 8-16.

Douma, S., George, R., & Kabir, R. (2006). Foreign and domestic ownership, business groups, and firm performance: Evidence from a large emerging market. Strategic Management Journal, 27(7), 637-657. https://doi.org/10.1002/smj.535

Dunning, J. H., & Narula, R. (1994). Transpacific foreign direct investment and the investment development path: the record assessed. University of South Carolina.

Dunning, J. H. (1980). Explaining outward direct investment of developing countries: in support of the eclectic theory of international production. University of Reading, Department of Economics.

Fu, X., Pietrobelli, C., &Soete, L. (2011). The role of foreign technology and indigenous innovation in the emerging economies: technological change and catching-up. World development, 39(7), 1204-1212.

Gammeltoft, P., Pradhan, J. P., & Goldstein, A. (2010). Emerging multinationals: home and host country determinants and outcomes. International Journal of Emerging Markets, 5(3/4), 254-265.

Goh, S. K. (2011). Malaysia's outward FDI: The effects of market size and government policy. Journal of Policy Modeling, 33(3), 497-510. https://doi.org/10.1016/j.jpolmod.2010.12.008

Grubaugh, S.J. (1987), "Determinants of direct foreign investment", Review of Economics and Statistics, Vol. 69 No. 1, pp. 149-52.

Haiyan, W. (2017). Home-country determinants of outward FDI: Evidence from BRICS economies and five developed countries.

Hattari, R., &Rajan, R. S. (2010). India as a source of outward foreign direct investment. Oxford development studies, 38(4), 497-518.

Hymer, S. H. (1960). The international operations of national firms: A study of direct foreign investment, MIT press, Cambridge, Ma.

Kalotay, K. (2005). The Central European research and development platform for investors. J. World Investment & Trade, 6, 995.

Kayam, S. S. (2009). Home market determinants of FDI outflows from developing and transition economies.

Kogut, B. (1983). Foreign direct investment as a sequential process. The multinational corporation in the 1980s, 35, 86.

Kumar, N. (2000). Multinational enterprises and M&As in India: patterns and implications. Economic and Political Weekly, 35(5), 2851-2858.

Kumar, N. (2007). Emerging TNCs: trends, patterns and determinants of outward FDI by Indian enterprises. Transnational Corporations, 16(1), 1.

Kumar, N. (2007). Emerging TNCs: trends, patterns and determinants of outward FDI by Indian enterprises. Transnational Corporations, 16(1), 1.

Lall, S. (1980). Monopolistic advantages and foreign involvement by US manufacturing industry. In The Multinational Corporation (pp. 3-28). Palgrave Macmillan, London.

Lall, S. (2001). Competitiveness, technology and skills. Books.

Lien, Y. C., Piesse, J., Strange, R., & Filatotchev, I. (2005). The role of corporate governance in FDI decisions: Evidence from Taiwan. International Business Review, 14(6), 739-763.

Loungani, P., Mody, A., &Razin, A. (2002). The global disconnect: the role of transactional distance and scale economies in gravity equations. Scottish Journal of Political Economy, 49(5), 526-543.

Luo, Y., & Tung, R. L. (2007). International expansion of emerging market enterprises: A springboard perspective.

Makino, S., Lau, C. M., & Yeh, R. S. (2002). Asset exploitation versus asset seeking. Journal of International Business Studies, 33(3), 403 - 421

MORRIS, S., & JAIN, P. (2015). Determinants of OFDI: An Empirical Analysis of OECD Source Countries using Gravity Model. Indian Economic Review, 243-271.

Pantelidis, P., Kyrkilis, D. (2003), 'Macroeconomic determinants of OFDI', International Journal of Social Economics, Vol. 30 Issue: 7, pp.827-836. https://doi.org/10.1108/03068290310478766

Pantelidis, P., Kyrkilis, D. (2005), 'A cross country analysis of OFDI patterns', International Journal of Social Economics, Vol. 32 Issue: 6, pp.510-519. https://doi.org/10.1108/03068290510596998

Pradhan, JP. (2011), 'Emerging Multinationals: A Comparison of Chinese and Indian Outward Foreign Direct Investment', International Journal of Institutions and Economies, Vol. 3, No. 1, April 2011, pp. 113-148

Prugel, T.A. (1981), "The determinants of foreign direct investment: an analysis of US manufacturing industries", Managerial and Decision Economics, Vol. 2, pp. 220-8.

Rajan, R. S. (2008). Intra-developing Asia FDI flows: Magnitudes, trends, and determinants. Chapter, 13, 1-2.

Ramasamy, B., Yeung, M., &Laforet, S. (2012). China's outward foreign direct investment: Location choice and firm ownership. Journal of world business, 47(1), 17-25. https://doi.org/10.1016/j.jwb.2010.10.016

Rasiah, R., Gammeltoft, P. and Jiang, Y. (2010), 'Home government policies for outward FDI from emerging economies: lessons from Asia', International Journal of Emerging Markets, Vol. 5 Issue: 3/4, pp.333-357

Rugman, A. M., & Li, J. (2007). Will China's multinationals succeed globally or regionally? European management journal, 25(5), 333-343.

Saad, R. M., Noor, A. H. M., & Nor, A. H. S. M. (2014). Developing countries' outward investment: Push factors for Malaysia. Procedia-Social and Behavioral Sciences, 130, 237-246.

Scaperlanda, A. (1992), "Direct investment controls and international equilibrium: the US experience", Eastern Economic Journal, Vol. 18, pp. 157-70.

Taylor, R. (2002). Globalization strategies of Chinese companies: Current developments and future prospects. Asian Business & Management, 1(2), 209-225.

Tolentino, P. E. (1993). Technological innovation and third world multinationals. London: Routledge

Tolentino, P. E. (2008). The determinants of the outward foreign direct investment of China and India: Whither the home country?.

Xaypanya, P., Rangkakulnuwat, P., &Paweenawat, S. W. (2015). The determinants of foreign direct investment in ASEAN. International Journal of Social Economics.

Zhang, Y. (2003). Towards the Transnationalisation of Chinese Firms: Policies and Debates. In China# x2019; s Emerging Global Businesses (pp. 47-80). Palgrave Macmillan, London.

Multivariate Analysis of Organizational Culture during Pandemic

Saloni Devi* and Garima Kohli**

Abstract

The world is at crossroads and the nation is facing a humanitarian crisis. Unfortunately, the impact of this corona virus on our county will be greater, as India is an emerging and developing economy and for that reason, the future for our country seems miserable and bleak. This distraction has probably led to perpetual closure of various business units, incompetent to tolerate the monetary losses and disturbances that occurred through this disastrous virus. Organizations are attempting to survive with this financial turmoil that occurred due to this virus through troublesome innovative technique by means of work from home conception. This work environment has huge impact on our home, working environment and our day to day life which helps in increasing the performance of the employees. This study aims to explore the effect of organisational culture on performance of employees. The data has been collected from the working employees of Jammu region of Union Territory of Jammu & Kashmir during the situation of lockdown. A structural equation modelling (SEM) approach using AMOS was applied in the study. Further, to check the validity and model fit CFA was applied. The results of SEM revealed that there exists a direct relationship between organizational culture and performance of the employees.

Keywords:*Work Environment, COVID-19, Employee Performance, Innovation, Training, Adaptability, Coordination.*

Introduction

Covid-19 pandemic has caused destruction around the world and in India. India is presently moving through a difficult situation as the quantities of positive cases are increasing day by day. In this worldwide connectivity, each nation will get impacted by the destruction caused by this pandemic. Probably, till this virus ends up, we will see a new environment with different work culture, a different word list and new social standards with far reaching financial and societal devastation. As soon as this virus outburst and began scattering around the globe, majority of the population faced serious health problems and as a result mortality rate was amplified all over. To control the multiplication of this virus it is necessary to halt all public gatherings and monetary issues in the infected nations for uncertain timeframe. This drove numerous nations to force total shut-down of everything except essential commodities nationwide. All the units and activities of trade and commerce were also brought to shut down. This curfew of pandemic has affected different segments in changed degrees. This disastrous pandemic has caused tremendous trouble in business units, which will require an ample period to improve all around, if everything goes well.

To control the spread of this infection during pandemic numerous preventive measures were proposed by the health organizations, which has brought tremendous changes in our societal, cultural and our behavioralwellbeing. Social distancing, wearing mass covers out in the open spots, successive hand washing, using sanitizers, avoid going to any mass get-together places like theaters, school/universities, shopping center, worship places, etc. All these norms have become an essential part in every individual's life (Bavel, et al, 2020).

This distraction has probably led to perpetual closure of various business units, incompetent to tolerate the monetary losses and disturbances that occurred through this disastrous virus. To overcome with the present

* Corresponding Author, The Business School, University of Jammu, BabasahebAmbedkar Road, Jammu, Jammu and Kashmir, India

** The Business School, University of Jammu, BabasahebAmbedkar Road, Jammu, Jammu and Kashmir, India

situation, some enterprises and individuals engaged in administrative jobs are trying to run their workplaces through "Work from Home" approach. Various organizations are trying to get out of this financial turmoil which was affected through this pandemic by the procedure of troublesome innovative technique by means of work from home approach.

Working from home concept (WFH) was driven from the idea of social distancing, which is the need of the hour for the corporate and other sectors for maintaining their survival by the effective working environment for the workers. Work from home (WFH) is the place from where the individuals can perform their duties from home through enormous utilization of advanced technologies. During the post pandemic, business patterns will be totally changed and most of the activities of trade and business are carried out through the digital applications. With the advent of emerging technologies like Artificial Intelligence and analytics, the functioning of all the organizations have transformed the working culture and operations that business organisation used to perform earlier. In order to keep the functioning alive for the business and corporate organizations, during the prevailing pandemic period, employees are compelled to work from their home. Each activity has its advantages and disadvantages; same is the situation of the acceptance of Work from Home initiative. If from one aspect, this pandemic has affected the economy, trade and business organizations in a harmful manner, but on the other side, this pandemic has also forced the companies and business organizations to adopt digital technologies to perform their operations effectively in a timely manner. WFH has been an optimistic change to majority of the individuals as it keeps them productive while helping in keeping up the balanced working life. Though it is not all about maintaining work life balance, but meeting the difficulties faced confidently and efficiently as the situation demands. Thus, this concept is helpful in the current situation of pandemic, yet having some disadvantages as well. This emergency has enforced all the bosses, employees, HR Consultants to revamp, reorganize and re-plan the best suitable practices that need to be followed for the success of the organizations.

Adjusting to this changed situation has enormous effect on working environment of the employees. This work culture has huge impact on our home, working environment and our day to day life. Numerous workers across the globe working in different enterprises are scared of becoming unemployed as the new normal demands new innovative techniques and strategies for dealing with an uncertain future (Watkin, 2020). Thus, it is anticipated that with the passage of time work from home will become a culture that every organization will adopt. It is foreseen to observe important changes in how individuals work, shop, live, play, convey and work across each organization (Merriman, 2020).

The Covid-19 pandemic has had enormous effect on the behavioural patterns while working from home, but this concept was a great initiative in the present time keeping in mind the health, safety, security and welfare of every individual. It is therefore need of the hour for every organization to rapidly put resources into vigorous digital platform (Sharma, 2020). There is ample number of digital platforms like Google Docs, Cisco WebEx, Zoom and Skype available for normal communication and interaction between all the employees and employers working from home which had made the life easier. The industries and business organizations may be officially equipped to respond to the rapid adjustment; however it is also equally essential to adopt psychologically this new culture.

This pandemic has and will have considerable effect on our behavior, wellbeing, methods of living, habits, traditions, customs and in general the culture as a whole (Huen, 2020). It's an ideal opportunity to invite the latest cultural changes and adjust our methods of living with these cultural changes as we are in the era of digitalization that gave birth to work from home concept (Gautam, 2020).

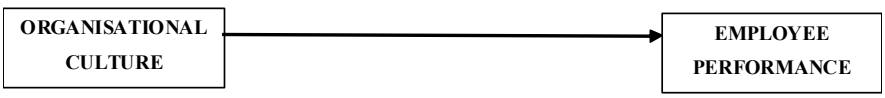
Work culture of any business organization is derived out of its strategic objectives and ethics. In creating a dynamic and productive work culture both employers and employees act as the lubricant for the organization. An employee before choosing any job usually investigates the work environment of the particular organization so that he can adjust himself into that culture, which will further help him in performing his duties and responsibilities and maintaining cordial relations with the management.

The practices and culture of the organisation coincides, that further have an effect on the values of the socioeconomic factors created by the firms. The study conducted by (Schein, 2006) highlights that a vibrant corporate culture is very important for the organization, which enables the firm to adopt supervisory approach to solve complex issues so as to achieve the estimated level of performance. The culture of the organization is also affected by the system of the organization, though it has diverse background but has universal ethics and way of living (Robbins and Sanghi, 2007). These ethics, values, beliefs and standards in turn give rise to the overall productivity, performance and stability of an organisation (Stewart, 2010). The standards of workers impact upon the continuous achievement of goals and administration of organizational culture which leads them to attain the profitable results. Further, to improve the efficiency and productivity of the employees there is a great impact of job performance on the culture of the organisation. Though the standards, morals, ethics and values of the business firms have diverse culture, have a great influence on the management of employees. If the culture in an organization is good, it permits to the effectual and competent administration of workers and employees. The universal goal for effective utilization of funds in similar cultural climate gives rise to affirmative growth of the firm. The commitment of the employees working efficiently in a group helps in accelerating the employee's performance which brings stability in the firms.

Further, in this context, (Shahzad, et al., 2013) stated that organizational culture is the main ingredient for the performance and survival of the organization which further brings laurels and victory for the accomplishment of the organizational goals. Thus, sound culture of the organisation is like a heart in the body. Employee performance can only be achieved if there will be a sound and stable organizational culture which leads to overall development of the organization. The reliability of the employee depends upon the understanding and responsiveness of the culture that enhances the performance of the organization (Brooks, 2006). The development in profitability and efficiency leads to employee responsibility and dedication as standards, morals and values which help in developing the culture as a whole. The structure of the organization was dependent upon the effective cultural environment that develops strong learning atmosphere in the organization. All these factors help in improving the performance of the employees by developing an effectual organisational culture. Understanding the requirements of employees during this present time of pandemic gives management the chance to enable their workers to set up an encouraging and helpful work culture, which may bring about increased number of employees exhibiting the motivation and enthusiasm to work from home which may result in greater job satisfaction and thus improving the performance of employees which leads to effectiveness in employees by bringing maximum output at minimum cost. These factors lead to maintain better relationship and build a sense of commitment in employees when there exists a supportive organizational work culture. Therefore, it is essential for the organization to know the importance of incorporating tolerance ,trust and cooperation upheld by a strong mechanical framework to ensure soundness and digital advancement in this hard time of pandemic (Bajaj, 2020). Thus, the basic purpose of this paper is to investigate the impact of organizational culture on the performance of employees amid COVID -19 situations.

Theoretical Framework and Hypothesis Development

Fig.1- Proposed Model



Organizational cultures encourage employees to enthusiastically contribute in group matters and value oriented goals, which helps to boost their confidence and commitment in achieving organizational goals collectively. The main purpose of organizational culture is to transform the performance and behavior of the employees through the efforts of all the members of the organization taken together. In the words of Deal and Kennedy (1982), improving the performance of the employees is the job of top level management by providing various monetary and non-monetary incentives. As a result, top authorities make all possible efforts in building the performance-driven organizational culture. Thus, as stated by Bennett et. al (1994) in their work that the triumph

of any business unit depends upon effectual alliance between policy, structure and culture. Further, Giberson et?al. (2009) in his research contributed that organizational culture is the main domain that puts the behavior of all the members of the organization on the right path. Various researchers like Peters and Waterman (1982), Deal and Kennedy (1982), and Denison and Mishra (1995) in their research has contributed that there exists a direct link between the culture of the organization and performance of the employees. Hence, culture acts as a motivating factor in improving the reliability in the performance. If there exists a good organizational culture, then members of the organization collectively share common believes and values (Deal & Kennedy, 1982). From above discussion following hypotheses are framed:

Organisational Culture and Employee Performance

In all the corporate sectors and business establishments, Culture of the organization is considered to be one of the important elements that result to gain competitive advantage and remains the same in future which further effects the behavior of the employees on one end and on the other it effects the performance of the organization as a whole either positively or adversely (Bogdanowicz, 2014). The growth of the organization is the outcome of the employee's hard work, those organizations that have importance for their employees, those employee's helps in maintaining good customer relationship so as to develop a brand image for their product which leads to attain maximum profits for the organization at minimum cost and thus amplifies the efficiency and employees performance and organization as a whole (Timothy, K., and Lerzan, A., 2015). Thus, it is because of the supportive organizational culture that has value for their employees which brings maximum gain and thus enhances employee's performance and helps in achieving the organizational growth and goals. Hence, it states that there is a direct association between organisational culture and employee's performance as different authors have stated that culture is very important component towards the work performance that leads to the achievement of organizational success (Shahzad et al.2013). Thus, in order to create a positive work culture it is necessary for the organization to remove all the negative attributes that affect the employee performance.

H_1: There is a direct association between organisational culture and employee's performance.

Coordination and Employee Performance

Coordination and trust are interlinked and organizational performance can be achieved if there exist a cordial cooperation, trust and coordination amongst the employees (Lehtimaki, 1996). From the viewpoint of (Barney and Hansen, 1994), to achieve organizational growth and performance, trust is considered to be the major motivator that is deprived off through coordination amongst the employees. There are various reasons that affect the work culture, work place and work schedule of any organization but coordination plays a major role by acting as a balancing rod (Ronen, Friedman, and Ben-Asher, 2007). Thus, if there is coordination between employees that will lead to trust and cooperation which in turn give rise to achieve organizational performance. It is the trust and coordination through which performance can be enhanced through the strong communication channel. Further, (Arnaud and Schminke, 2007) highlighted in his study that the arrangement of each component in an organization ought to have a feasibility to influence the performance directly. It is only because of the coordination that all the components within and outside the organization is interlinked with each other. Therefore, cooperation leads to coordination, i.e. maintaining norms and standards inside and outside the organization and encouraging cordial relations, which helps in improving performance and trust amongst the employees. It is only because of coordination that employee performance can be improved.

H_2: There exists a positive relation between Coordination and employee performance.

Training and Employee Performance

Training in this digital environment is considered as an essential vehicle for improving the performance and productivity of the employees. Performance is the most important multifaceted dimension that has a strong association with the strategic objectives and thus aims to accomplish organizational goals (Mwita, 2000). Improved

performance basically means the potential of the organization to accomplish most wanted outcomes proficiently and viably at the minimum cost and reduced performance leads to inefficient training to the employee's working in the organization and thus affects the overall growth of the workers and the organization (Muhammad, 2009). Various researchers (Colombo and Stanca, 2008), (Sepulveda, 2005) and (Konings and Vanormelingen, 2009) in their research stated that for the attainment of goals and overall objectives of the organization training and development plays an essential role which results in improving the performance, productivity and profitability of the firm. Without imparting training to the employees an organization cannot survive and therefore it acts as an instrument which bridges the gap and helps in boosting the employee's performance. Study conducted by (Swart et al., 2005) highlighted that providing specific training to the workers helps in improving their capabilities, skills and knowledge which helps in boosting the overall performance of the employees. Thus the above studies stated that training is necessary for improving the performance of the employees.

H_3: Training positively leads to employee performance.

Innovation and Employee Performance

Employees are of huge significance in the modernization and advancement methods and thus effects the innovative performance of the corporate culture. All types of natural and environmental stress are faced by the organizations as they have to answer to the changing needs and requirements of the customers (Tidd and Bessant, 2009). Like ever before, digitally innovative, practical and profitable concepts are being promoted in the present time (Galbraith, 1982). The performance of the workers has a huge impact on the innovation of latest techniques which further helps in improving the growth and performance of the organisation (Huiskamp, de Jong and nook Hoedt, 2008). Thus, it is presumed that digital advancement is a significant method to beat all the difficulties that come in the way of digitally shifting work culture. Workers have a major role to play in bringing innovative techniques and thus impact the development and performance of the organization. Subsequently, Organizations need to pursue innovation so as to continue spirited and increase the compensation of employees to keep them absorbed. The study conducted by (Brockman and Morgan's, 2003) stated that both innovation and performance are interrelated. Further, (Camisón and Villar-López, 2014) also highlighted the innovative concepts and ideas in the organization helps in improving the monetary benefits of the employees. Likewise, (Gunday, &Alpkan, 2011) discovered that any organizations innovative ideas help in improving the growth and performance of employees. Therefore, on the whole it was observed by (Bowen et al., 2010) that there exists a positive association between innovation and performance of the employees and the study supports the second hypothesis.

H_4: Innovation positively leads to employee performance.

Adaptability and Employee Performance

Organizational work culture provides guidance to its employees to act in response to the changing circumstances takes place through a mutual comprehension of steps and systems (Chatman et al. 2014; Schein 2010). According to (Patrickson, 1987); (Thach and Woodman, 1994) the transformation in the old techniques and adapting to the digitally advanced technologies and procedures in the work culture helps the employees in improving their skills to perform the task assigned effectively and efficiently. In today's digital platform an organization considers adaptability as the chief component in their working environment and will appoint the people according to their innovative skills, who are imaginative, inventive and are ready to face challenges. Adaptive organizations comprehend that recruiting intelligent people results in the reliability amongst workforce and thus enhances the capability of the organization to continue to exist and this leads to the improvement in overall performance of the employees (Ployhart and Turner 2014). Adaptability is considered to be the main component for the survival of any organization in present time and responding to the changing needs of the organizational culture (Aldrich and Ruef 2006; Katz and Kahn 1966). By giving direction, and common implications to its individuals on what to value and our behavior, work culture assist the organizations to plan,

recognize and react to the changing needs of the organisation. Thus adaptability helps in meeting the changing needs of the employees which leads to the growth and survival and thus improves the overall performance of the employees (Gelfand et al. 2012; Hartnell et al. 2011; Kotrba et al. 2012).

H_5: Adaptability positively leads to employee performance.

Research Methodology

The present research being evaluative that tries to assess the link between organisational culture and performance of employees. Various aspects need to be taken to make it perfect:

Sample Design and Data Collection

The respondents of the study are 200 working employees of Jammu province of Union Territory J&K (India).Convenient sampling technique was used to gather the facts and figures. All the 200 employees were contacted through their Email-ID's and research information was generated through Google forms during the situation of lockdown. Out of 200 hundred only 166 participated in the survey, which gave the response rate of 83%.

Results

Structural equation modelling (SEM) was applied using AMOS to conduct the research. Further, CFA was conducted in first step to measure the construct validity and proposed dimension of model fit. The second step, aims at developing and estimating the structural model for testing the impact of hypothetical relationship between two constructs.

Thereafter, the reliability and validity of the data collected through respondents was checked through Cronbach's alpha and scale reliability was checked through composite reliability measure and the average variance extracted (AVE). The results of the scale-level reliability and validity assessment are summarised in Table 1. All factor loadings were highly significant, indicating good quality of the measurement items. Cronbach's alpha and composite reliability were all above the conventional cut off limit (> .7) and AVE was more than .5

Table 1 : The Results of Scale-Level Reliability and Validity Assessment

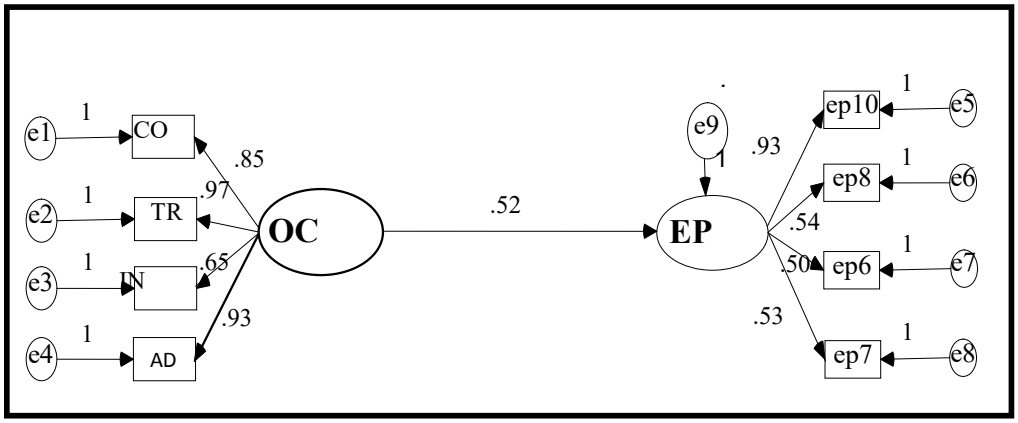
Construct	Standardized loadings	Average Variance Extracted	Bentler Bonnet Coefficien Delta	Composite Reliability	Cronbach's alpha
Organisational Culture		0.874	0.978	0.982	0.860
Coordination	.874				
Training	.993				
Innovation	.682				
Adaptability	.949				
Employee Performance		0.639	0.943	0.988	0.793
Ep 10	.943				
Ep 8	.553				
Ep 6	.500				
Ep 7	.563				

Source: Author's Calculation

Impact of Organisational Culture on Employee Performance

SEM used to assess the impact of organisational culture on employee's performance as shown in (Fig.2). The path traced between organisational culture and employee's performance plays a direct and significant relationship (SRW = .52, p = 0.001). The reason might be that organisational culture enhances employee's capability to expand innovative concepts and operating rules. It has been concluded from the results that organisational culture shows appreciative, thoughtfulness and support for employees, Which further helps them to enhance their and creativity. Further, value of various model fitness indices are GFI= .867, AGFI= .899, CFI= .907 and RMSEA= .043 which reflect good model fit and acceptance of hypothesis 1.

Fig.2: Model 1

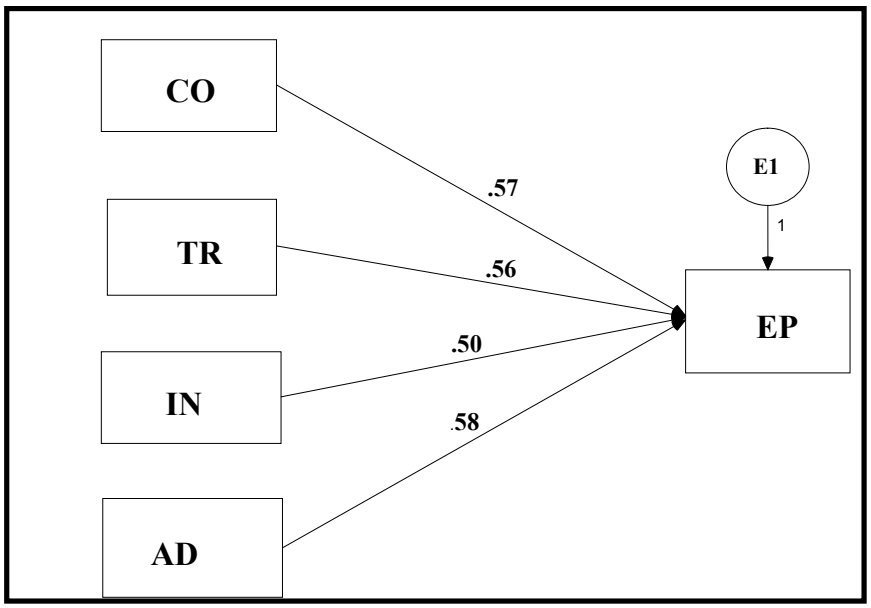


Key: OC = Organisational Culture (Predictor), EP = Employee Performance (Outcome), CO= Coordination, TR = Training, IN = Innovation, AD = Adaptability, ee6 to ee10 = Manifest variables.

Dimension-wise Impact of Organisational Culture on Employee Performance

In second model, we examined the dimension wise impact of organisational culture i.e. cooperation, training, innovation and adaptability on employee performance. The goodness-of-fit indices for the structural model 2 (GFI= .990, AGFI= .948, NFI= .928, CFI= .964, RMR= .018, RMSEA= .062) are also well within the generally accepted limits indicating a good fit.

Fig.3: Model 2



Key: CO=Coordination, TR = Training, IN = Innovation, AD = Adaptability, EP = Employee Performance.

Impact of Coordination on Employee Performance

This path traced positive impact of coordination on employee performance (SRW= .57, p < 0.001). The reason may be that through proper coordination, leaders motivate their employees to accomplish more than they would so as to achieve organisational goals. Coordination among all the group of employees helps the members in sincerely sharing all the hurdles and achievements that the organisation is facing. Further, in the present situation of pandemic coordination among employees is important for providing training to workers and develop a support network system.

Impact of Training on Employee Performance

Training has a significant effect on employee's performance (SRW= .56. p<0.001). The rationale behind is that through training leaders develop employees' important innovative and cognitive abilities, their societal and emotional qualities, adaptability and flexibility. Culture of introducing various training and development initiatives specifically in response to the COVID-19 pandemic is prevalent among organisations. Further Pandemic training such as educating employees about remote work policies, training about hardware and soft ware of work from home, health and safety measures boost employee performance and strengthen companies for future disruptions.

Impact of Innovation on Employee Performance

Innovation has a direct and significant impact on the performance of employees(SRW= .50, p< 0.001).It has been observed that through innovation, the leaders' give extra benefit for the growth of employees and distributes the projects of the organisation in such a manner that encourages high level of creativity. Further, technology plays an important role in promoting their organisation by way of innovative working environment. In the present situation as innovative ideas and concepts plays an important ingredient which all depends upon the work culture that is adopted by the organisations. Therefore, global outbreak of this pandemic presents a momentous dilemma.

Thus, along with its unpredictability, vagueness, complexity, and uncertainty put down unknown opportunities for imparting education, reinvention, and development - at all the levels of the organisation and society at large.

Impact of Adaptability on Employee Performance

This path shows significant influence of Adaptability on employee performance (SRW= .58, p< 0.001). The reason behind is that employees with the help of adaptation require to get to grips through technological advancements, innovative working techniques at home place where they have ample responsibilities and challenges for their survival. Besides this, employees need to adjust with their habits, behaviour and style of working for the better performance in the organisation.

Discussion

The rationale of the study is assessing the impact of organizational culture on the performance of employee's and dimension wise impact of organizational culture i.e. cooperation, training, innovation and adaptability on employee performance. This research has various findings and the results of the study concluded that organizational culture is exponentially associated with employee performance in the current situation of lockdown. The findings of the study revealed that employees are prone to remain trustworthy and to rely strongly on organizational culture to perform better in a new work frontier. The manager uses codes and emotional elements to focus the collective efforts of the group and motivate them to accomplish more than they would support on their own self-interest. During this time of digital changes, organizational culture has come under

strain. Training is the primary aim for the success of any business organisation. Both technical and emotional training is critically important in the present situation to consider the impact on employee's performance. Through innovation, leaders focus on the overall growth of the employees and distribute the work accordingly that encourages learning experience. Thus, through this the employees are motivated to achieve greater levels of originality and innovation. To conclude, this pandemic has suddenly changed the way of living and working and the hasty swing to far-flung working is the reason for significant apprehension among the workforce. It has put several organisations ethnicity to the test. The correct culture-a culture that embraces transformation, recognizes the innovative challenges facing employees motivates them to take the initiative, do things in a different way and more efficiently can maintain this shift, easing the changeover and driving productivity.

Managerial Implications

- The process of decision making ought to be determined by intellectual values and standards of the organization which should be visible in action to all.
- Leaders should take concrete and perceptible actions that have a positive effect as they flow through the organization.
- To achieve success in any organisation leaders should adapt innovative methods of working and should guide the employees of the organisation by imparting training programmes which helps them in reaching new heights.
- Considering the employees wellbeing in mind organization are partnering with doctors/hospitals and specialist to support employees and provide online consultation and guidance (Sharma).
- The physical, emotional, financial and social wellbeing is on focus to help improve employee productivity while working from home (Verghese).

Limitations of the Study

- The data was gathered only from Jammu, so the conclusions drawn may not be generalized.
- The nature of the present study is cross-sectional.
- Due to the pandemic the study could not increase the respondent size.

Conclusion

Based on the results of research and discussion that has been done, several conclusions can be drawn. According to analysis done above, It has been concluded that variables of organisational culture positively and significantly impact employee performance in present situation of pandemic.Covid-19 was a night mere for many organisations. But, amid its volatility, uncertainty, complexity, and ambiguity lay hidden opportunities for Training, Coordination, Innovation and Adaptability among employees. Thus, supportive organisational culture enables employees to perform better in new normal.

There is a positive and significant influence on business performance variables against purchase decisiovariables. This is evidenced by the acquisition of a calculated t value of 2,349 that is larger with a table T.

References

Aldrich, H., &Ruef, M. (2006). *Organizations evolving* (2nd ed.). London: Sage.

Anderson, J C &Gerbing, D W 1988, 'Structural equation modelling in practice: A review and recommended two-step approach', *Psychological Bulletin,* vol.103, no.3, pp. 411-423

Arnaud, Anke, & Marshall Schminke (2007). *Ethical Work Climate: A Weather ReportandForecast. In: Managing Social and Ethical Issues in Organization.*181 227. Greenwich: Information Age Publishing.

Bajaj, S. (2020) "COVID-19: Building a Crisis-Resistant Organizational Culture andTechnologyCore."*People Matters*".

Barney, J.B. & M. H. Hansen (1994). Trustworthiness as a Source of Competitive Advantage. *Strategic Management Journal*. Volume 15, 175 190.

Bavel, Jay J., et al. (2020) "Using Social and Behavioural Science to Support COVID-19 Pandemic Response." *Nature Human Behaviour*, vol. 2020, 30 Apr. 2020, doi.org/10.1038/s41562-020-0884-z.

Bennett, R. H., Fadil, P. A., Greenwood, R. T. (1994). Cultural alignment in response to strategic organizational change: New considerations for a change: New considerations for a change framework, *Journal of Managerial Issues*, Vol: 6,pp474-490.

Bogdanowicz,M. (2014). Organizational Culture as a Source of Competitive Advantage: a Case Study of Telecommunication Company in Poland. *International Journal of Contemporary Management*. Vol. 22, No. 11, pp. 117–119

Bowen, F.E., Rostami, M. and Steel, P. (2010), "Timing is everything: A meta-analysis of therelationships between organisational performance and innovation", Journal of BusinessResearch, Vol. 63, No. 11, pp. 1179–1185.

Brockman, B, K., and Robert M. Morgan. 2003. "The Role of Existing Knowledge in New Product Innovativeness and Performance."*Decision Sciences* 34 (2): 385–419.

Brooks, I. (2006). *Organizational Behavior: Individuals, Groups and Organization*. Essex: Pearson Education Limited.

Camison, C., &Villar-Lopez, A. (2014). Organizational innovation as an enabler of technological innovation capabilities and firm performance. *Journal of Business Research, 67(1),* 2891-2902.

Chatman, J. A., Caldwell, D. F., O'Reilly, C. A., &Doerr, B. (2014). Parsing organizational culture: How the norm for adaptability influences the relationship between culture consensus and financial performance in high-technology firms. *Journal of Organizational Behavior, 35(6), 785–808.* doi:10.1002/job.1928.

Colombo, Emilio &Stanca, Luca. (2008): "The Impact of Training on Productivity: Evidence from a Large Panel of Firms, *International Journal of Manpower,* 35(8), DOI: 10.1108/IJM-08-2012-0121Available at SSRN.

Cooper, L. C., Cartwright, S., Earley, C. P. (2001). *The International handbook of organizational culture and climate* (1st ed.). Hoboken, NJ: Wiley.

Deal, T. E., Kennedy, A. A. (1982). *Corporate cultures: The rites and rituals of corporate life*. Reading, MA: Addison-Wesley.

Denison, D. R., Mishra, A. K. (1995). Towards a theory of organizational culture and effectiveness. *Organization Science, 6, 204-223*.

Galbraith JR. 1982. Designing the innovating organization. Organizational Dynamics 10(3): 4–25.

Gelfand, M. J., Leslie, L. M., Keller, K., & de Dreu, C. (2012). Conflict cultures in organizations: How leaders shape conflict cultures and their organizational-level consequences. *Journal of Applied Psychology*, *97, 1131–1147*. doi:10.1037/a0029993.

Giberson, T. R., Resick, C. J., Dickson, M. W., Mitchelson, J. K., Randall, K. R., Clark, M. A. (2009). Leadership and organizational culture: Linking CEO characteristics to cultural values. *Journal of Business Psychology,* 24, 123-137.

Gunday, G &Alpkan, L. (2011): Effects of innovation types on firm performance. *International Journal of Production Economics, 133*(2), 662-676

Hartnell, C. A., Ou, A. Y., &Kinicki, A. (2011). Organizational culture and organizational effectiveness: A meta-analytic investigation of the competing values framework's theoretical suppositions. *Journal of Applied Psychology, 96, 677–694*. doi:10.1037/a0021987.

Huen, B. (2020) "COVID-19: Here's How One Pandemic Will Change Our Lives, Forever." *https://www.zdnet.com/*,www.zdnet.com/article/covid-19-how-one-pandemicwill-change-our-lives-forever/. Accessed 11 May 2020.

Huiskamp, R., de Jong, T., & Den Hoedt, M.C.B. (2008). HRM en innovatiefwerkgedrag: Eenverkenning. Hoofddorp: TNO rapport.

Katz, D., & Kahn, R. L. (1966). The social psychology of organizations. New York: Wiley.

Konings, J., &Vanormelingen, S. (2009). *The Impact of Training on Productivity and Wages:* Firm LevelEvidence, Discussion Paper No. 244, Available at SSRN

Kotrba, L. M., Gillespie, M. A., Schmidt, A. M., Smerek, R. E., Ritchie, S. A., & Denison, D. R. (2012). Do consistent corporate cultures have better business performance? Exploring the interaction effects. Human Relations, 65, 241–262. doi:10. 1177/0018726711426352.

Lehtimäki, Hanna (1996). Coordination through Social Networks. *University of Tampere.* Series A1, Studies 43.

Merriman, M. (2020) "Beyond COVID-19: How a crisis shifts cultural and societal behaviors." *www.ey.com.*

Mohamad, A. A., Lo M. and La M. K. (2009), "Human Resource Practices and OrganizationalPerformance. Incentives As Moderator", *Journal of Academic Research in Economics, Vol. 1 (2) 229 – 244.*

Mwita, J. I. (2000), "Performance Management Model. a System- Based Approach to SystemQuality", *The International Journal of Public Sector Management, Vol. 13 No. 1*, pp. 19 - 12.

O'Reilly, C., Chatman, J. (1996*). Culture as a social control: Corporations, cults and commitment.* In Staw, B. M., Cummings, L. L. (Eds.), *Research in organizational behaviour: An annual series of analytical essays and critical reviews* (Vol. 18, pp. 157-200). Greenwich, CT: JAI Press.

Patrickson, M. (1987). Adaptation by employees to new technology. *Journal of Occupational Psychology, 59, 1-11.*

Peters, T. J., Waterman, H. R. (1982). In search of excellence: Lessons from America's best-run companies. New York, NY: Harper & Row.

Ployhart, R. E., & Turner, S. F. (2014). *Organizational adaptability*. In D. Chan (Ed.), *Individual adaptability to changes at work: New directions in research* (pp. 73–91). New York: Routledge.

Robbins, S. P. and Sanghi, S. (2007). *Organizational Behavior*, Pearson Education, New Delhi.

Ronen, Simcha, Shlomit Friedman, and Halo (Hilla) Ben-Asher (2007). *Flexible Working Arrangements: Societal Forces and Implementation. In: Managing Social and Ethical Issues in Organization.* 3 51. Greenwich: Information Age Publishing.

Schein, E. H. (2010). *Organizational culture and leadership* (4th ed.). San Francisco: Jossey-Bass.

Sepulveda, Facundo. (2005): "*Training and Productivity: Evidence for US Manufacturing Industries"* Available at SSRN

Shahzad, F., Iqbal, Z., &Gulzar, M. (2013). Impact of organizational culture on employees job performance: An empirical study of software houses in Pakistan. *Journal of Business Studies Quarterly, 5(2), 56.*

Shahzad, F., Iqbal, Z., &Gulzar, M. (2013). Impact of Organizational Culture on Employees Job Performance: An Empirical Study of Software Houses in Pakistan. *Journal of Business Studies Quarterly*, *5*(2), 56-64.

Sharma, A. (2020) "Looking at the Workplace Post Lockdown." *People Matters*, 24 Apr. 2020,www.peoplematters.in/article/c-suite/looking-at-the-workplace-post-lockdown-25432. Accessed15 May 2020.

Stewart Douglas, (2010). *Growing the Corporate Culture,* obtained fromhttps://www.wachovia.com/foundation/v/index.jsp?vgnextoid=ab411f07760aa110VgnVCM1000004b0d1872RCRD&vgnextfmt=default on April, 23, 2012

Swart, J., Mann, C., Brown, S.,& Price, A. (2005).*Human Resource Development: Strategy and Tactics.*Elsevier Butterworth- Heinemann Publications.

Thach, L., & Woodman, R. W. (1994). Organizational change and information technology: Managing on the edge of cyberspace. *Organizational Dynamics,* 23(1), 30-46.

Tidd, J., &Bessant, J. (2009). Managing innovation: integrating technological, market and Organizational change (4th edition). Chichester: John Wiley.

Timothy K., &Lerzan A., 2015. Why managers should care about employees loyalty. http://hiring.monster.com/hr/hr-best-practices/workforce-management/employee-performance.

Watkin, J. (2020) "*The Future Cultural Transformation Through & Beyond COVID-19*." TotalTelecom,www.totaltele.com/505888/THE-FUTURE-Cultural-Transformation-Through-Beyond.

Impediments to Educational Equity and Effective Educational Reservation Initiatives: A Study of India and Nepal

Shailja Khanduri*

Abstract

Educational equity is intended to support the marginalized communities which are mired in educational progress due to various historical, political, geographical or social reasons. This paper briefly reviews various empirical studies to point out the reported impediments that may hamper educational equity for marginalized communities in a variety of settings and the remedial strategies employed by the various governments. Various impediments are classified into three broad groups in present work. First, the individual impediments like chronic poverty, lower social status, illiterate home environment and lack of role models may hamper efforts to achieve reasonable school enrollments. Second category of obstacles may come in form of governmental inefficiency i.e. logistics problems like absence of schools, security, transport, infrastructure, toilet facilities, lower quality of faculties, lack of job prospects after education or lack of awareness about the prospects, and absence of any affirmative action like educational reservations by government. Thirdly, an inefficient educational reservation policy may also negatively affect the educational equity amid poorest among the poor and even the targeted group via complacency effect. The study depicts the central thought and key tribulations of each impediments and their remedial policy and converse how the option of a tactic was decided by the different backgrounds but the same universal mission to achieve educational equity. For uplifting the academic standards of diffident communities, educational reservation is considered to be one of the main means. The paper reports varying views on educational reservations implementation efficacy and effectiveness among various strata as there are many intricate complexities associated with the same, including some negative effects. Few aspects of educational reservation in context of neighboring nations of India and Nepal are discussed, where a rigorous educational reservation policy is implemented. The various characteristics about the present educational reservation policies in the two nations needs to be further debated as the arguments to sustain and disagreement with the same may not be concluding at present.

Keywords: *Equity; educational reservation;equality; education;quota.*

Introduction

Educational reservation (ER) in educational sector is implemented in many different countries across the globe ranging from India, Nepal, Sri Lanka, United States to name a few. The ER is mostly based on the historical and established context, where the establishment endorses the edict to assist the marginalized segment of the society through a variety of proposals and programs. Nevertheless, in plentiful cases, the majority and dominant communities may also manufacture the ER policies to benefit their own(CSS Forum, 2019; Jayasuriya, 1981).The policies under ER are named differently in different countries such as "sons of the soil", "reflecting the federal character of the country", "standardization", "affirmative action","reservation", "quota" or "positive discrimination" (Sowell, 2004).The basic argument is the focus on Equity, in place of Equality, as equality may not always ensure the proper dispensing of resources among various communities.Equality means each individual or group of people is given the same resources or opportunities, while Equity recognizes that each person has different circumstances and allocates the exact resources and opportunities needed to reach an equal outcome (OECD, 2011). Nonetheless, educational reservation (ER) is often a highly argued topic among various stake holders.

* Doon Business School, Mi-122, Behind Pharma City, Selaqui Industrial Area, Dehradoon, Uttarakhand

The disagreement about efficacy ofER is also amplified with the existingintrinsic ambiguity in the policy and in its execution due to fluctuation in social dynamics(Taneja, 2018). In additional, an aggressive reservation policy may lead to social backlash from unreserved populace. This may be further compounded by the argument of meritocracy where lower-skilled reserved candidates would further aggravate the modest typecasting of reserved candidates in the eyes of employers. This would depreciate the human capital further, working exactly opposite to the aims of educational reservation policy.However, the meritocracy argument is often countered by the argument that merit may depend largely on theaccess to diverse resources which are mainly the products of entitlement of social status, financial stability, available logistics and individual's community background.

Although, ER in general is not unique phenomenon for any country as it is implemented by many countries across the globe, but its framework and implementation would make it inherently unique owing to the difference in the place, religion, race, ethnicity, languages, customs, traditions etc. Not surprisingly, the benefitted groups may belong to minorities or majorities, less advantaged or the dominant community. In this work, ER would be referred as the policies which are envisaged for the disadvantaged groups.Many countries which implement the provision of ER have an identical rationale and procedure to uplift the education of weaker sections of their societies, while keeping the prescribed seats away from the reach of well advanced or wealthy segment of society (concept of Creamy Layer in India).Published results have shown the potential and capabilityof ER to provide the targeted results in a lot of nations at different levels (Sowell, 2004).

However, at the same time an ambiguous ERmaynot lead to definitive progress of the depressed communities and might eventually create hindrances in the overall development of the country. ER may also have the disastrous effects on a developed country, if the implementation or the spirit of ER is found lacking towards the overall justice to entire populace in some way. Incidentally, manycountries suffer from the negative fallouts of a failed affirmative action policy (Sowell, 2004). In fact, in the United States, affirmative action included the use of ethnic allocation until the Supreme Court ruled that quotas were unconstitutional (Antonovics and Backes, 2014). There were also voter programs and executive decision which made it harder for educational institutes to practice ethnicity based affirmative action in USA. In the case of USA, it is argued that the legality of equity goals could be defended only if it is constitutionally allowable, and if the policy is not overtly based of racial bias (Joshi, 2019).Therefore, a critical evaluation to comprehend the ER in diverse societies would always be required by the variable time period, as the reach and consequences of ER are active and ever altering with the shifting societal arrangements.

This study would be limiting in its review of theeducational reservation policies in India and Nepal, as ER policies are a source of continuous debate and societal turmoil in the two neighboring nationsfrom Indian subcontinent (Akella, 2012). The Government of India (GoI) would have to prove the legitimacy of the legislature on ER for any individual group in the Indian courts of law, as most of the times the legislature would be challenged by the other groups. Effectively, the ER policies in India have a double check procedure before getting converted into a law. The study has become ever so more relevant after the announcement by GoIon 30th July'2021 to implement 27% other backward classes (OBC) reservation(non-creamy layer) and 10% economically weaker section (EWS) reservation in 15% under graduate all India quota seats for admission to medical colleges (contributed by the state/union territories to the central pool). Thisreservation takes effect from the academic session 2021-22(NTA, 2021).Consequently, on 6th September '2021, the Supreme Court of India agreed to hear pleas challenging GoI decision to implement ER in National Eligibility Cum Entrance Test (NEET) admissions for medical courses(NEET, 2021). On 26th October 2021, GoI informed the Supreme Court of India that the counseling process of NEET for postgraduate courses (NEET-PG) would not commence till the court decided the challenge to 27% reservation for OBC and 10% for EWS category in "PG All India Quota seats" for the current academic session.

Similarly, a recent judgment by Supreme Court of Nepal has started the fresh debate on ER where the verdict stated that constitution has anobjective along with the reservation arrangement, and the aim of constitution

can only be attained if the reservation system is focused on requirementsof populace rather than on class or ethnicity of the candidate. The judgment has shown that the ER policies in Nepal are due for evolution on the lines of creamy layer concept as implemented in India along with some other considerations(NCBC-2013). However, the Nepal's Supreme Court has furtherrecommended that the reservation system in the health sector might not be desirable in all situations and at all levels of medical education (Postgraduate level), which has opened up the ER debate with a bigger purview(Faisla-2020).Accordingly, the debate is still open regarding the efficacy of ER planning and implementation in India and Nepal. Therefore, the author feels that a review of various aspects of administrative action to increase the educational enrollment in general and for marginalized and poor students in particular is required to better understand the perspective of ER in India and Nepal. This would bring the insight to understand the various issues in setting up the ER policies and its conflicts with implementation in accordance with the values inscribed in the constitution of the respective countries. Apart from this, the study proposes to point out the various impediments in the path for attaining education equity in different settings across nations.Therefore, author has reviewed various empirical studies done on the subject and some of the relevant studies are briefly discussed in the next section to point out the significant obstacles to achieve educational equity.

Review of Literatureand Discussion

Education is regarded as one of the most crucialfeature for the growth of any human being or society, as per development studies. Educational accomplishment is reported to be the foundation behind 17.2% of financialaugmentation in Africa and 11.1% in Asia between the years 1950s & 1960s. In particular, the 10% increase in primary edification is believed to be the motivation behind theshrinking in the inequality index by 5% (Psacharopoulos, 1988). Education isalso believed to fetch political authority and stop suppression of marginalized groups by the dominant communities(Nambissan, 1996).Apart from the social progress; education would also lead to an upgraded quality of natural life and increased average life expectancy for an individual. (Wigley and Wigley, 2006).Various impediments to educational equity are classified into three broad groups in present work. First, the individual impediments like chronic poverty, lower social status, illiterate home environment and lack of role models may hamper efforts to achieve reasonable school enrollments. Second category of obstacles may come in form of administrative inefficiency i.e. logistics problems like absence of schools, transport, infrastructure, toilet facilities, security, lower quality of faculties, lack of job prospects after education or lack of awareness about the prospects and absence of any affirmative action like educational reservations by government may demotivate the marginalized students to enroll in schools. Thirdly, an inefficient educational reservation policy may also negatively affect the educational equity amid poorest among the poor and even the targeted group.

In this work, author hasconsidered the following twelvemost basic reported impediments towards universal educational attainment;

Group 1: Individual Impediments

(i) Chronic poverty would be one of the main reasons to impede and discourage the pursuance of education as there would be lack of resources to get admission, pay fees and buy books and stationary among poor students. Further, to support their families the economics of sustenance would make the poor populace from school going age to look for some menial job available in place of schooling.

(ii) A further impediment to schooling could be lower social status as the higher caste peers may humiliate or dispirit even the resourceful candidates from so called lower caste groups.

(iii) An illiterate home environment would also act as a dampener for young candidates to opt for schooling. Sometimes, there are other practical constraintswhere poor parents intentionally deprive their children from education to keep their wards close to home as their support at older age.

(iv) There would be a greater chance for lack of motivation for schooling among lower caste students due to fewer role models in family or community with achievements in educational fields.

Group 2: Administrative or Governmental Impediments

(v) If there is non-availability of future job prospects even after getting education, the motivation for school enrollment would suffer specially among the marginalized and poor children.

(vi) Another holdup would be lack of awarenessabout the future job prospects after getting proper schooling, lest the young ones would prefer to get a job at schooling age than to pursue an uncertain future with a mere schooling certificate.

(vii) Then there would be logistic problemssuch that unavailability of schools, security, toilet facility, roads infrastructure and transport medium in the region dominated by backward castes and minorities.Lack of security and absence of toilets facility would highly degrade the chances of school enrollment, especially for school going girl child.

(viii) Another impediment to educational equity would be associated with school quality problemssuch that low quality of teachers and infrastructure in the region dominated by marginalized communities or in rural areas would demotivated students from school enrollment.

(ix) Lack of any positive government intervention like educational reservation (ER) or affirmative action may also badly affect the goal of equity in education for marginalized children.

Group 3: Impediments related to Implementation Inefficiency of Educational Reservations

(x) Detrimental effects of including financially well off candidates for educational reservation from targeted marginalized community may result in further degraded school enrollments among poorest of the poor students. Ideally, segregation of relatively well-off candidates would be required to safe guard the interests of poorest among poor to get the fruits of ER policies.

(xi) Complacency effects among minority students may result in lower school enrollments when aggressive reservation policies in education and jobs are implemented.

(xii) Lack of support during schooling exit or the insufficiency of marginalized students to compete against their peers in the final passing out exams may also demotivate the school enrollments among underprivileged students and act as a bottleneck against their school enrollmentespecially in context of higher education.

Following paragraphs discuss the various schemes/interventions implemented by different countries along with ER to deal with the various impediments discussed above and solve the issue of lower school enrollment for marginalized students.

King and Orazem (2008) found practically universalgap in schooling years favoring city over countryside for all age groupsin both males and females. Further, urban-rural education gaps are more than male-femalegaps in schooling years. The researchers found that most common government approach to popularizing schooling in various countries is lowering the costs of schoolingto handle the ***impediment (i)***, i.e. *Chronic poverty.* The lowering of schooling cost for poor students is primarily done by subsidizing public schools. However, their findings caution that if there is no simultaneous change in government support for existing private schools, there may be a mere transfer of students from private schools to public schools, without any significant change in total enrollment figures.Therefore, some countries have commencedprograms that givecouponsto poor families that can be used to pay all or part of the schooling fees at a privateschool, while others have approved capitation support that transfer proceeds straightto theschool.Few countries also encouraged school enrollments by transferring money to marginalized households in barter for a pledge to send kids to school (Mexico's PROGRESA/ Oportunidades program andBrazil's BolsaEscola program). Nevertheless, such conditional money transfer intervention was found to be more effective only in rural areas where there are high opportunity costs of child's time (due to prevalent child labor).

After gaining independence in 1947, Indian government recognized that the parity of opportunities would not be sufficient to bring the equality in Indian society, especially due to ***impediment (ii)*** of *lower social status* in case of scheduled caste and scheduled tribe candidates (Murthy, 2018; Mendelsohn andVicziany, 1998; Human Rights Watch, 2001). So, equitywas assumed and educational reservations were accepted as the more preferred choice of goal which needs to be achieved vis-a-vis education of marginalized sections of society in India (Galanter, 1984). In other words, ERwas envisaged for the marginalized communities to bring them to such a status where they could compete with others at equal pedestal. This was necessary to remedy the disadvantages felt by weaker sections due to the historical bias and lack of opportunities in the past (Bob, 2007).

Jensen and Miller (2015) also found evidence of ***impediment (iii)***, i.e. due to an *illiterate home environment or other practical constraints* in Indian settings; the rural child's education also depends on the parents' decision. The decision of parents depends on if they want to prepare their ward to get education and migrate for better financial opportunities in urban centers or to remain with elderly parents and provide the parents with care and assistance around the house while working on the family farm. An Intervention in the form of jobs in BPOs for educated rural youths was implemented, which supported their hypothesis that urban job opportunities positively affected the youth's educational attainment only for those whose parents wanted them to migrate. In fact, their study finds an effective decline in school enrolment among children whose parents wanted them to remain at home, after the intervention.The researchers furtherbelieve that these results from Indian contest may well be applicable to overall developing world.

Dee (2004) analyzed the ***impediment (iv)*** i.e. *role-model effects* for marginalized students by examining the test score data from Tennessee's Project STAR class-size experiment. The student-teacher pairs were randomly selected and models of student accomplishment point to an increased math and reading achievement of both black and white students by roughly three to four percentile points, when students were assigned to own-race teacher. Prior to this, there was supporting publication to this idea by Ladson-Billings (1994), where the researcher found that ethnically appropriate teaching is not an issue of ethnicity, gender, or instruction style, but the most important criteria relates to the instructor's understanding and hard work towards being appreciative to the distinctive potential individual students have.Incidentally, in August'2021, the Indian ministry of education instructed all centrally-funded higher education institutes, such as the Indian Institute of Technology (IIT), the Indian Institutes of Management (IIM) and the National Institutes of Technology (NIT) to recruit all the vacant reserved academic positionsfor marginalized communities on priority basis.The IITs were already hiring suitable reserved candidates at the Assistant Professor positions but now the government has asked IITs to extend the reservation to Associate Professor and Professors posts. Further, the institutes had also been prohibited from "de-reserving" the reserved post after a year, which may leave the seats empty if the suitable candidates are not found among the targeted communities. Although, this decision by the authorities to reserve academic jobs in higher study institution may seem like the implementation of job reservation policy per se, but the decision may also be due to the realization on the part of authorities that in order to increase the student's enrollments by reserving educational seats in premier institutions like IITs, they may also have to implement job reservations in teaching posts for the candidates belonging to the same community/strata. On the other hand, few studies are also there which show no such noteworthy affiliation between students' accomplishment and the ethnic match between instructor and learner (Ehrenberg and Brewer, 1995).

In a 2004 study in India (Kochar, 2004), researcher found that educational returns in urban setups do positively influence the schooling in the rural areas, thus removing ***impediment (v)*** by *providing proper motivation in financial terms.* The phenomenon was found to occur especially amid landless labor families, who have no farming lands of their own. However, the rural areas may still suffer from the issue of low levels of schooling due to the lower returns from the schooling investment in rural economy as well as the extent of the pertinent labor market.Additionally, in context to Indian education system (for years 1960s-70s), Foster and

Rosenzweig (1996) in their empirical study also found that the primary schooling leads to increased gains in wages when there was rapid technological progress. In the areas with the maximum development rates, these gains were also maximized.Another important finding was the augmented personal spending in education and accessibility of schools due to increased returns on primary schooling. Nevertheless, in an empirical study in rural China, researchers found that another aspect of higher opportunities in urban areas is the negative impact on educational attainment in rural youth (de Brauw and Giles, 2017).Although, many Chinese cities reserves some professional jobs for registered urban residents, andthere is often de facto isolation of country populace into unskilled service and construction sectors, the prospects to migrate have positively affected the standard of living in rural China. Nonetheless, it also created a discouragementfor sustained augmentation in schooling years amid countryside youth. In effect, the lost opportunity for schooling would increase the inequality in society as the less educated rural youth would be lagging behind the urban youth in lifetime earning ability.

Jensen's empirical study (2012) found that ***impediment (vi)***, i.e. *lack of awareness or measured information about the future jobs prospects and increased wages* may be an important reason for lowered schooling among students in context of a low-income country. In the particular context of DominicanRepublic, the perceived returns to secondary school were found to be extremely low;despite high measured returns. Therefore, when students were informed about the higher measured returns of schooling (jobs prospects, higher wages), they completed on average 0.20-0.35 moreyears of school over the next four years than those who were not informed about the measured results about elevated income of higher education. Nevertheless, the study found the detrimental effect of paucity and poverty (***impediment (i)***) restricting further schooling for poor students, even when the poor students also got the information (along with well-off students) about high measured returns on education.

Another successful approach to increase the schooling years as positive fallout of the increased number of schools is reported in empirical study by Duflo (2001), where government intervention was applied to remove ***impediment (vii)***, i.e. *logistic problems.* Here, the researcher studied an unusually large government-administered intervention in the form of "SekolahDasarINPRES program" of constructing about 61,000 primary schools during years 1973-78 in Indonesia. In the early 1970's, there was a fall in school enrollment in Indonesia, however, under IMPRES program, for each new school built per 1,000 children, there was an estimated increase of 0.12 to 0.19 years of schooling for children aged 2 to 6.This increased educational attainment lead to an increase in wages of about 1.5 to 2.7 percent for each additional school built per 1,000 children, which further points to economic returns from 6.8 percent to 10.6 percent. The program was meant to increase the enrollment rates, which lead to increased wages suggesting that the combined effect of quality and quantity changes in education was to increase human capital.

In another studyrelated to ***impediment (viii)*** i.e. *Quality of Schools in place of Quantity* of schools, Bedi and Edwards (2002) combined the domestic survey data with data on school qualityfrom Honduras, to understand the significance of school excellence as a determinant of wages. The aimedcriteria of school superiority consisted of educator skills, school infrastructure and school crowding. The individual control variables used were marital status, experience, migratory status and region of residence. The Municipal level control variables were teachers' professional degrees, schooling years and experience along with student/teacher ratio, electricity/ water supply to schools etc. The results were found to be robust across a variety of model specifications and showed a strong positive association of school quality on wages and on educational returns.

In context of a developing country like USA, where lack of information is not an issue, researchers (Akhtari, Bau and Laliberte, 2020) analyzed the effect of racial affirmative action policies in college, on school enrollment for whites and marginalized minorities. Their findings show that due to ***impediment (ix)***, i,e.*when affirmative action for minorities in college was absent,* the gaps in SAT scores, grades, attendance and college applications between whites and minorities increased. When affirmative action is re-instated, average SAT scores for both whites and minorities increase, while ethnic gaps in SAT scores, grades, attendance, and

college applications reduced.However, when Antonovics and Backes (2014) examined how banning affirmative action in college admissions in USA affectsboth overall academic achievement and the racial gap in academic achievement priorto college entry, they could not find any significant evidence of either a decline in academic achievement or a widening of theracial gap in academic achievement after the ban.

In an article on educational affirmative action in India, researcher found significant empirical evidence of positive discriminationremoving ***impediment (ix)*** i.e. presence of education reservations increasing the chances of receiving college education, or get hold of a government employment for marginal community grouping in India(Khanna, 2020).It was found that the hopes of positive shift in opportunity scenario lead to longer term enrollment of marginal group scholars in school.The researcher considered three different approaches to analyze the three different implementation issues/questions during execution of affirmative action in educational sector. Firstly; researcher employed difference in differences approach to find the average impact of the educational reservation on the different groups (reserved and unreserved). It wasfound that the reserved minority groups accomplished an additional 0.8 year of education, when GoI reserved the employment opportunity in government jobs for them, as the reserved jobs required certain levels of academic achievements i.e. removal of ***impediment (v)***. In comparison, not entitled minorities students,disqualified candidates within the eligible minority groups (on the basis of their economic well-off i.e. concept of creamy layer), and poor students from not entitled upper castes does not show any such additional schooling years comparatively. Secondly; researcher employed regressiondiscontinuity (RD) design, to compare the subcastes(subsets of same caste group), which got the benefit of educational reservation to the subcastes which do not get the reservation benefits. The empirical results hint towards an additional 1.2 years of educational attainment among the reserved subcastes in comparison to their non-reserved sub-caste brethren from the same backgrounds i.e. removal of ***impediment (ix)***only for reserved group.Thirdly; researcher also found that as the numbers of reserved seats are increased for minority groups, it leads to a detrimental effect on their educational attainment. This result is in accordance to the earlier found results by Coate and Loury (1993), where they predicted that high intensity of educational reservations may devalue the qualifications of reserved groups in the eyes of prospective employers or it may direct genuine complacency among the benefitted groups as there is less competition for the same prize.

Nonetheless, the study by Khanna (2020) supported the results found in earlier study in Indian context (Bagde et. al., 2016) whereresearcherscompared the first-year engineering college scores of more than forty two thousand students with their high-school scores. More than two hundred private nonprofit engineeringcolleges in a big state from India were chosen for the study. The results show evidence of improvement in college scores for reserved category students than their high school marks. The findings also show that marginalized students (especially female population from marginalized castes) lagged the performance in comparison with their socially forward peers. Nonetheless, the educational reservation policy evidentlyincreasedturnoutamongst targeted students, particularly in the most underprivilegedfaction. Therefore, to achieve educational equity, removal of ***impediment (ix)*** by implementing positive affirmative action policy like ER may have strong support from big data studies.

However, implementing ER without excluding the candidates from creamy layer (financially well-off candidates from socially backward communities) may lead to ***impediment (x)*** and discourage the schooling for poorest or most marginalized among reserved populace (Bedard, 2001). The findings are in contrast to human capital model (Chiswick, 1974), where it is expected that increased educational opportunities would increase the higher educational attainment without affecting the high school dropout rates. Bedard's analysis implies that there is about 1/3 unitincrease in high school dropout rates for every unit increase in university enrollment. The reason behind the fact is inability of the poorest among poor to reach for the available educational opportunities due to logistics or societal/financial barriers. Therefore, even though increased educational opportunities is suggested as a policy tool to perk up the living standard of the poorer populace, Bedard's findings suggest that increased educational opportunity might add to schooling disparity and income inequality among the targeted populace

where it would bring more prosperity for already better off candidates while resulting in decreased salary for the poorest among poor, due to educational signaling and meritocracy during wage determination by employer. Therefore, reservation inside reservation for the least fortunate among less fortunate (the creamy layer concept) may be a prime requisite to implement a justified, long serving and rational educational reservation policy.

Further, Assuncao and Ferman (2015) found empirical evidence of ***impediment (xi)*** i.e. *complacency effects* among minority students, when aggressive reservation policies were implemented. They found evidence of detrimental effects on skill acquisitionand human capital accumulation on black students when seats were reserved for them in university admissions (18% increases in proficiency gap between black students from public schools and white private school students). However, other groups of reserved students were unaffected, which shows that moderate reservation policies have no detrimental or complacency effects.As mentioned earlier, Khanna (2020) in Indian context had also found that an aggressive reservation policy for any marginalized group may unravel their educational attainment goals.

Finally, few researchers have also proposed that educationalaffirmative action policies should support marginalized students not only at entry but also at exit levelto remove the ***impediment (xii)***(Means, 1986). Indian educational reservation system is supportive at the entry level only, where the relaxation of merit is only for the admissions in educational institutes and not for passing or grading, which is at the exit level. This represents the vision of founders of Indian Constitution, who wanted the weaker sections to get reservations for a limited time in order to realize their potential and then aspire to progress on their own, while competing with the others at equal pedestal(The Constitution of India, 1950). Although, a provision of grace marks is there in Indian educational system to slightly help out the below average students, but that is not specific to the students from select castes or classes (EduDelhi, 2021). Equivalent exit examinations may lead to a higher failure rate among the students from marginalized communities, especially in the higher studies institutes, which could lead to demotivation among these students against school/college enrollments. There were cases reported from Malaysia and United States, where affirmative grading was used to prevent excessive failure rates of students from marginalized sections (Riesman, 1980). In a significant and radical initiative, the California Department of Education (CDE), Instructional Quality Commission, and State Board of Education have started the revision process for the Mathematics Framework for California Public Schools: Kindergarten Through Grade Twelve, which aims to achieve "A Pathway to Equitable Math Instruction: Dismantling Racism in Mathematics Instruction" (Math Framework, 2021). The framework is planned to be training for instructors to think about theirindividualpredispositions to change their teaching style, but the long term gains for such radical reforms are questionable and arguable to say the least. Some countries even launch a relatively easier course under affirmative action policies for marginalized students, that gives easy grades and help students achieve the minimum credits requirement to pass the certain academic level (Sowell, 1972). The end results and employability of such candidates in the job markets are open to debate and may be the topic of further research, nonetheless, the almost universal acceptance of importance of educational equity in form of educational affirmative action in different parts of the world firmly establishes it as one of the most important aspect in global development policies.Here it is important to mention the study by Bagde et. al. (2016), where the average graduation rates among marginalized students did not show any significant fall in comparison to their socially well-off peers in Indian engineering colleges.

Out of the various impediments and their remedies for effective educational equity policies, we have further analyzed the educational reservation policies for the two neighboring countries from Indian subcontinent, i.e. Nepal and India, which implement a rigorous educational reservation policy. The motivation behind choosing the two countries was to understand the implementation, efficiency and implications of the educational reservation policies for marginalized communities, where the two countries has almost similar social structure albeit with different time periods for the implementation of said policies. The results from the two countries may support and provide the evidence towards the efficacy and association of the educational reservation with upliftment of educational equity among marginalized communities in the developing and low income countries.

Educational Reservation Policy in Nepal

In Nepal, even though caste based discrimination was declared illegal in the Civil Code in 1963, it was not made punishable until the 1990 constitution of Nepal. The 1990 constitution declared that 'No person shall, on the basis of caste, be discriminated against as untouchable, be denied access to any public places or be deprived of the use of public utilities. Any contravention to this provision shall be punishable by law' (Article 11(4)) (constituteproject.org, 2015). The affirmative action policy in Nepal has provided reservation for Federal Civil Servants Bill in eight clusters: women (33 per cent) Adiwasi/Janajati (24 per cent), Madhesi (20 per cent), Dalit or Scheduled castes (9 per cent), Tharu (4 per cent), Muslim (3 per cent), differently-abled people (3 per cent) and backward area (4 per cent). In civil service, out of 100 per cent, 45 per cent is allocated for inclusive and 55 per cent is allocated for open competition (Panday, 2019). Since the mid-1990s, social inclusion has become an increasingly important agenda for development. The Ninth Plan (1996-2002) was the first national development plan to address the issue, and included sections on the 'Downtrodden and Oppressed Community' in the chapter on Social Security. It was the first plan in Nepal to address Dalits and Janjatis by name. Nepal's Tenth Plan (2002-07), which is also the Poverty Reduction Strategy Paper (PRSP), recognizes the importance of inclusive development. In Nepal the Education Act (7th Amendment 2001) provides for free primary education. Apart from the right to education guaranteed by the Constitution, the Education Act mentions the provisions below (Barr et. al., 2007):

- Section 16 includes provision for free primary education and no admission charges to community schools.
- The provision of sub-section 2 mentions free education to the under-privileged communities like Dalits, indigenous groups and women in the secondary level.
- The Act prohibits imposing fees for new admissions in the name of the school under subsection 3.

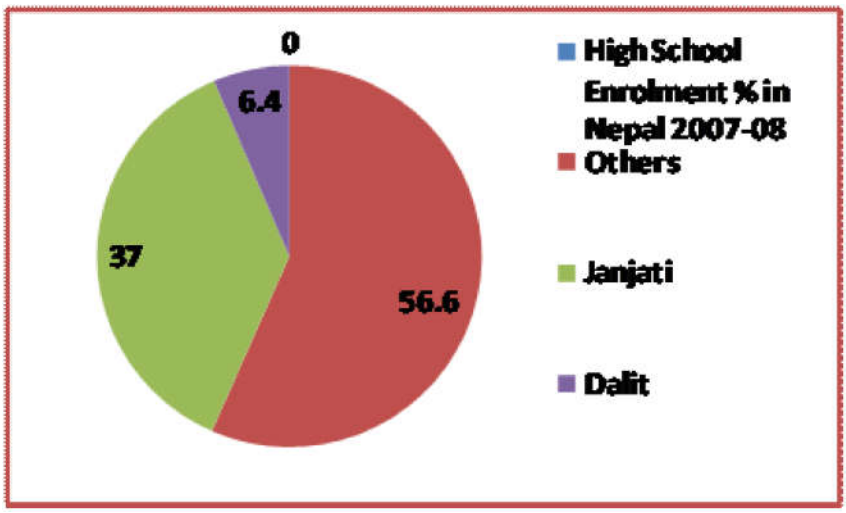
Nepal has provision for free education at the primary level, although parents still bear indirect costs for education, so to lower the indirect costs of schooling, the Nepal government provides free textbooks. Section 28 (1) "Gha" mentions the provision of scholarships to students of backward and marginalized communities. The scholarship rule 2003 mandates the state to provide scholarships to the poor and marginalized. The Ministry of Education and Sports distributes scholarships to these groups as well as providing quota based scholarships to lower secondary level girl students in 75 districts. Under Rule 10 there is a provision for open contest for the selection of appropriate candidates, while under Sub-rule 3, there are 10% quotas for women, dalits and indigenous groups for higher technical courses. In order to qualify, under Rule 12, he/she who has obtained 60% shall be eligible to get a scholarship. But the rule states that for dalits, indigenous groups and women, 50% shall be the criterion for candidacy. The Nepal Education for All (NEFA) 2004-09 primary education program has set aside additional funds to provide scholarships for all dalit children, and the budget for the fiscal year 2006-07 spelled out the provision of scholarships at the rate of Rs. 350 for 50 per cent of primary level girl-students belonging to economically weak and deprived communities as well as to all students of the dalit community studying at the primary school level. Private schools have also been encouraged to provide places for disadvantaged students. For 2006/07, arrangements were made to require private schools to enroll with scholarships at the rate of one student per 50 students from among the children of Dalits, conflict victims and martyrs. Cooking oil for girl students as well as school meals has been tried in Nepal for poor communities to provide nutrition as well as an incentive for attendance. Establishment of School Management Committees, that includes representation from the community served by each school, is now mandatory in Nepal.

Criticism of Educational Quota system in Nepal

Published reports have found that only 65% of Dalit students attending primary school received scholarships. The government funds and procedures were found to be lacking and no uniform criteria for scholarship award to dalit students, which jeopardizes the ER in education in Nepal (Barr et. al., 2007). This reflects in the data for high school enrolment percentage among various groups in Nepal during 2007-08 as shown in figure 1,

where dalit students show a very small percentage of overall school enrollments (Bishwakarma, 2009). In comparison, the country had only 54.1 % total literacy in 2001, in which the dalit literacy rate was a meager 34%. So, even with all the discrepancy and inefficiency in procedure and fund availability for ER in education in Nepal, the overall picture looks quite promising. So, Nepal can be categorized in the list of countries where ER in education is a successful endeavor in spite of Nepal's late entry into ER club and being a nascent democracy with a turbulent past and uncertain future (Nepal, 2021).

Figure 1 : High School Enrolment percentage among various communities in Nepal 2007-08 (Bishwakarma, 2009)



The overall literacy rate is increasing for general castes and dalit caste groups in Nepal as shown in Table 1 for the Year 2011 (Population Monograph Volume 2, 2014). However, an apparent 15-18% difference is visible between the male and female education in both the general caste and dalit community. For example, male literacy is about 86% in general castes while only 68% for their female counterparts. In the Dalit communities, the literacy rates drops down to 60% for males and only a paltry 45% for females. The data highlights the intricacies linked with the layers within layers of social constructs in human societies and complicates the tasks associated with achieving the educational equity where one marginalized group may be gaining from the affirmative action (dalit males) but the most vulnerable group among them might still face the hardships (dalit females).

Table 1 : Literacy Rates for General castes and Dalits in Nepal for census 2011(Population Monograph Volume 2, 2014)

Literacy Rates for General castes and Dalits in Nepal (Census 2011)									
Category	Total	Male	Female	General Caste (GC)	Dalit	GC Male	GC Female	Dalit Male	Dalit Female
Nepal (2011 Census)	65.9%	75.0%	57.0%	76.6%	52.4%	85.81%	68.26%	60.57%	45.0%

Educational Reservation Policy in India

Indian parents were using only 6 percent of their total spending for child education in 2001, while in comparison, the figure stands at about 33 percent for Philippines (King and Orazem, 2008). This shows that child education may not be the most preferred spending in case of average Indian parents as compared to some other developing nations. This spending figure would further degrade or lowered in case for parents coming from poorer background, which commonly belongs to one of the lower caste groups, excluding few exceptions. Even after the education was formally allowed for all communities in the 1850's, there were varioushistorical holdups for the depressed castes and class to lag behind in achieving their proportion and potential in academics. Even in 1930's the percentage of literacy in general population was about 9.5 % in India and 9.9% in Provinces; the numbers were only 1.9% and 1.6%, respectively for the depressed and exterior castes(Hutton, 1931;Nambissan, 1996). In order to address the specific issues plaguing the educational progress for marginalized castes, constitution of India stated that there shall be no discrimination against any person on grounds of backwardness and equal educational opportunity shall be provided to every person. Further, it is assumed that certain community and caste groups which are lagging behind in the educational sector as compared to the other communities would need some special affirmative action on part of government, such that they could also get the proper share in the academic domain. Therefore, the constitution of India provided reservation in educational field for the marginalized communities to promote social justice. The historical caste system (based on groups traditional occupation and family lineage) is one of the rationale behind governments move to enact a policy for upliftment of the marginalized scheduled castes (SC) and scheduled tribes (ST), and other backward classes (OBC) as mentioned in the clause 4 (cl.4) article 15, in the constitution of India(The Constitution of India, 1950). The cl.4 was an exception to cl. 1 article 15, which prohibits the Indian state from discriminating against any Indian citizen on grounds only of religion, race, caste, sex, and place of birth or any of them. Nonetheless, Indian parliament has also enacted laws to give the preferential reservation to citizens belonging to difficult or unapproachable terrain and other such places like border areas, under the provisions of cl.4 article 15. Further, article 15 cl. 3 permits the Indian state to make special provision for women and children, irrespective of the cl. 1 of article 15 of the Indian constitution. Article 15 cl. 5 further enables the Indian parliament to enact the laws to give special provisions relate to their admission to educational institutions including private educational institutions, whether aided or unaided by the state, other than the minority educational institutions.

Quota or reservations, as the ER in India is known as, are mostly a success story. India has a very comprehensive and well thought out reservation policy for various groups like SC/ST, backward class, residents of marginal areas, economically backwards general castes and many others categories, in jobs, legislature and also in education (The Constitution of India, 1950). As shown in Table 2, since year 1961, there is a steady rise in the literacy rate of Indian populace along with the dalit literacy rate. While the total literacy rate increased by 264% from year 1961 to 2011, theSCcommunities literacy rate made a jump of 643% in the same periodwith the support of reservations in education. India could claim to be a fit case of mostly successful implementation of ER, owing to the safeguard of double check by parliament and Supreme Court of India before enactment of any law regarding the same.

Table 2 : Literacy rate in India (NSSO, 2011)

Year	India Combined Literacy	Dalit Literacy
1961	28.3	10.27
1971	34.45	14.67
1981	43.57	21.38
1991	52.21	37.41
2001	64.83	54.70
2011	74.04	66.10

Recently, government of India took the decision of including the economically backward class from general castes into educational reservationfraction by providing additional 10% jobs and educational seats to the group, which was non beneficiary of any earlier ER policy (The Gazette of India, 2019). This puts an end to one of the big critique of "Indian reservation policy" which till now was against any kind of reservations for general castes. Nevertheless, notwithstanding the successful record of reservation in Indian context, there are often highly contested issues regarding ER policy in the public and legal discourses and the continuous scrutiny of the same is ever present.The issues more often than not come into light when the state or general elections in India are due and political parties use the ER policies to influence the targeted populations.

Criticism of Educational Quota system in India

1. One of the biggest critiques of Indian ER is regarding the absence of any creamy layer policy in SC and ST educational reservation quota, which leads to advantage of wealthy among the SC and ST community. Creamy layer policy mandates an upper income limit (Annual family income of 0.8 million INR) for availing the reservation benefits in the OBC and general castes (GC) categories. However, its non implementation in SC and ST categories is often rationalized by authorities by looking at the still vacant job positions in the two respective categories.
2. There are issues of dominant rural based castes with in OBCs, which take away the major share in the jobs and university admissions, while dominating over the not so wealthy and/or well off caste groups within OBCs. Therefore, some states have already implemented the "Quota within Quota" for OBCs and BCs reservation, while some other states are planning to implement it in near future. Nonetheless, the issue of ER is (and will be) open to critique and amendments in Indian context. A robust democracy like India is supposed to come up with the best possible solution as and when the requirement arises with the passage of time.

A brief comparison of the literacy level of five countries from Indian subcontinent is given in table 3 (Burton, 2020).

Table 3 : Literacy rate in Indian Subcontinent (Burton, 2020)

Country	Overall Literacy rate	Year of Formal Launch of Educational Reservation (ER)	Years since ER inception
Pakistan	55%	1948	71
Nepal	60%	1997	22
Bangladesh	60%	1972	47
India	69%	1950	69
Sri Lanka	91%	1971	48

The literacy rate can be seen in comparison to the effective ER inception in the respective countries. Although the association of overall literacy rate with the effectiveness of ER in respective countries requires in depth research, an effective ERmay help raise the overall literacy rate.The reasoning could be supported by the fact that the downgrading of overall literacy rate is more often due to the lower literacy of the depressed castes or community of the country. Therefore, as a successful ER would raise the level of literacy of depressed community, the overall literacy rate would also rise and it should be visible for the countries which has a long history of successful ER policy. So, author would propose that, if the ER is a successful venture in a country, longer the time period since its launch, higher should be the overall literacy rate for that country. Sri Lanka would

be an exception to this rule as its overall literacy was already quite high even before the launch of ER in 1971. Further, affirmative action for majority community in Sri Lanka lead to certain unfortunate effects which would far outnumber the gains in short term (MoD Sri Lanka, 2019). Pakistan may not be an example of robust ER policy where even after maximum years since ER launch among the five nations; Pakistan overall literacy rate is lowest (Ahmed, 2012; CSS Forum, 2019). Bangladesh ER policy could be considered a slight success, although its rationalization is being questioned repeatedly by its population (Rahman, 2018). Indian ER policy could be considered a success looking at the overall literacy rate from table 3 and increased dalit literacy rate from table 2. Nepal may be the best case to show the effectiveness of ER where it has shown a rapid increase in dalit literacy rate within a short span of about a quarter years (as on year 2021) since inception of ER. The higher success rate may also be dependent on the smaller country size in case of Nepal but more reliable and in-depth data and published reports needs to be considered in its case for any future study.

Conclusion

There are many impediments to achieving equity in education. One of the most basic hindrances for educational equity is chronic poverty (Weiner, 1991). The authorities may implement some program or policy where the student from poor background may get some coupons or vouchers to cover for the school expenses as well as some additional motivation for poor parents to not engage their children in some menial job to earn extra. To encourage marginalized students from lower social order, a robust educational reservation policy may be implemented. The poor and illiterate parents must be made aware of the benefits of the education for their wards otherwise government initiatives for educational equity may not bore the required fruits. From role-model results of Dee (2004) and Ladson-Billings (1994), it may be proposed that if authorities want to increase the student's enrollments by reserving educational seats for them in schools, they may also have to implement job reservations in teaching posts for the candidates belonging to the same community/strata. The logistic problems faced by poor/rural students must be addressed on priority basis by respective governments. This includes increasing the number of schools, better roads, better transport and cheaper or free stationary, uniforms, books etc. for poor students. Additionally, quality of schools needs to be improved to motivate the marginalized students to get enrolled.

Further, the students from poor backgrounds must be provided ample job opportunities once they complete their education. Also, the students from poor backgrounds must be made aware of the affirmative action policy of the government for example, there are better job opportunities once they achieve their education targets.. The affirmative action policy for poor students must also take into account the creamy layer concept, lest it discourages the poorest among the poor to get benefits of the government's initiatives on affirmative action. Creamy layer concept in OBC and EWS reservations has kept the complacency effect in check in Indian context as it stops the reservation policies to be too aggressive or irrational in nature for the targeted groups; however it may be pertinent now to study the obligation of implementing such amendments to the overall reservation policies for other groups. Additionally, there may also be some value in the arguments towards support to marginalized groups at exit level, but this policy may have the detrimental effect of giving rise to negative stereotypes, where even the meritorious among the communities have to bear the brunt of being categorized as the same.

In essence, educational reservations has a valid argument in its favor in context of human society and when implemented in its true spirits it also shows progressively positive effects on a country's overall development, as shown in the case of Nepal and India. However, in the same Indian subcontinent, countries like Sri Lanka, Pakistan and Bangladesh do not have much proof of positive validation of their educational reservation policies. Therefore, the respective governments should be very careful and understanding not only during planning of ER, but also during the implementation part. A well thought out ER is the necessity of human society in general and must be consistently reviewed according to the changing scenarios of demography and relevant considerations. Nevertheless, taking cue from the findings of Assuncao and Ferman (2015) and Coate and Loury (1993), it may also be important to consistently and continuously keep track of the consequences associated with aggressive

reservation policiessuch that it do not lead to any detrimental effect onmarginalized communities'educational attainment incentives.

A future quantitative study may also be performed based on present review work where various impediments could be classified into three independent variables i.e. (i) individual impediments, (ii) governmental impediments and (iii) Inefficient affirmative policies. Various constructs like chronic poverty, lower social status, illiterate home environment and lack of role models may be listed under the variable named individual impediment. Governmental impediment variable may include constructs like absence of schools, security, transport, infrastructure, toilet facilities, lower quality of faculties, lack of job prospects after education or lack of awareness about the prospects and absence of any affirmative action like educational reservations. Inefficient affirmative policies variable may include constructs like absence of creamy layer concept, unreasonably aggressive ER policy and lack of exit support in higher studies etc. The association of these impediment variables on dependent variable of illiteracy rate of any country or states may bring out a better insight into required efforts towards achieving the universal goal of educational equity.

References

Ahmed, N. (2012).*KU claims it gives preference to students from rural Sindh.* Retrieved from https://tribune.com.pk/story/340841/ku-claims-it-gives-preference-to-students-from-rural-sindh/.

Accessed December 15, 2021.

Akella, D. (2012). Mandal commission agitations: a comparison of affirmative action programmes of USA and India: a case study. *Int. J. Business and Globalisation*,*9(4)*, 461–479.

Akhtari, M., Bau, N. &Laliberté, J. W. (2020). Affirmative Action and Pre-College Human Capital. Working Paper 27779. https://www.nber.org/papers/w27779.

Foster, A. D., &Rosenzweig, M. R. (1996). Technical Change and Human-Capital Returns and Investments: Evidence from the Green Revolution. *The American Economic Review*, *86(4)* , 931-953.

Antonovics, K.&Backes, B. (2014). The Effect of Banning Affirmative Action on College Admissions Policies and Student Quality. *Journal of Human Resources,49*, 295–322.

Assuncao, J., &Ferman, B. (2015). Does Affirmative Action Enhance or Undercut Investment Incentives? Evidence from Quotas in Brazilian Public Universities.*MIT mimeograph*.https://www.dropbox.com/s/dnpabbrucu25d0o/Assuncao_and_Ferman_affirmative%20action.pdf?dl=0/.

Bagde, S., Epple, D., & Taylor, L. (2016). Does Affirmative Action Work? Caste, Gender, College Quality, and Academic Success in India. *The American Economic Review*, *106(6)*, 1495–1521. http://www.jstor.org/stable/43861129

Barr, E., Durston, S., Jenkins, R., Onoda, E., &Pradhan, A. (2007). Dalits in India and Nepal: Policy options for improving social inclusion in education (Working Paper). https://www.unicef.org/socialpolicy/files/Dalits_in_India_and_Nepal_Policy_Options_for_Improving_Social_Inclusion(1).pdf

Bedard, K. (2001). Human Capital versus Signaling Models: University Access and High School Drop-Outs.*Journal of Political Economy*, *190*, 749–775.

Bedi, A.S., &Edwards, J.H.Y. (2002). The impact of school quality on earnings and educational returns evidence from a low-income country. *Journal of Development Economics*, *68 (1)*, 157–185.

Bishwakarma, G. (2009). The high school educational status of Dalit in Nepal. Retrieved from https://www.researchgate.net/publication/42426028_The_high_school_educational_status_of_Dalit_in_Nepal_From_exclusion_to_success_story. Accessed December 15, 2021.

Bob, C. (2007). Dalit rights are human rights: Caste discrimination, international activism, and the construction of a new human rights issue. *Human Rights Quarterly*, *29(1)*, 167–193.

Burton, J. (2020). List of Countries by Literacy Rate. Retrieved from https://www.worldatlas.com/articles/the-highest-literacy-rates-in-the-world.html. Accessed December 15, 2021.

Chiswick, B. R. (1974). The Expanded Human Capital Model. In *Income Inequality: Regional Analyses within a Human Capital Framework*. (pp. 105-118). http://www.nber.org/chapters/c3674

Coate, S., &Loury, G. C. (1993). Will Affirmative Action Eliminate Negative Stereotypes? *American Economic Review, 83*, 1220– 1240.

Constituteproject. (2015) . Retrieved from https://www.constituteproject.org/constitution/Nepal_2015.pdf. Accessed December 15, 2021.

CSS Forum, (2019).Retrieved from http://www.cssforum.com.pk/recruitment-policy.php. Accessed December 15, 2021.

de Brauw, A., & Giles, J. (2017). Migrant Opportunity and the Educational Attainment of Youth in Rural China.*The Journal of Human Resources*. *52(1)*, 272-311.

Dee, T. S. (2004). Teachers, Race, and Student Achievement in a Randomized Experiment.*The Review of Economics and Statistics,86 (1)*, 195–210.

Duflo, E. (2001). Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment. *American Economic Review*,*91*, 795–813

EduDelhi (2021). Retrieved from http://edudel.nic.in/new_circulars/promotion_rules_at_a_glance_for_Classes_VIII_IX_and_XI/Promotion_Rules_at_a_Glance_Class_IX.pdf. Accessed December 15, 2021.

Ehrenberg R. G. &Brewer, D. J. (1995). Did teachers' verbal ability and race matter in the 1960s? Coleman revisited. *Economics of Education Review, 14(1)*, 1-21.

Faisla. (2020). Retrieved from https://supremecourt.gov.np/web/assets/downloads/faisalla-04-17-.pdf. Accessed December 15, 2021.

Galanter, M. (1984). *Competing Equalities: Law And The Backward Classes In India*. University of California Press.

Human Rights Watch. (2001). *Caste Discrimination: A Global Concern*. Retrieved from https://www.hrw.org/reports/2001/globalcaste/caste0801.pdf. Accessed December 15, 2021.

Hutton , J. H. (1931). *Census of India*. Retrieved from https://ia902506.us.archive.org/14/items/CensusOfIndia1931/Census%20of%20India%201931.pdf. Accessed December 15, 2021.

Jayasuriya, J. E. (1981). Education in the Third World: Some Reflections. OCLC 7925123. https://www.worldcat.org/title/education-in-the-third-world-some-reflections/oclc/7925123.

Jensen, R. (2010). The (Perceived) Returns to Education and the Demand for Schooling. *Quarterly Journal of Economics*, *125*, 515– 548.

Jensen, R., &Miller, N. (2015). Keepin' 'em Down on the Farm: Old Age Strategic Underinvestment in Children. Yale University mimeograph.https://faculty.wharton.upenn.edu/wp-content/uploads/2017/01/Down-on-the-Farm-Jensen-Miller-Final.pdf

Joshi, Y. (2019). Racial Indirection. *UC Davis Law Review, 52(5)*. https://ssrn.com/abstract=3312518.

Khanna, G. (2020). Does Affirmative Action Incentivize Schooling? Evidence from India. *The Review of Economics and Statistics ; 102 (2)*: 219–233. https://doi.org/10.1162/rest_a_00848

King, E., &Orazem, P. (2008). Schooling in Developing Countries: The Roles of Supply, Demand and Government Policy. In T. Paul Schultz and John A. Strauss, eds., Handbook of Development Economics, vol. 4 (pp. 3475–3559), (Amsterdam: Elsevier).

Kochar, A. (2004). Urban Influences on Rural Schooling in India. *Journal of Development Economics 74*, 113–136

Ladson-Billings, G. (1994). *The Dreamkeepers: Successful Teachers of African American Children*. Jossey-Bass Publishers.

Math Framework, (2021). Retrieved fromhttps://www.cde.ca.gov/ci/ma/cf/.Accessed December 15, 2021.

Means, G. P. (1986). Means, G. P. (1986). Ethnic preference policies in Malaysia. In N. Nevitte& C. H. Kennedy (Eds.), *Ethnic preference and public policy in developing countries* (pp. 95-118). Boulder, CO: Lynne Rienner..

Mendelsohn, O., &Vicziany, M. (1998). *The Untouchables: Subordination, Poverty and the State in Modern India (Contemporary South Asia)*. Cambridge University Press. doi:10.1017/CBO9780511612213

MoD, Sri Lanka (2019). LTTE defeated; Sri Lanka liberated from terror. Retrieved fromhttps://web.archive.org/web/20090521113622/http://www.defence.lk/new.asp?fname=20090518_10. Accessed December 15, 2021.

Murthy, V. (2018). Castes in India: Are They Evolving? *Journal of Social, Political and Economic Studies, 43(1,2)*, 109-119.

Nambissan, G. B. (1996). Equity in Education? Schooling of Dalit Children in India. *Economic and Political Weekly, 31(16/17)*,1011-1024.

NCBC. (2013).Retrieved fromhttp://www.ncbc.nic.in/Writereaddata/dopteng.pdf. Accessed December 15, 2021.

NEET. (2021). Retrieved fromhttps://www.livemint.com/education/news/sc-agrees-to-hear-pleas-against-centre-s-decision-for-27-and-10-quota-for-obcs-ews-in-neet-11630940252566.html. Accessed December 15, 2021.

NEETPG. (2021). Retrieved fromhttps://www.thehindu.com/news/national/neet-pg-counselling-not-to-commence-till-sc-decides-on-obc-ews-quota-centre/article37158870.ece. Accessed December 15, 2021.

Nepal, (2021). Retrieved fromhttps://www.britannica.com/place/Nepal/Federal-republic.Accessed December 15, 2021.

NSSO.(2011). Retrieved fromMinistry of Statistics & Programme Implementation, http://mospi.nic.in/. Accessed December 15, 2021.

NTA. (2021).Retrieved fromhttps://nta.ac.in/Download/Notice/Notice_20210730163143.pdf. Accessed December 15, 2021.

OECD (2011), "Quality, equity and equality in the education system", in *Maintaining Momentum: OECD Perspectives on Policy Challenges in Chile*, OECD Publishing.

Panday, J. (2019). More reservation quotas sought for ethnic groups. Retrieved fromhttps://thehimalayantimes.com/nepal/more-reservation-quotas-sought-for-ethnic-groups/. Accessed December 15, 2021.

Population Monograph Volume 2. (2014). Retrieved fromhttps://nepal.unfpa.org/sites/default/files/pub-pdf/PopulationMonographVolume2.pdf. Accessed December 15, 2021.

Rahman, P. (2018). *Protests Rage in Bangladesh as PM Appears to Backtrack on Job-Quota Policy*. Retrieved fromhttps://www.benarnews.org/english/news/bengali/quota-protest-07132018161949.html. Accessed December 15, 2021.

Riesman, D. (1980). *On Higher Education: The Academic Enterprise in an Age of Rising Student Consumerism.* Jossey-Bass Publishers.

Sowell, T. (1972). *Black Education: Myths and Tragedies*. David McKay& Co.

Sowell, T. (2004). *Affirmative Action around the World: An Empirical Study*. Yale University Press.

Taneja, R. (2018). Bangladesh Ends Reservation in Government Jobs after Furious Protests: 10 Facts. Retrieved fromhttps://www.ndtv.com/world-news/bangladesh-prime-minister-sheikh-hasina-ends-reservation-in-government-jobs-after-angry-protests-10-1836593. Accessed December 15, 2021.

The Constitution of India. (1950). Retrieved fromhttps://www.india.gov.in/sites/upload_files/npi/files/coi_part_full.pdf

The Gazette of India (2019). https://egazette.nic.in/WriteReadData/2019/195175.pdf. Accessed December 15, 2021.

Weiner, M. (1991). *The Child and the State in India: Child labor and education policy in comparativePerspective*. Princeton University Press.

School Education Physical Infrastructure Index- An Analysis of Major Indian States

Vishakha Gandhi*

Abstract

Education is understood as an engine for personal growth. Many economists have emphasized on the importance of education and more so elementary education since it is important for a child's growth in his/her primary years. This growth often also facilitates economic development and hence education has been emphasized as a vital area for economic development by economists. However, inadequate infrastructural facilities or physical spaces can act as a barrier to this growth. The current research paper aims at examining the state of physical infrastructure in some of the major Indian states. The same has been done by the author by creating an index to measure the position of various infrastructural facilities in schools. The index has been referred to as School Education Physical Infrastructure Index by the author. An analysis of physical infrastructure for major Indian states has been conducted with the help of the created index. The selection of states for the study has been done based on the school going population in each state. The index has been accessed for infrastructure facilities at all levels of school education. While some states lack even the basic infrastructure in schools, others have been observed to have adequate facilities.

***Key words** : School, Education, Infrastructure, Index*

Introduction

A school is often termed as a student's second home, and serves various purposes in a child's life. As children spend their maximum time in school after their homes, schools become responsible for a child's primary development. The importance of education and more importantly elementary education for growth and development of a child as well as an economy has always been understood as an imperative area by various economists. It is now also widely accepted that education not only facilitates faster growth of a child but also helps in speeding up the process of economic development (Hanushek, 2002). Hence, it has become crucial for every state to concentrate on the development of its human resources and allocate a fair budget to its education policies. However, the average schools in India are observed to lack basic infrastructural facilities like electricity, toilets and also quality teachers for educational development. The poor state of these basic facilities acts as a hurdle in the learning process of a child (Muralidharan& Kremer, 2006).

During the last few decades, a major emphasis has been paid on improving the infrastructure for education through various projects like District Primary Education Program (DPEP), Operation Blackboard, SarvaShikshaAbhiyan (SSA) and so on. Many big education projects like Model School Initiative, the Kalyani school initiative, All India Improvement in school Education (ARISE) and so on, have also been launched by various public companies as a part of their CSR activity (Madhusudan, 2008). The government has also been working on providing a fair physical infrastructure to the schools as recommended by the National Policy on Education, 1986. The policy has recognized the importance of school infrastructure and how poor infrastructure can act as a demotivating factor for children as well as parents to continue education. The importance of infrastructure has further been emphasized in the Right to Education (RTE) act of 2009. The recent education policy also proposes to extend the RTE act to include secondary education.

* * Assistant Professor, Nirma University, Ahmedabad, Gujarat and Research Scholar, P.G. Department of Economics, Sardar Patel University, Vallabh Vidyanagar, Gujarat

The current research is an attempt at forming an index for measuring the status of physical infrastructure in schools and thereby evaluating the status of physical infrastructural facility in schools for major Indian states. The author uses DISE data for evaluating the present status of infrastructural facilities by calculating the value of the formed index for various states. The index has been termed as the School Education Physical Infrastructure Index (SEPII).

Review of Literature

Education is regarded as the substance for development of individuals and welfare of the entire nation. The positive externalities associated with an educated population are immense. It is regarded as the foundational way to attain growth and development. It is also termed as a prime determinant of the degree of social and economic expansion of any economy. Education also acts as one of the most important means for an individual to improve their personal endowment, add more and more to their capacity levels, overcome constraints and widen the existing set of opportunities for a better quality of life (Bhunia& Shit, 2012). Education is said to have the power to alter lives as it provides skills and knowledge needed by individuals to develop their livelihoods. Many empirical studies have also demonstrated that investments in education contribute to a rise in the productivity in almost all sectors of an economy (Houghton, 2017).

In India the education system starts with pre-school or nursery education and is then followed by primary education and secondary education respectively. As education lies in the concurrent list of duties in India's federal system, the central and the state government have been continuously involved in the expansion of various formal and informal education systems to achieve the goal of universalization of education (Sharma, & Ramachandran, 2009). Education has evolved to be an important subject in all the policy decisions of the government in the recent past. There has also been an increasing awareness on the importance of educational infrastructure to facilitate effective learning. It is of vital importance that the infrastructure for education is structured in a manner that it facilitates the maximization of the accessibility and effectiveness of the delivered education. The world development report has also highlighted that one can realize the potential of educational policies only if they are well targeted and are based on certain evidence (CAF, 2016).

According to the National education policy 2019, Socio-cultural and economic issues are major causes of high dropout rates from schools. For instance, some children do not opt for secondary or higher education because of existence of practices like early or child marriage and child labour. Older children are also observed to not attend schools because of the need to take care of their younger siblings. There are many schools with poor hygienic conditions and unhealthy food habits which causes the children vulnerable to chronic illness, averting them from attending the school consistently (Kapur, 2018).

Lack of adequate infrastructure and safety measures remains another serious unaddressed issue. Many children, especially girls are observed to drop out from the school due to lack of working toilet facilities (Gouda &Sekher ,2014). The NEP, 2019 seeks to provide adequate infrastructure to the students. As per the policy, the government will work on upgrading the existing schools, building additional schools wherever required, and providing convenient and safe conveyance as well as hostel facilities to children. The policy has laid down specific steps to improve education infrastructure. It focuses on four aspects of infrastructure that are essential to ensure participation, namely accessibility, transportation facilities, hostel facilities and security. A three-fold strategy to fill the accessibility gap in existing infrastructure will be followed. The strategy will consist of increasing the intake capacity of the existing schools, building new facilities wherever required and consolidation of existing standalone primary, upper primary, secondary and higher secondary schools. To support transport facilities bicycles will be given to older students, especially girls. Other facilities for transportation like the school buses, paid walking escorts, organized walking groups or an allowance for transportation will be provided for younger children and children with special needs.

Another significant gap in the existing infrastructural facilities is that of an appropriate hostel facility for the children. The policy proposes to build free rooms and board facilities in form of hostels. This will prove to be an important step especially for students who may have to come from far off locations, or are from a poor economic background. Steps to ensure security in the educational system have also been laid down. Building of safe transportation infrastructure, hiring security guards, chiefly female guards as and when required, maintaining a constant connection with the local police and arranging an appropriate and credible mechanism where the students can report harassment and other issues (Ajayi, 2006).

According to a research review on assessment of school building methods, school buildings were observed to have an impact on the development of a student's mental state. It was explained as schools that have an attractive look i.e., infrastructure, motivated the children to stay on campus and even learn more (Sanoff, 2009). From a study held in Georgia, the outcomes suggested that the academic performance of the children improved with an improvement in building conditions, lighting the levels of quality of air and temperatures. He also established that there exists a negative correlation between the school class size and the achievements of the students (Tanner & Fisher ,2016). Another study aimed at analysing the impact of indoor environment on school performance suggested that one cannot expect the students to perform well when the school buildings are substandard and are poorly located. It was further highlighted that clean and well-planned structures that are quiet, comfortable and safe are important components of effective and successful learning and teaching (Mendell, & Heath, 2004).

A study conducted in secondary schools of Ondo state, revealed that there was a very significant difference between the facilities provided by the private schools and public schools of the state, the private schools are expected to provide better infrastructure to their students as the amount of fees charged is significantly higher than that charged by the public schools. However, the study also revealed that even though the students belonging to private schools performed academically better than student belonging a public school, the difference was not statistically significant (Sabitu, Babatunde, Oluwole, 2012). According to a study of schools in Kajiado County, schools with laboratories recorded improved academic performances whereas schools with poor laboratories recorded poor performances. It was also observed that schools with inadequate toilet facilities caused overcrowding of toilets and further caused delays in classes, contributing to poor academic performance. Co-curricular activities are also essential for a child's growth and development and was only possible if the school had adequate land size to conduct these activities (Mokaya, 2013).

Quality of education is at present one of the most important goals throughout the world. "All aspects of quality education" is also one of six goals that were outlined in the World Education-Dakar- Framework for Action (2000). Physical infrastructure which contains elements like school facilities, class, size, etc. is also laid down as an important indicator in a framework laid down by UNICEF for quality education. The other indicators include quality of learners, quality of content, quality of processes and quality of outcomes (Shah and Khan, 2013).

As far as the various indicators of educational infrastructure in various states is concerned, the number of schools in a state is one of the most important indicators of development of education in a State as it indicates accessibility of education, however, it is difficult to rank and judge various states on this basis because of a difference in the number of school going children across various states. A better indicator that can be taken into account to measure accessibility is the student classroom ratio and the pupil teacher ratio. No matter what infrastructure is provided to the children, overfilled classrooms may hinder the effective learning process (Ngwaru&Oluga, 2015). A single teacher handling all the classes, undertaking administrative works and other classroom activities can be overburdening and the teacher might not pay proper attention to the students. Therefore, student classroom ratio and pupil teacher ratio are important indicators which are considered in this study.

Drinking water facility in schools is another important indicator that has to be taken into consideration. Research shows that children's requirements for fluids are significantly higher than that of adults (Kleiner, 1999). There is also evidence to suggest that mild dehydration i.e., the dehydration when we first feel thirst, results in gaugea200ble reduction in mental performance. Another study suggests that the mental performance of young adults falls by 10% when they feel thirsty. (Rogers et al, 2001).

Due to lack of awareness about proper hygiene facilities, many students miss school as they frequently fall sick. Girls often dropout from schools on reaching puberty because of embarrassment due to the lack of proper private facilities. The schools not only need to provide toilet facility to the children but also make sure that the toilets are functional and clean. A survey reported that many school going children avoid using toilets because the toilets were smelly and unclean, which can result in constipation and other urinary tract infections. Lack of proper toilet facilities can also result in bullying, which impacts the mental health of the children. Children were found to complain about lack of privacy because of absence of proper door locks, which was further associated with bullying (Vernon et al, 2002). In rural areas a proper toilet facility at school also acts as incentive for children to go to school as their houses usually lack these basic facilities. Therefore, toilet facilities for boys and girls are weighed as an important indicator for this index.

Boundary wall is another important facility that is essential for schools. Students do not feel safe in the school premise if the school lacks a boundary wall. In rural areas villagers often use the school premise as a shortcut to reach places if there is no wall covering the school. Snakes insects and cattle also frequently enter the school as these are surrounded by bushes and agricultural fields. During night the school premise also becomes a meeting point for people for carrying out anti-social elements like consumption of liquor (Saravanan, 2017).

Electricity is another essential facility that the schools must have access to. Schools need lightening if they wish to conduct classes early in the morning or late at night. Access to electricity will also facilitate the use of modern technologies for education such as a computer or projector. According to a study of 210 countries there is a strong correlation (more than 66%) between per capita electricity consumption and higher scores on the education index. Electrification has also had an impact on reduction of illiteracy and an improvement in quality of education. (UNDESA, 2014)

Technological developments have influenced all sectors of our society including education. New tools such as computers are the need of the hour. Computers can help students acquire new skills by providing them access to resources from across the globe. With internet they have an infinite pool of information to acquire knowledge from. Therefore, percentage of schools having computer facility is an important indicator to access the quality of infrastructure in a school (Pedamallu et al, 2010) Students must also acquire a regular reading habit and they need to have a safe space where they can learn beyond what is taught in the classroom, for this library facility at schools is another important facility that helps in improving learning outcomes (Mahajan, 2010).

Percentage number of schools having playgrounds in a state is another important indicator of physical infrastructure. Playgrounds are obviously important for a child's physical health. Along with that playground also facilitate a child's psychosocial development. During playtime children spend time together, interact with their peers and learn group work (Sultana, 2012).

Methodology

This study is based on secondary data on number of schools, student classroom ratio, and various physical infrastructure related data collected from the District Information System for Education data (DISE) published by National University of Educational Planning and Administration, New Delhi. The study covers 10 Indian states selected on the basis of the school going population in each state. The variables that have been selected for the index are based on the review of existing literature. Hence the present status of various infrastructural facilities which are essential for effective teaching and learning, in schools have been assessed for these 10 states.

The study has attempted to form an infrastructural index for schools. The assessment of these facilities is done across all levels (primary, upper primary, secondary and higher secondary) of school education.

The School Education Physical Infrastructure Index (SEPII) is constructed using the technique of weighted Index on the basis of which various states have been ranked. The different indicators of infrastructure included in the index are-percentage of schools having drinking water facility, percentage of schools having school boundary walls, percentage distribution of schools having functional girl's toilet facility, percentage distribution of schools having functional boy's toilet facility, percentage of schools having electricity facility, percentage of schools having functional computer facility, percentage of schools having library and percentage of schools with playground. As mentioned previously, the indicators have been selected based on the review of existing literature.

The states that have been selected for conducting this study is based on the population in the school going age group (6 to 17 years) in these regions. The 10 states that have been selected have a school going population of more than 10 million. However, the value of the indicator for any state can be calculated in a similar fashion for comparison or other purposes.

The method of principal component analysis which is suggested by various authors (Majhi and Mallick, 2019, Kayal, 2019) to calculate such an Index was not considered as the method is best suited when the standard deviations of the various components of the index are reflective of their significance in the Index. Unfortunately, there is no relationship between the standard deviation and the significance of the indicators chosen to construct the infrastructural index in this paper. The index created in this research is based on simple weighted average methodology. To form the index weights were assigned to the aforementioned indictors after understanding their significance in the education development by the author. The normalized weights for different indictors were obtained through Saaty's analytical hierarchy process (AHP).

The values of the different indicatorsfor the 10 chosen states were extracted from DISE report for the year 2016-17. These values pertain to the facilities across schools managed by all types of management and includes the schools present in all areas of the state. Table 1 shows the values of different indicators of infrastructural facilities in the selected states.

Table 1: Infrastructural Facilities in Schools

STATES	DW	SCR	BW	GT	BT	EC	FC	LR	PG
Andhra Pradesh	93.74	20	63.07	89.13	75.45	94.04	70.29	95.75	68.53
Bihar	87.91	47	53.73	81.87	81.18	43.69	7.5	68.2	89.83
Gujarat	99.23	27	94.66	99.94	99.85	99.91	63.78	96.04	96.15
Karnataka	96.82	22	78.53	98.05	95.99	95.98	66.81	96.53	83.06
Madhya Pradesh	94.64	20	46.63	91.15	91.25	29.72	43.18	90.4	83.17
Maharashtra	98.37	29	82.54	96.57	96.59	94.02	55.21	96.19	93.48
Rajasthan	94.57	21	85.64	97.75	96.98	59.45	20.58	72.75	65.72
Tamil Nadu	98.86	24	81.11	99.98	99.78	99.5	72.66	99.31	74.68
Uttar Pradesh	94.24	27	73.35	96.81	97.63	54.28	25.74	72.78	86.51
West Bengal	94.60	27	45.12	98.6	94.85	81.69	49.76	77.05	91.7

Source: DISE, Analytical Table 2016-17, NUEPA

Where,

DW= Percentage distribution of schools having drinking water facility

SCR= Student classroom ratio

BW= Percentage distribution of schools having boundary wall

GT= Percentage distribution of schools having functional girl's toilet facility

BT= Percentage distribution of schools having functional boy's toilet facility

EC= Percentage of schools having electricity facilities

FC= Percentage distribution of schools having functional computers

LR= Percentage distribution of schools having library

PG= Percentage distribution of schools with playgrounds

The values of these indicators were then normalized so that the data is comparable across various indicators. All indicators now have a value such that a higher value across all indicators now means that the achievement is better and a lower value means that the achievement is worse. The normalized values of various indicators are shown in table 2. The indicators were normalized using the formula:

1- {(Best X_i- Observed X_i)/ (Best X_i - worst X_i)}

Table 2: Normalized Values of the indicators

STATES	DW	SCR	BW	GT	BT	EC	FC	LR	PG
Andhra Pradesh	0.516	1.000	0.514	0.401	0.172	0.924	0.964	0.906	0.000
Bihar	0.000	0.000	0.370	0.000	0.367	0.267	0.000	0.177	0.792
Gujarat	1.000	0.741	1.000	0.998	1.000	1.000	0.864	0.913	1.000
Karnataka	0.788	0.926	0.752	0.893	0.869	0.949	0.910	0.926	0.570
Madhya Pradesh	0.595	1.000	0.261	0.512	0.708	0.085	0.548	0.764	0.573
Maharashtra	0.925	0.667	0.813	0.812	0.889	0.923	0.732	0.917	0.912
Rajasthan	0.589	0.963	0.861	0.877	0.903	0.473	0.201	0.297	0.000
Tamil Nadu	0.968	0.852	0.791	1.000	0.998	0.995	1.000	1.000	0.294
Uttar Pradesh	0.560	0.741	0.672	0.825	0.925	0.405	0.280	0.298	0.683
West Bengal	0.592	0.741	0.237	0.924	0.830	0.763	0.649	0.411	0.854

As was mentioned above, the weights for different indictors were obtained through Saaty's analytical hierarchy process (AHP). The process helps in assigning weights to various indicators through pair wise comparison of all the indictors. The pair wise comparison matrix of these indicators is shown in table 3.

Table 3: Pair-wise comparison matrix

	SCR	BW	DW	GT	BT	PG	FC	LR	EC
SCR	1	4	0.33	0.25	0.33	2	5	3	2
BW	0.25	1	2	0.25	1	3	5	3	1
DW	3	0.5	1	0.25	3	3	5	4	2
GT	4	4	4	1	3	6	6	5	4
BT	3	1	0.33	0.33	1	5	5	4	3
PG	0.5	0.33	0.33	0.17	0.2	1	3	2	0.33
FC	0.2	0.2	0.2	0.17	0.2	0.33	1	0.5	0.25
LR	0.33	0.33	0.25	0.2	0.25	0.5	2	1	1
EC	0.5	1	0.5	0.25	0.33	3	4	1	1

The weights were obtained by summing each row and the dividing the sum by the total sum of each row. The normalized weights for various indicators are shown in Table 4.

Table 4: Weights assigned to each Indicator

INDICATOR	WEIGHT
Student classroom ratio	0.1243
Percentage distribution of schools having Boundary walls	0.1145
Percentage distribution of schools having drinking water facility	0.1509
Percentage Distribution of schools having functional Girl's toilets	0.2566
Percentage Distribution of schools having functional boys' toilets	0.1572
Percentage distribution of schools having Playground	0.0545
Percentage Distribution of schools having Computer	0.0211
Percentage Distribution schools having Library	0.0406
Percentage distribution of schools having electricity	0.0803

After assigning the weighs to the indicators, the value of the indicator was then calculated using a simple weighted average methodology. Hence, to calculate the value of the index for each state the below mentioned formula was used:

$SEPII = \Sigma X_i W_i$

Where,

X_i = Normalized value of the indicator for a particular state

W_i = Weight assigned to the indicator

Findings from the Study and Discussion

Table 5 shows the value of the index for the selected states. The table also shows the ranks of these states based on the value of the index. From the selected states, Gujarat has the highest rank. It means that amongst the selected states, the state of Gujarat has the best infrastructural facilities. It has also been observed that, Gujarat has the best facilities in four indicators out of the selected indicators. These are: Percentage of schools having drinking water facilities, Percentage of schools having Boundary walls, Percentage of schools

having functional boy's toilets, Percentage of schools having electricity connection and Percentage of schools having a playground. It is also important to note that 99.23% schools in the state have drinking water facility, 99% schools also have both girls and boy's toilet facility, 99.91% schools have an electricity connection and around 96% schools have a Playground. Also, the Student classroom ratio and the pupil teacher ratio in the state is 27 which is higher than the ratio in seven of the ten listed states.

The second rank amongst the selected state was backed by Tamil Nadu. The value of the index for the state is 0.929, which is not very less as compared to the value of the index for Gujarat (0.930). Out of the selected states, as per the available data, Tamil Nadu performed the best across three indicators- percentage of schools having girl's toilet, percentage of schools having functional computers and percentage of schools having library. Also, 99.78% schools in the state had a functional girl's toilet facility.

Table 5: School Education Physical Infrastructure Index

S. NO.	STATE	SEPII	RANK
1.	Andhra Pradesh	0.565	9
2.	Bihar	0.151	10
3.	Gujarat	0.930	1.
4.	Karnataka	0.838	4.
5.	Madhya Pradesh	0.595	8
6.	Maharashtra	0.841	3
7.	Rajasthan	0.755	5
8.	Tamil Nadu	0.929	2
9.	Uttar Pradesh	0.683	7
10.	west Bengal	0.731	6

There is a significant difference between the values of the index of the next selected states in line. Maharashtra and Karnataka had an index of 0.841 and 0.838 respectively. Maharashtra has a student classroom ratio of 29, which is the second best amongst the selected states. However, only 55% of the colleges in the state had a functional computer. Karnataka on the other hand performed averagely across all the selected indicators.

Out of the selected states, the worst infrastructural facilities were observed in Bihar and Andhra Pradesh. The value of the index for Bihar stood as low as 0.151 which is 83% lower than the value for Gujarat. Andhra Pradesh on the other hand was ranked 9th, and had an index value of 0. 565.As per the available data, only 7.5% of the total schools in Bihar had a functional computer and less than 55% of the schools had a boundary wall.

Another important point that can be noted is that the percentage of schools having a girl's toilet facility was 89.13% in Andhra Pradesh which was higher than the schools with boy's toilet facility (75.45%) in the state. The statealso had the lowest Student classroom ratio which signifies that the state has enough number of schools for its school going population.

Conclusion

School education and education in general have a major impact on the development and growth of a child and hence also have an implication on the development ofan economy as a whole.Infrastructural facilities in these educational institutes havebeen observed to have a major role in facilitating this development process by enhancing the learning process for a child and hence these facilities are a prerequisite for providing the students with an efficient learning platform. Poor infrastructure can not only hinder the learning process but can also act as a reason for dropouts from these institutes.

Researchers over time have highlighted the importance of various indicators of infrastructure that are important for a child's development. Hence, a comprehensive index to give a holistic picture of the infrastructural facilities of an institute and an economy as a whole can be useful not only for better policy formation but also for making comparisons across states/ countries.

Some of the basic infrastructural facilities that are essential to the learning process are; drinking water facility, electricity, proper washrooms, playground, etc. In some of the Indian states, it has been observed that the schools lack even these basic requirements or facilities.

References

Ajayi, A. (2006). The Influence of School Type and Location on Resource Availability and Pupils Learning Outcome in Primary Schools in Ekiti State, Nigeria. *Educational Thought*, 5(1), 170-176.

BhuniaG.,Shit P.K.. (2012). Assessment of School Infrastructure at Primary and Upper Primary Level: A Geospatial Analysis.*Journal of Geographic Information System*. 4. 412-424. 10.4236/jgis.2012.45047.

CAF. (2016). The importance of having a good infrastructure. Author.

DISE. (2017*).* Analytical report 2016-17. National Institute of Educational Planning and Administration. New Delhi.

Gouda, S., &Sekher, T. V. (2014). Factors leading to school dropouts in India: An analysis of national family health survey-3 data. *IOSR Journal of Research & Method in Education*, *4*(6), 75-83.

Hanushek, E. A. (2002). The Importance of School Quality.

Houghton, E. (2017). Human capital theory: Assessing the evidence for the value and importance of people to organisational success. CPID report. Retrieved on 31.03.2020 from https://www.cipd.co.uk/Images/human-capital-theory-assessing-the-evidence_tcm18-22292.pdf

Kapur, Radhika. (2018). Impact of Poverty on Education in India.

Kayal, T. K. (2019). Primary Education in India: An Analysis of Comparative Performance of Districts. *Indian Journal of Human Development*, 13(3), 372–381.https://doi.org/10.1177/0973703019892211

Kleiner, S.M. (1999) Water: An essential but overlooked nutrient. *Journal of the American Dietetic Association*; 99: 2, 200–210

Madhusudan, R. (2008). State of Elementary Education in Public Schools of Gujarat: A Study of Schools Run by the Bharuch Municipality. MPRA Paper No. 10581.

Majhi H., Mallick M. (2019). Education infrastructure and enrolment in elementary education in Odisha. Economic Affairs, Vol. 64, No. 2, pp. 377-385, June 2019

Mahajan, P. (2010). School libraries in India: Present-day scenario. *Library Philosophy and Practice*, 1.

Mendell, M. J., & Heath, G. A. (2004). Do indoor environments in schools influence student performance? A review of the literature.

MHRD. (2019). *National Education Policy.* Ministry of Human Resource Development, GOI.

Mokaya Z.M. (2013). Influence of school infrastructure on students' performance in public secondary schools in Kajiado county, Kenya. University of Nairobi, Kikuyu library p 0 box 92 - 00902 .

Muralidharan, K., & Kremer, M. (2006). Public and private schools in rural India. Harvard University, Department of Economics, Cambridge, MA.

Ngwaru, M., Oluga, M. (2015). Educational infrastructure and resources for sustainable access to schooling and outcomes: the case of early literacy development in southern Tanzania. *Africa Education Review*, 12(1), 88-108.

Pedamallu, C. S., Ozdamar, L., Weber, G. W., &Kropat, E. (2010). A system dynamics model to study the importance of infrastructure facilities on quality of primary education system in developing countries. In *AIP Conference Proceedings* (Vol. 1239, No. 1, pp. 321-325). American Institute of Physics.

Rogers, P.J. et al (2001) A drink of water can improve or impair mental performance depending on small differences in thirst. Appetite; 36: 57–58

Saaty T.L. (2008). Decision making with the analytic hierarchy process.*Int. J. Services Sciences*, Vol. 1, No. 1.

Sabitu O., Babatunde G., Oluwole F. (2012). School Types, Facilities and Academic Performance of Students in Senior Secondary Schools in Ondo State, Nigeria.*International Education Studies*. Vol. 5, No. 3.

Sanoff, H. (2009). Research Based Design of an Elementary School. Open House International, Vol. 34, No. 1, pp. 9- 6.

Saravanan S.P. (2017). School needs compound wall. The Hindu.

Shah S., Khan M. F. (2013). The Impact of Physical Facilities on Quality of Primary Education in Khyber Pakhtunkhwa as Perceived by Teachers.*IOSR Journal of Humanities And Social Science* (IOSR-JHSS) Volume 18, Issue 3

Sharma, R., & Ramachandran, V. (Eds.). (2009). The elementary education system in India: Exploring institutional structures, processes and dynamics. Routledge.

Sultana, P. (2012). "Playground is an Uncovered School" a Study on Co-curricular Activities for Child Development. *International Journal of English and Education*, *1*(1).

Tanner-Smith, E. E., & Fisher, B. W. (2016). Visible school security measures and student academic performance, attendance, and postsecondary aspirations. *Journal of youth and adolescence*, *45*(1), 195-210.

UNDESA (2014). Electricity and education: The benefits, barriers, and recommendations for achieving the electrification of primary and secondary schools.*Energy and Education 1*.

Vernon, S., Lundblad, B., &Hellstrom, A. L. (2003). Children's experiences of school toilets present a risk to their physical and psychological health. *Child: care, health and development*, *29*(1), 47-53.