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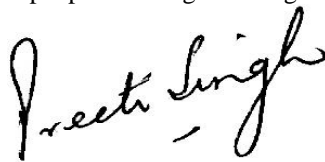
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Editor's Desk

When I look around and interact with employees working in an office, I find that they are always drained, irritated and exasperated, and never feel that they have time to relax. It is normal to see work as something to be endured, not enjoyed. The assumption of working professionals is that work is about stress, important for sustenance, time consuming and drab whereas outside the work place lies the rest of our life where we can derive true meaning, happiness and enjoyment. Researchers in the field of psychology leadership, management and neuro-science support the view that it is extremely beneficial both for employees and the organization when the people find happiness at work because happier employees bring about productivity to the organization and they are able to achieve career advancement, consistently improving and bringing creativity and innovation at the organization as a whole. So now that we know the essence and benefits of happiness at work, how can we support, and build it?

Leaders should ask themselves the question do your employees enjoy their work? How often are they deeply immersed and lose track of time while working? A majority of working people around the world when questioned would say no to questions like these, indicating that engagement at work is extremely low. What should the organizations do to engage their employees? Corporate organizations have realized that human beings must have some playfulness, creativity, and enjoyment in the work place besides office work routines. Many companies like ITC, Crompton, Larsen and Toubro have earned a reputation for prioritizing fun; for example, employees are invited to dinner parties, celebrate birthdays of employees followed by lunch or evening tea, going out for picnics as family day out, annual holiday, coupons for products, employee of the month award. Some organizations do not call or email people after office hours to help them to relax. Spirituality at work and good human values also play a major role in bringing about happiness at work therefore it is of utmost importance to keep employees happy at work and improve the rank in the world index which is at the movement as low as 144 out of 156 in the world happiness report. Morten Hansen (2018) in his book Great at Work has described the importance of values like empathy, compassion, and gratitude which create enthusiasm and happiness at work. Dan Ariely has brought the concept of personal engagement and psychological presence at work are concepts have been introduced by Kahn (1990, 1992). The management of Southwest Airlines feels that happy employees lead to happy customers. Therefore, organizations should have happy employees to have a highly committed workplace by giving them job engagement, work life balance, joy at work and finally since happiness is not about getting all you want but enjoying all that you have, making each person enjoy their lives. Recently in the pandemic condition of coronavirus the airlines had a thank you note for all its customers that flew in their airlines during that time. These little efforts go a long way in achieving satisfaction and happiness of people working in an organization and those dealing with it.



(Preeti Singh)

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AN INQUIRY INTO THE RELATIONSHIP BETWEEN GROWTH OF ENERGY AND CARBON (CO₂) EMISSIONS ACROSS THE GLOBE

Guneet Kaur Dhingra* Puneet Kaur Dhingra**

This paper attempts to investigate the relationship of economic growth, population, energy demand and CO₂ emissions on a global level using time series data model estimated by means of multiple regression for the period 1990–2018. In the last thirty years' consumption of energy has virtually doubled. In between 1990 to 2018 the Compound Annual Growth Rate (CAGR) of primary energy consumption increased at a rate of 1.86%. The rise in consumption is primarily attributable to the increase in population and economic development. The empirical evidence indicates a positive relationship between increase in population, rising GDP, growth of energy consumption and carbon emissions.

Keywords: Energy consumption, Co₂ emissions, Economic growth, JEL Classification: Q40, Q56

Energy is one of the most important resources in the world. We need energy to cook, to light and to keep us warm. It powers industrial machinery and transport. Different sources of energy generate electricity that power homes, schools, businesses and factories. The sources of energy may be classified into primary or secondary. While primary sources of energy can be used directly like coal, oil, natural gas, wood, nuclear fuels, wind, tides, sun etc. Secondary sources of energy are derived from primary sources, like petrol, which is derived from crude oil, electricity, which is harnessed from hydroelectric, nuclear, thermal plants etc.

In the last thirty years' consumption of energy has virtually doubled. In between 1990 to 2018 the Compound Annual Growth Rate (CAGR) of primary energy consumption increased at a rate of 1.86%. The rise in consumption is primarily attributable to the increase in population and economic development. According to the estimates shared by the International Energy Agency (IEA), the demand for energy grew by 2.3% in 2018, the fastest in the last decade. There is a strong link between human progress and energy consumption. Expansion in global output and prosperity drives growth in global energy demand. The global growth output is partly supported by increasing population and in clear majority by the increasing productivity or the Gross Domestic Product (GDP) per head.

Demand for energy in future

According to IEA's estimates the demand for energy is likely to grow by 27% or 3,743 Million Tons Oil Equivalent (MTOE) globally in between 2017 to 2040. Around 30% of this demand will generate from developed countries while the developing countries will account

majority or 70% of the total share. About 65% of the increase in developing country demand is estimated to come from the Asia Pacific region.

The agency forecasts that the global power generation will increase by 62% in between 2017 and 2040. A vast majority of this will come from developing countries. The fastest growth will occur in Africa, where generation is expected to jump 140%. The Middle East (96%), Asia Pacific (84%), and Central and South America (68%) also will experience tremendous growth. In contrast, electricity demand in Europe and North America are expected to increase 15% each by 2040. These forecasts suggest that the pace of electricity demand growth will exceed that of total energy demand growth.

Understanding the relationship between energy growth and carbon (CO₂) emissions

Rising human activity is increasingly influencing climate and earth's temperature. Since the middle 19th century, that is from the beginning of the Industrial Revolution, human activities have significantly contributed to climate change by accumulating carbon di-oxide (CO₂) and other heat-trapping gases in the atmosphere. The continuous use of fossil fuels has unequivocally disrupted the carbon levels in the environment, causing the heat to be preserved in the atmosphere. This has brought about today's renowned phenomena, global warming and climate change.

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Role of the Intergovernmental Panel on Climate Change (IPCC)

Setup by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) in 1988, the Intergovernmental Panel on Climate Change (IPCC) assess climate change based on the latest science. The panel's report of 2007 revealed that there is a close link between the global average temperature and Green House Gases (GHG) emissions. According to the latest estimates (2018) of the agency, the world is 1.2°C warmer compared to pre-industrial levels. IPCC claims, that at the current ongoing rate of emissions, the world is set to breach the global warming limit of 1.5 degrees Celsius between 2030 and 2052. As a result of this it will witness greater sea level rise, higher frequency of droughts and floods, and heatwaves.

World Meteorological Organization (WMO) report of 2018

Physical signs and socio-economic impacts of climate change are accelerating as record GHG emissions drive global temperatures towards high levels. According to the latest WMO's (2018) report, the past four (2015-18) years were the warmest on record, with the global average surface temperature in 2018 approximately 1°C above the pre-industrial baseline. The agency reported that in 2018, close to 62 million people were affected from natural hazards associated with extreme weather and climate events; 1600 deaths were recorded on account of intense heat waves and wildfires in Europe, Japan and USA; over 2 million people were displaced due to disasters linked to weather and climate events. The Global Mean Sea Level (GMSL) for 2018 was around 3.7 millimeters higher than in 2017 and the highest on record. The arctic sea-ice extent was well below average throughout 2018 and was at record-low levels for the first two months of the year.

Current scenario

In 2018, energy related carbon emissions increased by 1.7% and reached a historic high of 33.8 GTT, the highest since 2013. The increase in emissions was driven by higher energy consumption resulting from a robust global economy, as well as from weather conditions in some parts of the world that led to increased energy demand for heating and cooling. While India, China and the United States accounted for 85% of the net increase, the emissions declined for Germany, Japan, Mexico, France and the United Kingdom. The power sector accounted for nearly two-thirds of this growth.

Delayed efforts, therefore, to mitigate either CO₂ emissions or climate pollutants will have negative, and potentially irreversible, consequences for global warming,

rising sea levels, agricultural yields, and public health. Halting global-mean temperature will require near zero carbon emissions in future. Limiting climate change will require substantial and sustained reduction of greenhouse gas emissions. This necessitates a multi-level climate change commitment in present and future.

If fast and widespread action is taken to reduce these pollutants, it is likely to cut methane emissions by 25% and black carbon by 75% and eliminate high-global warming potential hydrofluorocarbons altogether in the next 25 years. This can potentially avoid an estimated 2.4 million premature deaths from outdoor air pollution annually by 2030; prevent as much as 52 million tons of crop losses per year; slow the increase in near-term global warming by as much as 0.6°C by 2050 etc.

I. Review of Literature

To prevent the adverse effects of climate change from escalating, many countries and their governments are involved in active research related to growth of emissions. In the research paper titled "The dynamic links between CO₂ emissions, economic growth and coal consumption in China and India" published by V.G.R. Chandran Govindaraju and Chor Foon Tang in 2013. The authors studied the relationship between CO₂ emissions, economic growth and coal consumption relationship in China and India. The results indicated presence of co-integration in China, but not in India. In China a uni-directional causality was observed from economic growth to CO₂ emissions. In the case of India, only a short-run causality was detected.

In another pre-2013 dated study conducted by S.S. Wang, D.Q. Zhou, P. Zhou and Q.W. Wang, the authors examined the causal relationships between carbon di-oxide emissions, energy consumption and real economic output in China. The empirical results revealed that CO₂ emissions, energy consumption and economic growth appeared to be co-integrated. Moreover, the study pointed out that there exists bidirectional causality between CO₂ emissions and energy consumption, and also between energy consumption and economic growth. It was also found that energy consumption and economic growth were the long-run causes for CO₂ emissions and CO₂ emissions and economic growth are the long-run causes for energy consumption.

In yet another interesting study conducted by Sahbi Farhani and Jaleddine Ben Rejeb in 2012. The researchers investigated the relationship between Energy Consumption, GDP and CO₂ emissions for fifteen (15) Middle East and North Africa (MENA) countries covering

the annual period 1973 to 2008. The findings revealed that there was no causal link between GDP and Energy Consumption; and between CO₂ emissions and Energy Consumption in the short run. However, in the long run, there was a unidirectional causality running from GDP and CO₂ emissions to Energy Consumption.

Further, in the 2012 dated research published by Mohamed El Hedi Arouri, Adel Ben Youssef, Hatem M'henni and Christophe Rault. The authors studied the relationship between carbon dioxide emissions, energy consumption, and real GDP for 12 MENA countries over the period 1981–2005. Results revealed that in the long-run energy consumption has a positive significant impact on CO₂ emissions. More interestingly, it showed that real GDP exhibits a quadratic relationship with CO₂ emissions for the region.

Authors Rawshan Ara Begum, Kazi Sohag, Sharifah Mastura Syed Abdullah, Mokhtar Jaafar published a study on CO₂ emissions, energy consumption, economic and population growth in Malaysia in 2015. The study investigated the dynamic impacts of GDP growth, energy consumption and population growth on CO₂ emissions using econometric approaches for Malaysia. Findings showed that both per capita energy consumption and per capita GDP have a long-term positive impact with per-capita carbon emissions, but population growth rate had no significant impacts on per-capita CO₂ emission. Further, the study suggested that in long-run, economic growth may have an adverse effect on the CO₂ emissions in Malaysia.

Published in 2015, the paper titled “CO₂ emissions, economic growth, energy consumption, trade and urbanization in new EU member and candidate countries: A panel data analysis” analyzed the causal relationship between energy consumption, carbon di oxide emissions, economic growth, trade openness and urbanization for a panel of new European Union (EU) member and candidate countries over the period 1992 to 2010. The results pointed out that there was an inverted U-shaped relationship between environment and income for the sampled countries. It also stated there was a short-run unidirectional panel causality running from energy consumption, trade openness and urbanization to carbon emissions, from GDP to energy consumption, from GDP, energy consumption and urbanization to trade openness, from urbanization to GDP, and from urbanization to trade openness. As for the long-run causal relationship, the results indicated that estimated coefficients of lagged error correction term in the carbon dioxide emissions, energy consumption, GDP, and trade openness equations were statistically significant, implying that these four variables could play an important

role in adjustment process as the system departs from the long-run equilibrium.

Authored by Wendy N. Cowan, Tsangyao Chang, Roula Inglesi-Lotz, Rangan Gupta in 2014, the research paper on “The nexus of electricity consumption, economic growth and CO₂ emissions in the BRICS countries” re-examined the causal link between electricity consumption, economic growth and CO₂ emissions in the BRICS (i.e. Brazil, Russia, India, China and South Africa) countries for the period 1990–2010. Different results appeared for different BRICS nations. No evidence of granger causality between GDP and CO₂ emissions in India and China was found. No granger causality was observed between electricity consumption and CO₂ emissions in Brazil, Russia, China and South Africa. One-way granger causality from GDP to CO₂ emissions in South Africa and reverse relationship from CO₂ emissions to GDP in Brazil was found in the study. The different results for the BRICS countries implied that policies cannot be uniformly implemented as they will have different effects in each of the BRICS countries under study.

Issued in 2015, the study conducted by Kais Saidi and Sami Hammami attempts to understand “the impact of CO₂ emissions and economic growth on energy consumption in 58 countries”. Empirical evidence in the report indicated that there was significant positive impact of CO₂ emissions on energy consumption for four global panels. It also suggests that economic growth had a positive impact on energy consumption and is statistically significant for the four panel. An econometric analysis for CO₂ emissions, energy consumption, economic growth, foreign trade and urbanization conducted by Sharif Hossain in Japan, examined the dynamic causal relationship between the variables or the period 1960-2009. The results showed that over time higher energy consumption in Japan gave rise to more carbon dioxide emissions resulting in pollution of the environment. However, with respect of economic growth, trade openness and urbanization, the environmental quality was found to be normal good in the long-run.

Published in 2010, the study by Mohammad Reza Lotfalipour, Mohammad Ali Falahi, and Malihe Ashena on “Economic growth, CO₂ emissions, and fossil fuels consumption in Iran” investigated the causal relationships between the variables. Empirical results suggested a unidirectional granger causality running from GDP and two proxies of energy consumption (petroleum products and natural gas consumption) to carbon emissions, and no granger causality running from total fossil fuels consumption to carbon emissions in the long run. The results also showed that carbon emissions, petroleum

products, and total fossil fuels consumption do not lead to economic growth, though gas consumption does. An analysis of the past literature reveals that there is a definite correlation between growth of energy and rising carbon emissions. This makes it imperative for us to understand the relation using empirical data, the next session deals with this.

II. Research Design & Methods

Understanding the variables

We are considering four variables for this study

1. Population
2. Gross Domestic Product (GDP)
3. Primary energy consumption
4. Energy related carbon-di-oxide (CO₂) emissions

Definitions of variables

a) Population - Total population counts all residents regardless of legal status or citizenship. According to Organization for Economic Co-operation and Development (OECD) the definition of total population of the country consists of all persons falling within the scope of the census. In the broadest sense, the total may comprise either all usual residents of the country or all persons present in the country at the time of the census.

- Time Series: 1990 to 2018, data global
- Periodicity: Annual
- Unit of Measure: Millions
- Source: World Bank, United Nations Population Division, National statistical offices, United Nations Statistical Division, Eurostat: Demographic Statistics, United States Census Bureau

b) Gross Domestic Product (GDP) -For this study we are using world GDP as measure of total income of countries across the globe. In particular, we will consider GDP PPP. PPP refers to Purchasing Power Parity. PPP is an economic theory that compares different countries' currencies through a "basket of goods" approach. According to this concept, two currencies are in equilibrium - known as the currencies being at par - when a basket of goods is priced the same in both countries, taking into account the exchange rates. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data is constant 2011. PPP GDP is gross

domestic product converted to international dollars using purchasing power parity rates.

- Time Series: 1990 to 2018, data global
- Periodicity: Annual
- Unit of Measure: Billion US dollars (\$)
- Source: World Bank, International Comparison Program database

c) Primary energy consumption- Primary energy consumption measures the total demand of energy across the globe. It refers direct use at the source, or supply to users without transformation, of crude energy, that is, energy that has not been subjected to any conversion or transformation process. It is calculated in net terms and comprises commercially-traded fuels, including modern renewables used to generate electricity.

- Time Series: 1990 to 2018, data global
- Periodicity: Annual
- Unit of Measure: Millions Tons of Oil Equivalent (MTOE)
- Source: BP Statistical Review of World Energy 2019

d) Energy related carbon-di-oxide (CO₂) emissions - Energy-related CO₂ emissions are defined as emissions related to the combustion of fossil fuels (liquid fuels, natural gas, and coal). They are based on 'Default CO₂ Emissions Factors for Combustion' listed by the IPCC in its Guidelines for National Greenhouse Gas Inventories (2006).

- Time Series: 1990 to 2018, data global
- Periodicity: Annual
- Unit of Measure: Millions Metric Tonnes (MMT)
- Source: BP Statistical Review of World Energy 2019

Dependent and Independent variables

Dependent variables

The dependent variable is what is being measured in an experiment or evaluated in a mathematical equation. The value of the dependent variable depends on the dependent variable or dependent variables. We have the following as our dependent variable:

- Carbon Emissions

Independent variable

Independent Variable - An independent variable is a variable that is manipulated to determine the value of a dependent variable. We have the following as our independent variables:

- Population
- GDP PPP
- Primary Energy Consumption

Types of data

Typically, three types of data are used for econometric modelling. These are

- Cross sectional data
- Time series data
- Panel data

Cross sectional data

Cross sectional data is a part of the cross-sectional study. A cross sectional data is a data collected by observing various subjects like (firms, countries, regions, individuals), at the same point in time. A cross sectional data is analyzed by comparing the differences within the subjects.

Basically, cross-sectional is a data which is collected from all the participants at the same time. Time is not considered as a study variable during cross sectional research. Though, this is also a fact that, during a cross sectional study, all the participants don't give the information at the same moment. Usually cross-sectional data is collected from the participants within a shorter time frame. This time frame is also known as field period. Surveys and government records are some common sources of cross-sectional data. The datasets record observations of multiple variables at a particular point of time.

Time series data

A time series is a sequence of observation of data points measured over a time interval. It is a statistical technique that deals with time series data, or trend analysis. A time series helps to understand what the underlying forces are leading to a particular trend in the time series data points and enables in forecasting and monitoring the data points by fitting appropriate models to it.

Panel data

Panel data, also known as longitudinal data or cross-sectional time series data in some special cases, is data that is derived from a (usually small) number of observations over time on a (usually large) number of cross-sectional units like individuals, households, firms, or governments. In the disciplines of econometrics and statistics, panel data refers to multi-dimensional data that generally involves measurements over some period of time. It combines cross-sectional and time series.

As such, panel data consists of researcher's observations of numerous phenomena that were collected over several time periods for the same group of units or entities. For instance, data for multiple entities (individuals, firms, countries) in which outcomes and characteristics of each entity are observed at multiple points in time.

For this study we will use Time Series data

Econometric modelling

Selecting the right technique

To understand the relation between two or more variables we can undertake three different types of techniques in statistics. These include – correlation, regression and multiple regression.

Correlation

Correlation is a statistical measure that indicates the extent to which two or more variables fluctuate together. There are three possible results of a correlational study: a positive correlation, a negative correlation, and no correlation. A positive correlation indicates the extent to which those variables increase or decrease in parallel; a negative correlation indicates the extent to which one variable increases as the other decreases. However, correlation does not imply causation. Even if there is a very strong association between two variables, we cannot assume that one causes the other

Regression

Regression is a statistical method used for the estimation of relationships between a dependent variable and one or more independent variables. It can be utilized to assess the strength of the relationship between variables and for modeling the future relationship between them. Regression may simple linear, or multiple. Simple linear regression is a model that assesses the relationship between a dependent variable and one independent variable.

Multiple regression

Multiple regression is a statistical method used to examine the relationship between one dependent variable and one or more independent variables. At the center of the multiple linear regression analysis is the task of fitting a single line through a scatter plot. More specifically the multiple linear regression fits a line through a multi-dimensional space of data points. The simplest form has one dependent and two independent variables. The dependent variable may also be referred to as the outcome variable. The independent variables may also be referred to as the predictor variables or repressors. There are three major uses for multiple linear regression analysis. First, it might be used to identify the strength of the effect that the independent variables have on a dependent variable. Second, it can be used to forecast effects or impacts of changes. Third, multiple linear regression analysis predicts trends and future values.

For this study we will be using Multiple Regression

In particular, we will be using the Ordinary Least Squares regression or OLS method, more commonly named linear

regression (simple or multiple depending on the number of explanatory variables). The OLS method corresponds to minimizing the sum of square differences between the observed and predicted values.

Criteria for a good regression model

- R square value must be more than 60% - this measures the % of variation that can be explained by independent variable jointly in the dependent variable
- Test of individual significance - probability value of individual independent variable must be significant or more than 5%. Most of the independent variable should be significant i.e. 50% of the variables should be significant.
- Test of joint significance - probability value of F statistic must be significant. This is for testing the joint significance of independent variables.
- Sign of coefficient should follow the economic theory
- Treatment of residuals
 - Residuals should be normally distributed
 - There should be no serial or auto correlation
 - There should be no heteroscedasticity

III. Results & Discussion

In the figure 1, we got the result of running ordinary least square regression with carbon emissions as our dependent variable and population, gross domestic product (purchasing power parity) and primary energy consumption as the independent variables. Coming to the results analysis of OLS regression test, the thumb rule is that probability of R square should be more than 60%, and our result shows R square equal to 99.905%, i.e. very high pointing towards a strong relationship among the depicted regression equation.

Now coming to whether the chosen independent variables are significant or not, we check their probability values or p values. As per the general theory p value should be less than 5% or 0.05 to be significant. Going by this, all the above three independent variables, population, GDP (purchasing power parity) and primary energy consumption are significant, i.e. they have a significant impact over our dependent variable, carbon emissions. Also, joint significance of independent variables is judged by the probability of F statistic, which ideally should be less than 0.05, and our result satisfies the criteria. The economic theory states that there should be a positive relationship between growth of income and (GDP PPP) and carbon emissions, population and carbon emissions, and primary energy consumption and carbon emission. Although coefficient of primary energy goes well with the stated theory, however coefficient of the other two

dependent variables, population and income (GDP PPP) defies it, i.e. their coefficient signs are negative.

Figure 2 represent the actual and fitted values of the dependent variable carbon emissions and the residuals from the regression in a tabular and graphical form. In the residual plot, dots represent the actual Y and the middle line depicts the estimated or fitted line, and the gap between the dots and middle line represent residuals i.e. (actual estimated) which is equal to zero. If the estimated line falls above an actual point that means carbon emissions are over predicted and if estimated line falls beneath a point, that implies it is under predicted.

In figure 3, we check for normality of residuals. If the residuals are normally distributed, then the probability of Jarque Bera is more than 5%. Since the probability of Jargue Bera in here is 8.91% or 0.0891, we can say that residuals are normally distributed.

Figure 4 displays the result for checking serial correlation via Bruesh-Godfrey serial correlation LM test. We need to make sure our residuals are not serially correlated (quintessential for faultless results of OLS regression). We can conclude there is absolutely no problem of serial or autocorrelation in the data as value of probability chi-square is 0.1784 i.e. more than 0.05. Serial correlation exists where probability of chi-square p-value of observed R square is less than 5%. For testing the presence of problem of heteroscedasticity in the residuals, Bruesh Pagan Godfrey test was conducted with E-Views software. Figure 5 displays the results for the same. The thumb rule for heteroscedasticity test is that the probability of chi square in Bruesh Pagan Godfrey test should be more than 5%. Since p value is 0.2394 or 23.94%, we can be sure that the data set doesn't suffer from the problem of heteroscedasticity i.e. the data set is homoscedastic.

IV. Conclusion

An insight into the study of past literature and empirical modelling suggests substantial evidence with regards to relationship between increase in population, rising GDP, growth of energy consumption and carbon emissions. The study revealed that there is a link between carbon emissions and all three repressors, income, population and energy consumption. However as opposed the general theory, population and income turned to have negative impact on carbon emissions, while primary energy consumption tested good for positive impact. However, there still exist gaps in the survey of literature as well inconsistencies in the empirical testing. The period taken was just 28 years on the basis of data availability which

could have been extended. This analysis delves deeper into the fact that countries with high population and income levels are not necessarily increasing the global pollution levels, while countries on a radar for high consumption of primary energy should be looked upon for future research study in this aspect. Lastly this study and these future research scope could come handy to worldwide organizations to decide upon measures and policies to curb down carbon emissions, a big challenge behind the worsening of the earth's climatic conditions.

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Table 1:

Dependent Variable: CE				
Method: Least Squares				
Date: 07/30/19 Time: 00:05				
Sample: 1990 2018				
Included observations: 29				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3506.948	1160.496	-3.021939	0.0057
POP	0.906789	0.300464	3.017959	0.0058
GDP_PPP	0.141569	0.012096	11.70349	0.0000

PE	4.459713	0.148859	29.95926	0.0000
R-squared	0.999051	Mean dependent var		27106.68
Adjusted R-squared	0.998937	S.D. dependent var		4657.276
S.E. of regression	151.8134	Akaike info criterion		13.01062
Sum squared resid	576182.6	Schwarz criterion		13.19922
Log likelihood	-184.6540	Hannan-Quinn criter.		13.06969
F-statistic	8775.429	Durbin-Watson stat		1.230756
Prob (F-statistic)	0.000000			

Table 2:

obs	Actual	Fitted	Residual	Residual Plot
1990	21290.1	21186.4	103.637	
1991	21280.1	21248.8	31.2545	
1992	21354.0	21300.3	53.7174	
1993	21419.1	21373.5	45.6360	
1994	21652.9	21577.5	75.4552	
1995	21895.7	22020.6	-124.973	
1996	22527.5	22796.8	-269.361	
1997	22741.1	22819.0	-77.9156	
1998	22792.8	22780.6	12.1614	
1999	23115.5	23140.9	-25.3834	
2000	23667.6	23679.8	-12.2178	
2001	23981.9	23863.9	118.064	
2002	24502.1	24489.2	12.9117	
2003	25715.7	25643.3	72.3806	
2004	27043.7	27248.9	-205.218	
2005	28142.5	28308.7	-166.248	
2006	29018.8	29076.6	-57.8075	
2007	30047.6	29983.7	63.9140	
2008	30336.7	30203.2	133.547	
2009	29719.4	29437.1	282.257	
2010	31057.9	31220.6	-162.682	
2011	31978.3	31988.8	-10.4824	
2012	32316.7	32231.3	85.4267	
2013	32799.9	32766.7	33.1769	
2014	32844.8	32721.0	123.786	
2015	32804.4	32609.5	194.950	
2016	32913.5	32827.7	85.8455	
2017	33242.5	33247.4	-4.86558	
2018	33890.8	34301.8	-410.967	

Table 3:

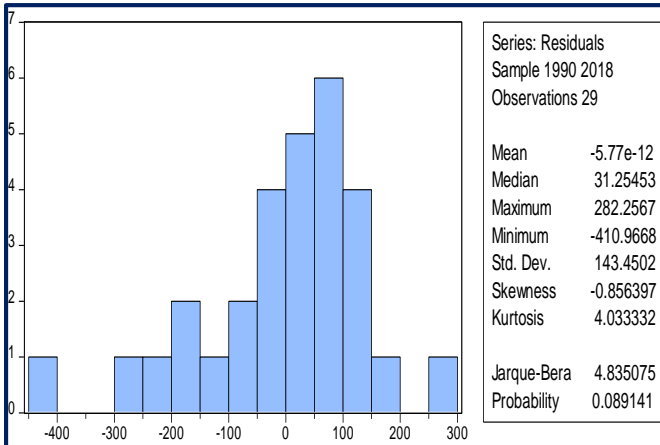


Table 4:

Breusch-Godfrey Serial Correlation LM Test:				
Null hypothesis: No serial correlation at up to 2 lags				
F-statistic	1.551472	Prob. F(2,23)	0.2333	
Obs*R-squared	3.447326	Prob. Chi-Square(2)	0.1784	
Test Equation:				
Dependent Variable: RESID				
Method: Least Squares				
Date: 07/30/19 Time: 00:25				
Sample: 1990 2018				
Included observations: 29				
Presample missing value lagged residuals set to zero.				
Variable	Coefficient	Std. Error.	t-Statistic	Prob

C	-110.9792	1165.789	-	0.9250
POP	-0.003968	0.297607	-	0.9895
GDP_PPP	-0.002774	0.012461	-	0.8258
PE	0.032750	0.148454	-	0.8273
RESID(-1)	0.424552	0.255625	1.660843	0.1103
RESID(-2)	-0.241530	0.256056	-	0.3553
R-squared	0.118873	Mean dependent var	-5.77E-12	
Adjusted R-squared	-0.072676	S.D. dependent var	143.4502	
S.E. of regression	148.5714	Akaike info criterion	13.02200	
Sum squared resid	507689.9	Schwarz criterion	13.30489	

Table 5:

Heteroskedasticity Test: Breusch-Pagan-Godfrey				
Null hypothesis: Homoskedasticity				
F-statistic	1.416309	Prob. F(3,25)	0.2614	
Obs*R-squared	4.212766	Prob. Chi-Square(3)	0.2394	
Scaled explained SS	4.748334	Prob. Chi-Square(3)	0.1912	
Test Equation:				
Dependent Variable: RESID^2				
Method: Least Squares				
Date: 07/30/19 Time: 00:35				
Sample: 1990 2018				
Included observations: 29				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	162867.0	263390.3	0.618349	0.5419
POP	-20.25546	68.19442	-	0.7689
GDP_PPP	3.026605	2.745420	1.102420	0.2808
PE	-23.15387	33.78563	-	0.4994
R-squared	0.145268	Mean dependent var	19868.37	
Adjusted R-squared	0.042700	S.D. dependent var	35216.17	
S.E. of regression	34456.11	Akaike info criterion	23.86020	
Sum squared resid	2.97E+10	Schwarz criterion	24.04879	
Log likelihood	-341.9729	Hannan-Quinn criter.	23.91927	
F-statistic	1.416309	Durbin-Watson stat1.	627416	
Prob(F-statistic)	0.261426			

ADOPTION OF SUSTAINABLE DEVELOPMENT GOALS BY SELECTED LISTED COMPANIES

Monica Soin Chhabra*

The UN member countries committed themselves to adopt Sustainable Development Goals (SDGs) also known as Global Goals by 2030. The 2030 Agenda includes the three dimensions of sustainability – economic, social and environmental. The SDGs aim to target different stakeholders into “doing more and better with less”. India is highly committed to achieving the SDGs both at the national and state level. The expression “Sabka Saath Sabka Vikas,” that interprets as “Collective Effort, Inclusive Growth” and has been repeatedly emphasised by our Prime Minister Narendra Modi, forms the cornerstone of India’s national development agenda. Reflecting the country’s commitment to the SDGs, Indian companies are also integrating practices set out in the UN’s sustainable development goals (SDGs) in their corporate strategy. This paper attempts to study the 17 SDGs and their implementation by NSE NIFTY 50 companies. For this purpose, NSE Nifty listed 50 companies were taken and the data relating to the Sustainability initiatives of these companies was collected from various secondary sources. It also aims to examine empirically the relationship of sustainability initiatives of NSE NIFTY companies with the Corporate Financial Performance.

Keywords: Sustainability, SDGs, ROI, ROE, PE Ratio.

Sustainable development has been defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It requires concentrated efforts towards building an inclusive, sustainable and resilient future for people and planet. It embraces the so-called triple bottom line approach to human wellbeing. For sustainable development to be achieved, it is essential to synchronise the three core elements: economic growth, social inclusion and environmental protection. The UN member countries committed themselves to adopt Sustainable Development Goals (SDGs) also known as Global Goals by 2030. The SDGs are a universal call to action to end poverty, protect the planet and ensure that everyone enjoys peace and prosperity. The 2030 Agenda includes the three dimensions of sustainability – economic, social and environmental. The SDGs are unique and aim to target different stakeholders into “doing more and better with less”. At the core are the 17 Sustainable Development Goals (SDGs), build on the successes of the Millennium Development Goals. Achieving the SDGs requires the partnership of governments, private sector, civil society and citizens to make a better planet for future generations.

India is highly committed to achieving the SDGs both at the national and state level. The expression “Sabka Saath Sabka Vikas,” that interprets as “Collective Effort, Inclusive Growth” and has been repeatedly emphasised by our Prime Minister Narendra Modi, forms the basis of India’s national development agenda. Reflecting the

country’s commitment to the SDGs, Indian companies are also integrating practices set out in the UN’s sustainable development goals (SDGs) in their corporate strategy. The initiatives undertaken by Government of India to promote SDGs include Skill India, Beti bachao beti padao, Make in India, Sarva Shiksha Abhiyan etc.

I. Review of Literature

Jonathan M. Harris (2003), Holmberg (1992), Reed (1997) and Harris et al. (2001) recognized the three essential aspects of sustainable development namely Economic, Environmental and Social. Changhong Zhao et al. (2018) in their article “ESG and Corporate Financial Performance: Empirical Evidence from China’s Listed Power Generation Companies” studied China’s listed power generation groups to explore the relationship between ESG performance and financial indicators in the energy power market based on the panel regression model. The results showed that the good ESG performance improves financial performance, which has significance for investors, company management, decisionmakers, and industry regulators. Chelawat et al. (2016) used panel regression to study the correlation between the ESG performance and the financial performance of listed companies in India. The report by GRI and United Nations Global Compact on Integrating SDGs into Corporate Reporting (2018) showed

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that the SDGs promote corporate transparency and accountability. Businesses – big and small – play a key role in the advancement of the Sustainable Development Goals (SDGs). The report also outlined a three-step process to embed the SDGs in existing business and reporting processes.

The ‘India’s CSR reporting survey 2017’ conducted by KPMG found that the compliance to regulatory requirements of the Act continue to be robust. The Companies Act, 2013 sets a broad framework and gives direction for better sustainable future and SDGs set tangible well defined targets to measure the outcome of activities. The survey evaluated CSR in the light of SDGs. CSR projects are contributing in promoting the achievements of the SDGs and companies have disclosed mapping of their CSR projects with SDGs. Companies have invested in education and health sectors which links to 5 SDGs.

Lipton (1997) and Scherr (1997) emphasize the relationship between population growth, social, conditions, and resource degradation. Reed (1997) notes that the social component of sustainability includes issues of distributional equity, provision of social services, gender equity, population stabilization, and political accountability and participation.

II. Research Design and Methods

Reflecting the country’s commitment to the SDGs, Indian companies are also integrating practices set out in the UN’s sustainable development goals (SDGs) in their corporate strategy. The present study entitled “Adoption of Sustainable Development Goals by NIFTY 50 Companies” attempts to study the 17 SDGs and their implementation by NSE NIFTY 50 companies. For this purpose, NSE Nifty listed 50 companies were taken and the data relating to the Sustainability initiatives of these companies was collected from various secondary sources.

The present study is guided by the following objectives:

1. To study the empirical relationship of sustainability initiatives of NSE NIFTY companies with the Corporate Financial Performance.
2. To bring out the empirical relationship of sustainability initiatives of NSE NIFTY companies with the type of their business activities – service or manufacturing.
3. To highlight the SDGs mapped by the NSE NIFTY 50 companies.
4. To highlight the sustainability initiatives and reporting practices of the companies.

The present study is based on the information gathered from secondary sources i.e. from Sustainability Reports (SR), Business Responsibility Reports (BRR), annual reports, website of National Stock Exchange and other online publicly disclosed information. The study looked at the NSE NIFTY 50 companies to arrive at the SDG score. The study was carried out from December 2018 – January 2019. The data was examined for companies on the basis of the three criteria: Sustainability initiatives undertaken, SR Report and Mapping with SDGs. The industries covered include automobiles, banks, diversified, FMCG, infrastructure, information technology, metals and mining, oil, power, steel, pharmaceuticals, telecommunications and others.

Sustainability initiatives by Companies

Some of the sustainability initiatives undertaken by companies have been listed below:

- GAIL relates its Hawa Badlo (change the air) programme to SDG 7, 11 and 15. GAIL supports the Hawa Badlo initiative which aims to motivate people to commit towards air-friendly habits like switching to CNG/electric vehicles, carpooling, and use of public transport. Apart from being a corporate campaign, it is also a step towards bringing a significant alteration to the air quality index.
- As part of green financing, banks continued to lend to renewable energy-based projects. Axis Bank and YES Bank issued Green Bonds. The proceeds will be utilized to finance and/or refinance environment-friendly projects.
- IndusInd Bank has committed to finance renewable energy projects of 2,000 MW over 5 years.
- YES Bank has installed Water ATMs that provide safe and clean drinking water at railway stations across India at nominal prices.
- Water specific Initiative - CEO Water Mandate - Tata Steel, Infosys.
- HUL and ITC target to make their plastic packaging fully reusable, recyclable or compostable in near future (HUL by 2025 and ITC in the next decade)
- GAIL is conducting research on conversion of waste plastic to diesel.
- BPCL has developed a technology that utilizes waste plastic for making roads.
- Mahindra & Mahindra raised awareness about the ill-effects of plastic on health and marine-life.
- HCL Technologies and Reliance Infrastructure conducted plastic waste collection drives.
- TCS India conducts a stringent due-diligence of their e-waste recycling service providers to ensure compliance with health, safety, and environment-related regulations and good onsite handling practices.

- At Power Grid, BPCL and GAIL India used batteries and electronic waste are directed back to either the manufacturers or registered recyclers for recycling.
- Asian Paints – Royale and Ultima brands products have been made eco-friendly by removing material as per the requirement standards and also created a green logo ‘Green Assure’ which assures end users of green products.
- Grasim Industries Limited - The Company has worked towards cost optimization, optimization of logistics, and reduction in input consumption ratio in the processes and has reduced the consumption of major inputs including energy, water, etc., by adoption of new techniques and alternate methods.
- Larsen & Toubro Limited - ‘Green Buildings’, solar power plants, fuel switch projects, coal gasifiers, super critical thermal power plant & equipment, and energy-saving electrical & automation equipment are some of the sustainability-oriented products.

Analytical Tools

The data collected was analysed using SPSS version 22.0 and Ms-Excel. For statistical analysis, Correlation and Pearson Chi-Square test have been used besides frequency distribution, mean value and standard deviation. The SDG score was developed using the 17 SDGs, Sustainability Report and Mapping with SDGs. It was constructed by assigning one point for compliance with each principle and 0 for non-compliance, and then summing up each firm’s 20 binary variables. With this scoring system, a firm’s SDG score can range from 0 to 20 with 20 indicating perfect compliance and 0 indicating no compliance.

The following hypotheses were put to testing to see “Is there an association between Sustainability Initiatives and Corporate Financial Performance and Type of Industry of the NSE NIFTY 50 companies?”

H₀₁: For the NSE NIFTY 50 companies, there is no association between Sustainability Initiatives and Corporate Financial Performance using accounting-based measures. (ROA & ROE)

H₀₂: For the NSE NIFTY 50 companies, there is no association between Sustainability Initiatives and Corporate Financial Performance using market-based measures. (PE Ratio)

H₀₃: For the NSE NIFTY 50 companies, there is no association between Sustainability Initiatives and Type of Industry.

III. Results and Analysis

Table 1 below shows the statistical description of the variables included in the study including the measures of

financial performance. The mean value, standard deviation, skewness and kurtosis have been calculated for all the variables under study. Table 2 shows the list of industries understudy. 62 percent of the companies were from manufacturing sector and remaining 38 percent were from service sector as can be seen from Table 3. 40 percent of the companies have a high SDG score whereas 46 percent of the companies have low SDG score which shows that these companies need to contribute towards the society and environment. The following table shows whether companies have Sustainability Report published on the website and are the SDGs mapped with the Companies’ Goals and strategies. This Pareto chart shows the various SDG initiatives undertaken by Companies in descending order.

Correlations

This table shows the Pearson correlation matrix for all the dependent and independent variables understudy.

SDG Rating and Corporate Financial Performance

Tables 7A, 7B and 7C show the cross tabulation, Pearson chi-Square test and Correlation between the variables SDG rating and Return on Assets (ROA). As revealed by Table 7, correlation between SDG Rating and ROA is positive, yet weak. This weak relation is not statistically significant. There is no association between Sustainability Initiatives and Corporate Financial Performance using accounting-based measures (ROA) for the NSE NIFTY 50 companies. The p-value is 0.675 and the r-value is 0.158, therefore, the null hypothesis (H_{01}) is accepted and the alternate hypothesis is rejected. Tables 8A, 8B and 8C show the cross tabulation, Pearson chi-Square test and Correlation between the variables SDG rating and Return on Equity (ROE).

As can be seen from Table 8, correlation between SDG Rating and ROE is positive, yet weak. This weak relation is not statistically significant. There is no association between Sustainability Initiatives and Corporate Financial Performance using accounting-based measures (ROE) for the NSE NIFTY 50 companies. The p-value is 0.155 and the r-value is 0.197, therefore, the null hypothesis (H_{01}) is accepted and the alternate hypothesis is rejected. Tables 9A, 9B and 9C show the cross tabulation, Pearson chi-Square test and Correlation between the variables SDG rating and PE Ratio.

For the NSE NIFTY 50 companies, there is no association between Sustainability Initiatives and Corporate Financial Performance using market-based measures (PE Ratio). Correlation is negative, yet weak. This weak relation is not statistically significant.

SDG Rating and the Type of the industry i.e., manufacturing or service

In order to statistically test the relationship of sustainability initiatives of NSE NIFTY companies with the type of their business activities – service or manufacturing, the following hypothesis was developed:

H₀: For the NSE NIFTY 50 companies, there is no association between Sustainability Initiatives and Type of Industry.

H₁: For the NSE NIFTY 50 companies, there is association between Sustainability Initiatives and Type of Industry.

The test statistics are presented in Table 10A, 10B and 10C. The p value (sig.) for this case is .701 which is greater than alpha = 0.5, level of significance, therefore, the null hypothesis is accepted and the alternate hypothesis is rejected. Thus, it can be statistically concluded with 95% confidence level that there is no association between Sustainability Initiatives and Type of Industry – manufacturing or service. This is the result table showing that there is very weak positive correlation with no statistical significance between Sustainability initiatives and ROA, ROE and type of Industry. There is very weak negative correlation with no statistical significance between Sustainability initiatives and PE Ratio. Also, the null hypotheses stand accepted as no association can be seen between the variables.

IV. Conclusion

Based on the analysis of the secondary data, the following empirical findings have emerged:

1. The reporting of SDGs in India is in its nascent stage and companies are linking their existing programmes to SDGs.
2. Almost all companies in the sample are undertaking corporate sustainability activities that are relevant to one or more of the global goals, without necessarily linking these to the SDG framework.
3. The SDGs prioritized most frequently by companies in our sample include those with the most apparent links to business:
GOAL 4: Quality Education
GOAL 3: Good Health and Well-being
GOAL 11: Sustainable Cities and Communities
GOAL 6: Clean Water and Sanitation
GOAL 9: Industry, Innovation and Infrastructure
4. Ambitious sustainability efforts are taking place without explicit reference to the SDGs.
5. There is no association between Sustainability Initiatives and Corporate Financial Performance and Type of Industry of the NSE NIFTY 50 companies

6. Only 68% of the sample companies had a Sustainability report posted on the company website.
7. Around 44% of the sample companies mapped their companies' goals with SDGs.
8. Three years after the adoption of the Sustainable Development Goals (SDGs), reliable information on how companies are working to contribute to the SDGs remains patchy.
9. Companies are slowly and gradually incorporating SDGs into their responsible business actions.

The recommendations emanated from the study are:

Regulators

- ❖ Strengthen the supervision and enforcement of sustainability disclosures.
- ❖ Implement the principle of “Comply or Explain” in a corporate disclosure statement.

Companies

- ❖ Prioritization: SDGs should be looked as a guiding light and SDG strategies should flow from the top. For SDG engagement to be more than window dressing, companies need to integrate SDG engagement into their core business and sustainability practices.
- ❖ Integration: SDG engagements should build on existing corporate sustainability strategies as a starting point to determine gaps in SDG impact areas that companies can address.
- ❖ Avoid ‘cherry-picking’ and ‘SDG-washing’. ‘Cherry-picking’ refers to selecting goals based on what is easiest for companies rather than what accounts for the highest priorities. ‘SDG-washing’ means reporting on positive contributions to the Global Goals and ignoring important negative impacts. Companies should also identify and act on the full range of priority SDG targets that intersect with their operations and value chains.
- ❖ Businesses need to move beyond the current trend of simply mapping activities and programs against the SDGs to driving change.
- ❖ Reporting and accountability: Companies should be transparent about what they want to achieve and how they plan to get there when engaging with the SDGs. Going beyond regular communication to stakeholders, effective corporate reporting is key to building trust and aligning investment through transparency and accountability.

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Table 1: Descriptive Statistics.

		PE Ratio	SDG Score	ROA Annual %	ROE Annual %	SDG Scale
N	Valid	49	50	50	50	50
	Missing	1	0	0	0	0
Mean		44.37	12.42	8.0780	17.5340	1.94
Std. Deviation		72.339	5.296	7.13998	11.64281	.935
Variance		5.233E3	28.044	50.979	135.555	.874
Skewness		3.506	.109	1.198	2.238	.123
Std. Error of Skewness		.340	.337	.337	.337	.337
Kurtosis		12.704	-1.395	.974	10.389	-1.888
Std. Error of Kurtosis		.668	.662	.662	.662	.662
Minimum		3	3	-.10	-2.20	1
Maximum		373	20	30.50	74.00	3

Table 2: Industry Category

	No. of Companies	Percent	Valid Percent	Cumulative Percent
Automobile	6	12.0	12.0	12.0
Banks	7	14.0	14.0	26.0
Cement & Construction Materials	1	2.0	2.0	28.0
Cigarettes/ Tobacco	1	2.0	2.0	30.0
Diamond & Jewellery	1	2.0	2.0	32.0
Diversified	1	2.0	2.0	34.0
Engineering - Construction	1	2.0	2.0	36.0
Finance	4	8.0	8.0	44.0
Household & Personal Products	1	2.0	2.0	46.0
Industrial Gases & Fuels	1	2.0	2.0	48.0
IT - Software	5	10.0	10.0	58.0
Metal, Mining & Minerals	3	6.0	6.0	64.0
Oil Exploration	1	2.0	2.0	66.0
Paints	1	2.0	2.0	68.0
Pesticides & Agrochemicals	1	2.0	2.0	70.0
Pharmaceuticals & Drugs	3	6.0	6.0	76.0
Port	1	2.0	2.0	78.0
Power Generation/Distribution	2	4.0	4.0	82.0
Refineries	4	8.0	8.0	90.0
Steel & Iron Products	2	4.0	4.0	94.0
Telecommunication - Service Provider	2	4.0	4.0	98.0
TV Broadcasting & Software Production	1	2.0	2.0	100.0
Total	50	100.0	100.0	

Table 3: Sectoral Trends

Type of Industry	No. of Companies	Percent	Cumulative Percent
Manufacturing	31	62.0	62.0
Service	19	38.0	100.0
Total	50	100.0	

Table 4: SDG Score

		No. of companies	Percent	Cumulative Percent
Valid	Very Low	3	6.0	6.0
	Low	20	40.0	46.0
	Moderate	7	14.0	60.0
	High	20	40.0	100.0
	Total	50	100.0	

Table 5: Sustainability Report & Mapping SDGs with Companies' Goals

Sustainability Report					
		Number of companies	Percent	Valid Percent	Cumulative Percent
Valid	No	16	32.0	32.0	32.0
	Yes	34	68.0	68.0	100.0
	Total	50	100.0	100.0	
Mapping SDGs with Companies' goals					
		Number of companies	Percent	Valid Percent	Cumulative Percent
Valid	No	28	56.0	56.0	56.0
	Yes	22	44.0	44.0	100.0
	Total	50	100.0	100.0	

Table 6: Pearson Correlation Matrix

		SDG Score	Industry Category	ROA Annual %	ROE Annual %	PE Ratio
SDG Score	Pearson Correlation	1	.086	.189	.250	-.193
	Sig. (2-tailed)		.554	.189	.081	.184
	N	50	50	50	50	49
Industry Category	Pearson Correlation	.086	1	-.018	.035	-.168
	Sig. (2-tailed)	.554		.903	.811	.249
	N	50	50	50	50	49
ROA Annual %	Pearson Correlation	.189	-.018	1	.741**	-.232
	Sig. (2-tailed)	.189	.903		.000	.108
	N	50	50	50	50	49
ROE Annual %	Pearson Correlation	.250	.035	.741**	1	-.242
	Sig. (2-tailed)	.081	.811	.000		.093
	N	50	50	50	50	49
PE Ratio	Pearson Correlation	-.193	-.168	-.232	-.242	1
	Sig. (2-tailed)	.184	.249	.108	.093	
	N	49	49	49	49	49
**. Correlation is significant at the 0.01 level (2-tailed).						

Table 7A: SDG Rating and ROA

SDG Rating * ROA Scale Cross tabulation

			ROA Scale		Total
			-1% - 30%	30.01% - 60%	
SDG Rating	Very Low	Count	3	0	3
		Expected Count	2.9	.1	3.0
	Low	Count	20	0	20
		Expected Count	19.6	.4	20.0
	Moderate	Count	7	0	7
		Expected Count	6.9	.1	7.0
	High	Count	19	1	20
		Expected Count	19.6	.4	20.0
	Total	Count	49	1	50
		Expected Count	49.0	1.0	50.0

Table 7B: SDG Rating and ROA – Chi-Square Tests.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.531	3	.675
Likelihood Ratio	1.863	3	.601
Linear-by-Linear Association	1.223	1	.269

Table 7C: SDG Rating and ROA – Correlations.

Correlations

		SDG Rating	ROA Scale
SDG Rating	Pearson Correlation	1	.158
	Sig. (2-tailed)		.273
	N	50	50

Table 8A: SDG Rating and ROE.

SDG Rating * ROE Scale Crosstabulation

			ROE Scale			Total
			-1% - 30%	30.01% - 60%	60.01% - 100%	
SDG Rating	Very Low	Count	3	0	0	3
		Expected Count	2.8	.2	.1	3.0
	Low	Count	20	0	0	20
		Expected Count	18.4	1.2	.4	20.0

	Moderate	Count	5	2	0	7
		Expected Count	6.4	.4	.1	7.0
	High	Count	18	1	1	20
		Expected Count	18.4	1.2	.4	20.0
Total		Count	46	3	1	50
		Expected Count	46.0	3.0	1.0	50.0

Table 8B: SDG Rating and ROE – Chi-Square Tests

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.348	6	.155
Likelihood Ratio	8.224	6	.222
Linear-by-Linear Association	1.905	1	.167

Table 8C: SDG Rating and ROE – Correlations

Correlations

		SDG Rating	ROE Scale
SDG Rating	Pearson Correlation	1	.197
	Sig. (2-tailed)		.170
	N	50	50

Table 9A: SDG Rating and PE Ratio

SDG Rating * PE Scale Cross tabulation

			PE Scale		Total
			0-200	200-400	
SDG Rating	Very Low	Count	3	0	3
		Expected Count	2.8	.2	3.0
	Low	Count	17	2	19
		Expected Count	17.8	1.2	19.0
	Moderate	Count	6	1	7
		Expected Count	6.6	.4	7.0
	High	Count	20	0	20
		Expected Count	18.8	1.2	20.0
Total		Count	46	3	49
		Expected Count	46.0	3.0	49.0

Table 9B: SDG Rating and PE Ratio – Chi-Square Tests

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.953	3	.399
Likelihood Ratio	4.043	3	.257
Linear-by-Linear Association	.969	1	.325

Table 9C: SDG Rating and PE Ratio – Correlations

Correlations			
		SDG Rating	PE Scale
SDG Rating	Pearson Correlation	1	-.142
	Sig. (2-tailed)		.330
	N	50	49

Table 10A: SDG Rating and Type of Industry

SDG Rating * Type of Industry Crosstabulation					
			Type of Industry		Total
			Manu- facturing	Service	
SDG Rating	Very Low	Count	1	2	3
		Expected Count	1.9	1.1	3.0
	Low	Count	12	8	20
		Expected Count	12.4	7.6	20.0
	Moderate	Count	5	2	7
		Expected Count	4.3	2.7	7.0
	High	Count	13	7	20
		Expected Count	12.4	7.6	20.0
Total		Count	31	19	50
		Expected Count	31.0	19.0	50.0

Table 10B: SDG Rating and Type of Industry – Chi-Square Tests

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.421	3	.701
Likelihood Ratio	1.393	3	.707

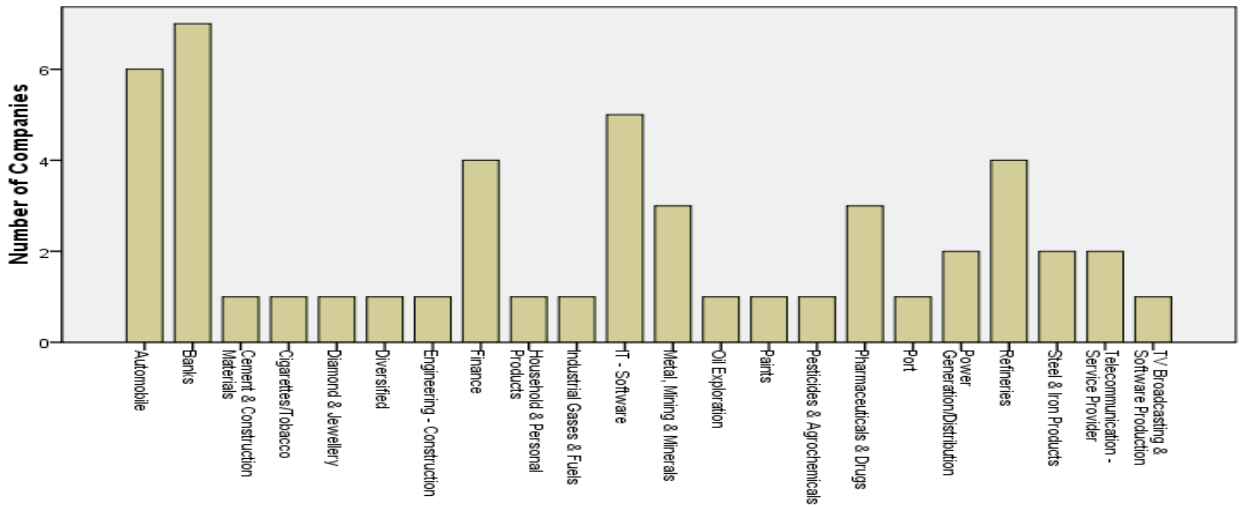
Table 10C: SDG Rating and Type of Industry– Correlations

Correlations			
		SDG Rating	Industry Category
SDG Rating	Pearson Correlation	1	.081
	Sig. (2-tailed)		.575
	N	50	50

Table 11: Result Analysis

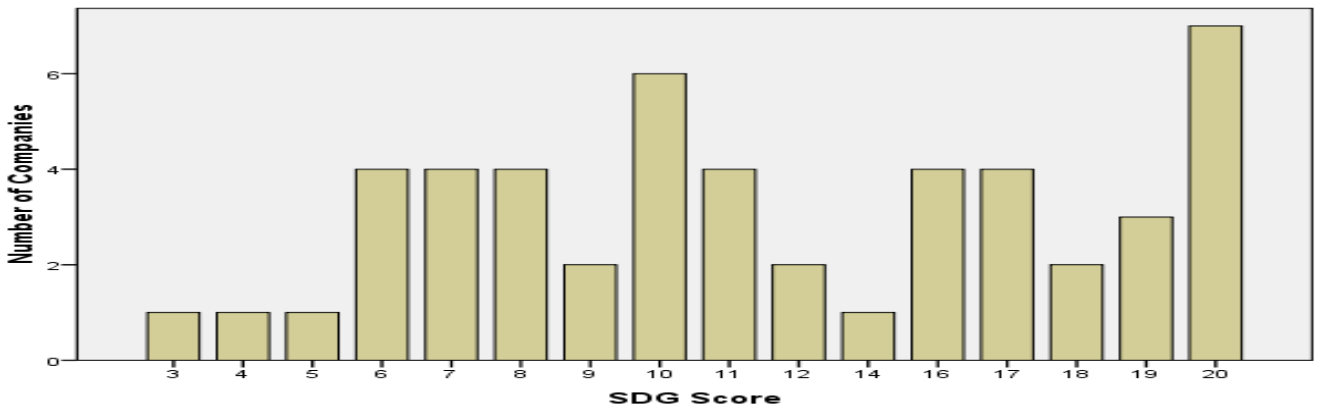
Hypotheses	P-value	r-value	Decision
H ₀₁ : For the NSE NIFTY 50 companies, there is no association between Sustainability Initiatives and Corporate Financial Performance using accounting-based measures (ROA)	0.675	0.158	Accept Correlation is positive, yet weak. This weak relation is not statistically significant.
H ₀₁ : For the NSE NIFTY 50 companies, there is no association between Sustainability Initiatives and Corporate Financial Performance using accounting-based measures. (ROE)	0.155	0.197	Accept Correlation is positive, yet weak. This weak relation is not statistically significant.
H ₀₂ : For the NSE NIFTY 50 companies, there is no association between Sustainability Initiatives and Corporate Financial Performance using market-based measures. (PE Ratio)	0.399	-0.142	Accept Correlation is negative, yet weak. This weak relation is not statistically significant.
H ₀₃ : For the NSE NIFTY 50 companies, there is no association between Sustainability Initiatives and Type of Industry.	0.701	0.081	Accept Correlation is positive, yet weak. This weak relation is not statistically significant.

Figure 1
Industry Category



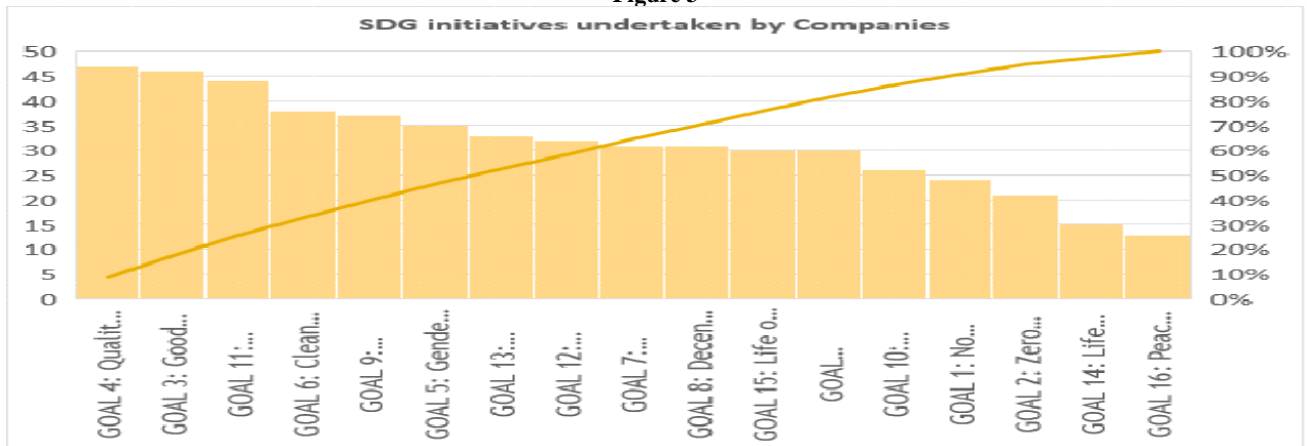
Source: Compiled

Figure 2
SDG Score



Source: Compiled

Figure 3



Source: Compiled

A STUDY OF FACTORS AFFECTING INTEREST RATE SPREAD WITH SPECIAL REFERENCE TO INDIAN PUBLIC SECTOR BANKS

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A difference or spread between two related interest rates occurs in many types of business or finance transactions. In banks as well spread is a difference between the interest expense paid to the depositors and the interest income received from customers of bank. It is very important to determine the interest spread of bank as the major portion of bank's profit consists of net interest earned. In this paper an attempt has been made to identify the major factors affecting interest rate spread, in Indian public sector banks and impact of each considered factor on interest rate spread has been also analysed. The tools and techniques used in this paper are ADF test, correlation test, least square regression model and residual analysis etc. Through this paper, an attempt has also been made to suggest some robust factors affecting interest rate spread of public sector banks operating in India.

Keyword: Interest rate spread, Public sector banks, Profit margins and Bank size.

A major portion of bank's earning comes from interest earned on loans and other types of assets while the expenditure of a bank includes interest paid to the customers who make deposits into interest-bearing accounts. The ratio of income received by a bank in form of interest and interest it pays out to the customers is called as bank's interest rate spread. The interest rate spread is very helpful in determining profit margin of a bank. A high spread is considered as higher profit margin, as the difference between the interest received and interest paid is high and vice versa. According to Amna K. and Mohd. K, (2016), Interest rate spread is the difference between deposit interest rate and the lending interest rate of bank. Interest rate spread is considered as an eminent factor in measuring profitability of banks. This indicates that increase or decrease in interest rate will affect profitability. Banks provide a link between transferring the money from household's/ business entities that have a financial surplus called to those who don't have it or are in deficit. So, it starts from the customers who deposits their money in the banks and receives interest as return of the money utilized by bank. The Bank then provides this money to borrowers, the other set of customers, and charge higher rate of interest in order to cover the wide-ranging risks, which indicates that interest rate spread refers to the difference between the interest rate given on debt and the interest rate charged on credit. This process results in creating a margin for the bank that adds to the stability of banks in a competitive market. (Kwakye, 2010). Interest rate spread has been considered as a very phenomenon factor in measuring the financial viability of banks in several other

researches as well. The bank whose more than 50% shareholding is with government is considered as a public sector bank. Since from their inception these public sector banks are playing a dominant role in Indian financial scenario. Public sector banks have been working efficiently and effectively in channelizing savings from households/ saving units to the industries, infrastructural development and other sectors, where this fund is required. The role of banks and particularly the public sector is very vital in facilitating economic development and growth of a nation. An exploration of the factors affecting the interest rate spreads in the public sector banks is not only useful for the growth of bank, but is also important for sustainable financial intermediation process. As per the Reserve Bank of India (2020), the banks in India are suitably capitalized and also have a strong regulatory framework. Various studies on liquidity, credit and market risk suggests that Indian banks are generally robust and have even endured the worldwide depression efficiently. Now, banks in India are also exposed to many of the advanced banking models like IT enabled banking, kiosk banking, conversational interface in banking, block chain etc. This new course of action of RBI probably will help banks in reshaping and redesigning the basic framework of banks in India.

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I. Review of Literature

According to Agapova and McNulty (2016), the spread may be a particularly good measure of efficiency, both for the transition economies and other countries. They found that the spread is highly negatively correlated to bank assets per capita as a measure of financial intermediation for all types of economies: developed, developing and transition, and the spread is negatively related to economic growth. They also found that the spread is a function of country specific economic, social and political characteristics – inflation, economy size, GDP per capita, the proportion of agricultural output in GDP, urban population, and the rule of law. Akinlo and Owoyemi (2012), examined the determinants of interest rate spreads in Nigeria using a panel of 12 commercial banks for the period 1986-2007. The findings suggest that a reduction in cash reserve ratio, high bank overhead costs amongst others will help to moderate the high interest rate spreads in Nigeria. The determinants of interest rate spread analysed includes cash reserve ratio, ratio of average capital to average total assets, ratio of loans to total deposit, ratio of average loans to average total assets, and ratio of non-interest expenses to average total assets. Al Shubiri and Jamil (2017) also examined the factors that determine interest rate spread of commercial banks listed on Muscat security market over the period 2008–2014. The result of optimal utilization of its assets and has a direct bearing of their interest rate spreads. Greater margins on interest results in increased profitability and it is reflected on the market valuation and market share of the banks and reflected positively on the economic growth and stability.

Antwi, Banerjee and Antwi (2017), analyzed the bank interest rate spread and found that financial intermediation process and the macroeconomic environment in which banks operate spread is a strong determinant of banking operations. The study has carried out to empirically investigate the interest rate spread on banks profitability in Ghana using average annual observation data from 1992–2015 to include 28 commercial banks. Bektas (2014) contributes to the banks interest margin literature by introducing two unique spread measures in addition to traditional net interest margin. Their result was a positive relationship between credit risk, net interest margin and spread measures. The finding of this study, recall prudential lending by bank and also an improvement in disclosure and transparency regulations by regulators. The liquidity variable, which has not significant effect on net interest margin has positive and significant effect on spread, requires bank managers to develop better liquidity management.

Bhattarai (2017), examined determinants of interest rate spreads of commercial banks in Nepal using the panel data of 7 commercial banks over the period of 6 years (2010-2015). This study has employed the pooled OLS model, fixed effect model and random effect model to investigate the bank-specific variables affecting interest rate spread. The study is interest rate spreads and whereas default risk, cash reserve requirement, profitability, bank size is considered as independent variables. Fallah (2012), studied the determinants of interest rate spread in the financial sector of Liberia and methodology the study was designed using various factors that are used to determine the gap between lending and deposit interest rate. The results show that the interest rate spread increased because of yet-to-be gained efficiency and high intermediation costs.

Garr and Kyereboah-Coleman (2013), examined bank-specific, industry-specific and macroeconomic factors that influence interest rate spreads (IRS) in commercial banks in Ghana using unbalanced panel data set from 33 commercial banks covering the 21-year period 1990 to 2010. Ivanov et al. (2016), examined the practice of tying loan interest rates to credit default swaps, has affected borrowing costs. Study found that CDS based loans are associated with lower interest rates, both at origination and during the life of the loan and banks are able to extend funding at lower interest rate spreads when they rely on market-based pricing and that banks reduce the number of covenants on the loans they price off the CDS market. Taken together these results suggest that the reduction in interest rate spreads derives from banks' savings in monitoring costs. Kadri (2012) determined the risk aversion and the market structure of the banking sector, with money market interest volatility playing quite a modest role in the long-term equilibrium. The study has provided evidence with the fact that a large share of the Estonian banks' loan portfolio has a flexible-Euribor pegged loan rate which is reviewed every six months. Study has also revealed that the interest rate volatility in the composition of the spread has gained weight at times when there is an upward trend in the average Euribor rate. The major determinant of the pure spread is the risk aversion of the banking sector, which has significantly widened the spreads since the eruption of the global financial crisis in late 2007. Makotore (2013), determinants of bank spreads in Zimbabwe's commercial banking sector in the multiple currency period (2009 to 2012). The study employed panel data techniques to analyse the impact of bank specific, industry specific and macroeconomic factors on bank spreads. The degree of market power that a bank possesses as measured by the share of market deposits is the industry variable that

affect bank spreads. Stability in the economy as measured by bank spreads also determine spreads. These results argue well with past research such as that of Dermigurc-Kunt and Huizinga (1998) and Younus and Mjeri (2009). Mensah and Abor (2014), examined the relationship between interest rate spreads in the Ghanaian banking industry and variables that reflect convergence/divergence between managerial goals and corporate goals of which the key variables are executive compensation and bank ownership structure. We find that larger banks tend to operate on a larger spread compared to banks with smaller banks. This suggests that such banks are not fully benefitting from economies and need to pass on their larger investments in infrastructure and IT. Industry, regulatory and macroeconomic indicators are also found to play a key role in influencing interest rate margins in Ghana.

Njeri, Ombui and Kagiri (2015), determinants of interest rate spreads in commercial banks of Kenya based on data analysis and quantified the impact of those factors on interest rate spreads. Despite the liberalization of the financial sector, high interest rate spreads are still an issue of concern in a number of African countries, including Kenya. Study establishes that interest rate spreads in Kenya has been on the rise though there are periods that they have declined. In general, the study found that all determinants are statistically significant in determining interest rate spreads. Wambugu (2014), examined the effect of loan size on the interest rate spread in commercial banks. To examine the effect of loan size on the interest rate spread, the appropriate design was causal predictive research design. The study therefore concludes that interest rate spreads of commercial banks in Kenya are not influenced by the ratio of collateral to total loans of the bank. This is consistent with the results of some of the past studies on interest rate spreads.

Objectives of the study:

- To identify the factors affecting interest rate spread in banks (public sector) in India.
- To analyse the impact of individual factors on interest rate spread in public sectors banks in India.
- To suggest suitability of factors for robust interest rate spread.

II. Research Design & Methods

The time series data of Interest rate spread on the selected public banks in Indian context was collected for this study mainly from the BSE and RBI websites. The data was collected for Bank size, Operating Ratio, Net interest income, Return on assets, Bank Size, Loan to Asset Ratio, Non-Interest Income Ratio, Debt Equity Ratio.

The sample design

Population- All the banks of India.

Sample Frame- 19 Public sector banks of India

Time Frame- Eight years of time period from 2012-19.

Sampling element: Following sampling elements are considered

Bank size, Operating Ratio, Net interest income, return on assets, Loan to Asset Ratio, Non-Interest Income Ratio, Debt Equity Ratio and Interest rate spread of the selected public banks in Indian context.

Sampling technique- Non probability judgmental sampling.

Tools use for Data Collection

Reliable Secondary sources were used to collect data like websites of selected public sector banks and official website of Reserve Bank of India (RBI).

Tools Used for Data Analysis

Following tools were used for study

1. ADF test was applied to check the stationary of data.
2. Correlogram test was applied to check the stationary and graphic presentation of residuals.
3. Residual analysis was applied to test the assumptions of regression model through the following test:
 - Serial correlation LM test.
 - Heteroskedasticity test.
4. The cause and effect relationship was checked by using least square regression model.

III. Results & Discussion

Unit Root Test

As the data used is time series, so, it is better to check whether it has unit root or it is stationary in nature. For checking stationarity of different data series ADF- Fuller test was applied on various data series (factors) used in this study including interest rate spread data series. In the above table it is shown that probability values for all the factors is less than 0.05. It means various factors taken in this study like Bank Size, Loan to Asset Ratio, Operating Ratio, Debt Equity Ratio, return on Asset, Non-Interest Income Ratio, Net Interest Income Ratio and Interest Rate Spread does not have any unit root, hence they are stationary in nature.

Correlogram Residual Test of checking stationarity of data series

Results of this test shows that p-value for various factors in greater than 0.05. which means all these factors are stationary in nature and does not have any unit root.

Regression Analysis

The outcome of regression analysis shows that independent variables; Debt Equity Ratio (0.0000), Non-Interest Income Ratio (0.0148), Bank Size (0.0064),

Return on Asset (0.0002) have significant impact on Interest Rate Spread. Because the Prob. value of t-statistic is less than **0.05**. Net interest income (0.3510), Loan to Asset Ratio (0.9428), and Operating Ratio (0.5076) these factors does not have significant impact on Interest Rate Spread because the Prob. value for these variable is more than **0.05**.

$$y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + e$$

$$\text{Interest Rate Spread} = 9.249865 + (-0.385019) + 0.094087 + (-0.035855) + 0.808559 + 0.071031 + (-0.726484) + (-0.357696) + e$$

Model summary of regression analysis as shown above indicates that this model explains more than 32 % variation in interest rate spread as adjusted R-square value is 32.3044 %. Probability value is also less than 0.05 which means this model is best fit and providing significant result.

Regression's Assumption Tests:

Breusch-Godfrey Serial Correlation Lm Test

H_0 – Residuals are not serial correlated.

F-statistic	1.406275	Probability	0.0743
Obs*R-squared	76.16994	Probability	0.0777

As per the result shown in above table, probability value of Obs R-square is more than 0.05 which means our residuals are not serially correlated.

Heteroskedasticity Test

H_0 – residuals are not heteroskedastic.

F-statistic	1.094454	Probability	0.3699
Obs*R-squared	7.678297	Probability	0.3618

As the outcomes of this test indicate that probability value is 0.03618 which is more than 0.05. it means our null hypothesis is not rejected and residuals used in the regression analysis are not heteroskedastic in nature.

ARCH LM Test

H_0 – there is no arch effect in the residuals.

F-statistic	0.572192	Probability	0.8992
Obs*R-squared	9.715496	Probability	0.8811

As per the outcome shows by above table p-value is greater than 0.05 which means null hypothesis is rejected and there is no arch effect in residuals.

Implications

With the help of this research banks and policy makers can know the pattern of interest rate spread and could get to know about the role of interest earnings, non interest earnings. Banks could also benefit with the findings of proposed study that, how debt equity ratio, Loan to asset ratio contributes towards determining the IRS.

Suggestions

The results show that leverage ratios and operational activities ratios play a relatively and more fundamental role in the determination of Interest rate spread (IRS) in the banking sector. These include Bank Size, Loan to Asset Ratio, Operating Ratio, Debt Equity Ratio, Return on Asset, Non-Interest Income Ratio, net interest Income Ratio. In general, the research findings were: relatively significant effect of Debt Equity Ratio, Non-Interest Income Ratio, Bank Size and Return on Asset was found on Interest Rate Spread. And Net interest income, Loan to Asset Ratio, operating ratio, are also taken as determinants of IRS but they do not have any significant effect on Interest Rate Spread.

IV. Conclusion

This study examined “Factors Affecting Interest Rate Spread in Public Sector Bank in India”. The time series data on Interest Rate Spread is collected for this study for 19 leading public sector banks in India. The data is collected of Interest Rate Spread in Public Sector Bank in India. Time period is taken for analyses of the study is the 8 years’ period from 2012 to 2019. For uniformity in analysis, all the data on Interest Rate Spread has been taken in Indian Context. Stationarity test, Correlogram residual test, Actual fitted residual analysis, Regression model assumption test, like: Arch LM Test, Heteroscedasticity Test, Breusch-Godfrey Serial Correlation LM Test, was applied. To check Factor Affecting Interest Rate Spread Regression test was applied. This was concluded by testing the hypothesis and result obtained is as below:

- Bank Size, Loan to Asset Ratio, Operating Ratio, Debt Equity Ratio, return on Asset, Non-Interest Income Ratio, Net Interest Income Ratio and Interest Rate Spread, Valuation Ratio have no unit root.
- Interest Rate Spread has no unit root.
- No autocorrelation in the data justifies the stationarity of the residuals.
- There is no Arch effect in the residuals.
- The residuals are not heteroskedastic.
- There is a significant impact of Debt Equity Ratio (0.0000), Non-Interest Income Ratio (0.0148), Bank Size (0.0064), Return on Asset have impact on Interest Rate Spread but Net interest income (0.3510), Loan to Asset Ratio (0.9428), Operating Ratio have no impact on Interest Rate Spread.

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Table 1: Results of ADF- fuller test of stationarity on various data series.

Variable	ADF-statistic	Critical value	Probability value	Level of significance	Order of integration
Interest Rate Spread	-5.380818	-3.473967	0.0000	1%	Level
Debt Equity Ratio	-3.805103	-3.474874	0.0036	1%	Level
Net interest income	-3.159616	-3.476472	0.0245	5%	Level
Loan to Asset Ratio	-7.156012	-3.473967	0.0000	1%	Level
Non-Interest Income Ratio	-6.674306	-3.473967	0.0000	1%	Level
Operating Ratio	-6.618900	-3.474265	0.0000	1%	Level
Bank Size	-4.183670	-4.023506	0.0061	1%	Level
Return on Asset	-4.046844	-3.476472	0.0016	1%	Level

Chart 1: Correllogram Test

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	0.195	0.195	5.9710	0.015	
2	-0.019	-0.059	5.9273	0.052	
3	-0.035	-0.020	6.1180	0.106	
4	-0.054	-0.046	6.5760	0.160	
5	-0.057	-0.041	7.0949	0.214	
6	-0.002	0.014	7.0953	0.312	
7	-0.004	-0.013	7.0980	0.419	
8	0.002	0.001	7.0985	0.526	
9	0.099	0.098	8.6953	0.466	
10	0.001	-0.042	8.6955	0.561	
11	-0.023	-0.008	8.7814	0.642	
12	-0.035	-0.028	8.9889	0.704	
13	-0.046	-0.030	9.3443	0.746	
14	-0.039	-0.020	9.6070	0.790	
15	-0.009	-0.007	9.6217	0.843	
16	-0.025	-0.030	9.7336	0.880	
17	-0.025	-0.021	9.8444	0.910	
18	0.002	-0.007	9.8449	0.937	
19	-0.020	-0.023	9.9183	0.955	
20	-0.024	-0.018	10.020	0.968	
21	-0.034	-0.030	10.226	0.976	
22	-0.037	-0.026	10.468	0.982	
23	0.013	0.025	10.501	0.988	
24	-0.006	-0.026	10.507	0.992	
25	-0.025	-0.023	10.626	0.995	
26	-0.049	-0.047	11.080	0.995	
27	-0.031	-0.023	11.263	0.997	
28	-0.030	-0.025	11.435	0.998	
29	0.039	0.043	11.731	0.998	
30	-0.013	-0.042	11.764	0.999	
31	-0.040	-0.034	12.067	0.999	
32	-0.034	-0.037	12.297	0.999	
33	-0.041	-0.038	12.620	0.999	
34	-0.032	-0.024	12.918	1.000	
35	-0.039	-0.040	13.118	1.000	
36	-0.013	-0.013	13.153	1.000	

Table 2
REGRESSION ANALYSIS

VARIABLE	COEFFICIENT	STD ERROR	T STATISTIC	PROB.
C	9.249865	1.780366	5.195486	0.0000
Debt Equity Ratio (x ₁)	-0.385019	0.079237	-4.859111	0.0000
Net interest income (x ₂)	0.094087	0.100564	0.935596	0.3510
Loan to Asset Ratio (x ₃)	-0.035855	0.499268	-0.071816	0.9428
Non-Interest Income Ratio (x ₄)	0.808559	0.327685	2.467487	0.0148
Operating Ratio (x ₅)	0.071031	0.106948	0.664166	0.5076
Bank Size (x ₆)	-0.726484	0.262622	-2.766278	0.0064
Return on Asset (x ₇)	-0.357696	0.093722	-3.816577	0.0002

Dependent Variable: Interest Rate Spread

Table 3

MODEL SUMMARY

R-squared	Adjusted squared	R-Durbin-Watson statistic	F-statistic	Prob.(F-statistic)
0.354426	0.323044	0.941496	11.29389	0.000000

BENCHMARKING FARMERS' SATISFACTION WITH SPECIAL REFERENCE TO PRADHAN MANTRI FASAL BIMA YOJNA

Pawan Kumar Sharma*

The Pradhan Mantri Fasal Bima Yojna (PMFBY) was launched in 2016 with an impetus on crop sector which replaced existing crop insurance schemes in India. This scheme focuses on adoption of modern technology for the purpose of yield estimation and increasing the crop insurance penetration in India. The purpose of this study is to explore the determinants to benchmark the satisfaction of farmers with special reference to PMFBY. Data were collected by employing schedule from Lucknow and Kanpur districts and 181 responses were used for analysis. This study is exploratory, descriptive and cross-sectional in nature. A twelve 12-item scale was subjected to Confirmatory Factor Analysis (CFA) resulting in farmers' satisfaction. Further, PMFBY can be measured or reasoned along four facets i.e. services, complaint redressal, rendering of services and transparency. The scale developed with above process may prove reliable and valid in measuring the satisfaction attributes of farmers. This study is expected to provide the sound base to government and insurance institutions towards formulating the strategies for effective implementation and assessing satisfaction level of farmers.

Keywords: Crop insurance, Services, Complaint redressal, Rendering of services, Transparency.

“Agriculture and allied activities are of the most important sectors of Indian economy and accounts for nearly 16% of India’s gross domestic product (GDP) and provides employment to about half of the workforce of the country(Singh, A.K. & Singh, A., 2019)”.India is a country that is known for farmers where maximum rural population is dependent on agriculture (Devi, S., 2016).More than 70% of the population either directly or indirectly depend on agriculture and agriculture related works for their living (Srinivasulu, M., 2015).The performance of agribusiness growth, food security and livelihoods depend on small and marginal holding farmers(Rajaram, Y. &Chetana, B.S., 2018). India is the second largest country population wise, seventh largest country in geographical area and twelfth largest nation economy wise (Srinivasulu, M., 2015). Agriculture produce and incomes of farmers are frequently affected by natural calamities such as floods, cyclones, landslides, storms, droughts, earthquakes etc. (Devi, S., 2016). “Agriculture sector in India faces the risk of loss due to draughts, floods and other natural calamities and thereby it is imperative to protect farmers from any kind of loss and enable them to maintain their financial position for the next crop season (Singh, A.K. & Singh, A., 2019)”. Agriculture is intrinsically one of the riskiest economic activities. The prevalence of risk in farming isn't new and farmers, organizations and money lenders have, over generations, developed methods to reduce and counter the risk (Srinivasulu, M., 2015). Risk that affect agriculture

are classified as price or market risk, technology risk, financial and credit risk, production risk, institutional risk, legal / policy risk, human or personal risk, health risks, assets risks and resource risk (Srinivasulu, M., 2015). The declining trend of investment in agriculture, combined with a pattern of increment in variation of temperatures and occurrence of calamities is being witnessed (Rathore, V., 2017). Farmers are exposed to risk from rainfall variability, market price fluctuations, credit uncertainty and adoption of new technology. The diversities in the sources of risks require a variety of instruments for safeguarding the farmers (Srinivasulu, M., 2015). Cultivators are exposed to risk from market price fluctuations, variability, adoption of new technology and credit uncertainty. Due to existence of various sources of risks need a different instrument for safeguarding the farmers (Srinivasulu, M., 2015). Hence, it is considered that crop insurance is the only instrument accessible to safeguard against risks (Shinde R., et al., 2019). The Pradhan Mantri Fasal Bima Yojna (PMFBY) was introduced on 18th Feb 2016. 21 states employed the scheme for Kharif 2016 while 23 states and 2 Union Territories implemented the scheme for Rabi crop 2016-17. The main objective of insurance; life insurance or general insurance, is to shield the insured from risks which are anticipated (Singh, A.K. & Singh, A., 2019).

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I. Review of Literature

The PMFBY delivers a comprehensive insurance cover against failure of the crop and assist in stabilising the income of the cultivators which is being administered by Ministry of Agriculture and executed by empanelled general insurance companies. The PMFBY is compulsory for loanee cultivators availing kisaan credit card (KCC) account or crop loan for notified crops. In this scheme there is no upper limit on subsidy offered by centre and state governments and “Even if the balance premium (after farmers’ contribution) is 90%, it will be borne by the government” (Srinivasulu, M., 2015).

This scheme reflects considerable progress in the model especially as regards premium payments. The premium paid by farmers are very low and remaining premium are paid by the concerned government to deliver full insured sum to the cultivator against crop loss due to natural disaster (Rathore, V., 2017). The shortage of precise and sufficient data concerning crop yield and losses in most developing nations compounds the issues in crop insurance design (Srinivasulu, M., 2015). “A reliable risk management system can serve as an important catalyst for widespread agri value chain-based models in India” (Rathore, V., 2017).

The utilization of technology such as smart phone and remote sensing is the most impressive modification to reduce losses, quick estimation of crop loss leads to speed up the claim process and make financially viable (Devi, S., 2016; Rathore, V., 2017). The PMFBY is only revenue loss coverage which protects against weather or climate risk and not crop loss risk (Rathore, V., 2017). After implementation of this scheme, farmers will not seek loans from private money lenders. The cultivators do not have to go for distress sale of their produce to repay private debts. The difficulties confronting Indian agriculture can be classified in different categories such as development, maintainability, proficiency and value. There are likewise other significant concerns like livelihood, security, occupation, enhancement in standard of living of rural population engaged in agriculture (Srinivasulu, M., 2015). It can be inferred that to get more extensive voluntary adoption of PMFBY by farmers, active cooperation of stakeholders along with service provider is essential for public awareness (Ghanghas, B.S., 2018). Mostly farmers are small and marginal and, hence utilization of technology is challenging for them (Rathore, V., 2017). Further, there is no provision in this scheme for tenant farmers who face the risk of crop failure but they are not eligible for compensation (Rathore, V., 2017). Ignorance among the farmers and

non-availability of agents to disseminate agricultural insurance was a significant hindrance to penetrate the rural area (Gujji, B. & Darekar, A., 2018).

Indian agriculture is portrayed by under employment, predominance of small farmers, low productivity, multiplicity of crops, lack of technology, unequal distribution of land, etc. (Srinivasulu, M., 2015). Wide publicity is required through mass media and social media for awareness of farmers (Gujji, B. & Darekar, A., 2018). Further, distinct agriculture insurance institution needs to be created which cater exclusively to this agricultural sector (Rathore, V., 2017). To confirm that websites of Insurance Companies are updated with detailed information on PMFBY, the Ministry has taken up a step to rank their websites on a quarterly basis. These websites are assessed on six parameters, i.e. visibility of the scheme on the respective website, scale of information about the scheme, information about the scheme, ease of navigation, data and provisions for grievance redressal. The last evaluation was conducted for the quarter ended September 2018 and their ranking is reflected on PMFBY website in awareness section.

As the PMFBY is in its nascent phase and has been implemented recently, hence it is required to assess whether the farmers are satisfied with this scheme. No attempts have been made to develop the farmers’ satisfaction benchmarking with respect to PMFBY to identify their determinants. Further, an important limitation is non-availability and lack comprehensive literature. Available literature has incorporated important characteristics of PMFBY but still deficient with respect to empirical studies to establish an abstract idea.

Research Objectives

This study has twin key objectives:

- a. To determine the underlying dimensions of farmers’ satisfaction regarding PMFBY with empirical data.
- b. To develop a scale to measure farmers’ satisfaction regarding PMFBY

II. Research Design and Methods

Scope of the study

The present study was conducted in two districts of Uttar Pradesh, namely Lucknow and Kanpur by gathering the responses from only the loanee farmers. These two districts, *i.e.* Lucknow and Kanpur were selected purposively for data collection. From each district, 3 blocks and from each block, two villages were randomly selected. Thus, total 12 villages from six blocks were

selected. 20 farmers from each village purposively selected as respondents. Hence, total 240 respondents from twelve villages were approached to collect the data.

Research design

The research design of this study is exploratory, descriptive and cross-sectional study. This study employed schedule as data gathering instrument in order to explore the vital determinants of farmers' satisfaction scale with respect to PMFBY confined to Lucknow and Kanpur. First, exploratory factor analysis was employed and then; second order confirmatory factor analysis is used as statistical methods. SPSS 23.0 and AMOS were used as statistical software.

Collection of data

Primary Data was collected from the farmers as respondents with the help of schedule. Each participant is persuaded to respond to the same set of questions for uniform and effective data collection and to gather large number of samples to perform quantitative analysis. Further, secondary data were collected from numerous sources such as published research papers, journals, websites, etc.

Data Collection Procedure

Stage I: Interview

Interview was conducted of 25 farmers who are insured under Pradhan Mantri Fasal Bima Yojna. Researcher approached to these farmers in Lucknow district only. Based on interviews, only 12 important variables are identified and taken for study after consulting with experts in the context of Lucknow and Kanpur district that are essential for development of scale for satisfaction of farmers with respect to PMFBY.

Stage II: Pilot Study

After conducting the interview with farmers, the 12 important variables selected were taken for the pilot study and employed schedule to 60 respondents who were insured farmers under PMFBY in Lucknow district. Respondents rated on a five-point rating scale, ranging from 1 - "strongly disagree" to 5 - "strongly agree". The reliability of data gathering instrument with 12 items was .795(Cronbach's Alpha) and confirmed good inter-item reliability.

Stage III: Data collection

After getting satisfactory results in pilot study, data was collected from respondents i.e. insured farmers under PMFBY. 240 schedules were employed but only 181 (75.41%) respondents submitted their responses, which

were complete in all respects considered for analysis and reporting.

Demographic Profile of Respondent

The demographic profile such as age group, gender, district of respondents / insured farmers are described/ summarized in Table-B.

III. Results and Discussion

Principal Component Analysis (PCA) was piloted on the twelve items with orthogonal rotation (varimax). The Kaiser–Meyer–Olkin (K-M-O) measure demonstrated sampling adequacy regarding our analysis, K-M-O = .868 ("great" in opinion of Hutcheson & Sofroniou, 1999) in addition to that K-M-O values for separate (individual basis) items were > .800, i.e. more than admissible limit of (= .5); (Field, 2009). Bartlett's test (sphericity) that is the correlation matrix has an identity matrix $\chi^2 (66) = 1129.105$, $p < .001$, thereby indicating correlation between items is sizeable with regard to PCA. An elementary analysis was done to find eigenvalues with regard to all the components in the data. Eigenvalues of three (3) components from our data have Kaiser's criterion of 1 which were able to explain 76.952 percent (%) of the variance in combination. As our sample size is considerably large, and the convergence of Kaiser's criterion with regard to four (4) components which were retained in the final analysis. The factor loadings subsequent to rotation are shown in Table-D and cluster of items on similar components advocates that representation of component (comp.) can be done as: comp.-1: services, comp.-2: amenities complaint redressal, comp.-3: rendering of services and comp.-4: transparency. Cronbach's Alpha of the instrument is .891.

Convergent Validity

"Items that are indicators of a particular construct should converge or share a high proportion of variance in common" (Hair et al., 2006). Convergent validity can be demonstrated significantly by factor loading and convergent validity was considered utilizing second order CFA with twelve (12) items as per the suggestion of Hair (Hair et al., 2006). Initially, exploratory factor analysis (EFA) resulted in four (4) dimensions from first order loaded on satisfaction of farmers (PMFBY) and subsequently respective dimensional loading in second order. After carrying out CFA analysis, it was identified that four (4) factor model contoured with the data. (CMIN / df -1.427, comparative fit index: .980, Tucker–Lewis Index: .974, RMSE (Root Mean Square Error) approximately .049). Figure-1 casts factor loading with regard to four (4) dimensions. Factor loadings were found

significant (greater (>) 0.60), which substantiates our argument to consider factors as segment of same construct and convergent validity establishes that four dimensions belong to same construct. The second order confirmatory factor analysis result indicates that four (4) dimensions of farmers' satisfaction of PMFBY are highly loaded i.e. (.81, .69, .77 and .73, for services, complaint redressal, rendering of services and transparency respectively) and were statistically significant at .001 level. The loadings of services, rendering of services and transparency is greater than 0.70 whereas factor loading for complaint redressal construct is 0.69, which is less as compared to other three dimensions but near about .70.

IV. Conclusion

Crop insurance is vital for security of farmers, it will enhance the agricultural sector of the economy (Singh, A.K. & Singh, A., 2019). Success of any government or institution depends on its effective implementation of strategies and programmes along with controlling function. The key issues, for example, issues related to land records, lack of usage of technology, lack of education, etc are difficulties faced by crop insurance in India. The main objective of this study is to develop the scale to measure the farmers' satisfaction with respect to PMFBY. Farmers as respondents in the selected areas are insured under PMFBY. An efficient benchmark is very much imperative to assess the satisfaction of farmers. With the help of empirical study, it is endeavored to stipulate the important dimensions of farmers' satisfaction such as services, complaint redressal, rendering of services and transparency which is important to decide and measure the satisfaction level of Farmers. This study suggests a yardstick to assess farmers' satisfaction, by using confirmatory factor analysis, submitting a four-dimensional (4-d) model with regard to farmers' satisfaction which is a contribution to existing literature on PMFBY. This study can help the institutions and government to align policies and strategies by considering the essential determinants of farmers' satisfaction regarding PMFBY which, in turn, can deliver insurance coverage in agriculture sector so essential to encourage farmers to adopt innovative agricultural practices.

Limitations & Future Research

Despite development of scale for farmers' satisfaction, for PMFBY, current study has constraints that need to be addressed in future. First, underlying four dimensions of the scale emerged from exploratory factor analysis; however, an in-depth analysis is required, so that more aspects could be explored and added to the scale. Second,

this scale needs to be tested on larger sample size for longitudinal study. Third, the scale was developed based on sample collected from respondents located in Lucknow and Kanpur; hence it needs to be tested on other samples in different Agri-districts of India.

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Table A: Details of PMFBY
(Rs. in Crore)

Season	Farmers Insured (No.)	Area Insured (ha)	Sum Insured (Rs.)	Farmers Premium (Rs.)	Gross Premium (Rs.)	Claims Paid (Rs.)	Farmers benefitted (No.)
Kharif 2016	40258737	37682608	131387.57	2919.07	16317.79	10496.34	10725511
Rabi 2016-17	17056916	18601803	72054.20	1296.97	6027.72	5681.38	3581247
Kharif 2017	34776055	34053449	129913	3039	19768	17210	13793975

Source: PMFBY Website.

Table B: Demographic Profile of Respondents.

Particular	Frequency	Percent
Age Group of respondents		
Below 30 years	31	17.10 %
30 years -40 years	66	36.50 %
40 years and above	84	46.40 %
Gender of respondents		
Male	143	79.00 %
Female	38	21.00 %
City		
Lucknow	96	53.00 %
Kanpur	85	47.00 %

K-M-O & Bartlett's Test

Kaiser-Meyer-Olkin Measure (sampling adequacy)		.868
Bartlett's Test (sphericity)	Chi-Square (approximately)	1129.105
	Df	66
	Sig.	.000

Table C: Descriptive Statistics.

Code	Variable	Mi n	Ma x	Mean	Std. Deviation
A1	Clarity and accuracy of service procedures	1	5	3.40	1.124
A2	Extent of using new and modern techniques by the Insurance Authority	1	5	3.48	1.236
A3	Suitability of services as to procedures, duration, and meeting customers' needs	1	5	3.62	1.055
B1	Customer representative efficiency and knowledge of their duties and tasks	1	5	3.22	1.305
B2	The Issue of insured has been properly handled addressed by customer representative	1	5	3.24	1.246
B3	Remedying your complaints transparently and effectively	1	5	3.35	1.319
C1	Extent of making customers aware of the services	1	5	3.33	1.197
C2	Extent of rendering the services effectively and efficiently	1	5	3.49	1.348
C3	Extent of cooperation extended by our employees to give advice and support to the customers	1	5	3.51	1.232
D1	Transparency in service follow up	1	5	3.22	1.214
D2	Evaluation of the Insurance Authority's performance	1	5	3.19	1.433
D3	Availability of the necessary information on prerequisites of getting the Insurance Authority's services	1	5	3.25	1.433

Table D: Rotated Component Matrix.

Code	Component			
	Component 1	Component 2	Component 3	Component 4
D2	.865			
D1	.812			
D3	.790			
B2		.879		
B1		.805		
B3		.802		
A1			.832	
A2			.805	
A3			.724	
C2				.860
C3				.804
C1				.750

Extraction Method-PCA
Rotation Method- Kaiser Normalization (varimax).
a. Rotation convergence (6 iterations)

Figure 1.

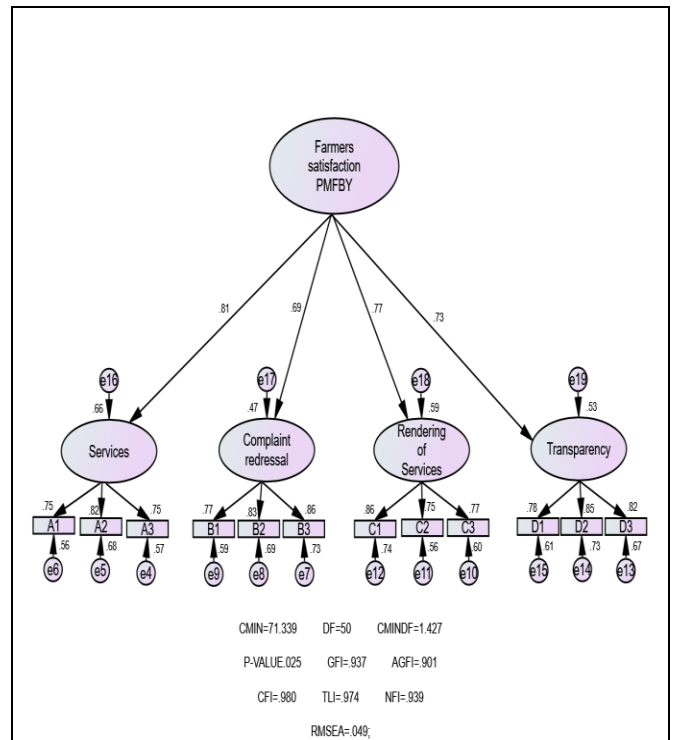


Table E: The Determinants of Farmers' Satisfaction with Respect to PMFBY.

S.No.	Particular	Factor Load	Eigen Value	% of Variance	Cronbach's Alpha
Services					
A1	Clarity and accuracy of service procedures	.832	1.116	9.302	.817
A2	Extent of using new and modern techniques by the Insurance Authority	.805			
A3	Suitability of services as to procedures, duration, and meeting customers' needs	.724			
Complaint redressal					
B1	Customer representative efficiency and knowledge of their duties and tasks	.805	1.533	12.776	.857
B2	The Issue of insure has been properly handled addressed by customer representative	.879			
B3	Remedying your complaints transparently and effectively	.802			
Rendering of Services					
C1	Extent of making customers aware of the services	.750	1.062	8.849	.838
C2	Extent of rendering the services effectively and efficiently	.860			
C3	Extent of cooperation extended by our employees to give advice and support to the customers	.804			
Transparency					
D1	Transparency in service follow up	.812	5.523	46.025	.854
D2	Evaluation of the Insurance Authority's performance	.865			
D3	Availability of the necessary information on prerequisites of getting the Insurance Authority's services	.790			

A STUDY ON WORKPLACE FLEXIBILITY, JOB ENGAGEMENT AND PSYCHOLOGICAL WELLBEING OF EMPLOYEES IN HOSPITALITY ORGANIZATIONS

Yasmin Janjhua* Rashmi Chaudhary Shiva Thakur*** Krishan Kumar******

Psychological wellbeing of employees has gained lot of attention among researchers, employers and academicians. The organisations that have implemented human resource practices aiming at psychological wellbeing have been found to more effective and successful. Workplace flexibility has led to reduce stress, higher job engagement, more employee commitment and higher psychological wellbeing. The present study has examined workplace flexibility practices, job engagement and psychological wellbeing of employees of the Oberoi Cecil and J W Marriott hotels. The sample size of the respondents in the study was 90 employees. The results indicated that both organizations have provisions of flexible HR practices such as benefit of special leave, paid maternity leave, etc. It was also noted that J W Marriott have the provision of job sharing while The Oberoi Cecil provides facility of flexible work timings. It was observed that the flexibility options are available to certain category of employees. The findings of the study reported that the employees are actively engaged and the psychological wellbeing of employees is found to be moderate.

Keywords: Psychological Well-Being, Job Sharing, Flexi-Timings, Job Engagement, Stress, Work-Life Balance.

Workplace flexibility in any organisation has an impact on the psychological wellbeing and job engagement. The employees spent a significant amount of their life's time at work thus the happiness and satisfaction they derive from their job depends upon the workplace practices and the supportive work environment. The employees of any organisations have to be psychological well for higher efficiency and productivity. However, diversity in workplace, global nature of work, changing demands and expectations from the work, tough competition is creating new challenges or the employers and employees. The employers have to look for employee friendly human resource practices so as to accommodate the diverse needs of their human resources and foster more job engagement and employee retention.

I. Review of Literature

The workplace flexibility may prove to be beneficial in such situations. Workplace flexibility has played an important role in maintaining the work life balance of the employees. This is in fact important as the percentage of women employees at workplace is increasing due to financial, social, political and economic constraints. The workplace flexibility ensures flexibility in making choices influencing when, where, and for how long they engage in work-related tasks. The ability of workers to choose to arrange core aspects of everyday work life aids in promoting optimal outcomes in the individual, home and family, workplace, and community (Voydanoff, 2007).

Flexible work arrangements such as flexible working hours, flexi shift arrangements, compressed work weeks, virtual offices, telecommuting, part-time employment, job sharing, extended leave, maternity leave, parenthood leave, etc. have found to have positive outcomes at workplace, where such practices enable the employees to manage work stress, role conflicts, work overload, etc. leading to more psychological wellbeing and higher job engagement. The research on workplace flexibility and its organisational outcomes has assumed greater importance

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nowadays. The studies have reported that workplace flexibility lead to greater commitment and a willingness to 'give back' to the organization, increased both personal and team effectiveness, reduced occupational stress and work life conflict (Clarke and Holsdworth, 2017), helped in balancing work and life (Russell et al 2007), flexible work arrangement has been found to have better employee engagement (Ugargol and Patrick, 2018), workers in flexible workplaces are more likely than other employees to have high levels of engagement in their jobs (James et al, 2011), flexible work hours have high impact on the productivity, employee performance and also improves the work life balance (Abid and Barech 2017), perceived flexibility, supportive work-life policies, the use of formal flexible arrangements and occasional flexibility is reported to have relationship with employee engagement consequently retention (Albion, 2004). It has been noted that workplace flexibility is not only good for employees but is also good for businesses (Tang and Wadsworth 2010). Kozjek and Ferjan (2015) found that the organizations that provides work security and flexibility have more organizational efficiency than the organizations that do not provide flexibility and work security, another study reported that availability of flexitime and flexplace leads to higher employee engagement and organizational commitment (Ivanauskaite 2015). The results showed a positive relationship between flexible working, commitment, productivity and work life balance (Wisely 2017), workplace flexibility has been related to higher job satisfaction and reduced workplace stress (Baer 2017) and is considered as a tool for committed and productive employees (Parks and Langford, 2008). The aim of workplace flexibility is to create a balance between work-life of employees so that they are more engaged and psychologically well.

II. Research Design and Methods

The present study has explored the workplace flexibility practices in the organizations. The study has also assessed the job engagement and psychological wellbeing of employees. The study has been conducted in two hotels i.e. JW Marriott corporate office (Gurugram) and The Oberoi Cecil (Shimla). The population of the present study is the current employees of the hospitality organizations. The sample size for the present study has been 90 respondents out of which 53.33 per cent are employees of The Oberoi Cecil and 46.67 per cent of JW Marriott.

III. Results and Discussion

The sample (table 1) consisted of 56.7 per cent of males and 43.3 per cent females, it can be noted that 43.33 percent of total number of respondents are between age

group (20-30 years), 51.11 per cent belonged to (31-40 years) and least 5.56 per cent of respondents belonged to age group (40-50 years). The data showed that 53.3 per cent of total respondents are married while 46.7 per cent are unmarried. It is seen that majority of the respondents i.e. 40.00 per cent are BHM (Bachelors of Hotel Management), 35.56 per cent of respondents are B.Sc. H & HA (Bachelor of Hospitality and Hotel Administration), 20.00 per cent are M.Sc hospitality whereas only 4.44 per cent of respondents are MBA (Master of Business Administration). The majority i.e. 53.33 per cent of respondents earn between (Rs 21000-30000) per month followed by 21.1 per cent of the respondents earning (Rs 31000-40000) per month, 11.1 per cent (Rs10000-20000) income per month, 8.9 per cent of respondents are earning between (Rs 41000-50000) and 5.6 per cent are earning between (Rs 51000-60000). It can also be seen that majority i.e. 73.3 per cent of the respondents have experience of (0-5years), 21.1 per cent respondents (5-10 years) and 5.6 per cent of the respondents have experience of (10-15 years). The results (table 2) showed that majority of the employees (77.8 percent) have reported of provision of paid sick leave, (72.2 percent) of special leave, (68.9 percent) of paid maternity leave, (61.1 percent) of flexible work timing, however only (18.9 percent) of employees have reported of practice of compact working week and part time work. It was also noted that a considerable percentage of employees are not aware of job sharing and customized working hours. It is noted from the results (table 3) that (70.0 percent) of employee's avail paid sick leave, (63.3 percent) special leave, (60.0 percent) avail flexible work timing (57.8 percent) of employees take benefit of paid maternity leave. The findings also showed that part time is used by only (14.4 percent) of employees. Thus, it can be concluded from the results that use of part time work arrangement is availed the lowest whereas paid sick leave is availed the most by the employees.

The workplace flexibility practices have been compared between 'The Oberoi Cecil' and JW Marriott. The findings (table 4) comparing the organisations showed that majority of the respondents of both the organizations have denied of the facility of part time work. However, the employees who have agreed on the part time option were supervisors and other higher in hierarchy. The majority 75.0 percent of employees of The Oberoi Cecil have reported of provision of paid sick leave while majority 85.7 percent of employees of JW Marriott have reported of provision of flexible work timings, 81.0 percent have reported of provision of special leave, paid maternity leave and paid sick leave. It can be observed that 47.9 percent of The Oberoi Cecil employees have denied of flexible work time. Majority of the employees of both organisations 64.6 (The

Oberoi Cecil) and 71.4 (JW Marriott) have denied of telecommuting, 54.2 (The Oberoi Cecil) and 83.3 (JW Marriott) of compact working week, 41.7 (The Oberoi Cecil) and 73.8 (JW Marriott) of day care facility, 39.6 percent of employees of The Oberoi Cecil have denied of customized working hours. The findings also reported that (57.1 percent) of employees of JW Marriott are unaware of customized working hours and (61.9 percent) are noted to be unaware of job sharing. Thus, it can be concluded that both the organisations have options of workplace flexibility, but the practices are available for a specific level of employees in the organization. The employees of both the organization have responded of availability of paid sick leave. Thus, from response of the employees for both organizations, it can be said that workplace flexibility practices in both are of special leaves, paid sick leaves, paid maternity leave. However, J W Marriott also seem to provide the facility of flexible workplace timing and The Oberoi Cecil of job sharing. A notable point in case of availability of workplace flexibility practices is that the alternatives are available for a specific level of employees.

The results (table 5) revealed that employees show more agreeableness towards the statements pertaining to the workplace flexibility. It can be noted that majority of the respondents (51.1 percent) of employees agree on the statement 'I have the freedom to choose how to best perform my job'. It also exhibited that (47.8 percent) employees agree on the statements 'I have the flexibility I need to manage my work and non-work interests' and Manager genuinely support equality between women and men for flexible working. It is also noted that out of total respondents' majority (35.6 percent) of employees have agreed on the statement 'flexible work is actively encouraged in my work area' and (23.3 percent) of employees are found to agree on the statement, it is difficult for me to adopt a flexible working arrangement because of lack support from my supervisor. Thus, it can be concluded that the certain degree of flexibility exists in the organisations but the support from the supervisor appear to be lacking. Majority of the employees (table 6) 55.5 percent have been found to be actively engaged in their work followed by 27.8 percent who have indicated to be engaged, 10 percent of the respondents are partly engaged, and very few i.e. 6.7 percent of respondents are noted to be disengaged at the workplace. Thus the majority of the employees are found to actively engaged may be because of the workplace flexibility at workplace. The findings (table 7) revealed that all the respondents obtained mean values above 3.0 indicating that employees agree with the statements. It can be noted from the findings that highest mean value (M =3.98) have been noted for the statement 'the level of engagement and job satisfaction is affected by workplace flexibility' and the lowest mean

value (M =3.04) was noted for the statement 'I do my work because I have to do, and that says it all'. The findings (table 8) revealed that majority of respondents have been highest on 'sometimes'. The results have shown that majority of the employees have reported that sometimes they feel relaxed at the end of working day (61.1 per cent), feel worn out at the end of the day (65.6 per cent), feel rather exhausted (64.4 per cent), find difficult to concentrate in their free time (56.7 per cent), feel disinterested with the people at home (55.6 per cent) and feel a need of peace at home after coming from work (47.8 per cent). It was also noted that the majority of the respondents have reported they often get time for recreational activities and family time after work (52.2 per cent), feel that there is good atmosphere between them and their colleagues (64.4 per cent), get well with colleagues (56.7 per cent) and feel that there is a good atmosphere between them and their supervisor (47.8 per cent).

IV. Conclusion

Following the findings, it can be said that employee's workplace flexibility practices in both the organizations are provisions of special leaves, paid sick leaves, paid maternity leave. However, J W Marriott is found to provide the facility of flexible workplace timing also and The Oberoi Cecil provides facility of job sharing. A notable point in case of availability of workplace flexibility practices is that the alternatives are available for a specific level of employees. The findings showed that majority of employees are actively engaged. The findings revealed that all the respondents indicated agreement pertaining to statements on job engagement however highest mean value was noted for the statement 'the level of engagement and job satisfaction is affected by workplace flexibility'. Thus, it can be said that workplace flexibility plays a major role in engagement and job satisfaction of employees. From the findings it was inferred that psychological wellbeing of employees is average. The human resources are the valuable assets of any organization that give a competitive advantage to any organization and make it distinct from others. The psychological wellbeing of the employees is the responsibility of the organizations thus more sensitivity is required on part of organizations towards the issues of employees that emerge from the workplace and result into more job stress, anger, depression and anxiety. Since the workplace flexibility has impact on psychological wellbeing, job engagement and job satisfaction thus the organization should look forward for implementing the workplace flexibility practices to a greater extent.

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Table 1: Descriptive statistics (demographic characteristics).

	Frequency	Percent
Gender		
Males	51	56.7
Females	39	43.3
Age (in years)		
20 - 30	39	43.3
31 - 40	46	51.1
41 - 50	5	5.6
Marital status		
Married	48	53.3
Unmarried	42	46.7
Education		
BHM	36	40.0
B.Sc. H & HA	32	35.6
MBA	4	4.4
M.Sc	18	20
Salary (in Rs)		
10000 – 20000	10	11.1
21000 – 30000	48	53.3
31000 – 40000	19	21.1
41000 – 50000	8	8.9
51000 – 60000	5	5.6
Experience (in years)		
0 – 5	66	73.3
5 – 10	19	21.1
10 – 15	5	5.6

Table 2: Percentage response on employee workplace flexibility practices in organization.

Workplace flexibility practices	Yes	No	I don't know
Part time work	17 (18.9)	67 (74.4)	6 (6.7)
Flexible work timing	55 (61.1)	27 (30.0)	8 (8.9)
Working from home (telecommuting)	23 (25.6)	61 (67.8)	6 (6.0)
Compact working week	17 (18.9)	61 (67.8)	12 (13.3)
Paid maternity leave	62 (68.9)	20 (22.2)	8 (8.9)
Special leave	65 (72.2)	17 (18.9)	8 (8.9)
Day care	26 (28.9)	51 (56.7)	13 (14.4)
Job sharing	38 (42.2)	16 (17.8)	36 (40.0)
Paid sick leave	70 (77.8)	19 (21.1)	1 (1.1)
Customized working hours	27 (30.0)	25 (27.8)	38 (42.2)

The values in parentheses shows percentage.

Table 3: Percentage response on employees availing practices.

Workplace flexibility practices	Yes	No	I don't know
Part time work	13 (14.4)	42 (46.7)	35 (38.9)
Flexible work timing	54 (60.0)	19 (21.0)	17 (18.9)
Working from home (telecommuting)	20 (22.2)	31 (34.4)	39 (43.3)
Compact working week	18 (20.0)	56 (62.0)	16 (17.8)
Paid maternity leave	52 (57.8)	31 (34.4)	7 (7.8)

Special leave	57 (63.3)	26 (28.9)	7 (7.8)
Day care	29 (32.2)	48 (53.3)	13 (14.4)
Job sharing	45 (50.3)	30 (33.3)	15 (16.7)
Paid sick leave	63 (70.0)	21 (23.3)	6 (6.7)
Customized working hours	26 (28.9)	55 (61.1)	9 (10.0)

The values in parentheses shows percentage.

Table 4: Comparison of employee workplace flexibility practices in The Oberoi Cecil and J W Marriott.

Workplace flexibility practices	The Oberoi Cecil (TOC)			JW Marriott		
	Yes	No	I don't know	Yes	No	I don't know
Part time work	8 (16.7)	38 (79.2)	2 (4.2)	9 (21.4)	29 (69.0)	4 (9.5)
Flexible work timing	19 (39.6)	23 (47.9)	6 (12.5)	36 (85.7)	4 (9.5)	2 (4.8)
Working from home (telecommuting)	12 (25.0)	31 (64.6)	5 (10.4)	11 (26.2)	30 (71.4)	1 (2.4)
Compact working week	12 (25.0)	26 (54.2)	10 (20.8)	5 (11.9)	35 (83.3)	2 (4.8)
Paid maternity leave	28 (58.3)	13 (27.1)	7 (14.6)	34 (81.0)	7 (16.7)	1 (2.4)
Special leave	31 (64.6)	9 (18.8)	8 (16.7)	34 (81.0)	8 (19.0)	0 (0.0)
Day care	16 (33.3)	20 (41.7)	12 (25.0)	10 (23.8)	31 (73.8)	1 (2.4)
Job sharing	29 (60.4)	9 (18.8)	10 (20.8)	9 (21.4)	7 (16.7)	26 (61.9)
Paid sick leave	36 (75.0)	11 (22.9)	1 (2.1)	34 (81.0)	8 (19.0)	0 (0.0)
Customized working hours	15 (31.3)	19 (39.6)	14 (29.2)	12 (28.6)	6 (14.3)	24 (57.1)

The values in parentheses shows percentage

Table 5: Employees response on workplace flexibility in organization.

Workplace flexibility	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
I have the freedom to choose how to best perform my job	3 (3.3)	11 (12.2)	18 (20)	46 (51.1)	12 (13)
I have the flexibility I need to manage my	1 (1.1)	19 (21.1)	17 (18.9)	43 (47.8)	10 (11.1)

work and non-work interests.					
Manager genuinely support equality between women and men for flexible working.	9 (10)	9 (10)	12 (13.3)	43 (47.8)	17 (18.9)
Flexible work is actively encouraged in my work area.	5 (5.6)	23 (25.6)	20 (22.2)	32 (35.6)	10 (11.1)
It is difficult for me to adopt a flexible working arrangement because of lack support from my supervisor	4 (4.4)	25 (27.8)	35 (38.9)	21 (23.3)	5 (5.6)

The values in parentheses shows percentage.

Table 6: Percentage response on employee workplace job engagement.

What category do you think you fall under in your workplace?	Frequency	Percentage
Engaged	25	27.8
Actively engaged	50	55.5
Disengaged	6	6.7
Partly engaged	9	10
Total	90	100

Table 7: Employee workplace job engagement.

Statements	Mean	Standard deviation
I feel like I belong here.	3.73	0.818
It is easy to be absorbed in my job.	3.78	0.832
I would recommend company as a great place to work.	3.72	0.848
I still find my work stimulating, each and every day.	3.51	0.890
I do my work because I have to, and that says it all.	3.04	1.080
I enjoy my work.	3.53	0.941
The level of engagement and job satisfaction is affected by workplace flexibility.	3.98	0.960

Table 8: Employee workplace psychological wellbeing.

Statements	Never	Sometimes	Often	Always	Mean	S.D.
I find it to relax at end of the working day.	11 (12.2)	55 (61.1)	19 (21.1)	5 (5.6)	1.88	.493
By the end of the working day, I really feel worn out.	6 (6.7)	59 (65.6)	21 (23.3)	4 (4.4)	1.48	.657
Because of my job, at the end of the working day I feel rather exhausted.	8 (8.9)	58 (64.4)	19 (21.1)	5 (5.6)	1.81	.538
I find it difficult to concentrate in my free time after work.	17 (18.9)	51 (56.7)	20 (22.2)	2 (2.2)	1.94	.568
I cannot really show much interest in other people when I have just come home myself.	19 (21.1)	50 (55.6)	18 (20.0)	3 (3.3)	1.40	.650
When I get home from work, I need to be left in peace for a while.	1 (1.1)	43 (47.8)	37 (41.1)	9 (10.0)	1.37	.644
Do you get time for recreational activities and family time after work?	6 (6.7)	30 (33.3)	47 (52.2)	7 (7.8)	1.86	.646
Is there a good atmosphere between you and your colleagues?	1 (1.1)	14 (15.6)	58 (64.4)	17 (18.9)	1.98	.912
Do you get well with your colleagues?	0 (0)	8 (8.9)	51 (56.7)	31 (34.4)	1.37	.608
Is there a good atmosphere between you and your supervisor?	1 (1.1)	16 (17.8)	43 (47.8)	38 (33.3)	1.81	.598

A DEMOGRAPHIC ASSESSMENT OF THE CONSUMPTION PATTERN FOR READY TO COOK FOOD IN DELHI & NCR

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As civilizations evolve, so does their lifestyle patterns which are marked by a wide range of changes pertaining to the basic elements associated with their lives. Eating habits is one such area which has witnessed a huge diversity dependent upon the various bases of market segmentation. Referring to the current scenario in our country including the influence of western culture, the eating habits of the masses have changed over the past few decades. Due to this shift in the social scenario, both males and females are left with lesser time for cooking due their professional commitments and also, the energy consumed in working out of home to generate more income. Another aspect of the story is this that with increasing economic resources, disposable income which is dual increases and the young generation with an average age of an Indian being 28 years doesn't mind spending little higher on food that is not traditionally cooked at home. In order to study this from a researcher's perspective, a statistical analysis was conducted through this study using the primary data collected via a self-structured questionnaire with acceptable reliability (Cronbach's alpha > .65) for examining the impact of various demographical factors such as age, gender, occupation, education and income on the consumption pattern of the ready to cook food items in the geographical area of Delhi-NCR. One-way ANOVA was used for hypothesis testing. This study holds practical implications for the marketers in ready to cook foods industry in identifying the most profitable segments based upon the mentioned demographics and the consumption score.

Keywords: Demographic, consumption pattern, market segmentation, working population, disposable income.

Ready-to-cook food as being considered for the current study is defined as a shelf-stable convenience food. It also refers to that particular food item or the material present in the food that has to be compulsorily brought to the temperature which is sufficient enough in order to ensure that the present pathogenic microorganisms get killed before-hand to confirm its edibility. The history of ready to cook meals dates long back from 19th century beginning in the western countries when soldiers used to consume meat and stew stored in tins. It was followed by an era of TV diners in 1950's and further, by microwave meals in the 1970's. Then, ready to cook meals were started getting available in different flavors in 1990's and with the beginning of the 20th century, ready to cook meals had become very popular as a meal option amongst the masses. Thus, the entire history of ready to cook foods documents its wide acceptance with the passage of time with its advent in India during the 'Kargil' war for the soldiers in 1999. Apart from the ready to cook meals being popular in the western countries, they have picked up very well in the context of India. With Generation Y and Z (Ahluwalia, H., 2018) making up a major proportion of the population aiming for exploiting the demographic dividend (Thakur, A., 2019), lifestyle has become busy and fast-paced. With modernisation coming into picture along with more females joining the working population (Chaturvedi, A., 2016) and the responsibility of running a household getting

distributed among both the genders in the family, it has become imperative to share the cooking job too. Over the days when traditional cooking was the major goal in Indian houses. This is evident from the pace with which the ready meals industry is flourishing in India. As per the report of the Techsci Research (2015), Ready-to-cook (RTC) food items' demand witnessed surging growth over the last few years in India because of the busier lifestyles along with increasing disposable incomes of the consumers. It has been documented that the increasing employment opportunities in urban India has led to the migration of masses from rural and semi-urban areas to tier 1 and tier 2 cities. Due to this, a huge impetus has been witnessed by the ready to cook foods market in India over the past few years. There has even been a paradigm shift in the lifestyle of the Indian middle class witnessing the trend of nuclear families and the bachelors staying in metropolitan cities for academic or employment purpose. Such populations are indeed one of the prominent

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consumers of these ready to cook food products available in the market. Delhi falls in the category of one of the most populous, culturally diverse and upcoming metros in India with a prediction of being the most populous state in 2028 (Sharma, S.N., 2019). Also, with the kind of cultural diversities existing in the metropolitans, the companies supplying these ready to cook meals have been increasingly focusing on the launching of the regional ready to cook products. Apart from this, another factor that drives the penetration of the ready to cook food products is the easy availability of the RTC food products across all the major retail chains or hypermarkets and even, supermarkets located across the country. Thus, it is quite relevant to statistically test the impact of the stipulated demographic variables on the consumption of RTC in Delhi and National Capital Region.

I. Review of Literature

This section deals with examining the past literature existing in relation to studying the consumption of ready to cook meals in order to identify the research gaps for justifying the current research. Swathy, P. (2018) studied the consumer buying behaviour, specifically from the viewpoint of working women towards the ready to cook foods Ranni Taluk in India. Roh, M. & Park, K. (2018) studied the Online to Offline (O2O) structure in the context of Korea to identify the factor of convenience in food delivery from the earlier model of offline to online delivery and its popularity among the households. The study aimed at gauging customer awareness of RTC's in terms of its benefits and limitations. Yadav, S. & Pimpale, V. (2018) documented a research concerned with analysing the effect of demographic factors on demand for RTC's specifically from the females' perspective. 100 females were taken as the sample for this study. Even, Solanki, S. & Jain, S. (2017) conducted a study on consumer behaviour with respect to ready-to-eat food products in the northern region of India with the objectives of reviewing the market serving the ready-to-eat food products and the competition existing among the different brands in the ready-to-eat food industry. Only 60 customers were a part of this study as sample. Alam, M. (2016) conducted a research in Kolkata, West Bengal regarding the consumer buying behaviour and their awareness about the ready-to-cook products available in the market. The major inference was reflecting education to be the driving force behind purchase of RTC items. Some studies were conducted that were company specific such as the one conducted by Kumar, M. & Kaur, P. (2016) for evaluating the preferences and awareness levels of the consumers regarding the ready-to-eat food products offered by the cooperative, MarkFED in Punjab.

Even, secondary research exists on this subject. Pendse, M. & Patil, G. (2016) conducted a secondary study to analyse the scope for ready-to-eat/ready-to-cook food items in the Indian market at large. Srinivasan, S. & Shinde, K.M. (2016) conducted a primary research on the benefits of the convenience goods for the non-working women in Pune city in the age group of 25-55 years. Thus, this limitation was covered by the current research by including other age groups too to the sample. Priyadarshini, V. (2015) conducted a comprehensive study to understand the consumer buying behaviour towards the processed ready-to-eat food items as well as ready-to-cook food products available in the market in Bhubaneswar, Odisha. Undoubtedly, realising the pace with which this industry is growing, recent research is being done by academic and social researchers to study the consumer buying behaviour towards RTC food items yet, no research is perfect. Thus, by identifying some of the gaps of the existing studies, the current study was conducted to provide new insights. The research gaps identified from the review of literature showcase that several studies though being primary lacked a representative sample or were even gender specific. Several studies exist within and outside India yet miss the stipulated objective with regard to consumers in Delhi-NCR. Some research considers selected demographic factors and some research didn't test the demographic factors properly on an appropriate sample size. Hence, this study was conducted by formulating the objectives on the basis of the identification of the research gaps from review of literature.

II. Research Design and Methods

This research has a descriptive research design. Judgement sampling was used to collect data from a sample of 342 households widely distributed in Delhi-NCR. These households included individuals who were not single and were living with families and sharing basic decisions including food and housing decisions. A self-structured questionnaire with Cronbach's alpha=0.7 was used for data collection. Data was collected through distributing questionnaires online. Research techniques of one-way ANOVA was applied to examine the impact of the given demographic factors on the consumption pattern of ready to cook food items.

Objective 1: To examine the relationship between age and the consumption of ready to cook foods in Delhi-NCR.
Objective 2: To examine the relationship between gender and the consumption of ready to cook foods in Delhi-NCR.
Objective 3: To examine the relationship between occupation and the consumption of ready to cook foods in Delhi-NCR.

Objective 4: To examine the relationship between education and the consumption of ready to cook foods in Delhi-NCR.

Objective 5: To examine the relationship between income and the consumption of ready to cook foods in Delhi-NCR.

H₀₁: Age doesn't have a significant relationship with the consumption of ready to cook foods in Delhi-NCR.

H₀₂: Age doesn't have a significant relationship with the consumption of ready to cook foods in Delhi-NCR.

H₀₃: Age doesn't have a significant relationship with the consumption of ready to cook foods in Delhi-NCR.

H₀₄: Age doesn't have a significant relationship with the consumption of ready to cook foods in Delhi-NCR.

H₀₅: Age doesn't have a significant relationship with the consumption of ready to cook foods in Delhi-NCR.

Table 1 depicts that the highest mean score for consumption of ready to cook foods as shown by the respondents in the age-group 18-30 years followed by 30-40 years and gradually decreasing as the age increases. Table 2 is documenting that the difference in the mean scores across age-groups is statistically significant at 5% level of significance as $p < .05$. Hence, H₀₁ is rejected. Table 3 represents the post-hoc test (Least Square Differences) which denotes which age groups have statistically significant differences in their mean consumption of RTC's. It has been observed that the difference was statistically significant for age-groups 30-40 years and 40-50 years and above 50 years. Table 4 represents that the mean score for RTC's as slightly higher for females than males in this survey. Table 5 is documenting $p > .05$, thus, there is no significant relationship between gender and consumption of ready to cook foods implying consumption can't be differentiated on the basis of gender. Hence, H₀₂ is not rejected. Table 6 depicts that the highest mean score for consumption of ready to cook foods as shown by the respondents who were post-graduates followed by graduates and gradually decreasing as the educational qualifications decreases. Table 7 is documenting that the difference in the mean scores across educational qualifications of respondents is statistically significant at 5% level of significance as $p < .05$. Hence, H₀₃ is rejected. Table 8 further represents the post-hoc test (Least Square Differences) which denotes which category of educational qualifications have statistically significant differences in their mean consumption of RTC's. It has been observed that the difference was statistically significant for post-graduates and those with other qualifications or had basic senior secondary qualifications. Table 9 depicts that the highest mean score for consumption of ready to cook foods as shown by the respondents who were corporates followed

by professionals, the, other occupations and after that those involved in business and least by the homemakers. Table 10 is documenting that the difference in the mean scores across different occupations is statistically significant at 5% level of significance as $p < .05$. Hence, H₀₄ is rejected. Table 11 represents the post-hoc test (Least Square Differences) which denotes that the mean difference is statistically significant across different occupations except the ones in business and other occupations. Table 12 further depicts that the highest mean score for consumption of ready to cook foods as shown by the respondents with monthly income above Rs 50000 and minimum by those below Rs 20000 per month. Table 13 is documenting that the difference in the mean scores across monthly income categories is statistically significant at 5% level of significance as $p < .05$. Hence, H₀₅ is rejected. Table 14 represents the post-hoc test (Least Square Differences) which denotes which income groups have statistically significant differences in their mean consumption of RTC's. It has been observed that the difference was statistically significant for the highest income category and the lowest income category taken for this research.

III. Results and Discussion

It is documented from this study that H₀₁, H₀₃, H₀₄ and H₀₅ were not accepted at 5% level of significance implying that age, occupation, education and income significantly impacted the consumption pattern of ready to cook foods in Delhi-NCR. Yet, H₀₂ was not rejected which represented that gender didn't statistically impact the stipulated consumption at 5% level of significance. As far as age is concerned the highest consumption score of RTC was observed for (18-30) years age-group followed by (30-40) years and decreased with increasing age. This could be attributed to factors such as employability and health status. For occupation, maximum consumption was shown by corporates and professionals and minimum by homemakers. The possible reasons identified are time availability and differences in cooking skills. Education being an impactful factor documented the consumption score being higher for post-graduates and graduates and minimum for those with secondary education. Higher level of education showed higher consumption of RTC's which might be due to the differences in the awareness levels and exposure to new market trends. As the income increased, consumption for RTC's also increased that could be explained by the availability of greater disposable income for more consumption of outside food and that too, more frequently. Referring to the factor of gender, the consumption pattern not being statistically significant in terms of differences, it reflects the attainment of equality in terms of food decisions and cooking roles in the Indian households these days.

IV. Conclusion

It can be concluded from this study that demographic factors play a pivotal role in impacting the demand for the ready to cook food items in the market via high consumption. It acts as a favourable news for the marketers as the demand has been high for the millennials and middle-aged people irrespective of gender. It has been seeing elevating with more educational qualifications, corporate and professional jobs and increase in monthly income. Hence, the existing demographics in our country, especially the metropolitans like Delhi-NCR with diverse culture, more working population, women participation at all levels and high disposable income actually seem positively aligned with the results of the current study. Therefore, it is an appropriate time for the marketers of the ready to cook food companies to position their products so as to capture maximum market share. Marketing strategies should be so developed to influence the most profitable segment most effectively.

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Table 1: Descriptive statistics for Consumption score for Age-groups.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
>50 yrs	127	119.4331	32.91128	2.92040	113.6537	125.2125	58.00	166.00
40-50 yrs	163	118.8528	26.52677	2.07774	114.7498	122.9557	61.00	170.00
30-40 yrs	50	138.4800	17.27832	2.44352	133.5696	143.3904	110.00	168.00
18-30 yrs	2	141.0000	1.41421	1.00000	128.2938	153.7062	140.00	142.00
Total	342	122.0673	28.74978	1.55461	119.0094	125.1251	58.00	170.00

Table 2: Analysis of Variance for Age-groups.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16751.326	3	5583.775	7.119	.001
Within Groups	265102.127	338	784.326		
Total	281853.453	341			

Table 3: Post-hoc test (LSD) for age groups.

(I) age	(J) age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
>50 yrs	40-50 yrs	.58031	3.31476	.861	-5.9398	7.1005
	30-40 yrs	-19.04693*	4.67571	.000	-28.2441	-9.8498
	18-30 yrs	-21.56693	19.95842	.281	-60.8253	17.6914
40-50 yrs	>50 yrs	-.58031	3.31476	.861	-7.1005	5.9398
	30-40 yrs	-19.62724*	4.52751	.000	-28.5329	-10.7216
	18-30 yrs	-22.14724	19.92422	.267	-61.3383	17.0439
30-40 yrs	>50 yrs	19.04693*	4.67571	.000	9.8498	28.2441
	40-50 yrs	19.62724*	4.52751	.000	10.7216	28.5329
	18-30 yrs	-2.52000	20.19528	.901	-42.2443	37.2043
18-30 yrs	>50 yrs	21.56693	19.95842	.281	-17.6914	60.8253
	40-50 yrs	22.14724	19.92422	.267	-17.0439	61.3383
	30-40 yrs	2.52000	20.19528	.901	-37.2043	42.2443

*. The mean difference is significant at the 0.05 level.

Table 4: Descriptive statistics for Consumption score for Gender.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Male	199	120.1357	27.33678	1.93785	116.3142	123.9572	58.00	164.00
Female	143	124.7552	30.50195	2.55070	119.7130	129.7975	61.00	170.00
Total	342	122.0673	28.74978	1.55461	119.0094	125.1251	58.00	170.00

Table 5: Analysis of Variance for Gender.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1775.683	1	1775.683	2.156	.143
Within Groups	280077.770	340	823.758		
Total	281853.453	341			

Table 6: Descriptive statistics for Consumption score for Education.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Graduation	2	139.0000	1.41421	1.00000	126.2938	151.7062	138.00	140.00
senior secondary	138	100.5652	22.46326	1.91220	96.7840	104.3465	58.00	168.00
post-graduation	150	142.1533	18.94242	1.54664	139.0971	145.2095	84.00	170.00
Others	52	120.5385	25.91196	3.59334	113.3245	127.7524	76.00	167.00
Total	342	122.0673	28.74978	1.55461	119.0094	125.1251	58.00	170.00

Table 7: Analysis of Variance for Education.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	125015.144	3	41671.715	89.806	.001
Within Groups	156838.309	338	464.019		
Total	281853.453	341			

Table 8: Post-hoc test (LSD) for Education.

(I) education	(J) education	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Graduation	senior secondary	38.43478*	15.34183	.013	8.2573	68.6123
	post-graduation	-3.15333	15.33306	.837	-33.3136	27.0069
	Others	18.46154	15.52201	.235	-12.0704	48.9934
senior secondary	Graduation	-38.43478*	15.34183	.013	-68.6123	-8.2573
	post-graduation	-41.58812*	2.54085	.000	-46.5860	-36.5902
	Others	-19.97324*	3.50512	.000	-26.8678	-13.0786
post-graduation	Graduation	3.15333	15.33306	.837	-27.0069	33.3136
	senior secondary	41.58812*	2.54085	.000	36.5902	46.5860
	Others	21.61487*	3.46654	.000	14.7962	28.4336
Others	Graduation	-18.46154	15.52201	.235	-48.9934	12.0704
	senior secondary	19.97324*	3.50512	.000	13.0786	26.8678
	post-graduation	-21.61487*	3.46654	.000	-28.4336	-14.7962

*. The mean difference is significant at the 0.05 level.

Table 9: Descriptive statistics for Consumption score for Occupation.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Corporate	77	145.3247	14.53439	1.65635	142.0258	148.6236	86.00	166.00
Professional	101	139.4257	19.62975	1.95323	135.5506	143.3009	90.00	170.00
Business	122	102.2705	20.72888	1.87670	98.5551	105.9859	58.00	156.00
home-maker	27	86.8519	18.61287	3.58205	79.4888	94.2149	61.00	149.00
Others	15	110.2000	27.74167	7.16287	94.8372	125.5628	76.00	147.00
Total	342	122.0673	28.74978	1.55461	119.0094	125.1251	58.00	170.00

Table 10: Analysis of Variance for Occupation.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	155491.996	4	38872.999	103.672	.001
Within Groups	126361.457	337	374.960		
Total	281853.453	341			

Table 11: Post-hoc test (LSD) for Occupation.

(I) occupation	(J) occupation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Corporate	professional	5.89893*	2.92952	.045	.1365	11.6614
	business	43.05418*	2.81834	.000	37.5104	48.5979
	home-maker	58.47282*	4.33094	.000	49.9537	66.9919
	others	35.12468*	5.46506	.000	24.3747	45.8746
professional	corporate	-5.89893*	2.92952	.045	-11.6614	-.1365
	business	37.15525*	2.60498	.000	32.0312	42.2793
	home-maker	52.57389*	4.19522	.000	44.3218	60.8260
Business	others	29.22574*	5.35815	.000	18.6861	39.7654
	corporate	-43.05418*	2.81834	.000	-48.5979	-37.5104
	professional	-37.15525*	2.60498	.000	-42.2793	-32.0312
home-maker	business	15.41864*	4.11835	.000	7.3177	23.5196
	others	-7.92951	5.29818	.135	-18.3512	2.4922
	corporate	-58.47282*	4.33094	.000	-66.9919	-49.9537
	professional	-52.57389*	4.19522	.000	-60.8260	-44.3218
Others	business	-15.41864*	4.11835	.000	-23.5196	-7.3177
	others	-23.34815*	6.23576	.000	-35.6141	-11.0822
	corporate	-35.12468*	5.46506	.000	-45.8746	-24.3747
	professional	-29.22574*	5.35815	.000	-39.7654	-18.6861
home-maker	business	7.92951	5.29818	.135	-2.4922	18.3512
	others	23.34815*	6.23576	.000	11.0822	35.6141
	corporate	23.34815*	6.23576	.000	11.0822	35.6141

*. The mean difference is significant at the 0.05 level.

Table 12: Descriptive statistics for Consumption score for Income.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
<20000	39	90.6410	21.39046	3.42522	83.7070	97.5750	61.00	149.00
20000-30000	22	121.2273	28.92508	6.16685	108.4026	134.0519	80.00	164.00
30000-40000	56	123.6786	25.50302	3.40798	116.8488	130.5083	65.00	159.00
40000-50000	84	121.2500	29.82272	3.25393	114.7781	127.7219	65.00	168.00
>50000	141	130.7376	25.06724	2.11104	126.5639	134.9112	58.00	170.00
Total	342	122.0673	28.74978	1.55461	119.0094	125.1251	58.00	170.00

Table 13: Analysis of Variance for Income.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	49333.360	4	12333.340	17.875	.001
Within Groups	232520.093	337	689.971		
Total	281853.453	341			

Table 14: Post-hoc test (LSD) for Income.

(I) income	(J) income	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
<20000	20000-30000	-30.58625*	7.00385	.000	-44.3630	-16.8095
	30000-40000	-33.03755	5.47836	.000	-43.8136	-22.2615
	40000-50000	-30.60897*	5.08974	.000	-40.6206	-20.5973
	>50000	-40.09656*	4.75236	.000	-49.4446	-30.7485
20000-30000	<20000	30.58625*	7.00385	.000	16.8095	44.3630
	30000-40000	-2.45130	6.60933	.711	-15.4520	10.5494
	40000-50000	-.02273	6.29096	.997	-12.3972	12.3518
	>50000	-9.51032	6.02127	.115	-21.3543	2.3337
30000-40000	<20000	33.03755*	5.47836	.000	22.2615	43.8136
	20000-30000	2.45130	6.60933	.711	-10.5494	15.4520
	40000-50000	2.42857	4.53154	.592	-6.4851	11.3422
	>50000	-7.05902	4.14901	.090	-15.2202	1.1022
40000-50000	<20000	30.60897*	5.08974	.000	20.5973	40.6206
	20000-30000	.02273	6.29096	.997	-12.3518	12.3972
	30000-40000	-2.42857	4.53154	.592	-11.3422	6.4851
	>50000	-9.48759*	3.62041	.009	-16.6090	-2.3661
>50000	<20000	40.09656*	4.75236	.000	30.7485	49.4446
	20000-30000	9.51032	6.02127	.115	-2.3337	21.3543
	30000-40000	7.05902	4.14901	.090	-1.1022	15.2202
	40000-50000	9.48759*	3.62041	.009	2.3661	16.6090

*. The mean difference is significant at the 0.05 level.

IMPACT OF SERVICE QUALITY ON SATISFACTION OF MICE DELEGATES: A STUDY OF FIVE STAR HOTELS AND CONVENTION CENTERS IN DELHI NCR

Jatin Vaid* Davinder Kumar Vaid**

The purpose of this research paper is to examine the relationship between quality of service provided by five star hotels and convention centres on satisfaction levels of delegates with respect to MICE tourism. The study also seeks to analyze the demographic profile of delegates participating in various MICE events organized in these hotels and convention centers. The present study has a descriptive and cross-sectional research design. The data for the study has been collected by personally administering structured questionnaires to 372 delegates attending MICE events in 20 five-star hotels and 2 convention centres located in Delhi NCR. The data has been analyzed using descriptive analysis and Structural Equation Modeling (SEM) on SPSS 21 and AMOS 20 software. The results of statistical analysis show that dimensions of service quality have a significant impact on the level of satisfaction of delegates, with tangibility having maximum impact followed by empathy and responsiveness. The demographic profile of respondents suggest that majority of delegates are Indian males in the age group of 26 – 35, employed in service and have received funding from their organizations to participate in MICE events. The inferences of this research study are restricted by time frame, scope and sample size. Studies in future may be conducted for smaller hotels and convention centres in other geographical locations, using longitudinal design. The study is a first endeavor to analyze the impact of service quality on satisfaction levels of MICE delegates considering the SERVQUAL model in the Indian context.

Keywords: Service quality, Customer satisfaction, MICE tourism, Hotels, Delhi

MICE Tourism

MICE (Meetings, Incentives, Conventions and Exhibitions) tourism, also commonly known as Business tourism, is a specialized tourism category which requires visitors to travel for a specific professional or business purpose to a place outside their workplace and residence with the aim of attending a meeting, an activity or an event (UNWTO, 2019). It is one of the budding tourism segments worldwide, which contributes significantly to the economic growth. The total revenue from MICE tourism in India has been projected to be Rs.37576 crores, which is less than 1 percent (.96%) of the world's total MICE turnover. Of this, hotels contribute approximately 60 percent, or Rs. 22360 crores (MoT (GOI) - MRSS, 2019).

New Delhi and National Capital Region (NCR) is one of the major destinations for hosting MICE events in five-star hotels and convention centers and has the highest Foreign Tourist Arrivals (FTA), i.e., 2.85 Million, which is 28.35% of India's 10.04 Million (India Tourism Statistics 2018, 2019).

International Congress and Convention Association (ICCA) has categorized MICE tourism into four interrelated components, which are Meetings, Incentives, Conferences and Exhibitions. *Meetings* are held to gather,

impart, or exchange information, to sell services or products, to make money, to transact business of a company, for sociability and other reasons (Lord, 1981). *Incentive travel* is a type of business event which is offered to contestants to reward their exceptional performance and contribution to the company (World Tourism Organization, 2006). It is an instrument used by management to reward and motivate their sales force, merchants, intermediaries and employees who achieve their target, and include hotel stays, high-end conventions, holiday packages, and customized activities like dinner bashes and management games (Lau, 2016). *Conferences* are participatory conventions with a pre-determined theme intended to stimulate discussions, fact-finding, problem-solving and consultation activities (Lord, 1981). *Exhibitions* are business events organized to show new products, services and information to potential customers and are instrumental in getting sales leads, induce trials, understanding the competition and building networks (Lau, 2016).

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Service Quality and Delegate Satisfaction

Service quality is a focused evaluation that reflects the customer's perception of specific dimensions of service namely *Reliability* (ability of service organization to perform the promised service dependably and accurately); *Responsiveness* (willingness of employees to help customers and provide prompt service); *Assurance* (employee's knowledge and courtesy and their ability to inspire trust and confidence amongst the customers); *Empathy* (caring, individualized attention given by service employees to customers of service); and *Tangibility* (appearance of physical facilities, equipment, personnel and communication material). The consumers organize information about service quality in their minds on the basis of these dimensions. It is a judgment that a product or service provides a pleasurable level of consumption – related fulfillment (Zeithaml, Bitner, Gremler, & Pandit, 2016).

The quality of services provided by the five-star hotels and convention centres plays a very important role in satisfaction of MICE delegates. Being leaders in the hospitality industry, the five-star hotels are expected to maintain a benchmark in their services. The various dimensions of service quality, as mentioned above are instrumental in measuring quality of services in hotels and convention centres. For instance, appearances of physical facilities like parking, lobby, signage, furniture, green environment, etc. are crucial aspects of tangibility. Similarly, performing services accurately and to the expectations of participating delegates reflect reliability. Responsiveness is indicated by the willingness of employees to help delegates by providing prompt service. Moreover, the level of knowledge and ability of management to inspire trust and confidence to delegates, signify assurance. And lastly, the predisposition of the hotels and convention centres to understand the needs of delegates and provide them with personal attention denote empathy. Increasing levels of customer satisfaction leads to customer loyalty and profits. Service quality is thus considered to be the key to organizational success (Padlee, Thaw, & Zulkiffli, 2019). Service quality in hotels continues to be an area of wider global research. Its strong significance is related to customer satisfaction and repeat business, which are determinants of profitability of business (Mohsin & Lockyer, 2010).

I. Review of Literature

This section gives a noteworthy and detailed picture of the research studies conducted to examine the role of service quality in luxury hotels and its impact on customer satisfaction. Understanding the needs and wants of

consumers is vital for sustaining success in the tourism and hospitality industry (Goeldner, Ritchie, & McIntosh, 2000). Organisations which are high on service quality tend to have more satisfied and loyal customers, leading to higher profitability (Zeithaml, Parasuraman, & Malhotra, 2000). The tourism industry is one such industry wherein customer satisfaction is of supreme importance. Higher service quality leads to higher satisfaction and subsequently to positive reputation of the destination and hotels which may further lead to repeat visits (Ramsaran-Fowdar, 2007).

(Gundersen, Heide, & Olsson, 1996), measure satisfaction levels amongst the business travellers and underline the methods of minimizing errors in quality of services. The study employs a 22 item Likert questionnaire to assess the perception of business travellers. Findings indicate that business travellers are largely concerned with the tangible aspects like comfort and amenities.

(Robinson & Callan, 2002), in their qualitative study determine the gaps between the attributes employed to measure service quality at a conference venue in UK. The authors conduct focus groups and telephonic interviews for data collection, and discover increased safety awareness; leisure facilities; and product quality as crucial factors influencing consumer decision-making.

(Juwaheer, 2004), in her paper examines the perception of international tourists towards hotels in Mauritius by using a modified SERVQUAL scale. The findings reflect 9 factors spread across 39 attributes, with reliability emerging as an important factor in determining service quality. (Nasution & Mavondo, 2005) in their research suggest that luxury hotels must focus on providing service to customers in cognisance with the factors of perceived service quality for higher satisfaction. (Narayan, Rajendran, Sai, & Gopalan, 2009), consider the views of both management and delegates to gain deep insights into service quality. The authors have developed a 10 – factor structure to include core tourism experience; information; hospitality; fairness of price; hygiene; amenities; value for money; logistics; food; and security as factors to represent service quality in tourism.

Liat, Mansuri & Huei (2014) takes a quantitative methodology to establish significant linkages between service quality, customer satisfaction, corporate image, and customer loyalty. These factors are believed to be instrumental in promoting and sustaining long term organizational growth. (Rauch, Collins, Nale, & Barr, 2015), propose a three-factor structure to measure the service quality of hotels in the mid-segment category.

These factors are service product, service delivery and service environment. Service environment, of which is reported as the strongest predictor of a hotel's ability to meet the guest expectations.

(Lu, Berchoux, Marek, & Chen, 2015) in their pioneering research conduct qualitative analysis to understand the difference between the perception of managers and customers towards the service quality and satisfaction. Findings indicate that service quality and customer satisfaction are well linked in the minds of guests and hotel managers, alike.

(Minh, Ha, Anh, & Matsui, 2015) in their research identify the linkage between service quality and customer satisfaction in the hotels of Vietnam. Results of the study highlight that Reliability, Responsiveness, Assurance, and Empathy have a significant impact on customer satisfaction.

(Wu, Pearce, & Dong, 2017), in their study examine the experiences of international tourists towards the 5-star hotels in Shanghai. Using Leximancer concept mapping to analyse 2000 reviews posted on Agoda.com about superior hotels in Shanghai, the results showed a high level of satisfaction was observed by international tourists. Various factors like physical characteristics of the hotel, location, professional attitude of the employees and beautiful experiences played an important role in customer satisfaction. The behaviour of the staff was one of the predominant factors which led to which shaped the overall customer experience.

(Oh & Kim, 2017) conduct an extensive review of literature considering various articles and research papers published in reputed journals of hospitality and tourism for a period of 2000-2015. The review further strengthens the relationship between customer satisfaction, service quality, and customer value and provides useful insights for future researchers. (Padlee, Thaw, & Zulkiffli, 2019) in their research study the relationship between service quality and customer satisfaction in hotels. The results highlight four dimensions of service quality namely employee behaviour, room amenities, physical evidence and food quality that play a distinguished role in assessing customer satisfaction.

(Vaid & Kesharwani, 2020), examined the delegate's perceptions of service quality in five star hotels and convention centres in Delhi. Using Confirmatory Factor Analysis (CFA), the study confirms the construct validity of various service quality dimensions used in the scale. The findings suggest that tangibility and responsiveness dimensions have received relatively higher ratings from

delegates. However, there was a need to work on the empathy dimension as it received a lower rating. A classified presentation of the major studies in the area of service quality and customer satisfaction is given in Table 1.

Long term relationships and positive customer experience act as the pillar of sustainability in the hospitality industry. It cannot be undermined that a large amount of studies has been conducted in the area of service quality and customer satisfaction in tourism. However, most of these studies measure service quality provided by hotels in a customised manner, instead of considering SERVQUAL as a comprehensive tool. Moreover, it is difficult to identify any study which undertakes the measurement of service quality and its impact on delegate's satisfaction levels with special reference to MICE tourism in Indian context. This creates a massive research gap as MICE delegates have distinct expectations. This gap in previous research needs to be filled in to develop concrete strategies for the future in the hospitality sector to help meet the demands of MICE delegates. For the purpose of the current study, the researchers shall take a comprehensive view of service quality dimensions and its impact on satisfaction with special reference to MICE delegates.

Objectives of the Study

The present research study makes an attempt to examine the impact of service quality provided by five star hotels and convention centres on satisfaction level of MICE delegates.

The more specific objectives of the study are as follows:

- i. To examine relationship between quality of service provided by hotels and convention centres in the business tourism sector on satisfaction of delegates.
- ii. To understand the demographic profile of delegates participating in various MICE events hosted in five-star hotels and convention centers in Delhi NCR.

II. Research Design & Methods

Research design

The present research study is descriptive in nature. It makes an effort to analyze the quality of services of selected five-star hotels and convention centres in the business tourism sector from delegate's point of view, and discusses its relationship with delegates' satisfaction level.

Data Collection

The data for the present study has been collected using both primary and secondary sources. Primary sources comprised of surveys through a structured questionnaire administered to select delegates attending MICE events in five star

hotels and convention centres, to identify their satisfaction level with the quality of services provided at the venue. The secondary data was collected using Tourism statistics reports from ICPB and Ministry of Tourism – Government of India; Websites of various hotels and convention centres; and Journal articles.

Sample Size

The sample for the present study comprise of 372 delegates attending various MICE events in 20 five-star hotels and 2 convention centres located in Delhi NCR. Five-star hotels, are known to place substantial strategic focus in the area of defining service standards and performance compared with lower star category hotels, hence they were considered for the present study (Jonsson & Devonish, 2009).

Sampling Method

In order to select samples for the present study, the following sampling methods were used:

- i. Snowball sampling method, to select hotels and convention centres in NCR.
- ii. Convenience sampling to select delegates attending various MICE events in leading five-star hotels and convention centres

Data Analysis

Primary data collected from managers and delegates through surveys have been analyzed using frequency distribution, descriptive analysis and Structural Equation Modeling (SEM) to examine the causal relationship between variables under study. The results in this study have been analyzed using MS Excel, SPSS 21 and AMOS 20 software.

III. Results & Discussion

In hotels and convention centers catering to the MICE tourism sector, service quality is observed to significantly impact customer satisfaction. (Parasuraman, Zeithaml, & Berry, 1988), in their pioneering research, identified five dimensions of service quality. These are *tangibility*, *reliability*, *responsiveness*, *assurance* and *empathy*. Several statements representing each of the dimensions of service referred to above were selected. In all there were twenty-four statements representing five dimensions. These include six statements representing Tangibility, five statements each for Empathy, and Reliability, and four statements each for Responsiveness and Assurance. All the statements for each of these constructs were adopted from (Parasuraman, Zeithaml, & Berry, 1988), except two statements out of six for Tangibility were adopted from (Mei, Dean, & White, 1999) –HOLSERV scale. Apart from taking views of the responding delegates on the different dimensions of quality of service, they were requested to indicate their overall satisfaction with the

quality of services. In this respect, they were asked to designate their agreement with three statements, adopted from (Wang, Vela, & Tyler, 2008). Each construct was measured using a five-point Likert scale with 1 (Strongly Disagree) to 5 (Strongly Agree). All measures used to construct these questionnaires have shown acceptable levels of construct validity. However, the wordings of some of the items were slightly modified to match the specific context of the present study (Lee J., 2012).

Results of CFA Analysis

The measurement model was developed by author in a recent research paper (Vaid & Kesharwani, 2020) where perceptions of delegates with respect to quality of services offered by five star hotels and convention centres in Delhi NCR were studied. Results indicated internal consistency and reliability amongst different dimensions of service quality as the value of Cronbach alpha was found to be greater than 0.7. Further, the construct validity (i.e. convergent and discriminant validity) of the service quality dimensions was examined using Confirmatory Factor Analysis (CFA) method. The results depict that the standardized slope coefficient (correlation between the service quality and the statements) were found to be more than 0.6. This highly positive and significant value reflects that all the statements included in the study significantly represent their respective service quality dimension. Similarly, the critical ratios for all the statements of different service quality aspects are found to be greater than 1.96 (Vaid & Kesharwani, 2020) indicating that the statements are significantly representing their respective service quality dimensions, thus ensuring convergent validity of the constructs.

Delegate's Satisfaction

The result of the descriptive analysis in respect of the statements measuring delegate's satisfaction has been illustrated in Table 2, and represented graphically in Figure 1. The findings show that the delegates were quite satisfied with the overall quality of services at the convention venue. The maximum average score (4.073) has been received by the statement "*I would happily recommend the convention venue to other colleagues and friends*". This is followed by the statement "I would be pleased to make a return visit to the convention venue for the future events (4.008)" and lastly the statement that "Overall I am satisfied with the services at the convention venue" got a value of 3.978. This indicates that overall, the delegates were quite satisfied with the quality of services at the MICE venue.

Impact of service quality on delegate's satisfaction level

A structural model is developed in the present study where different dimensions of service quality are considered as

exogenous constructs and satisfaction level as endogenous constructs. All constructs were considered as reflective in nature for the first order structural model developed to analyze the causal relationship between various dimensions of service quality and satisfaction level of the responding delegates. The model is shown in figure 2. The following hypothesis is assumed and tested with the help of Structural Equation Modeling (SEM) analysis: Hypothesis: “There exists significant positive effect of service quality dimensions provided by the hotels and convention centres on the satisfaction level of delegates” The level of significance, in the process of hypothesis testing, in the present study is assumed to be 5 percent, in other words, results are concluded at 95 percent level of confidence. The p value approach is employed to arrive at the conclusions in the hypothesis testing. The results of SEM analysis, (as shown in Table 3) depicts that the probability value of critical ratio in case of relationship between different dimensions of service quality and satisfaction level of delegates as less than 5 percent level of significance. It may therefore be comprehended that the different dimensions of service quality at hotels and convention centres under study is found to have significant impact on satisfaction of delegates. This is further validated, as standardized regression coefficient representing the relationship between the dimensions of service quality and delegate satisfaction has been found to be positive in all cases. Among all the dimensions of service quality, tangibility is found to have the highest impact on delegate satisfaction, followed by empathy and responsiveness. The R square of the delegate satisfaction in the SEM model is found to be 0.528. This indicates that 52.8 percent of the variance in the delegate satisfaction can be explained with the help of variations in the dimensions of service quality. In the study, different statistical fitness measures of the Structural Equation Model are estimated and are depicted in Table 4. The results presented in Table 4 indicate that the CMIN/df is found to be 3.911 which is less than the required value of 5, GFI estimate is found to be 0.870 which is more than the required value of 8, CFI estimate is found to be 0.873 which is near to the required value of 0.9, NFI (0.843) and TLI (0.864) are found to be greater than the required value of 8. Finally, the RMSEA (0.08) is close to the required value of 0.08. Hence, it may be inferred that the model is statistically fit and can be generalized for the purpose of research.

Demographic profile of responding delegates

Table 5 summarizes the demographic profile of responding MICE delegates. The sample for the study consisted of more males (64.2%) than females (35.8%). Age groups between 26 and 35 represented the highest portion of respondents, accounting for 35.5%. Service (48.1%) was a

dominant occupation of responding delegates, followed by self-employed (34.7%) and students (16.4%). A large majority of respondents were Indians (92.7%), while the remaining (7.3%) were foreigners. While, 60% of participating delegates received funding from their company or university, 40% would finance their attending costs themselves.

IV. Conclusion

Findings of this study suggest that different dimensions of service quality provided by five star hotels and convention centres are found to have significant impact on the level of satisfaction of MICE delegates. Amid all the dimensions of service quality, tangibility is reported to have maximum impact on delegate satisfaction, followed by empathy and responsiveness. Statistical results further demonstrate that delegates were quite satisfied with the quality of services at the convention venue and reported that they would happily recommend the venue to other colleagues and friends. They also indicated that they would be pleased to make a return visit to the convention venue for events organized in future.

Limitations and scope for future research

Despite the fact that there are a large number of research studies in the discipline of service quality and customer satisfaction, there are still substantial possibilities for further research in this field, chiefly because of economic significance of MICE tourism to nations, across the world. This study makes useful contributions in understanding the impact of service quality on customer satisfaction. There are a number of limitations which might usefully be addressed in future studies. Firstly, since the present study was carried out on select five-star hotels and convention centres in NCR, its findings may not be generalized to other hotels and convention venues, especially the ones located in other cities (Vaid & Kesharwani, 2020). In this regard, it would be useful to replicate the study in different category of hotels and in other cities. Secondly, the present study focuses only analysing the relationship between service quality and delegate’s satisfaction; future studies may consider the role of managers on performance of hotels. Finally, the present study has a cross-sectional design, as data has been collected from respondents at a single point in time. Future studies may consider using a longitudinal design to further validate the findings of this study.

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Table 1: Summary of literature review.

S. No	Study	Type / Context	Methodology	Key Findings
1	(Gundersen, Heide, & Olsson, 1996)	Quantitative / Business travellers	22-item Likert questionnaire	Tangibility (comfort & amenities) most important factor influencing satisfaction
2	(Rauch, Collins, Nale, & Barr, 2015)	Quantitative / Mid segment hotels	CFA	Propose a 3 – factor structure: Product, Service Delivery & Service Environment to measure service quality. Service Environment is most important factor.
3.	(Minh, Ha, Anh, & Matsui, 2015)	Quantitative / Hotels of Vietnam	SEM	Reliability, Responsiveness, Assurance & Empathy significantly impact satisfaction
4	(Wu, Pearce, & Dong, 2017)	Quantitative / 5-star hotels in Shanghai	Leximancer concept mapping	Staff behaviour predominantly influenced satisfaction
5	Padlee, Thaw & Zulfikri (2019)	Quantitative / Hotels in Malaysia	Multiple regression	4 factors of service quality: employee behaviour, room amenities, physical evidence and food quality are important in assessing customer satisfaction
6	(Vaid & Kesharwani, 2020)	Quantitative / 5-star Hotels & convention centers in Delhi NCR	CFA, SEM	Tangibility & Responsiveness were relatively more important. Hotels need to improve on Empathy

Table 2: Descriptive analysis of delegate's satisfaction level.

Overall Satisfaction	Statements	Mean	Standard Deviation	Skewness	Kurtosis	Alpha
SAT1	Overall, I am satisfied with the services at the convention venue	3.978	0.7939	-0.904	1.548	0.924

SAT2	I would be very pleased to make a return visit to the convention venue for future events	4.008	0.8290	-0.928	1.413
SAT3	I would happily recommend the convention venue to my colleagues and friends	4.073	0.8796	-1.098	1.588

Table 3: Results of SEM model.

			Slope Coefficients	Regression Weights	Standard Error	Critical Ratio	P Value	R Square
Customer Satisfaction	<-	Tangibility	0.371	0.284	0.051	5.575	**	52.8%
Customer Satisfaction	<-	Reliability	0.214	0.194	0.058	3.354	**	
Customer Satisfaction	<-	Responsiveness	0.268	0.196	0.033	5.883	**	
Customer Satisfaction	<-	Assurance	0.156	0.102	0.036	2.822	.005	
Customer Satisfaction	<-	Empathy	0.302	0.240	0.045	5.363	**	

Table 4: Goodness of fit indices of SEM model.

Statistical Fit Indices	CMI N/Df	GFI	AGFI	CFI	NFI	TLI	RMS EA
Estimated Value	3.911	0.87	0.770	0.873	0.843	0.864	0.08
Required value	Less than 5	Greater than 0.8	Greater than 0.8	Greater than .9	Greater than 0.8	Greater than 0.9	Less than 0.08

Table 5: Demographic profile of respondents.

Demographic variable	Items	Percentage
Gender	Females	35.8
	Males	64.2
Age	Upto 25	29.3
	26 to 35	35.5
	36 to 45	19.9
	46 to 55	9.9
	56 or over	5.4
Occupation	Student	16.4
	Employee	48.1
	Self-employed	34.7
	Housewife	0.5
	Retired	0.3
Nationality	Indian	92.7
	Foreigner	7.3
Funding	Company	54.3
	University / College	5.6
	Self-funded	40.1

Figure 1: Graphical representation of delegate’s satisfaction level.

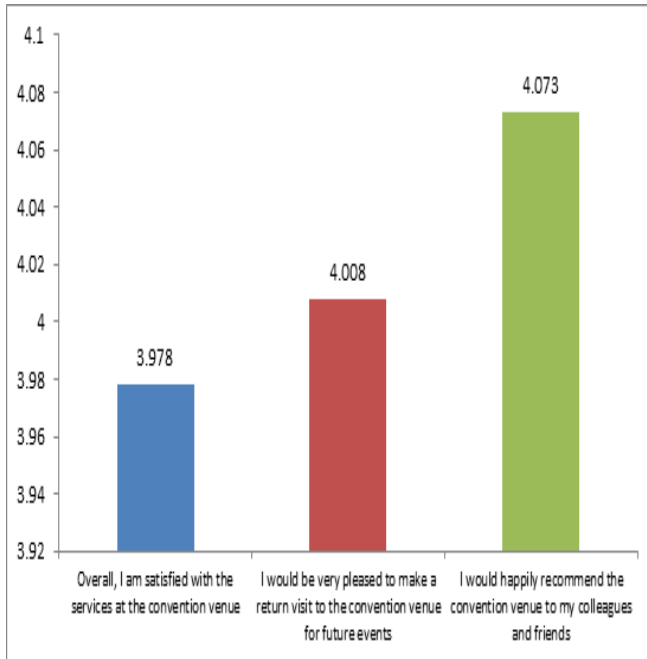
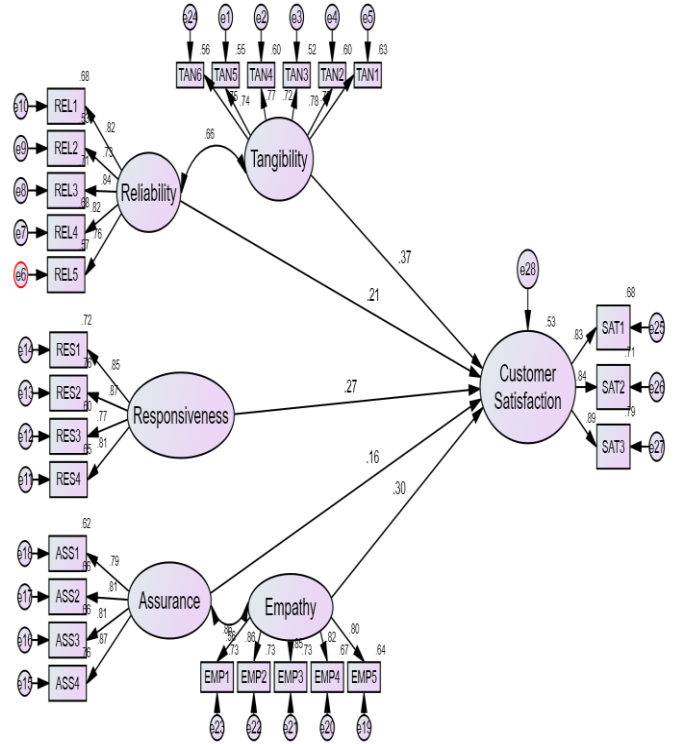


Figure 2: SEM Model: Impact of service quality on delegate satisfaction.



GREEN INNOVATION ADOPTION MEDIATED BY LEGISLATION ON ENVIRONMENTAL PERFORMANCE: THE CASE OF GAMBIA SMES

Morro Krubally* Harcharanjit Singh Nur Naha Abu Mansor*****

Green innovation strategy has greatly received attention worldwide due to the growing concern from governments, community and the end users especially with degradation of the natural resources and environmental pollution. Small and Medium Enterprises (SMEs) are the largest business establishment and vital component of the country's economic development in Gambia. Despite of the uprising demand for a green product worldwide; the SMEs in Gambia faced a different challenge altogether especially when it is at its infancy stage. The paper begins by defining the SMEs and the background of SMEs in Gambia. The discussion then leads to the concept of sustainability and green knowledge and how this affects the adoption of green strategies by SMEs in Gambia. The environmental performance of SME firms in the Gambia has remained largely untested. As such, this conceptual paper provides a basic framework for examination to be carried out in the context of the environmental performance of Gambia SMEs.

Keywords: Environmental Management, Green innovation, ISO 14001 (EMS), SMEs, The Gambia.

The importance of SMEs in West Africa has risen remarkably in the last three decades primarily because of the several possible ways to achieve interest-bearing investment opportunity. Most sub-regional countries in Africa have no or low stock markets, whilst at the same time, interest rates have been sluggish and not able to meet up with growing inflation. These conditions have been attractive to entrepreneurs with have excess money holdings for investment. Unfortunately, SMEs in West Africa are made up of self-employment outlets and dynamic enterprises that are involved in several activities mainly focused in urban areas (Quartey et al., 2017). SMEs plays a key role in the development of entrepreneurial skills, innovation, and employment (Kinyua, 2013). World Bank Group (2015) reported that formal SMEs contribution to Gross Domestic Product (GDP) is up to 45 percent. According to World Bank Group (2015), there is approximately 365-445 million Micro, Small and Medium Enterprises (MSMEs), and of that amount 285-345 are considered informal enterprises (Ombongi & Long, 2018). The SMEs sector in the Gambia is considered largely informal sector and primarily constitutes of participant members of households with scant resources to invest in their enterprises (Kamara, 2018). The Gambia Ministry of Trade and the Gambia Chamber of Commerce (GCCCI), defined SMEs as enterprises with 0-50 employees and there is a very small number of enterprises in the Gambia SME sector that have in excess of 50 employees (Gambia Bureau of Statistics, 2014). SMEs contribute up to 60% of employment and contribute 20% to the national GDP

(Jallow, 2019; Kamara, 2018). The SMEs in the Gambia are categorized as service, very light manufacturing craftsmanship, agriculture, construction, and small vendors (may be categorized as micro-enterprises, many of which are informal (Gambia Bureau of Statistics, 2014). Moreover, the SMEs sector is not effectively organized in Gambia and its owner/managers have limited experience in developing and managing a business (Kamara, 2018). Besides, not many studies have examined various areas on SMEs performance (Jallow, 2019; Kamara, 2018). Furthermore, up to date, no empirical research has investigated the link between the environmental performance of SME's and government legislation in Gambia; which necessitated this conceptual paper. Although, SME plays a pivotal role in the growth of any economy, it also significantly contributes to the degradation of the environment (Gupta & Barua, 2017). Likewise, because of its size, the impact of SMEs on the

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environment is often not noticeable at regional and national levels (Gupta & Barua, 2017). Besides that, the industrial waste and pollution of SMEs have been quoted to be accorded to at approximately 70 percent (Hillary & Burr, 2011). Internationally, conventions have also considered the necessity to protect environmental resources and address the challenges of environmental and its effect on climate (Gupta & Barua, 2017).

I. Review of Literature

The present conceptual paper aims to investigate the state of green perception, green activities, eco-innovation or green concept (green concepts often used interchangeably in the literature) and environmental performance of Gambia SMEs. Environmental performance is defined based on three categories: 1) the definition may be based on environmental impacts on emission and the use of energy, 2) based on means to achieve regulatory compliance and activities that may include installation of treatment/or recycling plants, and 3) based on activities viewed as organizational processes and capital expenditure (Fernando, Wah & Shaharudin, 2016). Nonetheless, for this paper, “environmental performance has been defined as adoption/improvement in environmental compliance, reduced solid/liquid wastes and greenhouse gas emissions, and improvement in recycling activities.” (Fernando et al., 2016, p. 32). Eco-innovation has several interchangeable definitions which all refer to the same issue of environmental sustainability (Tariq et al., 2017).

Despite the potential benefits of green innovation initiatives are anchored on environmental performance globally, many SMEs have little or no knowledge about environmental management and lack understanding of environmental management concept (Hasan & Ali, 2015). Hence, it is very difficult for SMEs to see a clear link between adoption and or implementation of environmental management systems (EMS) and the various benefits derived from the firms’ environmental strategies (Musa & Chinniah, 2016). As such, more attention should be focused on the SME sector in the social and environmental management literature (Moorthy, 2012). Moreover, this will be in alignment with the widely accepted desire for firms to act in an environmentally responsible way, contributing to social well-being and achieve firm-level competitiveness and financial success (Etzion, 2007; Starik, 2006). Extensive literature review revealed that SMEs in the Gambia have not given any attention to the environmental management phenomenon. Environmental performance is also known as adoption/improvement in “environmental compliance, reduction of solid/liquid wastes and greenhouse gas emissions, and improving

efforts in recycling activities.” (Fernando, Wah & Shaharudin, 2016, p. 32). Integration of innovation and sustainability led to the term eco-innovation which was coined as “new products and processes which provide customer and business value but significantly decrease environmental impacts.” (Hojnik, Ruzzier & Manolova, 2018, p. 278). Research on environmental sustainability remains scarce and only a few have integrated the two themes which have provided very limited theoretical and methodological understanding instead has caused uncertainty to SMEs (Klewitz & Hansen, 2014). Hence, for firms to gain methodological certainty or knowledge about environmental sustainability, enterprises should consider efforts in systematic eco-innovation for firm superior performance or for sustainability (Navas, 2014). Thus the topic of integration of innovation and sustainability remains open for further investigation and it is in this context that SMEs are still incipient (Hojnik, et al., 2018). Hojnik, et al. (2018) suggested future research should try a more differentiated examination of SMEs. Although large enterprises are considerably smaller in number in contrast to SMEs, their environmental footprint is much more significant. Comparatively, SMEs are seldom included or considered for environmental regulations and responsibilities (Schmidt, Pattinson & Kor, 2015). A common and acceptable method for the improvement of a firm’s environmental impact and sustainability interest may be achieved through an environmental management system (EMS) (Schmidt, Pattinson & Kor, 2015). Hence, this paper is based on EMS adoption Gambia SMEs for measures to develop and improving their environmental performance.

Sustainability has become a widespread concept in current literature and its simple premise, implies enterprises bearing a responsibility to fulfill the human wants while conserving nature (Hasan & Ali, 2015). Ecological concerns of recent times oblige the managers to formulate strategies for the control of pollution and preservation of natural resources (Schmidt, Pattinson & Kor, 2015). Integrating sustainability in organizations still remains a challenge and difficult for many managers (Millar, Hind & Magala, 2012). Chuang and Yang (2014) provided empirical evidence which showed that various companies have adopted green philosophies and became profitable after changes to green manufacturing system. Retail outlet businesses have also begun promoting the green image (Yusof, Musa & Rahman, 2012) as consumers are willing to purchase products or services that are environmentally-friendly (Hasan & Ali, 2015). Furthermore, green markets are increasing in size and with the potential to become bigger in the future (Dangelico & Pujari, 2010). Moreover, at this juncture, the primary attention to environmental

responsibility frequently rests on big firms (Dangelico, Pujari & Pontrandolfo, 2017). Large companies, have disadvantageous impact on the environment. Hence, most of the research on environmental performance solutions was conducted on large enterprise (Schmidt, Pattinson & Kor, 2015). In contrast, SMEs are frequently precluded from environmental regulations and responsibilities. However, individual environmental impact of SMEs is insignificant, SMEs count for 90% of the European market (Schmidt et al., 2015), their cumulative environmental footprint has a high disadvantageous potential (Dangelico et al, 2017). Thus, the implicit requirement for providing SME the necessary tools for optimizing and limiting their footprint (Dangelico et al., 2017). A commonly established way to improve an enterprise's environmental impact and sustainable acting is gained through the implementation of environmental management system (EMS) (Abdullah, Zailani, Jayaraman, & Iranmanesh, 2016; Hasan & Ali, 2015; Musa & Chinniah, 2016; Schmidt et al., 2015).

Environmental management systems are widely regarded as a means to facilitate in guiding firms voluntarily seek support in enhancing their environmental impact (Cai & Li, 2018). A wide range of research has examined EMS in an effort to show the usefulness of an EMS implementation, and how the system improves a firm's environmental footprint. Implementation of EMS also provides several advantages (Musa & Chinniah, 2016). Contrarily, another research has also raised concerns about the implementation of EMS (Schmidt et al., 2015). The two most widely used EMS are the ISO 14001:2004 standard for environmental management, developed by the International Organization for Standardization (ISO, 2015; Musa & Chinniah, 2016), and the Eco-Management and Audit Scheme (EMAS), developed by the European Commission (European Commission, 2014). Nevertheless, both standards are guided by similar principal methodologies that require businesses to develop an environmental policy that involves the planning stage, implementing and operation, monitoring and remedial action, and management review (Schmidt et al., 2015). According to Dodds (1997), both standards can be appropriately applied for large firms and SMEs. Musa and Chinniah (2016) suggested using ISO 14001-2204 which has a little less stringent requirements and because it is known to have been designed and intended for small chip shop owner, and it is deemed to be the preferred model for SMEs. Globally ISO 14001 has a wider acceptance as environmental management systems standard (Schmidt et al., 2015). Thus, the ISO 14001 standard is recommended as a basis to develop a system for this research. Eco-innovations are known to have a requirement for certain information and employees that have must acquire skills

and knowledge of environmental practices and technologies (Pinget, Bocquet & Mothe, 2015). Nevertheless, the lack of knowledge and lack of legislation can prevent employees and entrepreneurs from green innovation practices (Mangla, Govindan & Luthra, 2017; Simpson, Taylor & Barker, 2004; Shen and Tam, 2002), lack of employees' ability for the identification of environmental opportunities (Govindan et al., 2014; Theyel, 2000), lacking believe in environmental benefits of green products (Revell & Rutherford, 2003), and lack of awareness about recycling and reverse logistics facilities (Marsillac, 2008; Meade, Sarkis & Presley, 2007). The literature on aspects of green innovation provides a number of theories for underpinning supporting conceptual models, however, primarily three theories have been dominantly used in green innovation research: resource-based view (RBV), institutional theory, and stakeholder theory (Tariq et al. 2017). RBV is most recognized and often used theory in green innovation management research. On one hand, RBV is premised on the notion that for firm to gain competitive advantage they must utilize a bundle of resources and capabilities often regarded as ("better, unique and non-imitable resources and capabilities"), and therefore, there is a causal relationship between level of resources used and firm performance (Amores-Salvadó, Martín-de Castro, & Navas-López, 2014; Newbert, 2007). On the other hand, because the research context of this paper is not for testing competitive advantage but rather for organizational strategy and how this is affected by regulations (institutional). Therefore, institutional theory is more appropriate to underpin the present research context. The institutional theory postulate survival of firms is contingent on their ability to conform to institutional requirements (Sirmon, Hitt & Ireland, 2007). The institutional theory is mainly concerned with the interactions that organizations may have with institutions (Oliver, 1991), these institutions may be informal or formal such as governments. Past scholars argued that one of the primary reasons that compel organizations to adopt eco-innovation is institutional pressure (legislation); the dependence of organizations on institutions can influence managers' actions in dealing with the institutions (Gupta & Barua, 2017). Therefore, many studies apply Institutional Theory in their effort to gain an understanding of how regulatory pressure from various institutions influences the adoption of eco-innovation (Berrone & Gomez-Mejia, 2009; Schoenherr & Talluri, 2012; Smink, Hekkert & Negro, 2015). Jennings and Zandbergen (1995) argued that the appropriate application of Institutional Theory to organizational adoption of ecologically sustainable behavior and suggested that organizations most widely welcome state promoted (institutional pressure) for sustainable behavior.

II. Research Design and Method

The proposed conceptual framework of this conceptual framework may be appropriately measured through used of quantitative research methodology. A survey design allows for use survey (questionnaire) to collect data set for analysis (Creswell, 2002). Hypotheses of the present paper may be developed to test:

- H1: Green innovation systems has a positive relation with environmental performance
- H2: Green knowledge has a positive relationship with environmental performance
- H3: Green legislation mediates the relationship between the relationship between green innovation systems and environmental performance
- H4: Green legislation mediates the relationship between green knowledge and environmental performance
- PLS-SEM may be useful on conducting a reflective regression analysis for appropriate structural model and measurement model. PLS-SEM will help to establish composite reliability and validity for this exploratory research (Hair et al., 2017).

III. Results and Discussion

The expected result of this conceptual paper is expected to demonstrate the importance of environmental management systems and the importance of SMEs implementing the system for sustainability gains. Environmental Management Systems remains largely implemented in greater numbers by big firms more than by SMEs. This is primarily due to the environmental force on large establishments because of their substantial impact but also because of their resource's capability that allows them to invest in properly developing a certifiable EMS (Schmidt et al., 2015). Conversely, SMEs, have a lower environmental impact not withstanding their cumulative impact not exactly known (Seiffert, 2008; Zorpas, 2010), this impact is projected at nearly 70% of the whole industrial pollution (Frijns & Van Vliet, 1999; Hillary, 1998).

Moreover, SMEs owner/manager feel no responsibility to implement EMS including narrow financial resources, a lack of expert knowledge, the complexity of the EMS, a lack of awareness regarding their responsibility as well as solutions, and a lack of motivation may be part of reasons for their absence in many SMEs (Blundel et al., 2013; Chan, 2011; Seiffert, 2008; Zorpas, 2010). However, several advantages can be derived from the implementation of EMS such as cost savings over time, risk aversion, improved environmental performance inside

the company, improved corporate image as well as improved relation with stakeholders and clients, better marketing options, pollution prevention, enhanced legal compliance, and conservation of resources (Chan, 2011; Hillary & Burr, 2011; Maier & Vanstone, 2005; Seiffert, 2008; Zorpas, 2010). Nevertheless, in testing the perception of managers of SME in the tourism industry in the Gambia, Drammeh (2015) found 90% of respondents were familiar with the term sustainable tourism but their perception of whether Gambia tourism industry operated in a sustainable way. The findings further revealed that when asked if Gambia SMEs operated in sustainable manner, 37% disagreed, 8.2% strongly disagreed, 40% agreed, while only 6% strongly disagreed (Drammeh, 2015). Importance of regulation has received significant attention from researchers who have emphasized regulation as a driving force of eco-innovation, that the proper design of regulation can potentially offset the cost of improving the effects of the innovation that emanate from a more efficient use of raw materials, labor, energy, or improve product quality (Hojnik & Ruzzier, 2016). Doran and Ryan (2011) findings supported the Porter hypothesis for and found regulation to have significant impact effect on the propensity of firms engaging in eco-innovation as which experience regulation were 278% likely to adopt eco-innovation when compared to firms that did not experience regulation. This is findings strongly collaborate the findings in literature that there exists a strong positive and significant relationship between regulation and eco-innovation (Doran & Ryan, 2011). Furthermore, it was discovered that government grants unlike regulation played an alternative approach to eco-innovation but had a less impact than regulation on compelling firms towards eco-innovation (Doran & Ryan, 2011).

SMEs could potentially become driving forces for sustainability environments although individual SMEs' impact are not as large companies but there is a clear necessity for providing SMEs tools to limit their footprint (Schmidt, Pattinson & Kor, 2015). Kemp (2000), argued that environmental regulations are valuable due to the dual purpose of informative and normative content (Fernando et al., 2016) for a greener environment and for specific policies while providing stringent guidelines to polluters and eco-innovators about the requirements. Moreover, those companies that implement in excess of the minimum, are positioned to gain from first-mover advantages as pioneers of innovation (Hojnik & Ruzzier, 2016). Government legislation mediate the relationship between (Green innovation Systems and Green Knowledge) and Environmental Performance Regulations and customer demands are the main drivers of green innovations

(Yalabik & Fairchild, 2011). However, Rehfeld et al. (2007) found that the customer demand is not a strong driver of green product innovations, since eco-friendly products are more expensive. Government regulations affects organizations through coercive isomorphism, meanwhile shifts in consumer tastes representing dominant social norms and decisions of leading companies are an informal institution that has an effect on organizations mainly through mimetic and normative isomorphism (Liu et al., 2010).

IV. Conclusion

As groundbreaking, this paper will provide much needed knowledge for owner/managers and employees on standardization criterion and parity with global business operations. Eco-innovation practices such in the context of SMEs' environmental performance are advantageous for both the firm and the wider society (environmental sustainability). Hence, by setting a context and rationale for research in environmental management of SMEs in Gambia this paper will provide an impetus for SMEs and government of Gambia to give greater and renewed focus to the aspects of environmental management, and sustainability. Government policy may encourage eco-innovation through progressive measures such as grants or rebates or punitive measures such as tariffs and quotas. Moreover, adaptation of green practices (ISO 14001) could be an avenue for greater knowledge development, promotion and positive development of employees and enhancement of productivity and profitability of SMEs. Future research may conduct a comparative study on green readiness of SMEs in Gambia on managerial environmental concern, strategic behavior and outcomes such as firm performance. In addition, future research may include moderating or mediating variables to further expand current theoretical framework.

Based on the literature review the conceptual framework in Figure 1 was developed. The conceptual framework explains the relationship between the research constructs, green innovation systems and green knowledge with environmental performance with a mediating effect of government legislation. As the green practices is at its infancy stage especially, in The Gambia; future research could further develop this conceptual framework. Moreover, the validity of the model can be established through empirical testing. As such, future research could test the conceptual model through qualitative, quantitative or mix methods. The results of the empirical testing are essential to validate that green innovation system and green knowledge have a direct impact on the environmental performance. In addition, the paper also hypothesized that there is a mediating effect of government

legislation between (green innovation Systems and green knowledge) and Environmental Performance.

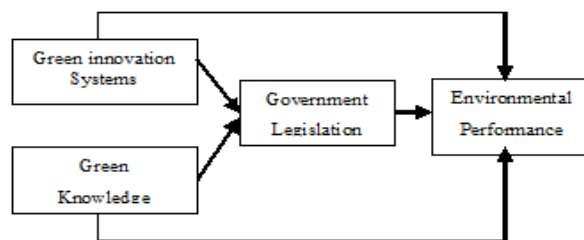
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Figure 1: Conceptual Framework; Underpinned by Institutional Theory.



RELIANCE JIO: AN INDIAN TELECOM DIASPORA

Rohan Vij* Neelam Tandon **

The telecom sector has redefined the world boundaries. In India, the journey of the telecom sector from Telstra, MTNL, BSNL, Airtel, Vodafone and Idea to Jio has amazing transition points. Jio's entry in the telecom market brought disruption amongst other players operating in the market and as a result, in the year 2020 Jio has become the market leader in the telecom service provider category. The telecom sector has transformed from the pager system to cellular systems. The change from 1G to 4G has changed the life of many people in the world. This revolution in India was brought by Reliance Jio wherein they upgraded Indian the market from 3G services to 4G services. They have a great plan to move to 5G in the near future. The company that now has the maximum share in the telecom sector of 32.04% entered the market by providing free internet and calling services. The main idea of the company was to expand itself in each part of the company. The target audience for the company was the young generation with maximum usage of mobile services with highly price elastic demand. To widen the market by catering to the low-income group of consumers with a higher level of utility they launched Jio Smart Phone with the brand name of LYF. This phone had almost all the features of an expensive smartphone but the price of these phones was kept low to attract target customers. Initially, Jio services were offered for free and in a later stage, the company charged nominal prices for the services. Later in November 2019, the company increased the prices for its services and now it has plans to expand into DTH services, Financial Instruments, Jio Phones, etc. The authors have made an attempt to dwell deeper into Jio's strategic approach to disrupt the telecom industry and to compel the competitors and the telecom regulatory body (TRAI) to set new rules of the game.

Keywords: Market Penetration, 3G Services, 4G Services, 5G Services, Broadband Services.

India is one of the largest growing countries in the world with respect to wireless connections. According to report published by Telecom Regulatory Authority of India published on 16/01/2020 there are 1154.59 million wireless and 21.29 wireline active subscriptions in India currently. In India Telecom industry is regulated by TRAI since 1995 (1). Before 31th July 1995 when first cellular call was made over Modi Telstra's Mobile Net GSM network of Kolkata people use to communicate through Pager Services. Pager services were wireless communication devices which were used to receive and display alphabetic or voice messages. In early 1990's Department of telecom (DOT) was the sole provider dominated the market. Later in 1994 the sector which was till now dominated by DOT was moving towards competition with many foreign players. With new changes India started having foreign investments in the sector. Now since then the sector has grown at a fast scale and the sector few years back had a tough time because of the entry of Reliance JIO. Before the launch of Jio the industry was dominated mainly by Bharti Airtel, Vodafone, Idea. As per TRAI telecom subscription report published on 30th November 2019, the private sector has 89.51% share and the two government PSUs BSNL and MTNL has a share of 10.49%. Currently in India we have private players like Reliance Jio, Bharti Airtel, Vodafone

Idea and government players (PSUs) like BSNL and MTNL as major players in telecom industry.

Inception of Reliance Industries

Reliance Industries is a multinational conglomerate which now owned by MR. Mukesh Ambani was founded by Late Mr. Dhirubhai Ambani in the year 1973. The company is a part of various diversified sector like textile, Petroleum, Reliance Fresh, Energy etc. In the year 2016 company diversified its business into telecom industry by providing users voice call and internet services. The diversification was called Reliance Jio. In a very short span of time the company created a huge disruption in the telecom industry.

Birth of Reliance JIO

Reliance JIO a subsidiary of Reliance Industries Limited (RIL) is one of the companies which has grown magnificently with a net worth of about 187,720 crores (source Wikipedia). The company has a base of nearly

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355.17 million subscribers which makes it India's largest mobile networks and the world's third-largest network company (source Wikipedia). The company is owned by the richest man of India Mr. Mukesh Ambani. Currently, the company is the largest subscriber base as well as revenue market share, according to TRAI data. The data released by TRAI the company has added 5.6 million users in November making its total subscribers to 369.93 million users replacing Vodafone Idea from the top spot.

JIO's Diaspora in the Telecom Industry

Initially, the project was launched as a pilot project for only Reliance group partners and employees. Later in September 2016, JIO was launched in India for the public. In 2010 RIL brought a 95% stake in Infotel Broadband Services Limited (IBSL) for 4800 crores. Later continuing as RIL subsidiary, IBSL was renamed as Reliance JIO Infocomm Limited in January 2013. In the year 2015, a PIL was filed against JIO by an NGO named Centre for Public Interest Litigation through by Prashant Bhushan. The case was related to the Pan-India license given to JIO to provide voice telephony along with 4G data services by paying an additional fee of just ₹165.8 crores arbitrary and unreasonable. Against the PIL filed Department of Telecommunication explained the 3G/BWA rules and as a result of which the case was withdrawn.

Internally the project was launched on 27th December 2015 and on 5th September 2016 the project was launched commercially. In its first month, the company crossed 16 million subscribers and within 83 days it crossed 50 million subscribers. By the end of October 2017, the company had 130 million subscribers. With such a massive success in a short span of time the shares of Reliance Company were at a hike. The company used Reliance communication's (Company of Anil Ambani) optic fibre network cable to launch JIO. Optical fibre cables are cables that help in speedy transfer of data. This gave the company an advantage above existing service providers. The company used a penetrative pricing strategy to enter the market. In penetrative pricing, the prices of the product or service provided are kept low to enter into the market and gain a large share and to give a tough competition. To give its service a good start the company announced free voice call services and free 4G internet services to the users. Any user whose phone supported 4G calling services could get his/her JIO sim by downloading My JIO Application on the phone. The result of this strategy was that we could see a very big line in front of Reliance Stores and other places where the sim was available. In the beginning, the company offered only one Sim Card on one Aadhar number but latter to

make it more productive it changed its marketing strategy by giving more than one sim on the same Aadhar Number. Additional benefits were given to all those users who purchased LYF phones (Reliance LYF) along with their JIO sims. The offer was that users having LYF phones and JIO sims will get free services for extra months. The same offer was provided to iPhone users. The company at the time of launch gave free services till 31st December 2016 but latter on the services were extended till 31st March 2017 which was called JIO's "Happy New Year" offer and gifts to its users. After providing free services till 31st March the company introduced its pre-paid and post-paid plans which were a major game-changer in the telecommunication industry. The company used Mr. Shah Rukh Khan as its brand ambassador. The plans of JIO started a price war in the telecom industry.

Marketing of JIO was so aggressive linking the JIO as a brand to all government schemes. There are television commercials featuring Mr. Shah Rukh Khan and many other celebrities promoting JIO plans. The company printed many advertisements in newspapers and magazines. The company took the help of many in transit advertisements. Many new offers and applications like JIO TV, JIO Cinema, JIO Cloud, JIO Music, etc were also provided for free to attract users. The prices charged by JIO were very low compared to the other telecom service providers like Airtel, Vodafone, Idea etc. The company had shaken the entire telecom market by its plans. Every day there was news about other providers changing prices or their plans or providing any other benefits to compete with JIO and its plans. The major cost involved in the telecom sector is in its initial infrastructure in subsequent years the running cost reduces with respect to an increase in its customer base. The major source of revenue for these big telecom companies is not the per call made or per unit of internet used it is the monthly bills which we pay.

The main target for JIO was the youth who were more techno-savvy. The plans were made to attract more and more customers, especially youth. The company partnered with location-based AR game Pokémon Go in which many JIO stores and other Reliance shopping marts became sponsored poke stops and gyms. After shaking the whole telecom industry now Reliance JIO has started to increase its plan price. Recently there was a 40% tariff increase in plan prices. As a result of which it was said that still even after the price hike 25% of the JIO plans were still cheaper than other providers. The hike was the first time after its launch and after the hike of prices of other telecom companies. "These plans were

made to provide up to 300% more benefits to the JIO consumers (compared with previous plans), upholding the JIO promise of providing the best quality service at the lowest price globally,” the telco said in a news release. The additional benefit referred to increased calling time during which JIO subscribers can call a rival network without being charged. Under some of its new price plans, this would be 1,000, 2,000, 3,000 or even 12,000 minutes. In October, JIO started charging voice calls made to the subscribers of the rival networks, to account for the six-paise-a-minute termination charge it has to pay under local rules. In line with JIO’s move, Vodafone Idea and Airtel had rolled out a ‘fair usage policy’ as part of their latest tariff hikes, to cap daily usage under their unlimited calling plans. After a limit, they too will charge customers 6 paise per minute for calls made to a rival network. Now a customer will have to recharge for Rs 199 if he wants 1.5 GB data per day for 28 days. This Rs 199 plan is still 25% cheaper than the plans of rivals offering similar benefits, charging around Rs 249. Those using the Rs 399 plan. According to the various analyst, this price hike would help the sector in its nearly 7 lakh crore debt. (2) IIFL executive vice president for markets and corporate affairs Sanjiv Bhasin said. “It is about time JIO increased tariffs and started to monetize their investments. The price hike is expected to improve the telco’s average revenue per user (ARPU), which fell for the seventh successive quarter to Rs 120 in the July-September period. After the price hike, analysts estimate JIO’s ARPU to increase to over Rs 140 by the fourth quarter of fiscal 2020. Airtel and Vodafone Idea, whose consumers have seen a tariff hike of up to 40% effective from December 3, are estimating a jump in their ARPU as well. Analysts estimate Vodafone Idea’s ARPU to rise to Rs 143 from Rs 107, and Airtel’s to move to Rs 145-150 from Rs 128 over the next two quarters. (3) The above graph depicts the exponential growth of Jio from a negligible share of 1.52% till 30th November 2016 to maximum share of 32.04% till 30th November 2019. The company has shown a significant growth in last 3 years and is giving a tough competition to other players in the telecom industry. As per TRAI currently the major players in telecom industry are Reliance Jio, Bharti Airtel, Voda Idea, BSNL and MTNL.

Market Share of Telecom Industry Players in India in the year 2020

Company	Percentage of Share
Reliance Jio	32.04%
Bharti Airtel	28.35%
Vodafone Idea	29.12%
BSNL	10.19%
MTNL	0.29%

The above graph depicts squeezing market share of MTNL to 0.29 percent, 10.19 percent of BSNL, Bharti Airtel at 28.35 percent, Voda Idea at 29.12 percent and maximum market shareholding of Jio at 32.04 percent. This depicts the displacement in the market share of the leading players was an outcome of the disruption brought by Jio in the telecom industry.

Conclusion

It can be concluded that the monopoly telecom sector with high reliance on the government sector was challenged by Airtel and later with Vodafone and Idea with better services catered to Indian consumers with the adoption of innovative pricing strategy but the entry of Jio in the telecom industry caused disruption in the telecom industry. It created immense challenges for Bharti Airtel and Vodafone Idea to retain their highly price elastic consumers and sustain their cost. The disruptive pricing strategy of Jio with having economies of scale of Reliance group made them sustainable at low pricing and hence making consumers highly reliant on their services. Reliance Jio not only through their deep discounting pricing strategy but also their cross-selling of products could increase the market share at a significant level. It could bring revolution in telecom services by providing LTE calling services to all segments of consumers at the most affordable pricing. The company has shown great success by getting the largest share in the telecom industry in a span of three years. The company does not want to restrict itself only into voice calling and internet services but is also planning to diversify themselves into JIO Broadband services, JIO e-commerce platform, JIO DTH services, JIO phones, JIO 5G networks, JIO enterprise services and into financial sectors related to mutual funds and other financial instruments. (4) In fact, Jio has also started pilot projects for many of the new projects and they are trying to convert all their plans into a great business. This is the beginning of the success story of the Jio telecom service provider to Indian consumers.

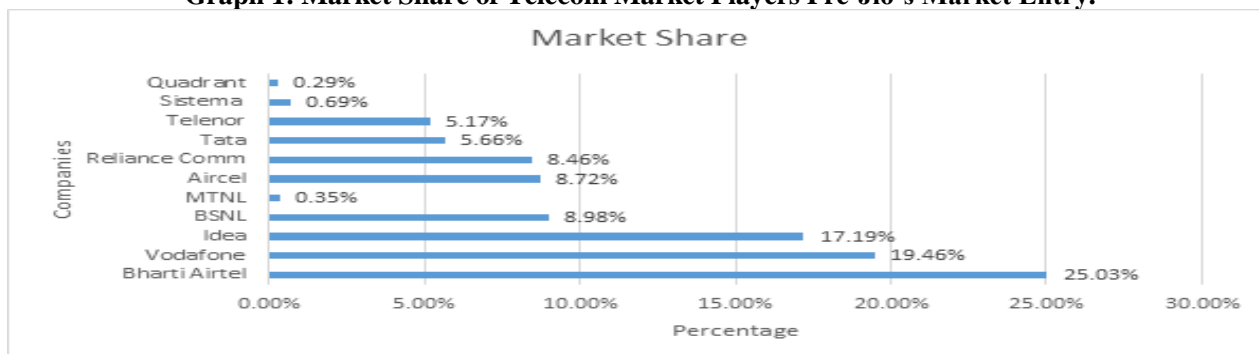
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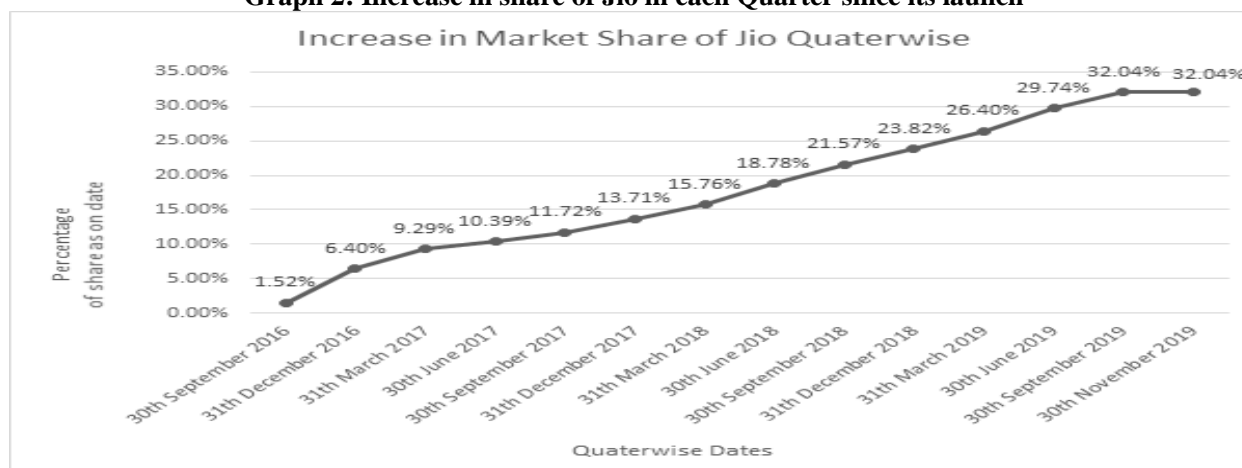
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Graph 1: Market Share of Telecom Market Players Pre-Jio’s Market Entry.



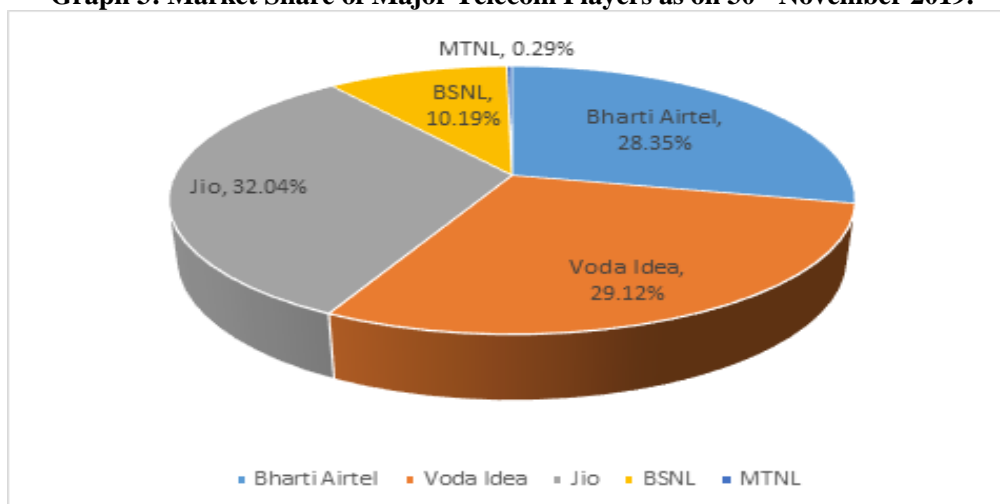
(Source: TRAI)

Graph 2: Increase in share of Jio in each Quarter since its launch



(Author’s Compilation, Source: TRAI)

Graph 3: Market Share of Major Telecom Players as on 30th November 2019.



(Source: TRAI)

A Book Review On “The Interpretation of Dreams”

Author: Sigmund Freud

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When you find dream catchers in colourful little crafted handicrafts in the market you wonder what it indicates. You love the beautiful crafts and buy them. Have you wondered the significance of dreams? It is a subconscious feeling of the mind. The mind plays a big game in one's life.

Sigmund Freud Wrote “Interpretation of Dreams” in 1899, he has been the founder of Psychoanalysis. In this book he introduces his theory of the unconscious with respect to dream interpretation, and also discusses what would later become the theory of the Oedipus complex.

A. A. Brill, a Freudian psychoanalyst did the very first translation to English from German. But, years later, an authorized translation by James Strachey was published. And the most recent English translation is done by Joyce Crick. The dreams are scientifically meaningful mental phenomena and The Interpretation of dreams was set out to prove this only. Earlier, dreams were considered as meaningless responses to physical stimulus by scientist, and dreams were considered to have supernatural meanings by mystics. But Freud claims that dreams accomplish unconscious and repressed childhood desires.

Freud had reviewed some previous literature on dreaming, in the initial section of the book. He states that a dream is an extrasensory phenomenon that can be explained, and by doing this, mental illnesses can be explained. The dream has the chattels of turning a tiny infuriation that arose during a sleep, into a huge incident. Freud has drawn references from his own personal observations, which may be insufficient evidence for some of the principles. Freud's writing is logical and his investigation persuasive chiefly when applied to the analysis of the field. His focal point is on dreams which the booklover will no doubt experience themselves.

The Interpretation of Dreams, where *Freud's* most famous ideas like - “royal roads to the unconscious,

dreams as wish-fulfillments, psychoanalysis and the Oedipus complex were first projected and examined, *consists of seven chapters*. The contents of the various chapters are summarized in the following paragraphs: Freud reviews the scientific literature on dreams, as well as philosophy, folk traditions, and ancient religious beliefs. All these writers have offered different ideas on what dreams are.

In this chapter Freud has described relation of dreams to walking life. Also, he has divided the stimuli and sources of dreams into four categories – External Sensory Stimuli, Internal (Subjective) Sensory Excitations, Psychological Organic Somatic Stimuli and Physical Sources of Stimuli. He also explains why dreams are forgotten after waking, and has described distinguishing Psychological Characteristics of Dreams. He emphasizes disagreements and gaps in the existing literature, leaving a space for his own method of dream interpretation to fill. Also, covers relation between dreams and mental diseases. The Method of Interpreting Dreams: An analysis of a specimen Dream This chapter contains one of the most prominent dreams ever dreamt - the dream of Irma's injection. Freud uses it as an illustration dream, i.e., the dream to show how all dreams must be interpreted. He shows the dream fulfills his wish to be respected as a doctor.

At the end of the chapter Freud wonders if all dreams fulfill wishes. Freud's great discovery was, that all dreams are wish accomplishment. This is his book's immense idea and he announces it with great enthusiasm. "We find ourselves in the full daylight of a sudden discovery," he writes. He gives examples in which dreams fulfill wishes in a straightforward manner. A child denied an excursion to the mountains goes there in a dream, a hungry prisoner dreams of a meal. He re-

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emphasizes that this is the case with all dreams, they fulfill a wish unfulfilled in reality. In the chapter on distortion in dreams, Freud converse an opposition to his wish fulfillment premise by showing how unlikable dreams are actually wish fulfillments. He does this by making a division between the superficial level of a dream and its concealed level. The surface or obvious part of a dream Freud calls the manifest content. Freud labels the concealed level of a dream the latent content. On the surface, an unpleasant dream appears not to fulfill any wishes. But on a hidden level the unpleasant dream fulfills a wish. In the chapter on the material and sources of dreams Freud considers what dreams are about and where these topics come from. According to Freud, all dreams have four possible sources: Trivial experiences, important childhood events, Recent and significant experiences and memories and Physical sensations during sleep (e.g., thirst or alarm clocks). Freud also investigates some typical dreams like - witnessing the death of a relative, flying or hovering, appearing naked in public, failing a test, missing a train etc.

Earlier Freud insisted every dream explanation is exclusive. He now confesses there are a few dreams everybody seems to have. And here Freud first proposes his idea of the Oedipus complex, the fundamental reason for all repressed wishes. Since the Oedipus complex concerns one's wish to kill his father and sleep with his mother – the biggest no-noes of all – these are wishes which will never become a reality. By the concept of Dream Work Freud means - all the processes that change unconscious dream-thoughts (or latent content) into dream-content (manifest content). He explained – the work of condensation (a process by which many images are condensed within one) and the work of displacement (by substituting abstract thoughts with more concrete

representations). This is how dreams discover a way to represent relations between thoughts.

Freud calls the next process secondary revision. In secondary revision the dream changes as the dreamer talks about it. More prominently, with this Freud gets the idea that if we want to examine unconscious feelings more evidently, we have to generate a surrounding in which the patient feels as comfortable as when he/she is in bed. Freud describes the processes of how mind works. His model gets the base from his detailed examination into dreams. Here he describes the process of dream forgetting, regression, wish-fulfillment, arousal by dreams, anxiety – dreams.

He dives into the explanation of Repression – primary and secondary processes, Reality – Unconscious and Consciousness. All in all, the book is a classic and it must be read by everyone and not only by psychologists. It is a useful addition to cognitive and subconscious mind and how it works. Mind has a separate story to tell. Each person is different with a different story to tell. Dreams form an important aspect of life and give to each a quality of life that the person thinks off and wants to achieve.

The book has received many awards and in particular known for Goethe Prize (1930), Schlegel-Tieck Prize for Joyce Crick (2000). I would highly recommend to all the readers to pick up this book and they will get mesmerized and completely immersed in it. Although the price looks high, it can easily be borrowed from a library or purchased because it is a classic and a must read by everyone. It has been reprinted many times for its usefulness in interpreting the mind and trying to understand how the unconscieced is tuned in its own world.