



# SCMS JOURNAL OF INDIAN MANAGEMENT

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**Ease of Doing Business: Differences between OECD and Non-OECD Countries**

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**Correlates of Financial Literacy: Strategic Precursor to Financial Inclusion**

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EBSCO

**Financial Inclusion: Scale Modification and Validation of Socio-Economic Indicators**

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## Chairman's Overview

An economy cannot thrive without a healthy private sector. Private enterprises create jobs and generate income that can be spent and reinvested leading to growth and development. Without them we have no chance to end extreme poverty and boost shared prosperity around.

Sound and efficient business regulations are critical for entrepreneurship and a thriving private sector. Any rational government that cares about the economic well-being and advancement of its people pays special attention to create laws and regulations that improves ease of doing business. Ease of doing business is an indicator and valuable tool for policymakers to design sound regulatory policies. Our lead article in this issue is a comparative study of ease of doing business in OECD and non-OECD countries.

Financial inclusion is a lofty ideal but financial literacy is the first step towards achieving financial inclusion. India has one of the highest savings rate in the world. In spite of it, India is one of the poorest countries in the world. While savings are more in India, where the savings are invested is a cause of concern. Wealth creation for the investor and the economy will remain a distant dream unless the common man becomes a wiser investor. Our second lead article is on financial literacy and financial inclusion.

We also feature in this issue a number of learned articles on a range of topics such as Financial Inclusion, Gold Prices, Impact of Service Experience, Interpersonal Relationship, Shared Identity and the like.

I am confident that this issue will be truly informative and educative to our readers.

**Dr. G. P. C. NAYAR**

Chairman, SCMS Group of Educational Institutions.

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## Editorial

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### DATA TO WISDOM



In the opening stanza from Chorus from *The Rock (1934)* T. S. Eliot posed the question: Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?

We will add another to the sequence, Where is the information we have lost in data? We live in a world, flooded with information. We cannot process all information. As we know, the world is an over-communicated environment.

During our stay in the world, we experience four levels of thinking. The first level of thinking is data. It is a collection of facts and figures. The next level gives us information. Information is collected and organized data, a reference tool. The third is knowledge, the information we have digested. At this stage, we can understand the information. Organized as knowledge, the information, we have collected, is given a context. The fourth and final level is wisdom. Many cannot distinguish between knowledge and wisdom. Both are, of course, different.

Wisdom is the proper use of knowledge, knowledge that has been applied in a way that takes into account all its pertinent relationships and that is consistent with universal laws. When we learn to let the unwanted information we receive, go in one ear and go out the other, we get the knowledge we need.

Knowledge is a funny thing. It can deceive us into thinking that we are wise. But, knowledge alone is not wisdom. Many people know a great deal, but they are all the more foolish because of it. They have not yet learned how to apply the knowledge they have.

Common sense is a part of wisdom. It is applying knowledge to solve the everyday problems common to all. Nothing is a waste of time if you use the experience wisely (Auguste Robin). I hope all these will be of great help in B School instruction.

**Dr. D. Radhakrishnan Nair**

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# Ease of Doing Business: Differences between OECD and Non-OECD Countries



**Raysa Geaquinto Rocha**  
Research Scholar  
University of Beira Interior, Portugal.  
Email : raysa.geaquinto@gmail.com



**Vanessa Hernandez Oliveira de Oliveira**  
Research Scholar  
Beira Interior University, Portugal.  
Email: vanessa.oliveira@iffarroupilha.edu.br



**Ricardo Gouveia Rodrigues**  
Auxiliary Professor  
Beira Interior University, Portugal.  
Email: rgrodrigues@ubi.pt

## A b s t r a c t

This article aims to identify indicators which measure business regulation used in Doing Business Ranking are related and can be used as predictors of starting a business. This study used the Doing Business 2018 data set, clustered on the country's income group classifications. The results show significant differences in starting a business, depending on the country's income or being a member of OECD. A moderate correlation was observed among economic regulators. The variables that account for most of the explanation of the variation of starting a business are: paying taxes, dealing with construction permits, obtaining credit, enforcing contract and protecting minority investors. The contribution of the study is to show that certain regulators allow estimating the performance of the country in starting a business and what is the difference of influence according to the country's income classification.

**Keywords:** *Doing Business, OECD, Business Regulations, Starting a Business.*

**B**usiness openness, business environment, and the motivations of entrepreneurs are regularly studied (Ahmad & Muhammad Arif, 2016; Brettel, Chomik & Flatten, 2015; De Massis, Audretsch, Uhlaner & Kammerlander, 2018; Man, Lau & Chan, 2002; Sahut & Peris-Ortiz, 2014; van der Zwan, Thurik, Verheul & Hessels, 2016; 'Nangpiire, Rodrigues, & Adam, 2018; Raposo, Rodrigues, Dinis, Paço, & Ferreira, 2014). Due to this interest, both theoretical and practical, the World Bank Doing Business, for 15 years now, provides an annual report of the regulatory aspects of 190 countries, with the ranking of sites that facilitate the business environment (Doing Business, 2018).

The regulation of business is relevant (Besley, 2015) since they are the rules of business gaming (Jitmaneroj, 2016). Its impact begins with the business creation process (Klapper, Lewin, Delgado & Anat Lewin, 2011). Therefore, the mentioned report is a source of secondary data used in empirical scientific research, as well as by governments and companies in changes in existing regulations and their decision-making (Pinheiro-Alves & Zambujal-Oliveira, 2012; Ruiz, Cabello & Pérez-Gladish, 2018).

Doing Business Report Data is advocated and used in many other studies. Notably, in the importance of regulation for economic growth, Haidar (2012) argues that the countries with the most changes show more growth and those countries that made changes before the 2008 crisis were less affected. Laws as part of economic context and French reactions to Doing Business reports were presented by Fauvarque-Cosson & Kerhuel (2009). The positive impact of the report on foreign direct investment is studied by Hossain, Hassan, Shafiq, & Basit (2018).

Several formats were used by the researchers, such as the competitiveness of BENELUX (Belgium, Netherlands, and Luxembourg) that are studied by Korauš, Mazák, & Dobrovič (2018). Van Stel, Storey & Thurik (2007) compared the data provided by the Global Entrepreneurship Monitor and the World Bank Doing Business to know the effect of regulation on entrepreneurship; their results advocate a modest influence of administrative barriers to business creation.

On the other hand, some surveys perceive the data as statistically inefficient (Pinheiro-Alves & Zambujal-Oliveira, 2012). Thus, suggestions for changes in approach are advocated, such as Fuzzy Linguistics to calculate the indicators of Doing Business (Roham, Gabrielyan & Archer,

2009), and the comparison of results using double reference is presented by Ruiz, Cabello, & Pérez-Gladish (2018).

There is a gap regarding the use of the Doing Business data 2018 that were divided based on the ratings of the country 's income group and discovery about the starting business difference among countries that are members of the Organization for Economic Co-operation and Development (OECD). This study proposes to investigate this gap, through a Pearson correlation analysis, a one-way ANOVA and a multiple linear regression. Because identifying business regulators, considering the different international contexts contributes to the improvement of the index, as well as points to the managers of these economies, areas for promoting regulatory reforms that foster starting a business.

### Literature Review

Regulatory barriers to business creation are related to the cost and efficiency of regulatory processes to start a business (Fernández-Serrano & Romero, 2014). There is evidence that improvements in business regulations favour higher registration of new business (Djankov, 2009). This finding was highly influential, prompting the introduction of legislation in the countries to reduce "barriers" to new business creation (Van Stel, Storey & Thurik 2007). Based on this context, the following hypothesis was established:

H1) The indicators used in the Ease of Doing Business Index are positively correlated with starting a business.

Another comparative study was drawn up with the Doing Business report and primary data to explore competitiveness in India (Tan, Gopalan & Nguyen, 2018). There is also a longitudinal analysis study, from 2005 to 2013, which relates business regulation to poverty. He argues, based on Doing Business indices, that countries with friendly regulation have lower levels of poverty (Simeon Djankov, Georgieva & Ramalho, 2018). In turn, Morris & Aziz (2011) explored the relationship between business and foreign investment in sub-Saharan Africa and Asia, identified the need to improve the business climate to attract more foreign investors.

Thus, countries differ significantly in the way they regulate new business entry (Djankov, La Porta, Lopez-de-Silanes & Shleifer, 2002). The same authors have noted a considerable variation in the entry regulation between countries, where rich economies regulate entry relatively less than all other countries because they have better governments. All high-income of the Organization for Economic Co-operation and Development countries, except Sweden and the United

States, and all Latin American countries except Brazil and Venezuela have made entry regulation faster, cheaper, or administratively simpler (Djankov, 2009). Then, the following hypothesis was formulated:

H2) Starting a business differs according to the country's income classification or whether it is a member of the Organization for Economic Co-operation and Development or not.

Business cycles have a relationship with banking regulation (De Araujo, Lutoso & Dantas, 2018). Efficient trade regulation is fundamental to the flowering of the private sector, and more importantly for overall development, for which many countries are aiming, for example, to simplify the business registration process (Ani, 2015). This process includes the number and complexity of mandatory administrative procedures, the time and cost of them, or the minimum paid capital required for a limited liability company to start and function formally, among other issues (Fernández-Serrano & Romero, 2014). Therefore, the following hypotheses are proposed:

H3) Business regulatory indicators are determinant for starting a business.

H4) The determinants of starting a business vary according to the country's income classification.

H5) The determinants of starting a business, vary according to OECD member countries or not.

In this sense, the present study uses the Doing Business 2018 report database to analyse the determinants for starting a business, based on ten other indicators, namely, dealing with construction permits (DCP), obtaining electricity (GE), registering (RP), obtaining credit (GC), protecting minority investors (PMI), paying taxes (PT), trading across borders (TAB), enforcing contract (EC), resolving insolvency (RI) and regulation of the labour market (Morris & Aziz, 2011). In this paper, we present the results of the study.

## Methods

As presented in the introduction, this research has the purpose of verifying which regulatory indicators of Doing Business influenced in starting a business. For this, exploratory research of a quantitative nature was carried out. The exploratory study consists of familiarising with new facts and developing new ideas for future research (Neuman, 2014). Given the lack of similar studies, which observe and

relate the indicators that comprise the World Bank's Doing Business ranking, the methodology developed in the article is the most suitable for this study, as a quantitative approach, since the indicators are numerical variables that identify different areas in relation to the business environment in different countries (Lakatos & Marconi, 1996).

## Data

To do so, economic data from the World Bank Doing Business report base for 2018 are available at <http://www.doingbusiness.org/en/data>. The index is calculated as the simple average rank rankings of percentages of the country in each of the areas (sub-indicators), and the classification of each topic is the simple mean of the percentage rankings in its component indicators (Doing Business, 2018). The report gathers quantitative data, which measures aspects of business regulation for small and medium-sized businesses in 190 economies around the world (Doing Business, 2018). For the study, we selected only those countries that contained all the complete variables, excluding data from several cities, which resulted in a total sample of 163 countries. The data were subdivided based on the country's income group, as defined by the World Bank (see The World Bank, 2018a), as well as with member countries of the Organization for Economic Co-operation and Development (OECD).

## Data analysis

Pearson's correlation analysis was performed to identify the degree of association between variables, to test H1. Also, a descriptive analysis was used to summarise the data. To validate H2, one-way ANOVA was used for the analysis of variance. When a statistically significant difference was observed, the analysis was complemented with the Tukey test. The level of significance was set at 0.05 to compare the means between groups, in terms of the classification of countries as income (low income, low average income, high middle income, and high income, member countries or non-OECD countries).

H3, H4, and H5 were validated with multiple linear regression analysis. For this analysis the stepwise method was used, where the independent variables were inserted sequentially in the model according to the incremental explanatory power and their partial correlation coefficients are statistically significant (Hair, Black & Sant'Anna, 2009). The mathematical model used is thus defined:

$$SB = \alpha + \beta_1 DCP + \beta_2 GE + \beta_3 RP + \beta_4 GC + \beta_5 PMI + \beta_6 PT + \beta_7 TAB + \beta_8 EC + \beta_9 RI + \mu \quad (1);$$

In this model, the acronyms correspond, mainly, SB is predicted variable;  $\alpha$  is the constant;  $\beta$  are the angular coefficients for each predictive variable ( $\beta_1, \beta_2, \dots, \beta_{10}$ ); DPC, GEL, RPR, GCR, PMI, PTX, TAB, and ECT are independent variables of the Doing Business indicators, and  $\mu$  is the random error term.

The dependent variable used was starting a business (SB), an indicator that presents the minimum capital requirement, the time and cost paid, and the number of procedures required for a small and medium-sized limited liability company to formally operate and start in an economy (The World Bank, 2018b).

As independent variables were used with dealing with construction permits (DCP), obtaining electricity (GE), registering property (RP), obtaining credit (GC), protecting minority investors (PMI), paying taxes (PT), trading across borders (TAB), enforcing contract (EC), resolving insolvency (RI) and regulation of the labour market (RLM). These are indicators used to analyse economic outcomes and to identify which business regulation reforms are essential for entrepreneurship in economies. The description of each of the variables is given in Appendix A.

The categorical variables refer to the four income groups classified by the World Bank, which are divided into low, medium-low, medium-high and high. Income is measured using gross national income (GNI) per capita, in US dollars, converted from the local currency using the World Bank Atlas method (The World Bank, 2018). Each group has thresholds for revenue classification, and these ratings are used to aggregate data for similar country groups (see World Bank Data Team, 2017). In addition to these groups, there was another related division that considered member countries or the Organization for Economic Co-operation and Development and the group of all countries.

The research aid software used was Microsoft Excel (version 2017) and IBM SPSS (version 25), for organising the data and constructing tables and graphs as support for the analysis.

## Results and discussion

Economic regulators allow us to compare the business environment (laws, regulations and other costs of doing business) in different countries (Pinheiro-Alves & Zambujal-Oliveira, 2012; Besley, 2015).

According to the correlation coefficients ( $r$ ) for each pair of economic regulators, a similarity was generally observed (see appendix B). The coefficients are positive, meaning that the variables vary together in the same direction, with a significant moderate correlation between SB and PT ( $r = 0.614, p < 0.01$ ). The correlation between SB and DCP ( $r = 0.441, p < 0.01$ ), SB and GE ( $r = 0.432, p < 0.01$ ), SB and RP ( $r = 0.440, p < 0.01$ ), SB and GC ( $r = 0.307, p < 0.01$ ), SB and PMI ( $r = 0.466, p < 0.01$ ), SB and TAB ( $r = 0.460, p < 0.01$ ), SB and EC ( $r = 0.447, p < 0.01$ ) and SB  $r = 0.459, p < 0.01$ ) are statistically significant at the 0.01 level with weak intensity.

Economic indicators are positively correlated, differing only in magnitude, which makes H1 valid. This result is corroborated by studies involving the indicators of the Ease of Doing Business Index that has obtained similar results (Besley, 2015; Clodnitchi, 2017; Naidu & Chand, 2014). These results add to other studies, which used the Ease of Doing Business Index and the evaluation of its relationship with different variables, e.g. Singh (2015) and Mongay & Filipescu (2012).

The income classifications of the countries used by the World Bank allow deepening the investigation, resulting in different information according to clusters that the country belongs to. Likewise, it is imperative to analyse of the Organization for Economic Co-operation and Development member countries. In this sense, the results of Table 1 present the summary of the variables Starting a Business in each group and the comparison between them.

The mean value for the 163 countries studied was 83.92, with a standard deviation of 11.11. A more significant variation is observed for the group of countries classified as Low income (14.07), which obtained an average of 78.13. There was no significant difference for the group when compared to the others, except for countries classified as high income and those members of the Organization for Economic Co-operation and Development. The latter did not differ among themselves, but their mean values of 89.54 and 91.14 respectively were higher than the other groups, allowing to affirm that it is a group of countries with mean results different from the others.

These results show that Starting a Business is directly related to income. Hurtado (2018) noted that easiness of doing business could be explained by income. The same author also found that the geographic region variable can explain up to 46% of the variations of the levels of ease of doing business.

**Table 1**  
**Description and comparisons between groups**

A) Descriptive				B) Tukey HSD <sup>a,b</sup> : Starting a business				
Statistics: Starting a business				Subset for alpha = 0.05				
Groups	N	Mean	Std. Deviation	Groups	N	1	2	3
Low income	26	78.13	14.07	Low income	26	78.13		
high income	57	89.54	5.66	Low, middle income	35	81.68		
high middle income	45	81.91	12.80	high middle income	45	81.91		
Low middle income	35	81.68	9.44	Non-OECD	129	82.02		
OECD	34	91.14	4.68	All Countries	163	83.93	83.93	
Non-OECD	129	82.02	11.54	high income	57		89.55	89.5
All Countries	163	83.92	11.11	OECD	34			91.1
								5

Notes: Means for groups in homogeneous subsets are displayed.

(a) Uses Harmonic Mean Sample Size = 46.636.

(b) The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

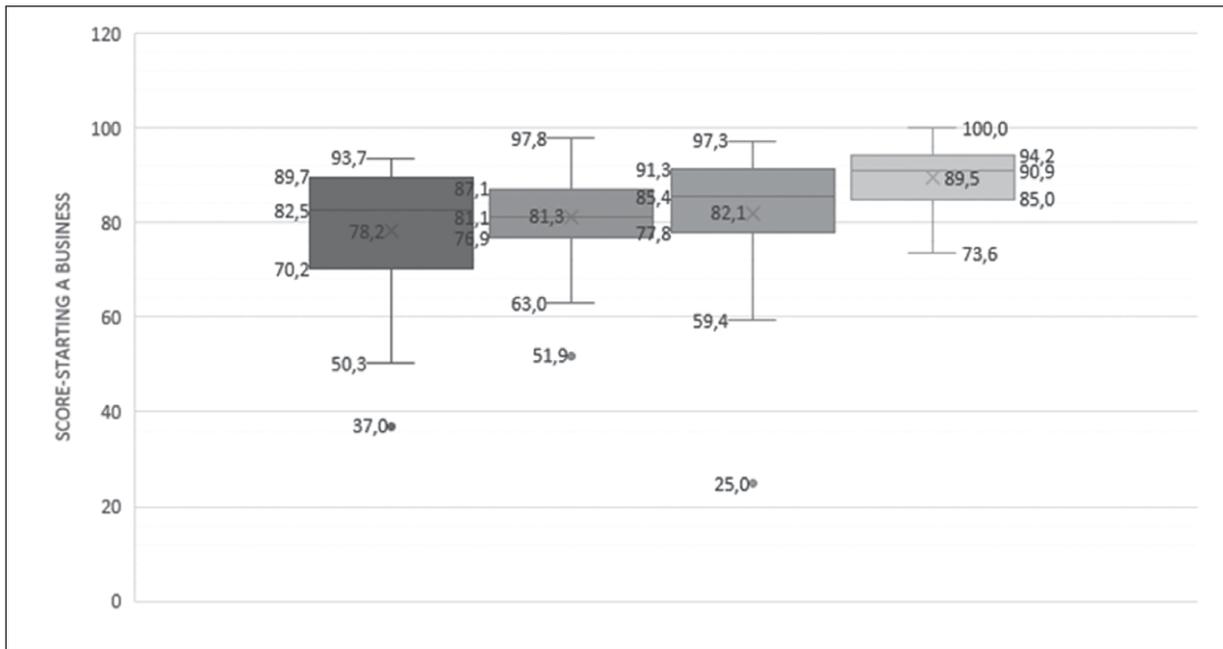
It is possible to extract from the results that the Low-income groups, Low and high middle income, Non-OECD countries and all countries present the same averages. All countries and high-income countries were not different from one other, but the Organization for Economic Co-operation and

Development is different from the other groups. Therefore, the average OECD and high-income countries are not different. Based on these results, it was determined which groups would be used for regression. It is understood that the group of all countries, therefore, is present in two subsets, the

group of the Organization for Economic Co-operation and Development countries and the high-income countries because they are in the same subgroup. Hence, H2 becomes valid.

The box plot in the figure below is a visual statistical method that replaces tables and allows you to compare sample groups and detect outliers.

**Figure 1**  
**Score-starting a business classified by countries income**



\*The figure presents low income; lower middle income; upper middle income and high-income countries respectively.

The size of the box identifies that in low-income countries, there is a high variability when the subject is Starting a business. The lower middle and upper middle-income countries are more homogeneous compared to the upper middle-income countries. The low middle and high middle-income countries are similar concerning Starting a business. However, there are some countries that the Starting a business process differs from others; this is seen by the discrepant values (25.0; 37.00; 51.90).

Table 2 presents the multiple linear regression for all countries and the OECD group and High-income countries

for the effect of indicators that measure business regulation and Starting a Business. We tested the assumptions regarding normality, multicollinearity, heteroscedasticity, autocorrelation, to ensure that any interface of the result was valid.

With an Adjusted R2 of 0.408 for Model 1 and 0.537 for Model 2, both significant at the 0.05 level, the results allow stating that two indicators paying taxes (PT) and protecting minority investors (PMI) assume requirements to explain 41% of Starting to business for all countries. In the group OECD, 54% for Model 2<sup>a</sup> are explained by dealing with construction permits (DCP), obtaining credit (GC), enforcing contract (EC) and protecting minority investors (PMI), in this way, H3, H4, and H5 are confirmed.

**Table 2**  
**Models for two groups: all countries, OECD and high-income countries**

	Model 1°		Model 2°	
	All countries		OECD with High Income	
	Coeff.	t-stat.	Coeff.	t-stat.
Paying taxes	0.339**	7.360		
Protecting minority investors	0.172*	3.221	0.148**	3,464
Dealing with construction permits			0,382**	6,241
Enforcing contract			-0,153*	-2,999
Getting credit			0.053*	2,309
R <sup>2</sup>	0.415*		0.537*	
Adjusted R <sup>2</sup>	0.408*		0.537*	
Change in R <sup>2</sup>	0.038*		0.029*	
F	10.37*		5.331*	

Notes: (a) Dependent Variable: Starting a business  
 \*Significant at 0.05 level; \*\*Significant at 0.01 level

Model 1 presented R<sup>2</sup> less than 50%, which means that other factors explain the behaviour of Starting a Business that is not in the model or are not otherwise modelled, which can lead to a very random behaviour of Starting a business in the group which has all the countries. The Model 2, which has a top R<sup>2</sup> of 50%, states that half of the differences from Starting to Business are explained by dealing with construction permits (DCP), obtaining credit (GC), enforcing contract (EC), and protecting minority investors (PMI). For each of the models the following equations were obtained:

$$SB_{All\ Countries} = 50.928 + (0.339*PT) + (0.172*PMI)$$

$$SB_{OECD\ with} = 59,494 + (0.148*PMI) + (0.382*DCP) - (0.153*EC) + (0.053*GC)$$

From these models, it is possible to predict the behaviour of Starting a Business due to the behaviour of other economic indicators. It can be seen in Model 1° that paying taxes (PT) has more impact on the variation of Starting a Business if other independents remain constant. Besides, the  $\beta$  values of the variables are positive, indicating that the influence on the dependent variable is positive. This is not the case with Model 2 since enforcing contract (EC) is negative, it means if the increasing enforcing contract (EC) will decrease

Starting a Business and dealing with construction permits (DCP) have the greatest impact on the Starting a business variation since its  $\beta$  is 0.382. Therefore, the models are different and each with their predictors.

### Conclusion

This work reached the proposed goal that was to identify which indicators measure the business regulation used in the Doing Business Ranking and its correlation. Also, they can be used as predictors of Starting a Business.

The results disclose that ten indicators are positively correlated with Starting a Business. Only the indicator paying taxes (PT) had a moderate correlation, and the remainder presented a weak correlation. Therefore, such indicators should receive priority treatment by regulatory agents (Jitmaneroj, 2016). Another point evidenced was the significant difference due to income and membership of the Organization for Economic Co-operation and Development, for the average values of Starting a Business.

It could be ascertained that the 1st Model that has all countries provides Starting Business with the indicators paying taxes (PT) and protecting minority investors (PMI). The Model 2, which refers to the Organization for Economic Co-operation and Development and High-Income countries, has as predictors: the indicators protecting minority investors (PMI), dealing with construction permits (DCP), enforcing contract (EC), getting credit (GC) are the variables that better explain and predict Starting a Business.

The main contribution of this research is the enlightenment of the correlation between the indicators, and the development of the statistical model. The model allows to contribute with the methodology of the ranking and with the studies that criticize the methods used to elaborate the indicated Doing Business (Høyland, Moene & Willumsen, 2012; Pinheiro-Alves & Zambujal-Oliveira, 2012; Irwin, 2014) as well as for the presentation of the income classification of countries and whether they are members of the Organization for Economic Co-operation and Development.

The practical contribution is to help public managers regarding changes in regulations and private decision making, whether in the construction of headquarters and subsidiaries, in the internationalisation or in the investment in companies that have not yet left the paper.

However, despite such contributions, there are limitations. The first is a time limitation, since the data reflect only one year, 2018. The report existed for 15 years (The World Bank, 2018) and longitudinal analysis in future research can study the evolution of regulations and their consequences by using the time series data to obtain such results. The second limitation is the choice of the regression method that changes the results because SPSS provides different data input methods that can influence the final model. The use of only some of the ten Doing Business indicators that describe the easiness of doing business, since there are other factors involved in business governance that can influence, such as culture, gender, and the existence of financial crisis. The third limitation is in the database itself. The authors who have been engaged in exploring the method of collecting and analysing the Doing Business report argue for the need for modifications and combinations of data and sources for the accuracy of the reports (Pinheiro-Alves & Zambujal, 2012) and the combination of methodologies for analysing the reports (Jitmaneroj, 2016).

Future research may use the database to clarify which indexes affect the payment of taxes (García, Azorín & de la Vega, 2018), and to differentiate the manager's gender relationship with business decision-making (Bruner, D'Attoma & Steinmo, 2017), still consider the life cycle of the company (Kishna, Negro, Alkemade & Hekkert, 2017). It's also necessary to investigate how company strategy change over political connections and it influences in starting a business (Silva, Xavier, Gambirage & Camilo, 2018). Finally, we suggest studies of the sub-indicators that make up each indicator of the Doing Business Report,

aligned with the cultural and profile differences in each country. It is also important to research the differences in internationalisation, immigration laws and its influence on the opening and operation of local businesses.

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**APPENDIX A- Independent and Dependent Variables**

Indicator	Description
Starting a business	Procedures, time, cost and paid-in minimum capital to start a limited liability company
Dealing with construction permits	Procedures, time and cost to complete all formalities to build a warehouse and the quality control and safety mechanisms in the construction permitting system
Getting electricity	Procedures, time and cost to get connected to the electrical grid, the reliability of the electricity supply and the transparency of tariffs
Registering property	Procedures, time and cost to transfer a property and the quality of the land administration system
Getting credit	Movable collateral laws and credit information systems
Protecting minority investors	Minority shareholders' rights in related-party transactions and in corporate governance
Paying taxes	Payments, time and total tax and contribution rate for a firm to comply with all tax regulations as well-as post filing processes
Trading across borders	Time and cost to export the product of comparative advantage and import auto parts

Source: Adapted from Doing Business (2018).

**APPENDIX B - Correlation Matrix All countries**

		Starting a business	Dealing with construction permits	Getting electricity	Registering property	Getting credit	Protecting minority investors	Paying taxes	Trading across borders	Enforcing contract	Resolving insolvency
Starting a business	Pearson Correlation	1									
	Sig. (2-tailed)										
	N	163									
Dealing with construction permits	Pearson Correlation	,441**	1								
	Sig. (2-tailed)	,000									
	N	163	163								
Getting electricity	Pearson Correlation	,432**	,539**	1							
	Sig. (2-tailed)	,000	,000								
	N	163	163	163							
Registering property	Pearson Correlation	,440**	,522**	,576**	1						
	Sig. (2-tailed)	,000	,000	,000							
	N	163	163	163	163						
Getting credit	Pearson Correlation	,307**	,220**	,293**	,405**	1					
	Sig. (2-tailed)	,000	,005	,000	,000						
	N	163	163	163	163	163					
Protecting minority investors	Pearson Correlation	,466**	,413**	,465**	,512**	,531**	1				
	Sig. (2-tailed)	,000	,000	,000	,000	,000					
	N	163	163	163	163	163	163				
Paying taxes	Pearson Correlation	,614**	,525**	,579**	,620**	,297**	,480**	1			
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000				
	N	163	163	163	163	163	163	163			
Trading across borders	Pearson Correlation	,460**	,445**	,588**	,643**	,302**	,495**	,603**	1		
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	,000			
Enforcing contract	Pearson Correlation	,447**	,484**	,596**	,638**	,338**	,550**	,532**	,536**	1	
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	,000	,000		
	N	163	163	163	163	163	163	163	163	163	
Resolving insolvency	Pearson Correlation	,459**	,407**	,572**	,487**	,383**	,587**	,484**	,629**	,521**	1
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	,000	,000	,000	
	N	163	163	163	163	163	163	163	163	163	163

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# Correlates of Financial Literacy: Strategic Precursor to Financial Inclusion



**Dr. Mohit Kumar**  
Associate Professor and Associate Dean  
IILM Academy of Higher Learning  
Gomtinagar, Lucknow  
Email: mohitahuja008@gmail.com



**Rishish Mishra**  
Research Scholar  
Department of Rural Management  
Babasaheb Bhimrao Ambedkar University  
Lucknow  
Email: rishish.bbau@gmail.com



**Prof. Kushendra Mishra**  
Professor  
Department of Rural Management  
Babasaheb Bhimrao Ambedkar University  
Lucknow.  
Email: kushendra78@gmail.com

## A b s t r a c t

The paper discusses the contemporary relevance of financial literacy followed by present need. The primary objectives of the present paper are to establish the relationship between financial literacy and financial inclusion and to analyze the determinants of financial literacy and test the association of these determinants with the key demographic profile. The paper is based on primary data which has been sourced from face to face interviews using the structured schedule as a data collection instrument. The detailed research design and scope have been discussed in the paper.

**Keywords:** Financial Inclusion, Financial Literacy, Inclusive Finance, Money Management.

Personal finance or Wealth management is a buzz word in most developing nations these days. It has already achieved its fore in developed nations where it has completely transformed the lifestyle of the people. It is concerned with making the best of use of available pennies and to create a substantial base from a very meagre one. It basically plans an individual's income and other financial resources in such a way that the gap between expenses and income is nullified. It emphasizes on basic tenets of financial management which underlines better planning and control of available resources. The idea of personal finance has caught up with the academicians in a developing nation like India as well and it has found a lot of practical relevance considering the low levels of disposable income on one hand and high levels of financial mismanagement on the other hand. There has never been a culture of saving money in Indian people creating serious problems for those who have scant financial resources up their sleeve. This is one of the major hurdles for the policymakers who have failed to take this into the account and have come up with a series of myopic policy decisions. Finance has always been a major part of decision making in most families and it has a serious intervention while coping up with financial exigencies. The wise and efficient use of resources to maximize the benefit of each rupee would always play a greater role in managing efficiency of the overall financial system. Personal finance does have a strategic role to play in the context of the development of a nation which has a limited resource base.

The term financial literacy has motivation derived from the concept of personal finance. It simply states the person's ability to manage financial resources in an optimum manner. The economic development of the nation largely depends upon the way people get an access to the formal financial system and the way they get an access to various benefits derived from the host of economic policies. Therefore, a lot of talks has been with reference to inclusive growth & development and financial inclusion has been marked out as one of the handy tools available for achieving the same. A number of policies have been formulated and executed and each one has only spurred up the economic growth curve by a few notches only to become slow and sluggish in the far end. One of the reasons has been the fact that the appetite of the people have become saturated once they end up buying a financial product or a service and the other fact is that the level of content with a traditional financial product like a savings bank account among the people has been reasonable.

Hence, it becomes imperative that spreading concepts of financial knowledge and awareness needs to be expedited. Such an activity would only scale up the financial literacy levels of people which can ease up the intake of financial services.

The ability of people to manage resources and financial awareness along with higher levels of financial knowledge would only become better which can capitalize upon the host of policies aimed at financial inclusion and subsequent inclusive growth and development. The current study delves into the basics of personal finance and wealth management with an understanding of financial literacy and its relationship and interdependence with financial inclusion. It aims to provide for a research gap and the missing link between two important drivers of sound financial growth and sustainable financial system.

## 2.0 Review of Literature

### 2.1 History of Financial Literacy

The issue of financial knowledge, financial awareness and financial literacy has gathered momentum over the last decade. It has been a subject matter of interest for academicians, researchers, businessman, government and policy makers. A number of inputs have been made in the above area by researchers as a part of the survey undertaken for policy formulation.

Hogarth (2002) described financial literacy as the knack to discern between a plethora of financial choices available and selection of the one which can optimize the returns. It includes the ability to discern financial choices, discuss money and financial issues and plan for the future.

Beal and Delpachtra (2003) argued that a financially capable person should have a mindset to responsibly manage the financial affairs to an extent which is an effective one. This should be in addition to the fact that he should also have an ability to comprehend the usage of financial products and services and should have a working knowledge of financial system components. He should be adept at managing various money management issues. It talks about the mix of skills inculcating dimensions of knowledge and confidence as well.

Coussens (2004) emphasized in his work that concerns such as innovation in financial products, relative technological advancements, restructuring of the financial system,

changes in attitude towards risk and retirement should be taken into account as these underline the sea of change happening in the financial landscape of the globe.

Vitt et al. (2005) demarcated financial education as a process which helps the people to develop skills required to make informed decisions and take actions which can improve their financial position.

Hogarth J. M. (2006) established in his research that financial education consists of subparts and it is about being educated and being aware of the issues of managing money and every other financial concern. Further, he also stated that it is about understanding the basic concepts related to money management and other allied assets.

Atkinson et al., (2006) defined financial literacy as a combination of financial knowledge and financial behaviour related to money management. It can be summarized as a set of financial skills and individual behaviours.

Lusardi and Tufano (2008) also focused on the debt component of finances. They defined financial literacy as the ability to make decisions regarding the debt holdings one needs to undertake focusing on how one can implement basic knowledge about the time value of money and the concept of compounding measured in the case of everyday financial decisions.

*In a nutshell, we can say that most definitions of financial literacy revolve around the concept of financial knowledge and understanding of basic financial products and services and the ability to plan and execute financial decisions.*

## **2.2 Need for Financial Literacy**

Hogarth (2002) found that financial literacy is vital as people are more educated and informed to make better decisions for families which in turn provides them with financial security and contributing to foster community development.

Hilgert, Hogarth, & Beverly (2003) agreed that financial knowledge primarily seems to be closely related to financial behaviour.

Lusardi and Mitchell (2007) coined the term financial literacy as a concept which is familiar with the most economic necessity for making savings and investment decisions. Financial literacy provides for practices and principles of financial markets, institutions, instruments and financial rules, regulations and procedures.

Lusardi and Tufano (2009) found that low levels of financial literacy results into a weak understanding of basic financial concepts and poor judgment in making other financial decisions related to spending and borrowing resulting from poor financial management. This has an adverse impact on financial decisions taken at household and individual levels.

In a similar study, Mandell (2009) stated that financial literacy seems to have a positive impact on financial behaviour and however the effect of financial education on financial behaviour is less certain.

Jariwala and Sharma (2011) confirmed that lower levels of financial literacy and financial education will result in unhealthy ways of financial decision making and financial planning.

*Financial literacy is important both for the investor and the community as well. Education is all pervasive and leads to a change in behaviour on most counts while information has a lower scope and not necessarily may bring the desired outcome.*

## **2.3 Literature on Financial Inclusion**

Carbo et al. (2005) defined financial exclusion as the incompetence of some groups to access the financial system either due to voluntary or involuntary reasons such as access, prices, conditions or marketing.

Kamath, (2007) defines Financial inclusion as the process of ensuring access to timely and adequate credit and financial services by vulnerable groups at an affordable cost.

Rangarajan Committee (2008) provided an operational definition of Financial Inclusion. Financial Inclusion hence may be defined as the process of securing access to financial services and timely and adequate credit at an affordable price when needed by weaker sections of the society.

NABARD Report (2008) emphasizes on financial inclusion as access to basic formal financial services at an affordable cost in a sustainable manner for the vulnerable people

Raghu Ram Rajan Committee (2011) corroborated the concept of financial inclusion by defining financial inclusion as universal access to a wide range of financial services at a reasonable cost. Financial services not only include banking products but also other financial services.

## 2.4 Framework of Financial Literacy

World Bank (2009), Vitt et al (2005), Atkinson et al (2006) suggest that Financial literacy has been taken to mean so many things: knowledge and understanding of formal financial products and systems; familiarity with formal financial services; confidence to use new services, ask questions, and seek redress; skill to manage credit; and ability to plan ahead and budget

In 2006, Hungary undertook a survey of 'financial literacy' among residents aged 14 to 30 years old. The major topics covered were: general financial knowledge; money transactions; bank cards; lending; and retirement saving.

The Retirement Commission and ANZ Bank in New Zealand studied the levels of financial knowledge amongst adults in that same year (ANZ and Retirement Commission, 2006). They focused on five areas of financial knowledge: math, standard literacy and the understanding of financial records; financial understanding; financial competence; financial planning; and consumer rights.

CentiQ (2007) in his research revealed that the Netherlands also published a baseline study of 'financial insight' and financial behaviour amongst adults aged 18 and over. Financial insight was assumed to lead to financial behaviour and included motivations, knowledge, skills and perception.

## 3.0 Research Methodology

### 3.1 Statement of the Research Problem

The issues of financial rejuvenation and restructuring have been major concerns in India and financial inclusion has always been seen as an instrument to overcome the same. Financial inclusion movement in India has always tried the delivery of banking services at an affordable cost to the disadvantaged and low-income groups. Financial literacy is one of the pre-essentials that would ensure speedy acceleration of the financial inclusion initiatives.

It also emphasizes on the undercurrent that the financial resources with the people are managed only partially. No such work has been done before in the districts taken up for the study but it is pretty much evident that more and more work would be taken up in the area of financial literacy and extended financial literacy commonly known as financial literacy.

The study undertaken assesses the levels of financial literacy of people in regions of Lucknow, Kanpur Dehat and Gautam Budh Nagar.

So far not a lot of work has been done in the area of financial literacy in Uttar Pradesh so as to find answers to as to how the people save and why they save, areas where the people spend and why they spend, their attitude towards financial planning and control etc. This study starts with an exploratory analysis to uncover facets regarding financial behaviour and subsequent financial literacy.

### 3.2 Research Gap

3.2.1 The levels of financial literacy vary across the demographic and socio-economic profile underlining the need to establish a tangible relationship and association between the related variables.

3.2.2 There is a relationship between financial inclusion and financial behaviour. However, the nature, extent and direction of the relationship are unknown.

### 3.3 Objectives of the Study

3.3.1 To establish the relationship between financial literacy and financial inclusion in Uttar Pradesh, India.

3.3.2 To analyze the determinants of financial literacy and test the association of these determinants with the key demographic profile.

### 3.4 Research Hypotheses

The research is designed on the basis of the following hypotheses:

$H_0$ : There is no relationship between financial literacy and financial inclusion of the people.

$H_0$ : There is no significant association between overall financial literacy and the gender of the people.

$H_0$ : There is no significant association between overall financial literacy and the age of the people.

$H_0$ : There is no significant association between overall financial literacy and the location of the people.

$H_0$ : There is no significant association between overall financial literacy and the education of the people.

$H_0$ : There is no significant association between overall financial literacy and the income levels of the people.

$H_0$ : There is no significant association between overall financial literacy and the occupation of the people.

### 3.5 Research Design

The research design is a mix of conclusive and exploratory research design wherein an attempt has been made to initially derive a conceptual framework of financial literacy and then use the same framework to arrive at a measure of financial literacy.

#### 3.5.1 Sampling Design

Sampling design is a concrete plan for drawing or selecting a sample from a given population.

##### 3.5.1.1 Population

All adults above the age of 18 in Uttar Pradesh, India form the universe for the study under consideration. Various bank officials and people linked with financial inclusion were also interacted while forming the conceptual framework for the study.

##### 3.5.1.2 Sampling Unit

A sampling unit is an object for which the data is gathered. For this study, all individuals in the districts of Lucknow, Kanpur Dehat and Gautam Budh Nagar are considered as the sampling unit.

##### 3.5.1.3 Sample Size

The sample size is 600 adults above the age of 18 from the districts of Lucknow, Kanpur Dehat and Gautam Budh Nagar each contributing to 200 adults. The sampling frame included all the adults above the age of 18 in districts of Lucknow, Kanpur Dehat and Gautam Budh Nagar.

##### 3.5.1.4 Sampling Technique

Sampling techniques are categorized into two groups as probability sampling techniques and non-probability sampling techniques. A multi-stage sampling technique is employed for the selection of the necessary sample of respondents. Initially, the three districts of Lucknow, Kanpur Dehat and Gautam Budh Nagar are selected on the basis of non-probability judgmental sampling. The

underlying judgment behind such a selection is that all the three districts scored high on levels of financial inclusion on CRISIL Inclusix 2013. The final selection of the sample was done using convenient sampling method while selecting the adults above the age of 18 years from the selected districts.

#### 3.6 Primary Data

The primary data was collected from respondents from three districts by conducting face to face interviews using the structured schedule as a data collection instrument. The instrument was developed after comprehensive discussions with various participants such as bank officials and the targeted respondents as well as members of Self Help groups.

#### 3.7 Research Instrument

The survey was developed to understand the impact of financial literacy on financial inclusion. The research instrument was tailored accordingly. Initially, preliminary research instrument was prepared based on in-depth literature review in the same and/or similar field.

#### 3.8 Scope of the Study

The scope of the study is delineated to analyze the Financial Literacy of the people of Uttar Pradesh, India. The districts so chosen from the state are Lucknow, Kanpur Dehat and Gautam Budh Nagar considering that they rank high on CRISIL Inclusix 2013.

#### 4.0 Data Analysis

##### 4.1 Reliability of Measurement

Reliability is an indicator of the level of uniformity between various measurements of a variable (Hair et al., 2009).

The evaluation of the uniformity of the entire measurement scale can be measured through the reliability estimates. The most important of all these is Cronbach's alpha. Hair et al. (2009) researched that the agreed upon lower limit for the estimate is 0.7 and it could be even 0.60 for some specific researches. The Cronbach's Alpha coefficient value for the scale is 0.751 indicating high level of internal consistency in the scale items. The value of Cronbach's Alpha is acceptable and desirable, as these values are more than 0.700, confirming that the scale is reliable enough to be used for further analysis. (Table 1)

**Table 1: Cronbach's Alpha for the Variables**

Cronbach's Alpha	Number of Items
0.751	44

## 4.2 Measurement of Financial Inclusion

The inclusion of financial services also needed to be measured to gauge the extent to which financial inclusion has been achieved in the three districts from the demand point of view. The index is a sum of having a savings product, insurance product, credit product or a miscellaneous financial service. Each of the subcomponents has an equal weighting. The basic premise for using the above subcomponents for arriving at a measure is the fact that these are basic financial inclusion service which an individual must be supplied with as per the economic policy of the government.

### 4.2.1 Dimensions of Financial Inclusion vs. Location

The data in Table 2 indicates the distribution of financial services across the locations. It is found that majority of the

respondents have a savings product from a formal banking system highest been in Kapur Dehat. Most of the respondents also have subscribed to one or the other insurance policy. The instance of having an access to an insurance product is again maximum in Kanpur Dehat followed by Gautam Budh Nagar and Lucknow. The percentage of the total respondents who have an access to a credit product is not a remarkable one and is less than the respondents who have an access to a saving product or an insurance product. The percentage of the respondents who have denied to use other financial services is also very high and is highest in Gautam Budh Nagar followed by Kanpur Dehat and Lucknow.

**Table 2: Dimensions of Financial Inclusion vs. Location**

Location		Kanpur Dehat		Lucknow		Gautam Budh Nagar	
		Count	% of Total	Count	% of Total	Count	% of Total
Saving Product	No	20	3.30%	32	5.30%	31	5.20%
	Yes	180	30.00%	168	28.00%	169	28.20%
Insurance Product	No	44	7.30%	65	10.80%	61	10.20%
	Yes	156	26.00%	135	22.50%	139	23.20%
Credit Product	No	113	18.80%	106	17.70%	131	21.80%
	Yes	87	14.50%	94	15.70%	69	11.50%
Misc. Service	No	118	19.70%	103	17.20%	122	20.30%
	Yes	82	13.70%	97	16.20%	78	13.00%

### 4.2.2 Financial Inclusion Index and Location

The Table 3 suggests that the level of financial inclusion from the demand perspective is maximum in Kanpur Dehat followed by Lucknow and Gautam Budh Nagar. Only 10 % of the respondents in Kanpur Dehat have a low level of financial inclusion while a significant 22% of the respondents in Gautam Budh Nagar have a high level of

financial exclusion. Nearly 88% of the respondents in Lucknow have an above average performance when measuring on the financial inclusion scale while 90% of the respondents from Kanpur Dehat perform exceedingly well on the same scale as compared to less than 80% of the respondents from Gautam Budh Nagar.

**Table 3: Financial Inclusion Score vs. Location**

Location		Financial Inclusion (%)					Total
		0	25	50	75	100	
Kanpur Dehat	Count	1	18	74	89	18	200
	% within location	0.50%	9.00%	37.00%	44.50%	9.00%	100.00%
	% of total	0.20%	3.00%	12.30%	14.80%	3.00%	33.30%
Lucknow	Count	3	22	76	76	23	200
	% within location	1.50%	11.00%	38.00%	38.00%	11.50%	100.00%
	% of total	0.50%	3.70%	12.70%	12.70%	3.80%	33.30%
Gautam Budh Nagar	Count	2	42	80	51	25	200
	% within location	1.00%	21.00%	40.00%	25.50%	12.50%	100.00%
	% of total	0.30%	7.00%	13.30%	8.50%	4.20%	33.30%
Total	Count	6	82	230	216	66	600
	% within location	1.00%	13.70%	38.30%	36.00%	11.00%	100.00%
	% of total	1.00%	13.70%	38.30%	36.00%	11.00%	100.00%

### 4.3 Scale of Financial Literacy

The measure of the construct of financial literacy is derived from a linear summation of its sub-constructs:

1. Capability of Overall Financial Knowledge
2. Capability of Money Management
3. Capability of Planning Ahead
4. Capability of Making Financial Choices
5. Capability of Seeking Help

The scale is ranged from 1 to 5 where 1 indicates a low level of financial literacy and 5 indicates a high level of financial literacy.

### 4.3.1 Scale of Financial literacy vs. Location

Table 4 highlights the location wise distribution of the respondents in terms of their overall financial literacy levels. Kanpur Dehat scores highest towards the positive end of financial literacy scale as compared to Lucknow and Gautam Budh Nagar. Further, 66.5% of the total respondents in Kanpur Dehat score well on financial literacy scale as compared to 59.0% of the total respondents in Lucknow and 58.0% of the total respondents in Gautam Budh Nagar. Almost two-fifth of the total respondents in Lucknow and Gautam Budh Nagar have scored low on financial literacy levels.

**Table 4: Scale of Financial literacy vs. Location**

Location		Scale Of Financial literacy					Total
		1	2	3	4	5	
Kanpur Dehat	Count	15	52	68	46	19	200
	% of Total	2.50%	8.70%	11.30%	7.70%	3.20%	33.30%
Lucknow	Count	20	62	68	45	5	200
	% of Total	3.30%	10.30%	11.30%	7.50%	0.80%	33.30%
Gautam Budh Nagar	Count	21	62	81	27	9	200
	% of Total	3.50%	10.30%	13.50%	4.50%	1.50%	33.3%
Total	Count	56	176	217	118	33	600
	% of Total	9.30%	29.30%	36.20%	19.70%	5.50%	100.0%

**4.3.2 Scale of Financial literacy vs. Gender**

Table 5 highlights the gender wise distribution of the respondents in terms of their overall financial literacy levels.

It is found that nearly 61 % of the total males score from moderate to high levels of overall financial literacy and 63 % of the total females score on the same range highlighting the importance of financial literacy in both the genders.

**Table 5: Scale of Financial literacy vs. Gender**

Gender		Scale Of Financial literacy					Total
		1	2	3	4	5	
Male	Count	36	113	136	77	19	381
	% of Total	6.00%	18.80%	22.70%	12.80%	3.20%	63.50%
Female	Count	20	63	81	41	14	219
	% of Total	3.30%	10.50%	13.50%	6.80%	2.30%	36.50%
Total	Count	56	176	217	118	33	600
	% of Total	9.30%	29.30%	36.20%	19.70%	5.50%	100.00%

*4.4 Determinants of financial literacy & association of these determinants with the key demographic profile.*

**4.4.1 Hypothesis 1**

Ho. There is no significant association between overall financial literacy and the demographic profile of the people measured in terms of location.

This hypothesis is tested with the help of Table 6 by using Chi-square Test.

Since the significance value is less than 0.05, the null hypothesis is rejected. Therefore, there is a difference in the financial literacy of people.

**Table 6: Chi-Square Test between Financial literacy and Location**

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.069	8	.014
Likelihood Ratio	19.308	8	.013
N of Valid Cases	600		

**4.4.2 Hypothesis 2**

*Ho. There is no significant association between overall financial literacy and the demographic profile of the people measured in terms of gender.*

Since the significance value is less than 0.05, the null hypothesis is rejected. Therefore financial literacy varies according to gender.

This hypothesis is tested with the help of Table 7 by using Chi-square Test.

**Table 7: Chi-Square Test between Financial literacy and Gender**

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi - Square	11.128	4	.025
Likelihood Ratio	11.324	4	.023
N of Valid Cases	600		

**4.4.3 Hypothesis 3**

*Ho. There is no significant association between overall financial literacy and the socio-economic profile of the people measured in terms of education.*

Since the significance value is less than 0.05, the null hypothesis is rejected. Therefore, financial literacy of the people is associated with education.

This hypothesis is tested with the help of Table 8 by using Chi-square Test.

**Table 8: Chi-Square Test between Financial Literacy and Education**

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.472	8	.036
Likelihood Ratio	16.670	8	.039
N of Valid Case s	600		

**4.4.4 Hypothesis 4**

Ho. There is no significant association between overall financial literacy and the socio-economic profile of the people measured in terms of occupation.

This hypothesis is tested with the help of Table 9 by using Chi-square Test.

Since the significance value is less than 0.05, the null hypothesis is rejected. Therefore, occupation is associated with the financial literacy of the people.

**Table 9: Chi-Square Test between Financial literacy and Occupation**

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.635	4	.013
Likelihood Ratio	12.845	4	.011
N of Valid Cases	600		

**4.4.5 Hypothesis 5**

Ho. There is no significant association between overall financial literacy and the socio-economic profile of the people measured in terms of monthly income

This hypothesis is tested with the help of Table 10 by using Chi-square Test.

Since, the significance value is less than 0.05, the null hypothesis is rejected. Therefore, there is a difference in financial literacy people having different monthly incomes.

**Table 10: Chi-Square Test between Financial literacy and Monthly Income**

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.785	8	.011
Likelihood Ratio	19.915	8	.015
N of Valid Cases	600		

**4.4.6 Hypothesis 6**

Ho. There is no significant association between overall financial literacy and the socio-economic profile of the people measured in terms of age.

This hypothesis is tested with the help of Table 11 by using Chi-square Test.

Since, the significance value is less than 0.05, the null hypothesis is rejected. Therefore, the financial literacy of people is associated with their age.

**Table 11: Chi-Square Test between Financial literacy and Age**

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.125	12	.026
Likelihood Ratio	23.180	12	.025
N of Valid Cases	600		

**4.5 Regression Analysis 1:**

To check the impact of financial literacy level on financial inclusion level, the financial inclusion level is considered as an independent variable and financial literacy is considered

as the dependent variable. The results of correlation and regression are shown in the table numbered from Table 12 to Table 14 with interpretation.

The results of the regression analysis performed for these two variables are presented below.

**Table 12: Model Summary<sup>-1</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.734 <sup>a</sup>	.671	.643	.31085

A. Predictors: (Constant), Scale Of Financial literacy

**Table 13: ANOVA<sup>a</sup> -1**

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	420.689	1	420.689	4353.665	.000 <sup>b</sup>
	Residual	57.784	598	.097		
	Total	478.473	599			

A. Dependent Variable: Financial Inclusion

B. Predictors: (Constant), Scale Of Financial literacy

**Table 14: Coefficients<sup>a</sup> -1**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	3.951	.040		99.885	.000
	Scale Of Financial literacy	1.002	.015	.938	65.982	.000

A. Dependent Variable: Financial Inclusion

The regression analysis was done to measure the variation in financial inclusion level based on variation in financial literacy level. From Table 14, the following regression equation is derived.

$$\text{Financial Inclusion Level} = 3.951 + 1.002 (\text{Financial literacy Level})$$

In the present regression analysis, the measure of the strength of the association is given by the coefficient of determination denoted by R<sup>2</sup>. From table, it can be seen that the R<sup>2</sup> value is 0.671, which shows 67.1 % of the variance in financial inclusion levels can be predicted by his/her financial literacy level.

In other words, approximately 33 % (1.000-0.671=0.329) in a person's financial inclusion cannot be predicted by his/her financial literacy level. The regression equation appears to be very useful for making predictions since the value of R<sup>2</sup> is close to 1. The last column of the same table —standard error of estimation provides a measure of how accurately the regression equation predicts values of the dependent variable. The smaller the value of the standard error of estimation is, better one can predict that the independent variable (i.e. Financial literacy level) account for the variance in the dependent variable.

The t-test value for the significance of individual independent variable indicates the significance at 95%

confidence level. The Table 13 shows that financial literacy level is statistically significant with a value of 0.000, which is less than 0.05. The result of F test is also significant with a value of 0.000, which allows a researcher to determine whether or not the linear regression was statistically significant. This indicates that the model is statistically significant at a confidence level of 95%.

**Regression Analysis 2:**

Multiple regression is an extension of simple linear regression. It is used when we want to predict the value of a variable based on the value of two or more other variables. The variable we want to predict is called the dependent variable (or sometimes, the outcome, target or criterion variable). The variables we are using to predict the value of the dependent variable are called the independent variables (or sometimes, the predictor, explanatory or regressor variables).

This research uses multiple regression to understand whether financial inclusion can be predicted based on sub-constructs of financial literacy in the form of general financial knowledge, money management capability, ability to plan ahead, ability to choose financial products and ability to seek help.

Multiple regression also allows you to determine the overall fit (variance explained) of the model and the relative contribution of each of the predictors to the total variance explained.

Then, the hypothesized relationship between components of financial literacy and financial inclusion may be written as:

$$I = m + \beta_1 C_1 + \beta_2 C_2 + \beta_3 C_3 + \beta_4 C_4 + \beta_5 C_5 \quad \text{-----eq.(iii)}$$

Where,

The variable I is termed the dependent variable (I = Level of Financial Inclusion); C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub> and C<sub>4</sub>, C<sub>5</sub> is termed as the independent variable or explanatory variable(C<sub>1</sub> is Level of Money Management Capability, C<sub>2</sub> is Level of Ability to Plan Ahead, C<sub>3</sub> is Level of Ability to Choose Financial Products, C<sub>4</sub> is Level of Ability to Seek Help, C<sub>5</sub> is General Financial Knowledge); m is the constant term and β<sub>1</sub>, β<sub>2</sub>, β<sub>3</sub>, β<sub>4</sub> and β<sub>5</sub> are the coefficient of the variable C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> and C<sub>5</sub>. The regression is carried out and results are displayed as follows.

From the Table15, the following regression equation is derived.

$$\text{Financial Inclusion} = 0.653 + 0.388 C_1 (\text{Money Management Capability}) + 0.093 C_2 (\text{Ability to Plan Ahead}) + 0.109 C_3 (\text{Ability to Choose Financial Products}) + 0.240 C_4 (\text{Ability to Seek Help}) + 0.24 C_5 (\text{General Financial Knowledge})$$

In the present regression analysis, the measure of the strength of the association is given by the coefficient of determination denoted by R<sup>2</sup>. From Table 15, it can be seen that the R<sup>2</sup> value is 0.838, which shows 83.8 % of the variance in financial inclusion levels can be predicted by his/her financial literacy determinants.

In other words, 16 % (1.000-0.838=0.162) in a person's financial inclusion cannot be predicted by his/her financial literacy determinants. The regression equation appears to be very useful for making predictions since the value of R<sup>2</sup> is close to 1. The last column of the same table —standard error of estimation provides a measure of how accurately the regression equation predicts values of the dependent variable. The smaller the value of the standard error of estimation is, better one can predict that the independent variable (i.e. Financial literacy determinants) account for the variance in the dependent variable.

**Table 15: Model Summary-2**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.916 <sup>a</sup>	0.84	0.838	0.35921

a. Predictors: (Constant), , Money Management Capability, Ability To Plan Ahead, Ability To Choose Financial Products, Ability To Seek Help, General Financial Knowledge

The t-test value for the significance of individual independent variable indicates the significance at 95% confidence level. The Table16 shows that financial literacy level is statistically significant with a value of 0.000, which is less than 0.05. The result of F test is also significant with a

value of 0.000, which allows a researcher to determine whether or not the linear regression was statistically significant. This indicates that the model is statistically significant at a confidence level of 95%.

**Table 16: Coefficientsa-2**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.653	0.228		2.864	0.004
Money Management Capability	0.388	0.036	0.453	10.891	0
General Financial Knowledge	0.024	0.014	0.044	1.791	0.047
Ability To Plan Ahead	0.24	0.046	0.233	5.191	0
Ability To Choose Financial Products	0.093	0.026	0.109	3.568	0
Ability To Seek Help	0.109	0.028	0.135	3.842	0

a. Dependent Variable: Financial In clusion

**Conclusion**

Based on data analysis some conclusions are presented as under:

- i. Most respondents have parked their savings in various investment alternatives, though the majority of the respondents possess lower levels of financial literacy. This shows that all respondents do not understand the basics of financial management.
- ii. This study depicts that financial literacy is a growing priority in all developed and developing countries. The review of past research studies coupled with the current study highlights a few critical areas for further research in the field.

- iii. The analysis of financial literacy questions indicates that the majority of respondents are less financially educated on core areas of financial literacy and lack an understanding of some of the major important concepts of financial management.
- iv. It is essential to take care of specific age groups and income groups who have scored least in the area of financial literacy and financial inclusion.
- v. It is also found that for respondents with higher monthly income and higher age group are better prepared while selecting financial products and while seeking financial help.

- vi. Further, it is also seen that financial literacy has a strong association with financial inclusion and higher levels of financial literacy can increase the uptake of financial products and financial services.
- vii. The construct of sound financial literacy implies a better financial skill, behavior and attitude towards money management, planning of expenses and income, selection of financial products and services and seeking financial help.
- viii. The respondents place themselves in a better place to meet and manage expenses creating long-term goals and selecting apt financial products and services.

### Recommendations

Based on the analysis and findings of the current research study, it suggests that financial education provide, policy makers and regulatory authorities need to promote financial capacity building exercises.

### For Policy makers and Regulatory Authorities

- a) Greater focus should be given on financial education of the people before the age of 40. They are prone to making more miscalculations as there is greater financial incapability among the people at that age.
- b) More emphasis should be placed on the creation of financial education measures designed to press upon the need for retirement planning and other personal finance measures.
- c) It is suggested that females should be targeted to provide financial education and it should be seen as a necessary vehicle for women empowerment and encourage them to participate in the decision making at the household level
- d) There is an urgency to initiate the financial education program at a younger age in the lives of people which will ensure proper financial management skills and will inculcate a savings habit and adequate money management.
- e) There is also a need to consider personal finance as a specific subject in the syllabus for the secondary school students and the students at the undergraduate level.
- f) The people with lower income and those who work on casual basis have relatively lower levels of financial literacy.

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# Financial Inclusion: Scale Modification and Validation of Socio-Economic Indicators



**Madan Survase**  
Research Scholar  
Symbiosis International (Deemed University)  
Area Chairperson and Faculty  
International School of Business and Media  
Lavale, Pune.  
E-mail: survase.madan@gmail.com



**Dr. Krishna Murthy Inumula**  
Associate Professor  
Department of Statistics  
Symbiosis Institute of International Business (SIIB)  
Symbiosis International University (SIU), Pune  
Email: dr.krishna@siib.ac.in

## A b s t r a c t

The study explored existing indicators of Socio-Economic conditions of rural households through literature review to understand the impact of FI. The existing indicators are not sufficient to understand the overall socio-economic conditions of rural households in present context. Thus, new indicator explored and validated by using data tranquilization method with the help of factor analysis and structural equation model. The study selected 14 scale items out of 22 explored items based on factor loading for exploratory factor analysis followed by the confirmatory factor analysis. Financial capacity and perceived financial wellbeing are emerged as factors of economic condition of rural households, whereas access to basic facility and perceived social wellbeing are of social condition.

**Keywords:** *Financial Inclusion, Socio-Economic Indicators, Scale Modification and Validation*

**F**inancial inclusion is crucial in achieving inclusive growth and reducing poverty. People are better off after financial inclusion as financial inclusion helps them to spend on their children's education, businesses and handle the financial shocks (World Bank 2011). Global Findex launched by World Bank re-emphasized the role of financial inclusion in achieving inclusive growth in both developed and developing countries. This index analyzes how people save, borrow, make payment, and manage risk in general and financial inclusion in specific.

Financial inclusion has become an emerging area of research in developing economies like India and also across the world (Raghuram A. 2014). Different organizations, institutes, and experts have defined financial inclusion on the basis of various parameters. Financial inclusion is providing different financial services such as transfer of money, payment services, loans, deposit and insurance to vulnerable section of the society and micro-enterprises (Asian Development Bank). According to United Nations, financial sector provides access to credit, insurance, savings and payment services to bankable people and firms. It does not require everyone to be eligible to use all the services but they should be in position to use them if required. According to RBI, financial inclusion is to provide easy and safe access to affordable credit and other financial services to the poor and vulnerable section of the society. RBI's broad approach to financial inclusion aims at connecting people with the banking system and not just credit dispensation; giving people access to the payments system; and portraying financial inclusion as a viable business model and opportunity. It is pre-requisite to accelerate the growth and to reduce poverty and income inequality. Rangrajan Committee (2008) defined financial inclusion as the process of providing timely access to financial services and credit to the vulnerable and poor class of the society at affordable rates.

Financial inclusion plays a decisive role in improving socio-economic conditions of households particularly in rural areas of developing nations like India, it has been considered as one of the main indicators of financial sector's expansion not only in India but all over the world. The government, based on the recommendations of C. Rangarajan Committee on Financial Inclusion, has established two funds, viz. (a) Financial Inclusion Fund (FIF); and (b) Financial Inclusion Technology Fund (FITF). Financial inclusion is not simply

about bank account numbers or attracting more clients to the range of providers. Accessibility of financial services to the poor is the primary objective of financial inclusion thereby extending the credit facilities and improving the self-employment opportunities. It provides access to a range of quality, convenient, and affordable financial services, provided with dignity for consumers that enable them to participate fully in social and economic life.

Financial inclusion means delivery of banking services at very low cost to massive sections of disadvantaged and low income groups, provides opportunities to the poor in building savings, making investments and availing small value loans to farmers for agriculture and allied activities. Financial inclusion is regarded as beneficial for a cohesive and productive society. Financial inclusion gives people a stake in the nation's well-being and creates opportunities for individuals to prosper through entrepreneurial activities in ways which benefit others. Financial inclusion efforts focus on how the supply of financial services like products and services provided by sustainable institutions can better meet demand; they also acknowledge the functions within the wider market system that support financial transactions.

### **Literature Review**

Financial inclusion plays a crucial role in the development of socio-economic conditions in developing nations particularly in rural areas. It is prerequisite of inclusive growth and poverty reduction. Financial inclusion improves the human development index. Nanda, K. and Kaur, M. (2017) have studied the relationship between financial inclusion and human development index in 25 states and 4 union territories of India. Their study revealed a positive correlation between financial inclusion and human development index in all the states except North Eastern States. Financial inclusion also improves the overall economic development and reduces the income inequality. Park, D., & Shin, K. (2017) have examined the relationship between financial development and income inequality. Their study found that financial development reduces income inequality.

Kim, J. H. (2016) has studied the effect of financial inclusion on the relationship between income inequality and economic growth. Study revealed that financial inclusion develops the relationship between economic growth and income inequality in low income and highly fragile countries. Zulfiqar, K. (2016) has analyzed the implication of financial

inclusion on economic growth in Pakistan. He mentioned that financial inclusion is a way to achieve inclusive economic growth. Sethy, S. K. (2016) has developed a financial index which consists of three parameters such as penetration, availability and usage of banking. He mentioned that financial inclusion helps to mobilize more resource which leads to higher productivity and economic growth. Sehrawat, M., & Giri, A. K. (2016) examined the role of financial development in poverty reduction in 11 South Asian countries during 1990-2012. Their study showed significant relationship between financial development and poverty reduction in long-run. It also revealed the positive relationship between financial development, trade openness and inflation. Rasheed, B. *et al.* (2016) have examined the role of financial inclusion in financial development in 97 countries during 2004-2012. They found that financial inclusion facilitate in financial development.

Park C.Y. and Rogelio V. M. (2015) have analyzed the relationship between financial inclusion, disparity in income and poverty in developing Asia. They have found that financial inclusion significantly reduces poverty and lowers income inequality in developing Asia. They have suggested that the provisions for young and old-age populations will increase by financial inclusion and it will reduce poverty and income inequality.

Raghuram A. (2014) mentioned that access to finance is prerequisite for employment, poverty alleviation and social upliftment of vulnerable and poor class of the society. He also mentioned that financial inclusion plays a vital role to achieve inclusive growth and sustainable development in the developing countries like India. Das, A., & Datta, T. K. (2014) assessed the economic impact of microcredit disbursed through SHGs in Purulia district, West Bengal. Their study revealed that microcredit had positive impact on income and savings of rural household. It also saved them from moneylenders. Even Robert C. *et al.* (2014) mentioned that financial inclusion plays a vital role in economic and social progress.

Serrao M.V. *et al.* (2013) study revealed that accessibility of financial services helped to improve the socio-economic condition of the households belonged to the vulnerable sections of the society. Divya K. H. (2013) has studied the impact of financial inclusion on daily wage earners. He has

revealed that 69 and 31 percent daily wage earners are male and female respectively who had been benefited through financial inclusion services respectively in Tenali town in Guntur District of Andhra Pradesh. Therefore, there is a need to bring them as a part of financial services and facilities to improve their socio-economic conditions and wellbeing. Billimoria, J., *et al.* (2013) studied the financial inclusion and education for children and youth. Their study shows the positive correlation between these variables.

Arora, R. U. (2012) examined the relationship between human capital and financial inclusion in 21 developing countries of Asia. The study showed strong positive relation between physical access to bank and expected year of schooling. Dan R. and Rodger V. (2012) have revealed that connecting poor people to a digital financial system will generate sizable welfare benefits for society and economic activities. Raman A. (2012) mentioned that financial inclusion improves financial condition of agriculture and rural nonfarm activities. It leads to develop rural economy and improve the socio-economic condition of people.

Bauchet *et al.* (2011) found that financial services have positive impact on employment, consumption, business activities and over all well-being. Swamy V. (2011) mentioned that the access to credit by the poor class is a prerequisite for sustainable economic development and poverty alleviation. Chandran S. (2011) has also mentioned that financial inclusion plays a crucial role in improving economic well-being of vulnerable sections of society in India. He mentioned that financial inclusion enhance the quality of life, economic transaction and investment and assets. Chibba, M. (2009) has mentioned that financial inclusion was incremental and complementary solution for poverty reduction and inclusive growth. Financial inclusion has made significant difference in the lives of marginalized and poor household in Karnataka by providing financial products and services. It helps to improve the financial condition of rural households (CBPS 2013).

### Research gap

A very few studies have been conducted to assess the impact of financial inclusion on socio-economic condition of rural households. Rupa K.N. and Uma H.R. (2015) have assessed the impact of financial inclusion on socio-economic condition of households in Karnataka. They have considered education expenditure, health access, confidence level,

skills and empowerment, risk management, and nutritional indicators of social condition. Whereas, physical assets, owning of land, livestock, electronic goods and vehicles are considered as indicators of economic condition.

Similarly, M. V. Serrao *et al.* (2016) have assessed the impact of financial inclusion on socio-economic and psychological condition of households in Karnataka. They have considered material changes, cognitive changes, perceptual changes, relational changes, inclusive growth and aggregate change of rural and urban households in the study.

Through the critical examination of earlier research work on assessing the impact of financial inclusion on different indicators of socio-economic conditions of the rural households, researchers have found that there is a scope to include additional indicators as a part of economic and

social conditions considering a change in the life style and pattern of expenditure of rural households in India.

#### Data and Methodology

After in-depth literature review, the researchers have explored few more indicators of social and economic condition of rural the households by considering the change in their overall standard of living. The explored indicators of social conditions are 1) Access to basic sanitation facilities (i.e. Lavatory), 2) Access to purified/ potable drinking water, 3) Enhanced access to electricity, 4) Insurance (General, life & Medical), 5) Personal care access (i.e. Oral, hairs & body care), 6) Entertainment (i.e. movies), 7) Consumption of Luxurious goods & services, 8) Traveling & tourism status, 9) Family & cultural function, 10) Social Security (i.e. feeling of security in the society) and 11) Overall Social Status (Recognition in the society).

**Table1. Demographic Profile of the Samples.**

	N=320	Frequency	Percent
Gender	Male	269	84.1
	Female	51	15.9
	Total	320	100.0
Age Group		Frequency	Percent
	up to 30	34	10.6
	30-45	206	64.4
	Morethan 45	80	25.0
	Total	320	100.0
Work Experience		Frequency	Percent
	up to 10 years	129	40.3
	10-20 years	81	25.3
	morethan 20 years	110	34.4
	Total	320	100.0
Profession		Frequency	Percent
	Academician & Resear	177	55.3
	Bankers	30	9.4
	Practitioners	113	35.3
	Total	320	100.0

Similarly, the explored indicators of economic conditions are 1) Technology and Internet (i.e. Smart phone, computer/laptop), 2) Occupation / Employment, 3) Income, 4) Spending capacity (Expenditure), 5) Saving tendency (i.e. Bank saving), 6) Investment tendency, 7) Easier access to credit facility (i.e. credit card, bank loan), 8) Help for wealth creation, 9) Financial Credibility (i.e. Assurance to financial service providers), 10) Financial Security in present & future (i.e. Pension) and 11) Overall Economic Development.

The present study used the above 22 items and refined for fine factor loadings, cross loading and low correlations and communalities between the items that results in finally selecting 14 scale items for exploratory factor analysis followed by the confirmatory factor analysis.

The basic assumption of the study is that other things being constant, financial inclusion will have positive impact socio-

economic condition of rural households in India which could be captured using the aforementioned indicators. The financial inclusion will have an impact on these variables as well. Therefore, there is a need to validate these variables with the help of three strata academia & researchers, bankers and practitioners.

The contributions of present study are predominantly based on the primary data. The essential data were collected through survey using questionnaire as an instrument. The responses of respondents about variables are collected on seven point Likert scale. The scale parameters range from degree of agreement to disagreement, wherein scale 1 shows the highest level of agreement and scale 7 shows highest level of disagreement. Academia & researchers, bankers and practitioners (n=320) have participated in this study as the target respondents. The study was conducted in 2016-18. The primary data collected on the proposed scale items (Table 2) is analyzed using SPSS and Amos software.

**Table 2. Description of Scale items**

Item Code	Questionnaire Statements
EC_IT	Does financial inclusion influence the usage of technology and internet (i.e. Smart phone, computer/laptop)?
EC_OE	Does financial inclusion influence your occupation / Employment?
EC_I	Does financial inclusion influence your income?
EC_E	Does financial inclusion influence spending / expenditure capacity?
EC_ST	Does financial inclusion influence your saving tendency?
EC_IT	Does financial inclusion influence your investment tendency?
EC_AC	Does financial inclusion make easier access to credit facility (i.e. credit card, bank loan)?
EC_WC	Does financial inclusion help for wealth creation?
EC_FC	Does financial inclusion influence your financial credibility?
EC_FS	Does financial inclusion influence financial Security in present & future (i.e. Pension)?
EC_OED	Does financial inclusion influence overall economic development?
SC_BSF	Does financial inclusion provide Access to basic sanitation facilities (i.e. Lavatory)?
SC_PW	Does financial inclusion provide Access to purified/ potable drinking water?
SC_AC	Does financial inclusion increase access to electricity?
SC_LMI	Does financial inclusion influence access & usage of insurance (General, life & Medical)
SC_PC	Does financial inclusion influence your personal care access (i.e. Oral, hairs & body care)?
SC_EM	Does financial inclusion provide access entertainment (i.e. movies)?
SC_LGS	Does financial inclusion influence consumption of luxurious goods & services?
SC_ET	Does financial inclusion influence traveling & tourism status?
SC_EFCF	Does financial inclusion influence family & cultural function?
SC_SS	Does financial inclusion influence social security (i.e. feeling of security in the society)?
SC_SL	Does financial inclusion influence standard of living?
SC_OSS	Does financial inclusion influence overall social status (Recognition in the society)?

## Analysis and Results

Exploratory Factor Analysis: All the data variables in the study follow normality assumption the EFA with the use of principal component analysis (PCA) by varimax rotation produced a rotated component matrix for the clear grouping and interpretation of factors. The results of reliability analysis (Table 3) indicate that the scales prepared for measuring socio-economic impact of financial inclusion are reliable enough to use in Indian rural household's context. As the Cronbach's Alpha values for the scales of Economic and Social conditions are 0.87 and 0.927 respectively

(Ursachi, G., Horodnic, I. A., and Zait, A. 2013). These values are for 11 and 8 indicators for economic and social conditions of rural households. The outcomes of KMO and Bartlett's Test indicate that both the scales fulfills the requirement for conducting EFA as the KMO values for these scales are 0.7( Economic) and 0.67 (Social) respectively (Ahmadi, H., Rezaei, R., & Kheiri, S. 2013). Further, the outcomes achieved after conducting the Bartlett's Test (Both Scales) are significant and hence it indicates that the nature of data is appropriate to conduct EFA.

**Table No. 3 Reliability and exploratory factor analysis of socio-economic variables:**

Results of Reliability and Exploratory Factor Analysis				
Particulars	Economic	Social	Thresholds	Remark
Cronbach Alpha	0.87	0.927	0.7*	The scale of both Economic and Social factors are found reliable in Indian rural context
KMO	0.7	0.672	0.6**	In case of both Economic and Social scales the sample units considered for collecting the data were found adequate
Bartlett	0.00	0.00	0.00	In case of both Economic and Social scales the nature of data was found appropriate to conduct exploratory factor analysis
No. of Factors (No.) and Percentage (%) of Variance explained by each factors	(3) 32.912, 28.071 15.00	(2) 47.005 29.626	NA	The variable considered for measuring economic conditions of respondent got categorized into 3 factors, whereas the variable considered for measuring social conditions of respondent got categorized into 2 factors
Total Variance Explained	75.984	76.631	NA	In case of both economic and social conditions the factors identified contributed about 76 percent of variance

Source: primary data

Excluding the factor loading below 0.5 and considering the Eigen values greater than one, a total of four factors were extracted from the EFA. No cross loadings were observed and factor loadings are above 0.6. The reliability coefficients also showed good internal consistency between

the scale items. Based on the analysis of sub scales of financial inclusion each dimension was named as Access to basic facilities, Financial Capacity, Financial Wellbeing, and Social Wellbeing.

**Table 4. Exploratory Factor Analysis Results**

Financial Inclusion	Rotated Component Matrix <sup>a</sup>					Alpha (0.92)
	Component	Factor Loading	Eigen Value	% of Variance	Cumulative %	
Access to Basic Facilities	SC_BSF	0.89	2.018	14.417	68.254	0.92
	SC_PW	0.896				
	SC_AC	0.914				
	SC_PC	0.914				
Financial Capacity	EC_OE	0.856	3.994	28.531	28.531	0.88
	EC_I	0.936				
	EC_E	0.881				
Financial Wellbeing	EC_WC	0.872	3.543	25.305	53.837	0.85
	EC_AC	0.626				
	EC_FS	0.722				
	EC_OED	0.732				
Social Wellbeing	SC_SS	0.868	1.234	8.817	77.07	0.84
	SC_SL	0.891				
	SC_OSS	0.674				
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. <sup>a</sup>						
a. Rotation converged in 6 iterations.						

*Amos software over the another sample size of 320 respondents.*

From table 4, it is clear that each sub-scale dimension was found to be individually and collectively reliable (Cronbach Alpha 0.92). The dimensions and the sub-scale are listed and explain below:

i) Access to Basic Facilities (ABF): It refers to have sustainable water and sanitation facility for all rural households (Kumar, 2017). It includes access to basic sanitation facilities (i.e. Lavatory), access to purified/potable drinking water, access to electricity and personal care access (i.e. Oral, hairs & body care).

ii) Financial Capacity (FC): It refers to the ability to act in one's financial interest in the existing socio-economic condition. It consists attitude, skill, knowledge, and behavior of the person related to managing and taking appropriate financial decisions (World Bank; CFFC). Therefore, it includes type of occupation or employment, investment, and types of expenditure. It is observed that financial inclusion improves the financial capacity of the household.

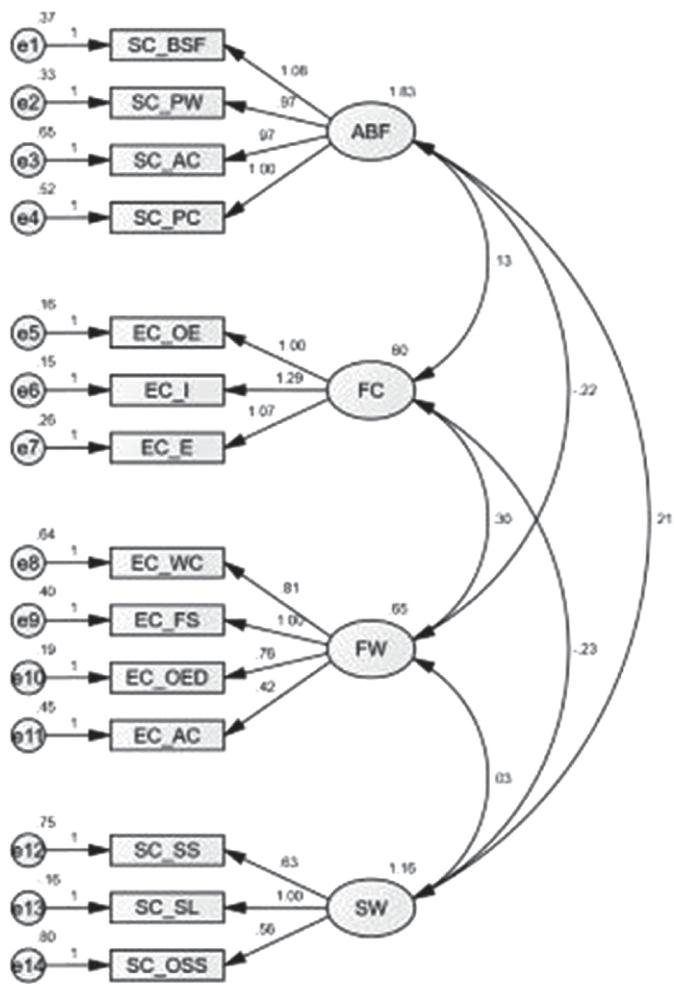
iii) Financial Wellbeing (FW): It indicates the continuum extending from negative to positive feeling about financial condition (Brown et. al 2009). It includes access to credit facility, creation of wealth, financial security in present, and future and overall economic development of the household.

iv) Social Wellbeing (SW): It refers to the feeling of belonging and social inclusion. It is also viewed as a social coherence, actualization, integration, contribution and acceptance (Keyes 1998). It includes social security, (i.e. feeling of security in the society), standard of living (Enhanced consumption of sophisticated facilities/amenities) and overall social status (recognition in the society).

Confirmatory Factor Analysis: To confirm the relationship between the observed variables under each latent construct as an outcome of EFA the following CFA test was conducted by using Amos software over the another sample size of 320 respondents.

**Table 5. Model Fit Measures**

Model Fit Measure	Threshold	Estimated Value
CMIN/DF	Between 2 to 5	2.16
GFI	$\geq 0.95$	0.98
AGFI	$\geq 0.90$	0.97
CFI	$\geq 0.95$	0.98
NFI	$\geq 0.90$	0.97
SRMR	$< 0.08$	0.06
RMSEA	$< 0.06$	0.05



**Figure 1. Confirmatory Factor Analysis (CFA) Model**

In reference to table 5 and model depicted in figure 1, the results of Confirmatory Factor Analysis (CFA) show an excellent fit with significant ( $p$  value 0.45) CMIN/DF statistic of 2.16. The Goodness of Fit Index (GFI) is 0.98 and Comparative Fit Index (CFI) is 0.98. These GFI and CFI indicate perfect fit. The standardized Root Mean Residual (RMR) is 0.06 and Root Mean Square Error of

Approximation (RMSEA) is 0.05 indicating excellent fit. In addition, the adequacy of the measurement model for financial inclusion also evaluated based on the criteria of Composite Reliability (CR), Average Variance Extracted (AVE) and Discriminant Validity (DV) of the constructs and the results are presented in Table 6.

**Table 6. Construct Validity**

<b>Financial Inclusion</b>	<b>CR</b>	<b>AVE</b>	<b>DV</b>
Access to basic facilities	0.77	0.67	0.64
Financial Capacity	0.73	0.65	0.67
Financial Wellbeing	0.75	0.63	0.68
Social Wellbeing	0.74	0.69	0.65

The results show that composite reliability for financial inclusion dimensions is above the cut off value of 0.70, average variance extracted is greater than the minimum value of 0.50 and discriminant validity is above 0.60 indicating that convergent and discriminant validity is confirmed.

### Conclusions

This study is one of the empirical studies which has developed and proposed valid and reliable measurement instruments of socio-economic indicators with four sub-dimensions. This study modifies and presents the socio-economic construct independently and proposes its scale. The findings of the study are useful for policy makers (RBI & Government), practitioners (Bankers), researchers and academicians. These make significant contribution in existing body of the knowledge of socio-economic indicators of rural households in contemporary context. The four dimensions of socio-economic conditions, that is, access to basic facility, financial capability, financial wellbeing and social wellbeing explain the underlying framework of financial inclusion and its impact. The identified sub – scale elements of Socio-Economic conditions of rural households are found to reliable and the validity of constructs is established.

### Scope For Future Research:

The study has explored eleven indicators of each social and economic condition of the rural households. These

indicators are validated with the help of academia & researchers, bankers and practitioners. Further, these indicators are validated by confirmative factor analysis and therefore, can be used for Structural Equation Model (SEM). The study provides the scope for future research to assess the impact of financial inclusion on the basis these indicators of social and economic condition of rural households.

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# Gold Prices, Causal Relation of Factors Affecting It: Indian Context



**Dr. M. Jayasree**

Associate Professor, GITAM HBS  
GITAM (Deemed to be University), Hyderabad  
Email: jayasree.mangalagiri@gitam.edu

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The present study examines the long term and short term relations of factors affecting gold prices in the Indian context from 2009 to 2018. The study uses Johansen's co-integration and error correction model. Further to study the effect of orthogonalized shock of variables on gold prices the impulse response function is used and the variance decomposition of the variables is done to understand the explanatory power of each variable contributing to change in gold prices. The study has significant evidence that gold has long term association with crude oil prices, Inflation, Nifty 50 and Exchange rate and that shock in all the variables causes permanent effect on gold prices. Among all the variables, inflation had 38.79% explanatory power for gold prices in the long term.

**Keywords:** Cointegration, Crude oil, Gold, Orthogonalized Shock, Nifty 50, Exchange Rate

What factors affect gold prices? There were several studies conducted in the recent past bringing factors like inflation, stock market, exchange rate and crude oil as effecting gold prices. Gold is seen as hedge and safe haven against inflation (Batten et al. 2014; Chua et al. 1982; Aye et al. 2016; Aye et al. 2017; Worthington et al. 2007; Ghosh, Dipak, et al. 2004). However gold as a hedge is not the same in different countries it is stronger in countries like US and UK compared to Euro area and Japan (Beckmann et al. 2013). A similar observation was made by Wang et al. 2011 that in the US context gold is a long term hedge against inflation but its effect was partial in the Japanese context. Van Hoang et al. (2016) also had a similar observation that gold is an effective hedge against inflation in both long run and short run in US and UK context but it was not effective in the context of China, Japan and France.

The influence of oil prices on Gold was also examined by several studies. Gold prices impact oil prices (Wang et al. 2013; Narayan Paresh Kumar et al. 2010; Kumar Satish 2017; Mo Bin et al. 2018; Bildirici and Ceren 2015) and there is transmission of volatility between gold and oil market (Ewing Bradley and Farooq 2013). There is also bidirectional causality between implied volatilities of gold and oil prices (Bouri Elie 2017). Oil price fluctuations would help to predict gold prices and oil prices shocks have significant and positive impact on gold returns (Le and Youngho 2012). In the Indian context also there was co-integration and causality among oil, metal prices and exchange rate of Indian rupee to US dollar (Jain and Sajal 2013). However Taiwan experience was different there was no co-integration between crude oil prices, gold and exchange rate and that oil price, gold and exchange are independent for one another (Chang et al. 2013).

Gold is a hedge and safe haven against currency fluctuations (Reboredo and Miguel 2014. Shih et al. 2015, Ciner et al 2013). Gold as portfolio of stocks would reduce portfolio risk (Chkili 2016; Mensi et al. 2015; Baur et al. 2010; Junttila 2018). Gold is a safe haven in case of stock market crashes for countries like Malaysia, Singapore, Thailand, UK and US but not for countries like Japan, Indonesia and Philippines (Nguyen et al. 2016). Gold is always an interesting area in the Indian context as gold is popular as investment and ornament. The gold market has undergone several changes ever since the abolition of Gold control act

in 1992. Further authorization of commercial banks to import gold for sale or loan purpose, the recent exemption of gold from Prevention of money laundering act and monetization of gold, all had positive impact on the gold purchases in India. During the last ten years gold prices have seen a steep increase of 900 percent (Parimi 2018). As investment in India gold has seen an increase of 47% in 2008, (Gold trends 2009). During 2008 the Nifty 50 has come down from 6144.35 to 2959.15 points Sensex also has declined from 20300.71 to 9647 points. During the crisis period gold was seen as safe haven as there was uncertainty with other asset categories. India continued to be the world largest consumer of gold in 2009 (Gold trends 2010). It is therefore interesting to examine factors that affect gold prices.

### Review of literature

Batten et al. (2014) observed that the co movement of gold and inflation increased during the last decade and that the linkage of gold sensitivity to inflation is related to interest rate changes. Chua et al. (1982) the experience of US shows that gold is an effective hedge against inflation in the case of one and six month investment holding periods. In a study of US economy spanning from 1833 to 2013 gold price and inflation seem to have temporary co-integration and the interruption in the long term relations appear to be associated with different structural changes affecting gold market (Aye et al. 2016). The evidence for UK for the data covering from 1257 to 2016 also supports that gold provides protection against inflation as its value is maintained in the presence of inflation (Aye et al. 2017). A study in the US covering data from 1945 to 2006 and from 1973 to 2006 using the modified co-integration approach showed strong evidence of co-integration relation of gold and inflation since the early 1970's and post war period (Worthington et al. 2007). Ghosh, Dipak, et al. (2004) proposed a theoretical model that suggests a set of conditions under which the gold prices rise at a general rate of inflation which provides a reason for gold to be an effective hedge against inflation. Beckmann et al. (2013) examined relationship of gold and inflation in four major economies namely US, UK, Euro area and Japan. They observed that gold was hedge for inflation is partial in the long run and the ability was stronger for US and UK compared to Euro area and Japan. Further gold as a hedge to inflation essentially depends upon time horizon. Similar observation was made by Wang et al. (2011) that gold acts as

hedge against inflation in the long run in US but it was partially effective in Japan. Van Hoang et al. (2016) examined for gold as a hedge to inflation in China, India, Japan, France, UK and US and observed that gold was not a hedge in the long run in any of the countries studied. However, he observed gold to be an inflation hedge in the short run for countries like UK, US and India.

In the Indian context the study of gold as a hedge covering period from 1982 to 2015 showed that there was no co-integration between gold and whole sale price index. However, the use of Kalman filters showed that the co-movement between the two, increased in the past decade. Further the gold sensitivity would be better explained by effective exchange rate and that gold would be used an alternative to paper currency (Kumar Satish 2017).

There seems to be a short term positive influence of gold and crude oil prices (Wang et al. 2013). Zhang et al. (2010) observed that there was long term equilibrium between gold and crude oil and that crude oil price change causes volatility in gold prices and not vice versa. Taiwan has a different experience, there seems to be no co-integration between crude oil prices and gold.

Narayan Paresh Kumar et al. (2010) observed that oil market can be used to predict the gold market prices and gold market prices can be used to predict oil market prices. Ewing Bradley and Farooq (2013) observed that there was a strong evidence of transmission of volatility between gold and oil returns. The study on post financial crisis showed that while volatility prior to crisis was speculative in the post crisis stock market, exchange rate and commodity market made greater contribution and US dollar index was the main factor contributing to oil price volatility both in the short run and the long run (Ji Qiang 2012). There exists a causal linear and nonlinear relation between oil and gold prices both in the short run and the long run and that positive shock in the oil prices have more pronounced effect on gold prices than negative shocks (Kumar Satish 2017). There is nonlinear impact of volatilities of oil and gold on Indian stocks and inverse bi-directional causality between implied volatilities of gold and oil prices (Bouri Elie 2017).

Mo Bin et al. (2018) find to have a long term dependence of gold market on US dollar and crude oil market. Gold and oil relationship is always positive and oil with dollar relationship always negative. However, after crisis there

appears to be non linear causal relationship from gold to US dollar and US dollar to crude oil and a negative non linear causal relationship from US dollar to gold. Bildirici and Ceren (2015) observed that in the long run there would be gold oil asymmetric co-movement which implies upward sticky prices. The negative oil shocks are persistent in gold and silver and positive shocks persistent in gold. Gold can be used as a hedge against oil price fluctuations. Sari Ramazan et al. (2010) found that there is weak long term equilibrium between oil, precious metal and exchange rate. However, it is strong in the short term and investors can diversify at least a part of the risk by investing in all the three.

The observation of oil price fluctuations would help to predict gold prices and oil prices shocks have significant and positive impact on gold returns (Le and Youngho 2012). Tiwari et al. (2015) observed that an increase of 10% in oil prices would lead to 4.7% increase in gold prices and the positive and negative shocks in oil prices would have different effect on gold prices. It appears that there is co-integration and causality among oil, metal prices and exchange rate of India rupee to US dollar (Jain and Sajal 2013). Gold seems to have positive and significant average effect between gold and US dollar depreciation and gold can be used in currency portfolio in risk management (Reboredo 2013). Gold and currencies are dependent at different time scales and gold is found to be useful in currency hedging and also in reducing downside risk (Reboredo and Miguel 2014). At times of market turbulence there would be increase in the co-movements of gold and oil prices and decrease in co-movement of gold and dollar/pound or oil and dollar/pound gold can be a safe haven against major currencies when there is turmoil in the market (Shih et al. 2015).

According to Ciner et al. (2013) the examination of stocks, bonds, gold and exchange rates for hedges that gold acts as a safe haven against US dollar and Great Britain pound. From the evidence of BRIC countries it is understood that the correlation between stock market and gold is not stable and it declines significantly during crisis and by adding gold to the portfolio of stocks the portfolio risk reduces significantly (Chkili 2016). Gold is a safe haven in case of stock market crashes for countries like Malaysia, Singapore, Thailand, UK and US but not for countries like Japan, Indonesia and Philippines (Nguyen et al. 2016). In the case of GCC countries inclusion of gold in the portfolio would downside the risk and would be safe haven hedge against six GCC

stock markets (Mensi et al. 2015). Baur et al. (2010) the analysis of constant and time varying relations between US, U.K and German stock, bond returns and gold returns show that gold is hedge against stocks on an average and is a safe haven in extreme stock market conditions. A study on emerging market gold prices have positive impact on BRICS stock market prices and that gold and oil volatilities have negative impact on emerging stock prices in short run as well as long run (Raza, Naveed et al). During crisis period correlation between gold and stock market becomes negative thus making gold a safe haven for hedge against stock market (Junttila 2018). Jain Anshul et al. (2016) a fall in gold and crude oil would cause fall in the value of Indian rupee and sensex in the Indian context therefore it is essential for policy making to contain exchange rate and stock market by using gold and oil prices as instruments. Owing to divergent outcomes on the variables affecting gold prices the study proposes to examine

If there is co-integration among the variables

If there exists a causal relation of factors affecting the gold prices

The orthogonalized effect of shocks of the variables on gold prices and explanatory power of the variables affecting gold prices

### Methodology

The monthly data from 2009-2018 of gold prices was collected from World Gold Council, Whole sale price index from Indian Ministry of Commerce & Industry, Rupee to US dollar exchange rate from investing.com, nifty 50 from NSE and crude oil prices from macro trends.net. The study begins with Dickey fuller Unit root test to understand if the data was stationary and then Johansen test for co-integration is applied to understand if there is any co-integration among the variables. After testing the vector error correction model is run for analysis. This model explains the long term and short term association of the factors affecting gold prices. Further to test the model fitness langrange multiplier is used to check if there is any auto correlation among the residuals. Further to test the short term association among the variables test for linear hypothesis is used. The impulse response function is applied to understand whether the shock in the variables permanently affect the gold prices. Lastly the variance decomposition analysis is done to understand the

explanatory power of the variables affecting gold prices.

### Variables Used for the Study

**Gold Prices:** Monthly gold prices as per the Gold World Council.

**Crude oil Prices:** The correlation between oil prices and gold is 85% when observed for the prices from 1968 to 2009 (Shafiee & Topal 2010). An increase in oil prices would lead to inflation. Inflation would lead to increase in gold prices as investors invest in gold as hedge against inflation. Hence oil market can be used to forecast gold market and gold market can be used to forecast oil market (Narayan et al. 2010/13). But Taiwan experience was different from other countries. Due to mixed outcomes of various studies the current paper examines the effect crude oil prices on gold prices by using monthly crude oil prices as per macro trends.net.

**Nifty 50:** The evidence in Asean +3 countries shows that gold prices significantly influence bond and equity market. In the sense that fall in equity market would have positive effect on gold prices (Ziari 2012). Gold and stock returns have Granger causal effect and one variable can be used to forecast the other in the Indian context (Mishra 2010). There seems to be no long term association between gold prices and Karachi Stock Exchange however there significant long term association between gold prices and Bombay Stock Exchange (Bilal et al. 2013). Gold prices and stock prices, returns and volatility cause cross effects on each as experienced in China (Arouri et al. 2015). The literature shows mixed results hence the study uses the monthly data of NSE to examine the effect of stock market on gold prices.

**Inflation:** Gold has time varying relationship with inflation which is evident in US, UK and Japan (Brian M. Lucey, et al. 2017). Gold is a complete hedge in both ex post and ex ante inflation which was evident in the Vietnam context (Long et al. 2013). From 1991 to 2001 Stock prices, World price index and US\$ effective rate of exchange had significant long term association with gold prices however, there was change from 2003 it was world price index which was statistically significant in explaining the long-term association with gold and US\$ effective exchange rate had short term association with gold (Mishra & Jagan Mohan 2012). Contrary to this Blose 2010 argues that inflation do not effect gold prices. Bialkowski 2015, opines that Inflation in commodity prices and flow of funds in ETF's would be the prime factors

effecting gold prices which could be taken for further research. A study of 14 countries proves that gold prices have significant explaining power for future inflation (Greg Tkacz 2007). However, gold was not always seen as hedge against inflation in countries like France, Japan and China. Therefore it is essential to examine its effect on gold prices. The study uses whole sale price index as inflation factor.

Exchange rate: there seems to be a long term association of Gold prices and stock prices with exchange rate (Srinivasan P 2014). The Exchange rate and stock market are significant

in forecasting the gold prices (Parimi 2018). However there are studies which showed weak association between exchange rate and gold prices (Sari Ramazan et al. 2010). The study therefore uses exchange rate of rupee to dollar to understand the effect.

Based on the literature the variables were identified and the VEC model has been developed. In VECM all variables would be endogenous.

**VECM Equation**

$$\Delta \text{Gold Prices}_t = \alpha + \sum_{i=1}^k \alpha_1 \Delta \text{Gold Prices}_{t-4} + \sum_{i=1}^k \alpha_2 \Delta \text{Crude Prices}_{t-4} + \sum_{i=1}^k \alpha_3 \Delta \text{Nifty 50}_{t-4} + \sum_{i=1}^k \alpha_4 \Delta \text{Inflation}_{t-4} + \sum_{i=1}^k \alpha_5 \Delta \text{Exchange rate}_{t-4} + \text{ECT}_{t-4} + e_t \dots \dots \dots (1)$$

$$\Delta \text{Crude Prices}_t = \alpha + \sum_{i=1}^k \alpha_1 \Delta \text{Gold Prices}_{t-4} + \sum_{i=1}^k \alpha_2 \Delta \text{Crude Prices}_{t-4} + \sum_{i=1}^k \alpha_3 \Delta \text{Nifty 50}_{t-4} + \sum_{i=1}^k \alpha_4 \Delta \text{Inflation}_{t-4} + \sum_{i=1}^k \alpha_5 \Delta \text{Exchange rate}_{t-4} + \text{ECT}_{t-4} + e_t \dots \dots \dots (2)$$

$$\Delta \text{Nifty 50}_t = \alpha + \sum_{i=1}^k \alpha_1 \Delta \text{Gold Prices}_{t-4} + \sum_{i=1}^k \alpha_2 \Delta \text{Crude Prices}_{t-4} + \sum_{i=1}^k \alpha_3 \Delta \text{Nifty 50}_{t-4} + \sum_{i=1}^k \alpha_4 \Delta \text{Inflation}_{t-4} + \sum_{i=1}^k \alpha_5 \Delta \text{Exchange rate}_{t-4} + \text{ECT}_{t-4} + e_t \dots \dots \dots (3)$$

$$\Delta \text{Inflation}_t = \alpha + \sum_{i=1}^k \alpha_1 \Delta \text{Gold Prices}_{t-4} + \sum_{i=1}^k \alpha_2 \Delta \text{Crude Prices}_{t-4} + \sum_{i=1}^k \alpha_3 \Delta \text{Nifty 50}_{t-4} + \sum_{i=1}^k \alpha_4 \Delta \text{Exchange rate}_{t-4} + \sum_{i=1}^k \alpha_5 \Delta \text{Exchange rate}_{t-4} + \text{ECT}_{t-4} + e_t \dots \dots \dots (4)$$

$$\Delta \text{Exchange rate}_t = \alpha + \sum_{i=1}^k \alpha_1 \Delta \text{Gold Prices}_{t-4} + \sum_{i=1}^k \alpha_2 \Delta \text{Crude Prices}_{t-4} + \sum_{i=1}^k \alpha_3 \Delta \text{Nifty 50}_{t-4} + \sum_{i=1}^k \alpha_4 \Delta \text{Inflation}_{t-4} + \sum_{i=1}^k \alpha_5 \Delta \text{Exchange rate}_{t-4} + \text{ECT}_{t-4} + e_t \dots \dots \dots (5)$$

Where the term  $\Delta$  is the first difference of the variable and ECT is the error correction term. The ECT is a co-integrating term that gradually corrects the deviation from the long-run equilibrium through a series of partial short-run adjustments. Further tests for short term association of the variables the test for linear hypothesis is applied. For orthogonalized shock of the variables on the gold prices impulse response function is used. Finally the variance decomposition is done to understand which variable has more explanatory power.

**Results & Discussion**

The correlation metrics in table 1 shows that there is positive correlation of gold prices, Crude oil Prices and inflation.

Nifty 50 and Exchange rate show negative correlation with gold. We now proceed with the analysis. The analysis starts with unit root test. The results are shown in table 2. The results show that the data is non stationary at level. Therefore the Vector auto regression model cannot be run. As a next step the unit root test at first differentiation is applied and it is that found the data is stationary the results are in table 3. Therefore the VEC model can now be applied. Further proceeding with the Johansen test for co-integration shows that there is co-integration at rank order 1 with 4 lags. The results are in table 4.

**Table 1 Correlation of Gold Prices and Factors Affecting Gold Prices at First**

	Gold Prices	Crude oil Prices	Nifty 50	Inflation	Exchange Rate
Gold Prices	1				
Crude oil Prices	0.5651	1			
Nifty 50	-0.0934	-0.47	1		
Inflation	0.6073	0.5174	-0.5676	1	
Exchange Rate	-0.2080	-0.5117	0.7836	-0.7242	1

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**Table 2 Dickey fuller Unit Root Test at Level**

	Test Statistics	P Value
Gold Prices	2.215	0.2010
Crude oil Prices	1.689	0.4369
Nifty 50	1.011	0.7491
Inflation	1.548	0.5098
Exchange Rate	0.779	0.8251

**Table 3 Dickey fuller Unit Root Test with First Differentiation**

	Test Statistics	P Value
D. Gold Prices	-12.466	0.00
D. Crude oil Prices	-9.378	0.00
D. Nifty 50	-11.434	0.00
D. Inflation	-10.274	0.00
D. Exchange Rate	-11.023	0.00

**Table 4 Johansen tests for Co-integration**

Rank	parms	LL	eigenvalue	Trace statistic	Critical value
0	80	-2210.0688	-	82.4760	68.52
1	89	-2190.7826	0.3003	43.9037*	47.21
2	96	-2181.2214	0.1623	24.7811	29.68
3	101	-2174.2990	0.1203	10.9363	15.41
4	104	-2169.4304	0.0862	1.1991	3.76
5	105	-2168.8308	0.0110		

\*Significance at rank order 1

Later running the VECM model from results in table 5 it is observed that gold prices have long term association with the variables. When observed for Crude oil, there is no long term or short term association. Nifty 50 had no long term association however there was short term association with exchange rate. When observed for inflation it has no long term association or short term association with the variables. Exchange rate does not have long term association but has short term association with gold and inflation. As identified by co-integration test there is only one long term association, it is found that all variables have long term association only with gold. The co-integration at rank order

1 is significant as shown in table 6 and the Johansen normalization restriction imposed results in table 7 also show significance for variables effecting gold prices. It is therefore understood from the analysis that gold prices have long term association with crude oil prices, Nifty 50, Inflation and Exchange rate. This means that all these variables affect gold prices in the long term. Now examining the short term association by using the test for linear hypothesis it is understood that the variables do not have short term association with gold prices. This shows that the observed variables do not have any short term influence on gold prices.

**Table 5 Gold Prices and Factors affecting Gold Prices**

	Co-efficient	Std.Err	P Values
D_Gold Prices ce1			
L1	-0.2377	0.0693	0.001*
Gold Prices LD	-0.0747	0.1033	0.469
Gold Prices L2D	-0.0123	0.1112	0.912
Gold Prices L3D	0.2110	0.1097	0.055
Crude oil Prices LD	1.0507	1.1122	0.345
Crude oil Prices L2D	-1.2239	1.1071	0.269
Crude oil Prices L3D	0.7526	1.0811	0.486
Nifty 50 LD	-0.0284	0.0235	0.226
Nifty 50 L2D	0.0040	0.0241	0.868
Nifty 50 L3D	.00380	0.0229	0.867
Inflation LD	-0.8668	1.3085	0.508
Inflation L2D	-2.2150	1.2433	0.075
Inflation L3D	0.2975	1.2753	0.816
Exchange rate LD	0.8811	5.6109	0.875
Exchange rate L2D	7.2672	5.6122	0.195
Exchange rate L3D	4.7433	5.2961	0.370
Constant	-0.5860	7.9690	0.941
	Co-efficient	Std.Err	P Values
D_Nifty 50 ce1			
L1	-0.0017	0.3219	0.996
Gold Prices LD	0.4054	0.4798	0.398
Gold Prices L2D	-0.6810	0.5204	0.191
Gold Prices L3D	0.1128	0.5100	0.825
Crude oil Prices LD	-5.5307	5.1675	0.284
Crude oil Prices L2D	0.9761	5.1437	0.849
Crude oil Prices L3D	6.1196	5.0229	0.223
Nifty 50 LD	-0.1601	0.1093	0.143
Nifty 50 L2D	-0.0567	0.1119	0.612
Nifty 50 L3D	0.0894	0.1066	0.401
Inflation LD	3.4240	6.0798	0.573
Inflation L2D	2.6981	5.7765	0.640
Inflation L3D	4.0159	5.9253	0.498
Exchange rate LD	-80.1534	26.0692	0.002*
Exchange rate L2D	-28.3318	26.0755	0.277
Exchange rate L3D	26.5345	24.6070	0.281
Constant	87.5068	37.0256	0.018*

	Co-efficient	Std.Err	P Values
<b>D_Inflation ce1</b>			
L1	0.0061	0.0065	0.345
Gold Prices LD	0.0097	0.0096	0.312
Gold Prices L2D	0.0021	0.0105	0.839
Gold Prices L3D	0.0038	0.0103	0.709
Crude oil Prices LD	0.0272	0.1041	0.794
Crude oil Prices L2D	0.0669	0.1036	0.519
Crude oil Prices L3D	0.0534	0.1013	0.598
Nifty 50 LD	-0.0013	0.0022	0.545
Nifty 50 L2D	-0.0002	0.0023	0.945
Nifty 50 L3D	-0.0031	0.0021	0.156
Inflation LD	0.0486	0.1225	0.691
Inflation L2D	0.0335	0.1164	0.773
Inflation L3D	0.0760	0.1194	0.524
Exchange rate LD	0.1043	0.5255	0.843
Exchange rate L2D	-0.2041	0.5256	0.698
Exchange rate L3D	-0.5294	0.4960	0.286
Constant	0.3523	0.7464	0.637
	Co-efficient	Std.Err	P Values
<b>D_Exchange rate ce1</b>			
L1	0.054	0.0013	0.000
Gold Prices LD	-0.0110	0.0020	0.000*
Gold Prices L2D	-0.0059	0.0021	0.005*
Gold Prices L3D	-0.0023	0.0021	0.254
Crude oil Prices LD	0.0074	0.0208	0.723
Crude oil Prices L2D	0.0006	0.0207	0.976
Crude oil Prices L3D	-0.0288	0.0202	0.540
Nifty 50 LD	-0.0000	0.0004	0.911
Nifty 50 L2D	-0.0000	0.0005	0.827
Nifty 50 L3D	-0.0008	0.0004	0.062
Inflation LD	0.0377	0.0245	0.124
Inflation L2D	0.0783	0.0233	0.001*
Inflation L3D	0.0619	0.0239	0.009*
Exchange rate LD	-0.1703	0.1050	0.105
Exchange rate L2D	-0.1073	0.1050	0.307
Exchange rate L3D	0.0035	0.0991	0.972
Constant	0.3067	0.1491	0.040*

**Table 6 Co-integrating Equation**

Equation	Parms	Chi2	P>chi2
Ce1	4	129.7751	0.0000*

**Table 7 Johansen Normalization Restriction Imposed**

Beta (ce1)	Co-efficients	Std.Err	P values
Gold Prices	1	-	
Crude oil Prices	-3.8827	0.9098	0.000
Nifty 50	-0.0190	0.0152	0.212
Inflation	-11.4260	1.2806	0.000
Exchange rate	-18.6439	2.8650	0.000
Constant	1602.899	-	-

Further the results are tested with Lagrange-multiplier test for auto correlation of residuals. There is no reason to reject the null hypothesis for no auto correlation. The Skeweness Kurtosis test observes that the residuals are normally distributed. The results are presented in Table 8 and 9

Therefore it is affirmed that the study results are statistically significant in explaining that gold prices have long term association with crude oil prices, Nifty 50, inflation and exchange rate.

**Table 8 Lagrange-multiplier test**

Lag	chi2	df	P>chi2
1	36.9406	25	0.0584
2	38.8536	25	0.0381
3	29.4320	25	0.2462
4	27.3214	25	0.3400

Null hypothesis accepted for lag 4.

**Table 9 Skewness/Kurtosis test for Normality**

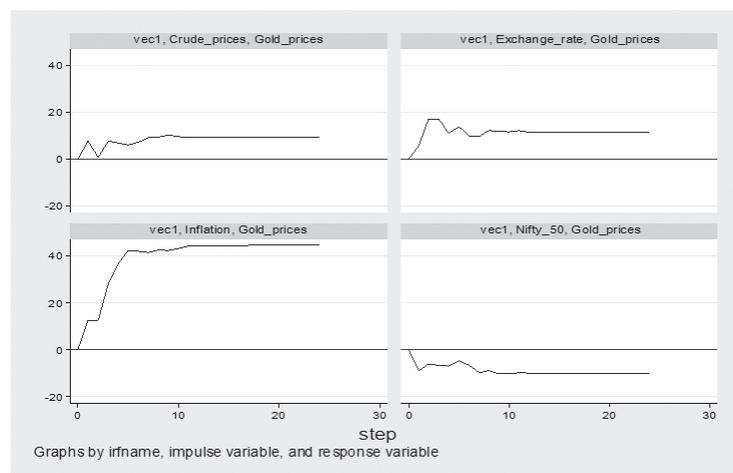
Variable	Pr(Skewness)	Pr(Kurtosis)	Adj chi2 (Joint)	Pr>chi2(Joint)
myresiduals	0.2804	0.0188	6.300	0.043*

\*At 1 % significance the null hypothesis is accepted.

Further the impulse and response function is applied to understand whether the orthogonalized shock of average prices of crude oil, Nifty 50, Inflation and Exchange rate cause permanent effect on the average prices of gold. The interpretation is, if the effect of shock dies over time then the

effect is said to be transitory when it remains the effect is said to be permanent. The impulse and response graph shows that Crude oil Prices, Inflation and exchange rate bring permanent positive effect on gold prices. However Nifty 50 seems to have negative permanent effect of on gold prices.

**Impulse Response Graph**



The graphs only show the orthogonal shocks but to know the explanatory power of the variables on gold prices the variance decomposition analysis is used. In other words it estimates the degree of change on the endogenous variables caused by its own shock and degree of change caused by shock of other exogenous variables. The results of variance

decomposition showed in table 10 indicate that in the short term the gold prices shock would cause change in gold prices but in the long term which is at the end of 10<sup>th</sup> month. The results show that Inflation explains 38.798% of variance in gold prices followed by Crude prices and Exchange rate. Nifty 50 had more explanatory power in the short term than

in the long term. In the case of crude prices the long term effect was more for shock caused by crude prices alone, gold and inflation explained a variance of 7.71% and 6.09% respectively. In case of Nifty 50 the variance of 80.51% is explained by its own shock while crude prices, inflation, exchange rate had contributed to a variance of 7.76%, 6.28% and exchange rate 5.29% while shock in gold prices had

marginal effect of 0.16% on Nifty. In case of inflation the variance of 86.42% is explained by its own shock and gold prices had an explanatory effect of 13.22% other variables had marginal effect. In case of exchange rate 48.88% variance is explained by its own shock, crude prices had an explanatory power of 20.94%, inflation 18.95% nifty 50 7.02% followed by gold 4.20%.

Period	S.E.	Gold_Prices	Crude_Prices	Nifty_50	Inflation	Exchange_Rate
1	65.11881	100.0000	0.000000	0.000000	0.000000	0.000000
2	80.99235	94.44904	1.125286	1.326854	3.077968	0.020847
3	89.93011	90.06754	1.255745	1.447253	5.399974	1.829487
4	99.99120	81.81974	1.731192	1.332538	12.42159	2.694938
5	111.4430	73.27453	2.135016	1.243139	20.45891	2.888410
6	123.6202	66.60339	2.565260	1.134017	26.67933	3.017999
7	135.2804	61.79720	2.997179	1.048025	31.06691	3.090689
8	146.1317	58.15153	3.333100	0.993469	34.37119	3.150711
9	156.2826	55.38637	3.581097	0.953399	36.87032	3.208813
10	165.8402	53.25592	3.775990	0.922204	38.79831	3.247573

#### Variance Decomposition of Crude Prices

Period	S.E.	Gold_Prices	Crude_Prices	Nifty_50	Inflation	Exchange_Rate
1	6.237505	0.358536	99.64146	0.000000	0.000000	0.000000
2	9.549117	4.423246	95.23936	0.162161	0.163794	0.011439
3	11.85530	4.718684	94.70316	0.303416	0.132235	0.142505
4	13.67371	4.980523	94.01828	0.395357	0.306728	0.299110
5	15.28938	5.614222	92.88546	0.421966	0.765032	0.313315
6	16.74874	6.292804	91.32829	0.471010	1.620166	0.287733
7	18.10452	6.849828	89.60812	0.512102	2.763485	0.266462
8	19.37114	7.250230	87.97067	0.541028	3.989162	0.248910
9	20.55286	7.517253	86.56804	0.565101	5.115964	0.233638
10	21.66493	7.713751	85.38671	0.583763	6.094626	0.221150

#### Variance Decomposition of Nifty 50

Period	S.E.	Gold_Prices	Crude_Prices	Nifty_50	Inflation	Exchange_Rate
1	308.1025	0.258304	4.921627	94.82007	0.000000	0.000000
2	421.6434	0.380957	4.353295	90.98770	0.062326	4.215719
3	501.1488	0.280764	4.917632	87.31761	0.842072	6.641918
4	574.0032	0.284846	5.370161	87.10748	1.035962	6.201549
5	642.0140	0.230170	6.100149	85.84152	1.781692	6.046467
6	704.2757	0.236259	6.507444	84.54338	2.836927	5.875994
7	763.6343	0.216268	6.869208	83.34547	3.910997	5.658056
8	819.9903	0.194736	7.222366	82.20442	4.863205	5.515278
9	872.8810	0.177344	7.514236	81.25842	5.652948	5.397055
10	922.7755	0.162654	7.755817	80.50609	6.282643	5.292797

## Variance Decomposition of Inflation

Period	S.E.	Gold_Prices	Crude_Prices	Nifty_50	Inflation	Exchange_Rate
1	6.094767	1.330904	0.207669	6.53E-05	98.46136	0.000000
2	8.680364	4.393877	0.294828	0.137026	95.15020	0.024064
3	10.68452	6.638415	0.222578	0.106946	92.99087	0.041190
4	12.21061	8.654361	0.172848	0.103678	91.02362	0.045491
5	13.45964	9.913180	0.142302	0.123249	89.77458	0.046690
6	14.52202	10.85214	0.125042	0.136241	88.83897	0.047604
7	15.48145	11.61212	0.116524	0.146563	88.07385	0.050947
8	16.36382	12.24877	0.113329	0.155735	87.42657	0.055597
9	17.18881	12.78451	0.112541	0.163033	86.88014	0.059769
10	17.96939	13.22991	0.112865	0.169002	86.42486	0.063365

## Variance Decomposition of Exchange Rate

Period	S.E.	Gold_Prices	Crude_Prices	Nifty_50	Inflation	Exchange_Rate
1	1.300008	1.218250	9.261701	5.664666	1.721437	82.13395
2	1.755091	9.346687	8.692947	6.177483	0.958514	74.82437
3	2.051342	10.90976	11.59937	6.488599	0.704529	70.29774
4	2.293993	9.064209	14.46680	6.998084	1.597051	67.87386
5	2.531229	7.565864	16.15828	7.339826	4.607964	64.32807
6	2.793361	6.388936	17.55812	7.380413	8.584959	60.08758
7	3.056855	5.561134	18.69156	7.304157	12.15559	56.28757
8	3.307430	4.979983	19.62159	7.202065	15.00002	53.19635
9	3.542998	4.541352	20.36556	7.105191	17.21260	50.77530
10	3.764549	4.202256	20.94475	7.022375	18.95263	48.87799

**Conclusion**

The study has empirically examined the determinants of factors affecting gold prices both in the short term and long term from 2009 to 2018. The study considered crude oil prices, Nifty 50, Inflation and Exchange rate as factors affecting gold prices. The data has been collected from gold prices from World Gold Council, Whole sale price index from Indian Ministry of Commerce & Industry, Rupee to US dollar exchange rate from investing.com, nifty 50 from NSE and crude oil prices from macrotrends.net. Vector error correction model was performed to find out the long term and short term association of crude oil prices, Nifty 50, Inflation and Exchange rate and gold prices. The results of the study showed that there is only long term association of the variables with gold prices. Further for understanding the effect of shocks of these variables on gold prices, impulse response was used and it was found that the effect of shocks of crude oil prices, Nifty 50, Inflation and Exchange rate to be permanent. While crude oil prices, Inflation and Exchange rate were positive, the effect of Nifty 50 shock on

Gold prices was seen negative. The variance decomposition analysis showed that 38.79% variance in gold prices is explained by inflation. This shows that inflation is the major influencing factor for gold prices. The findings are similar to the studies of Batten et al. 2014; Chua et al. 1982; Aye et al. 2016; Aye et al. 2017; Worthington et al. 2007; Ghosh, Dipak, et al. 2004. As the study sees inflation as a major positive contributing factor, gold can be used as a hedge against inflation.

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# Service Experience on Customer Emotions and Loyalty



**Dr. Rajesh Ittamalla**  
Assistant Professor, Marketing  
Woxsen School of Business  
Hyderabad  
Email: rajesh.ittamalla@woxsen.edu.in



**Prof. Venkata Srivalli Kunamneni**  
Associate Professor  
S.C.E.T., JNT University  
Hyderabad  
Email: srivallirajesh@gmail.com

## A b s t r a c t

This study is an attempt to examine the impact of customers' service experience on their emotions and loyalty in the context of brick-and-mortar retail shopping. It has conceptualized the retail service experience based on the theory of 'Service Experience as Theoretical Drama'(SETD) proposed by Grove, Fisk, and Bitner (1992). Based on the SETD theory, this study has defined the physical environment as 'theatre,' employees as 'actors,' and customers as 'audiences.' A total of 293 online data sample was used for the study. The results have shown that all the three dimensions of service experience (interaction with the physical environment, interaction with the that staff, and interaction with the customer) have a positive impact on customer emotions and loyalty. The study findings can benefit the retail managers in delivering memorable customer experiences.

**Keywords:** *Service Experience, Theoretical Drama, Emotions, Loyalty, Retail Stores.*

In recent decades, marketing research has been witnessing a critical change. This change is more evident in the retail industry. Various factors such as changing lifestyles, growing online shopping, and increased multichannel service consumption are the essential drivers of the change. Even though these changes are benefitting online retailers to some extent, are also challenging the existence of brick-and-mortar retailers. Previous studies in the retail context have mostly emphasized on service quality or functional aspects of the consumption (Ahrholdt, Gudergan, & Ringle, 2017; Sigit Parawansa, 2018; Yarimoglu, 2014). The emergence of experience economy suggests that the retailers should think beyond mere focusing on technical or functional aspects and create a memorable retail shopping experience (Kranzbühler, Kleijnen, Morgan, & Teerling, 2018).

Customer experience refers to “a mental journey that leaves the customer with memories of having performed something special, having learned something or just having fun.” Sundbo and Hagedorn-Rasmussen (2008). Nowadays, marketing scholars are emphasizing the need for transforming the retail stores to experience stores (Helmefalk & Hultén, 2017; Holmqvist & Lunardo, 2015). These experience stores should act as a retail theme park or theatre that creates memorable shopping experiences for customers (Benoit, Evanschitzky, & Teller, 2019).

Various studies have also examined the relationship between customer satisfaction and behavioural intentions (Deeppa & Ganapathi, 2018; Sigit Parawansa, 2018). However, some of the marketing studies have stated that all the satisfied customers are not loyal (T. O. Jones & W. Sasser, 1995). Satisfaction is a cognitive measure that does not include the emotional aspects of customer service consumption. Therefore this study has attempted to understand the comprehensive model of service experience, customer emotions, and loyalty. More specifically, the purpose of the study is to examine the impact of service experience dimensions on customer emotions and loyalty in the context of retail store shopping.

## Literature review

### Customer experience

Customer experience is “the internal and subjective response customers have to any direct or indirect contact with a company. Direct contact generally occurs in the course of purchase, use, and service and is usually initiated by the customer. Indirect contact most often involves

unplanned encounters with representatives of a company’s products, service or brands. It takes the form of word-of-mouth recommendations or criticisms, advertising, news reports, reviews, and so forth.” (Meyer & Schwager, 2007, p. 118). This experience “originates from a set of interactions between a customer and a product. This experience is strictly personal and implies the customer’s involvement at different levels (rational, emotional, sensorial, physical, and spiritual)” (Gentile, Spiller, & Noci, 2007, p. 397). Summarising these two definitions Verhoef et al. (2009) described that the customer experience is a holistic phenomenon that is composed of cognitive, affective, and behavioural components of the service consumption.

Various studies in the marketing literature have investigated the role of customer experience. For example, Pine and Gilmore (1998) stated that the effective management of education, entertainment, aesthetics, and escapism will ensure the customers’ experience. Similarly, Otto and Ritchie (1996) contended that subjective experiences such as hedonics, peace of mind, involvement, and recognition play a critical role in the overall tourism experience. Further, Brakus, Schmitt, and Zarantonello (2009) asserted that brand experience includes sense, feel, think, act, and related components. Gentile et al. (2007) stated that customer experience is the multidimensional construct that includes sensorial, emotional, cognitive, lifestyle, pragmatic, and relational components. More recently, Khan and Rahman (2017) examined hotel experiences of restaurant visitors. Their findings suggested that the hotel brand experience refers to the hotel location, hotel ambience, hotel staff skills, hotel media, and guest-to-guest experience.

This study has used Grove et al. (1992) model of ‘service experience as drama’ to investigate the retail experiences of customers. They have contended that the act of service experience is like a theoretical drama. In this theoretical drama, service staff are the actors, customers are the audience, and the physical environment is theatre. This study has conceptualized the brick-and-mortar retail service experience as a theoretical drama in which the physical environment of the retail store as theatre, retail service employees as actors, and customers as the audience.

### Interactions with the physical environment

The physical environment of service transaction plays a critical role in overall service evaluation. Services are inseparable. Hence, most of the service transactions take place in the service factory. Bitner (1992) defined the

physical environment as “a particular arrangement of facilities inside the service environment for a particular function.” In the brick and mortar retail store context, the physical environment includes the interior designs of the store, wall paints, products shelves design, signboards, lights, scents, temperature, music, etc. several studies have examined the role of service landscapes on consumption. For example, Garaus (2017) asserted that the lighting in the store had increased the customers’ intention to trail more products. Similarly, Helmfalk and Hultén (2017) investigated the role of scents and music in the service facility and found that they are the essential determinants of positive moods. A recent study by Benoit et al. (2019) suggested that attractive store designs positively influence retail store image intern positive word of mouth.

### **Interaction with staff**

Employees play a critical role in the process of service delivery. They are the champions of the firm’s success. Specifically, in the brick-and-mortar retail stores, front line executives’ role is critical (Huang & Gamble, 2015). Customers interact with front line employees for various reasons such as information seeking (Zhao, Yan, & Keh, 2018), product testing (Sebastian & Yammiyavar, 2019), and prices & discounts (Bowen, 2016). Such interactions will have a significant impact on service evaluations and satisfaction (Punjaisri & Wilson, 2017). For example, Chang (2016) asserted that employees are the first impression of the firm’s service performance. Similarly, Söderlund (2018) stated that service employees reduce the burden of customers’ during shopping and improves their overall experience. More importantly, service employees play a critical role in service recovery (Van Vaerenbergh & Orsingher, 2016). A recent study by Luo, Guchait, Lee, and Madera (2019) found that the employees’ deep commitment towards the job positively related to service recovery performance.

### **Interaction with customers**

Services are inseparable. Therefore, both the parties, service provider, and multiple customers, involved in the process of service delivery and consumption (Lovelock & Patterson, 2015). Therefore, another customer is inevitable in most of the service consumption settings. Another customer refers to “the customer who is present in service facility simultaneously with and who are unacquainted with a focal

customer” (Brocato, Voorhees, & Baker, 2012, p. 2). The behaviour of the other customer can influence the experience of the focal customer (Ittamalla & Srinivas Kumar, 2019). For example, smoking can create discomfort for the other customer. Similarly, a small help from another customer, such as showing the way to product shelves and sharing the information of a product can enhance the focal customer experience. In the retail context, most of the service transactions take place in the presence of multiple customers. Therefore, the simple clues like physical appearance (Kwon, Ha, & Im, 2016), dressing style (Albrecht, Walsh, Brach, Gremler, & van Herpen, 2017), and behaviours of the other customer (Collier, Barnes, Abney, & Pelletier, 2018) can have a significant role in retailing experience.

### **Customer emotions**

Customer emotions denote the feelings of customers such as happiness, sadness, excitement, etc., during the time of service consumption (Bagozzi, Gopinath, & Nyer, 1999). A wide range of literature is available on human emotions in the psychology literature (Al-Shawaf, Conroy-Beam, Asao, & Buss, 2016; S. Kim, Park, Lee, & Choi, 2016). However, in the marketing literature, very few studies have discussed the role of emotions during the customers’ service consumption (Magids, Zorfias, & Leemon, 2015; Menon & Dubé, 2000; Van Dolen, De Ruyter, & Lemmink, 2004). For example, S. Kim et al. (2016) explored customer emotions before and after shopping. Rychalski and Hudson (2017) examined the role of customer emotions on satisfaction. A recent study by Torres, Wei, Hua, and Chen (2019) examined customer emotions minute by minute. Their findings have revealed that the customer emotions aroused during the service consumption have played a critical role in their memory formation. Most of the marketing scholars have applied Mehrabian and Russell (1974) PAD model to understand consumer emotions. The PAD model refers to three elements of customer emotions viz., pleasure, arousal, and dominance. Pleasure refers to the feeling of happiness, joy, etc. Arousal denotes the feeling of excitement and challenges. Finally, dominance refers to the freedom of doing things during service consumption.

The physical environment is one of the critical factors that influence customer emotions. Specifically, the moods of the customers are much affected by the ambience of the service factory (Ali & Amin, 2014). For example, feel-good music

can enhance the positive feelings of the customer (Helmefalk & Hultén, 2017). Similarly, pleasant scents stimulate positive moods (Doucé & Janssens, 2013). In the context of brick-and-mortar retail stores, the physical environment plays a critical role in the formation of customer emotions. Lighting in the store (Das & Varshneya, 2017), colorful wall paints (Tantanatewin & Inkarojrit, 2018), product displays (Helmefalk & Hultén, 2017) can increase the overall satisfaction of the customers. Groeppel-Klein (2005) investigated the functioning of the human brain in the context of retail stores. Their study results have shown that customer emotions (pleasure, arousal, and dominance) were strongly related to the physical environment of the store. Therefore, based on the above theoretical arguments, the study has proposed the following hypothesis.

*H1: Customers' interaction with the physical environment of the retail store has a positive impact on their emotions.*

Customers' interactions with employees will have a significant impact on their emotions. Man is a social animal and has more emotional bonding with another human than any other object. Simple things like greeting or welcoming by the service person can create a tremendous emotional attachment with service brand (Adoni, Duby, Schwartz, & Shanmugam, 2015). Another study by Kaminakis, Karantinou, Koritos, and Gounaris (2019) found that a service employee's empathy towards customers has positively influenced the customer's delight. Besides, DeCelles, DeVoe, Rafaeli, and Agasi (2019) suggested that positive interactions with employees create emotional bonding with the brand. In the context of retail stores, front line executives play a critical role. Their behavior, timely response, and empathy can influence the emotions of customers during shopping (Zhao et al., 2018). Also, Das and Varshneya (2017) stated that simple clues like dressing style and eye contact of sales personnel could stimulate various moods of the customer. Therefore, based on the above discussions, the study has proposed the following hypothesis.

*H2: Customers' interaction with service employee has a positive impact on their emotions.*

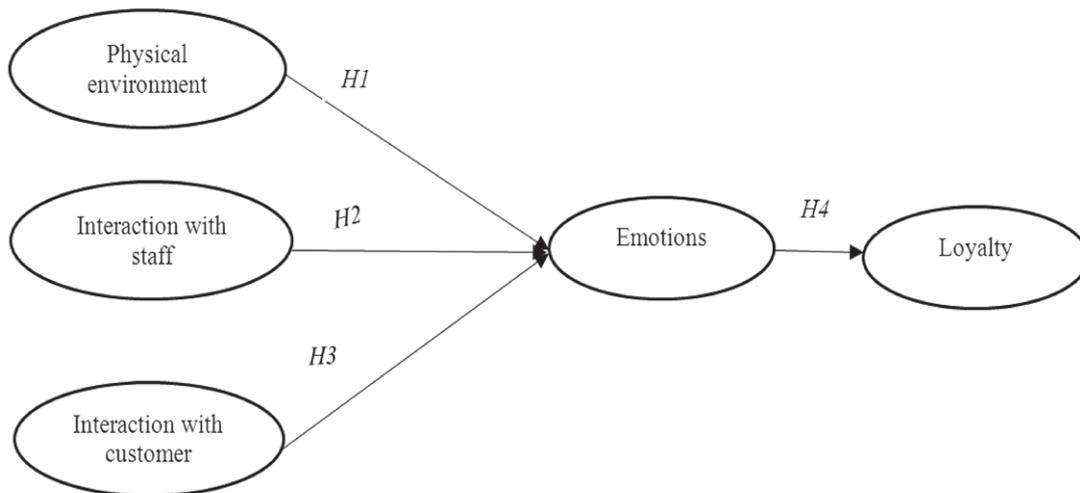
The research on the role of other customers in the service factory is one of the emerging areas of interest in consumer behaviour literature. A study by Altinay, Song, Madanoglu,

and Wang (2018) revealed that the behaviours of the other customer had influenced the focal customers' service experience. Another study by Ittamalla and Srinivas Kumar (2019) found that the physical appearance of the few co-passenger has created discomfort in the travel. Various studies have examined the role of other customers at service facility (Henkel, Boegershausen, Rafaeli, & Lemmink, 2017; Lee, McCarthy, & Ellis, 2017; Stein & Ramaseshan, 2016). Few studies have found that the mere presence of other customers can stimulate strong feelings such as anxiety, tension, fear, etc. (Voorhees et al., 2017). For example, standing close to customers can create anxiety (Das & Varshneya, 2017). Similarly, staring at other customers can generate fear or tension (Baker & Kim, 2018). Retail service consumption takes place in the presence of multiple customers. Therefore, simple clues like physical appearance, eye contact, or dressing style can stimulate emotions in the focal customers. Therefore, based on the above theoretical discussions, this study has proposed the following hypothesis.

*H3: Customer-customer interaction has a positive impact on customer emotions.*

## **Customer Loyalty**

Customer loyalty is one of the critical success factors of a business organization. Loyal customers play a crucial role in revenue generation. Customer loyalty refers to "a deeply held commitment to rebuy or re-patronize a preferred product or service consistently in the future, thereby causing same repetitive brand or the same brand set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour" (Oliver, 1999, p. 34). Loyal customers not only revisit the company but also recommends to other customers (Hill & Alexander, 2017). Previous studies have classified customer loyalty as attitudinal loyalty (Watson, Beck, Henderson, & Palmatier, 2015) and behavioural loyalty (Gounaris & Stathakopoulos, 2004). Attitudinal loyalty refers to the intentions of customers to revisit or recommend the services (Watson et al., 2015). Behavioral loyalty applies to the actual purchase of service (Labeaga, Lado, & Martos, 2007). This study has measured loyalty as the combination of both the loyalties viz., behavioural and attitudinal.



**Figure 1. Hypothesized structural model**

Customer loyalty has been studied as one of the critical outcomes of service quality and satisfaction (; ). However, service quality and satisfaction are cognitive measures (; ). Various scholars from psychology have found that human emotions play a vital role in their behavioural outcomes –(; ). Therefore, this study has attempted to investigate the role of emotional factors in determining customer loyalty. Some of the marketing scholars have explored and examined the role of emotions in consumer behavioural outcomes (; ; ). Their results have revealed that customers' emotions are strongly related to their revisit or recommendation intentions. Similarly, in the retail context, the positive emotions derived from interaction with the physical environment, service employee, or other customers will influence the future behaviours of the customer. Therefore, based on the above theoretical arguments, this study has proposed the following hypothesis.

*H4: Customer emotions have a positive impact on loyalty.*

### **Methodology**

The purpose of this study is to examine the impact of service experience dimensions on customer emotions and loyalty in the context of retail store shopping. This study has

conceptualized service experience based on Grove et al. (1992).

### **Measures**

This study has measured five variables. The service experience measured with three dimensions viz., interaction with the physical environment, interaction with staff, and interaction with customers. All the items for the three dimensions were taken and modified based on (C. H.-J. Wu & Liang, 2009). Customer emotions were measured with three items based on (Lin & Liang, 2011). Finally, customer loyalty was measured using three items suggested by Zeithaml, Berry, and Parasuraman (1996). All the items were rated on 7 points Likert scale format in which 7= strongly agree and 1= strongly disagree.

### **Participants' profile**

This study has collected data from brick-and-mortar retail customers in India. The data was collected through an online survey method. The questioner link was shared through email ids of the participants. A total of 800 questionnaires were sent. Out of which 321 were returned, and 293 were found to be usable for the analysis. Participants profile is shown in Table 1.

**Table 1. Participants profile (N=293)**

Demographic characteristics		Frequency	%
Gender	Male	165	56.3
	Female	128	43.7
	Total	293	100.0
Age (years)	15-24	44	15.0
	25-34	103	35.2
	35-44	95	32.4
	45 above	51	17.4
	Total	293	100.0
Educational background	High school	39	13.7
	Diploma	53	17.7
	Under graduation	105	35.8
	Post-graduation and above	96	32.8
	Total	293	100.0
Income (Monthly)	<20,000	39	13.7
	21000-40000	105	35.5
	41000-60000	85	29.0
	>61000	64	21.8
	Total	293	100.0
Companion	Family	86	29.4
	Friends	64	21.8
	Colleagues	53	18.1
	Alone	90	30.7
	Total	303	100.0

## Results

### *Data analysis*

The data was analyzed using SPSS and Amos. The study has followed the two-step method to analyse the data viz., Measurement model (CFA), and structural model (SEM) (Anderson & Gerbing, 1988). Before conducting CFA and SEM, the study has tested the common method bias.

### **Common method bias**

Most of the data collected from cross-sectional studies tend to have a common method bias. Therefore this study has used Harman's single-factor solution (Podsakoff,

MacKenzie, Lee, & Podsakoff, 2003) to test the common method bias. This study has performed principal component analysis by fixing all the items to group into one factor. The single factor solution has explained 28.6% variance, which is lesser than 50%. Hence, the study has concluded that the data used for the analysis was not suffered from common method bias.

### **Measurement model**

The purpose of the measurement model was to test the reliability and validity of the measures used for the study. Firstly, convergent validity was tested through factor

loadings, composite reliability (CR) values, and AVE values. All the factors loadings were found to be greater than .60. CR and Cronbach's alpha values of all the constructs were greater than .80 (Litwin, 1995), which indicates the

degree of representation of items to their constructs. Finally, AVE values were found to be greater than .50, which shows the average variance explained is higher than unexplained (error) variance (Fornell & Larcker, 1981).

**Table 2. Measurement model**

Constructs (Cronbach's alphas)	Standardized factor loadings	Composite reliabilities	AVE	SMC ( $R^2$ )
<b>Physical environment (.85)</b>		0.86	0.55	
The retail store architecture and the setting is impressive	0.73			0.54
The retail store's environment is clean	0.65			0.43
The retail store's lighting is appropriate	0.71			0.51
The retail store's temperature is comfortable	0.80			0.64
The colors within the retail store are complementary	0.78			0.61
<b>Interaction with staff (.88)</b>		0.88	0.66	
The staff have a good knowledge	0.82			0.68
The staff provide a thorough and satisfactory service	0.85			0.73
The staff are reliable	0.80			0.64
The staff are professional	0.77			0.60
<b>Interaction with customers (.85)</b>		0.85	0.66	
Other customers behave nicely	0.89			0.80
Other customers are not problematic	0.77			0.60
Other customers are not loud	0.77			0.59
<b>Emotions (.86)</b>		0.88	0.72	
Happy	0.86			0.74
Satisfied	0.83			0.69
Elated	0.84			0.71
<b>Loyalty (.86)</b>		0.86	0.67	
I will share the experience with others	0.73			0.54
I will recommend to others	0.83			0.69
I will revisit in the future	0.88			0.78

Notes:  $\chi^2/df=1.31$ ;  $GFI=.941$ ;  $AGFI=.919$ ;  $NFI=.945$ ;  $TLI=.983$ ;  $CFI=.986$ ;  $RMSEA=.033$

Discriminant validity was tested using intercorrelations between constructs. As shown in Table 3, the intercorrelations between constructs were lesser than the square root of AVE value (diagonal values) of each construct. This indicated that the items belong to one

construct differ with the items that belong to another construct (Fornell & Larcker, 1981). Besides, all the model fit indices values have exceeded the recommended criteria (Hair, 2010) -  $\chi^2/df = 1.31$ ;  $GFI=.941$ ;  $AGFI=.919$ ;  $NFI=.945$ ;  $TLI=.983$ ;  $CFI=.986$ ;  $RMSEA=.033$ .

**Table 3. Constructs Intercorrelations**

Measures	1	2	3	4	5	Mean	SD
1. Customer emotion	<b>0.848</b>					5.21	1.16
2. Physical environment	0.330	<b>0.741</b>				4.32	1.26
3. Interaction with staff	0.379	0.436	<b>0.816</b>			4.74	1.44
4. Interaction with customer	0.398	0.257	0.441	<b>0.816</b>		4.85	1.53
5. Loyalty	0.640	0.391	0.406	0.477	<b>0.820</b>	5.23	1.56

$\chi^2/Df=1.51$ ;  $GFI=.93$ ;  $AGFI=.90$ ;  $NFI=.93$ ;  $IFI=.97$ ;  $TLI=.97$ ;  $CFI=.97$ ;  $RMSEA=.042$

### Structural model

After the assessment of reliability and validity of the measurement constructs, the Structural Equation Modelling was conducted to test the causal paths among service experience dimensions (interaction with physical environment, interaction with staff, and interaction with customer), customer emotions, and loyalty. The standardized beta coefficient values and t values are presented in the Table 4. All the model fit indices were found to be great ( $\chi^2/df = 1.51$ ;  $GFI=.93$ ;  $AGFI=.90$ ;  $NFI=.93$ ;  $TLI= .97$ ;  $CFI=.97$ ;  $RMSEA=.042$ ) that indicates that the data fits to the proposed theoretical model. SEM results have shown that all the proposed causal paths found to be supported. Hypothesis 1: relationship between interaction

with physical environment and emotions was supported with  $\beta= .197$ ,  $t= 2.87$ ,  $p= .004$  and 14% of customer emotions were explained by physical environment ( $R^2 = 0.141$ ). Hypothesis 2: relationship between interaction with staff and emotions was supported with  $\beta= .183$ ,  $t= 2.48$ ,  $p= .01$  and 10% of customer emotions were explained by Interaction with staff ( $R^2 = 0.102$ ). Hypothesis 3: relationship between interaction with other customer and emotions was supported with  $\beta= .294$ ,  $t= 4.20$ ,  $p= .000$  and 21% of customer emotions were explained by interaction with other customer ( $R^2 = 0.213$ ). Finally, hypothesis 4: relationship between customer emotions and loyalty was supported with  $\beta= .662$ ,  $t= 10.22$ ,  $p= .000$  and 42% of customer loyalty was explained by customer emotions ( $R^2=0.421$ ).

**Table 4. Structural model: Standardized Estimates, t Values, and Fit Indices**

Paths	Standardizes estimates	t-value	Hypothesis
H1: Physical environment $\rightarrow$ Emotions	.197	2.87	Supported
H2: Interaction with staff $\rightarrow$ Emotions	.183	2.48	Supported
H3: Interaction with customer $\rightarrow$ Emotions	.294	4.20	Supported
H4: Customer Emotions $\rightarrow$ Loyalty	.662	10.22	Supported

$\chi^2/Df=1.51$ ;  $GFI=.93$ ;  $AGFI=.90$ ;  $NFI=.93$ ;  $IFI=.97$ ;  $TLI=.97$ ;  $CFI=.97$ ;  $RMSEA=.042$

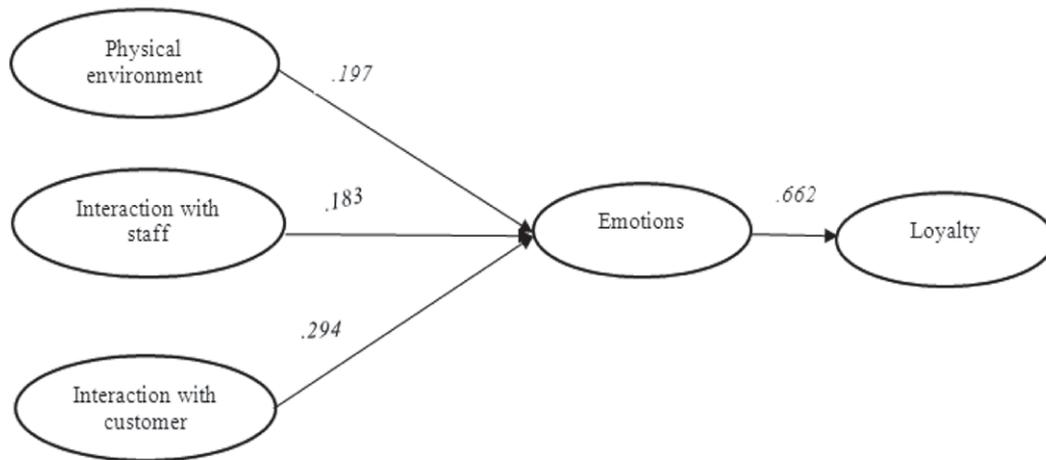
### Discussions and implications

The purpose of the study was to investigate the integrated relationship between service experience, emotion, and loyalty. The present study has investigated Grove et al. (1992) conceptualization of "service experience as drama" in brick-and-mortar retail context. The current study findings have revealed that the three-dimension structure of service experience (interaction with the physical environment, interaction with staff, and interaction with the customers) was a good fit in the context of retail shopping.

All three dimensions of service experience have a positive impact on customer emotions. Specifically, the impact of other customers found to be high on customer emotions. This finding contributed to the existing literature by providing empirical evidence. Most of the retail service consumption takes place in the presence of multiple customers. Therefore, retailers have to consider this as an essential issue. Moreover, other customer interactions are not completely under the control of the retail service provider. However, the customers expect that the retailers will monitor the behaviours of the customers.

Interactions with physical environment found to be the second important factor in the formation of customer emotions. The results are in support with Garaus (2017), which stated that customers' consumption patterns were shifting from functional aspects to experiential aspects.

Hence, retailers have to transform their stores from basic services to theme park kind of experiences. For example, multiplexes are offering retail services with gaming zones, cinema theatres, food stalls, etc.



**Figure 2. Structural model results**

Interaction with staff found to be the third important dimension of service experience that impacts customer emotions. The results are in support of previous findings (Söderlund, 2018; Voorhees et al., 2017). Today customers are more aware of product's/service information. As customers' interaction with staff is influencing the customers' emotions, retailers should engage not only skilled staff but also provide adequate training to enhance customers' shopping experience at each point of the journey.

Study results also found that customer emotions strongly determine loyalty. Previous studies have emphasized the role of customer satisfaction in determining customer loyalty (Ahrholdt et al., 2017; Triantafillidou & Siomkos, 2014). T. O. Jones and W. E. Sasser (1995) stated that most of the customers who were satisfied with service are not loyal. Satisfaction is a cognitive measure, and it does not include effective aspects of consumption (J.-H. Kim, 2010). Therefore, this study has attempted to examine the relationship between customer emotions and loyalty. The results have shown that customer emotions play a critical role in predicting customer loyalty. This finding contributes to the consumer behaviour literature by empirically examining the role of emotions in service consumption. The study results also suggest the retail managers focus on all the

dimensions of service experience (interaction with physical environment, interaction with staff, and interaction with customers) as they are positively influencing customer emotions and loyalty.

#### **Limitations and directions for future research**

Even though the findings of the study are beneficial to retailers, their generalizability could have some limitation. The study was carried out in the Indian context. As Indian culture is restrained, the results may vary with another sample that belongs to indulgence culture. This study has considered only three dimensions of service experience. Further studies can include other dimensions. Future studies also can focus on the subjective experiences of customers such as hedonics, peace of mind, meaningfulness, etc. This study has not considered negative emotions. Future studies can analyse positive and negative emotions and investigate service failure experiences.

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# Family-friendly Workplace Support: Organisational Commitment



**Dr. Himani Sharma**  
Assistant Professor  
Haryana School of Business (HSB)  
Guru Jambheshwar University of Science &  
Technology, Hisar  
Email: himanisharma.gju@gmail.com



**Varsha Yadav**  
Research Scholar  
Haryana School of Business  
Guru Jambheshwar University of  
Science & Technology, Hisar.  
Email: varshayadav.ubs@gmail.com

## A b s t r a c t

The paper examines the impact of family-friendly workplace support (flexible work arrangements and supervisor support) on organisational commitment. Total of 137 office-based employees working in different service industries from NCR were explored. Correlation and multiple regression analysis were applied to check the relationship and effect of the variables. Results showed that family-friendly workplace support has a significant and positive effect on organizational commitment. This research will help policymakers and managers to create a more supportive environment at the workplace.

**Keywords-** *Family-Friendly Practices, Flexible Work Arrangements, Work-Life Policies, Supervisor Support and Organizational Commitment*

Family and work act as two utmost key frontiers in a person's life (Valk and Srinivasan, 2011). Due to demographic changes and rising number of dual-earner couples, employees have to perform both family and work roles together which leads to the difficulty of performance in both roles (Ahmad *et al.* 2013). Performing work with rising usage of e-mail, mobile phones, portable computers, and other devices are making it difficult for workers to draw boundaries between work and family both psychologically and physically (Mesmer-Magnus and Viswesvaran, 2006). Non-fulfilment of either work or family-related obligations may lead to work-family conflict. (Anderson *et al.*, 2002; Aryee, 1992). Thus, it is necessary to have human resource policies in the current business environment which can accommodate the work-life requirements of a diverse workforce (Gunavathy, 2011). Work-life policies were framed and implemented to assist employees in managing their work and personal obligation simultaneously (Vuskan *et al.* 2012, Bagraimand Sader, 2007). Out of many HR policies, flexible work arrangements, in particular, has been promoted as a key to manage family and work responsibilities (Allen and Shockley, 2013). Employee's job attitude and experiences were strongly related to employees' perception regarding the supportiveness of the organization (Allen, 2001). Employees who work for long hours have the perception that their organization is less supportive of work-life integration (Valcour *et al.* 2011). Thus, resources such as supervisor support and flexible work arrangements form a greater perception of work-life support. When employees have more flexibility, their work satisfaction increases and they bring fewer personal concerns to their jobs (Altindag and Siller, 2014). Organizations having flexible career paths and policies attract all categories of individuals (Honeycutt and Rosen, 1997). This study explores the relationship between family-friendly policies, supervisor support and job outcomes such as organizational commitment.

### Significance of the study

Significance of family-friendly support is increasingly becoming important in the Indian context as well. Still, it is very disheartening that research related to family-friendly workplace support based in India is few. Most of the employers do not have policies such as flexible work arrangements and, even if they have, workers are reluctant to use them due to non-supportive organization culture and

lack of support from supervisor (Chou and Cheung, 2013). Though there are numerous researches done on organizational commitment in the past, still commitment is the most researchable and difficult concept in the management field. Therefore, commitment is kept as a dependent variable in this study. Family-friendly workplace support helps in building mutual trust between employer and employee. Thus, it welcomes more research to be performed on this topic.

### Variables

A family-supportive work environment comprises of supportive policies for family (such as flexible work arrangement) and supportive supervisors (Thomas and Ganster, 1995).

Flexible work arrangements include policies related to providing flexibility regarding the place or time like switching to part-time, flexibility in choosing arrival and departure time at the office, job sharing, compressed workweek, telecommuting and work from home, shift working etc. (Ferrer and Gagne, 2006).

Supervisors who are involved in helping the employees in meeting their work or family obligations and are sympathetic towards them is considered supportive (Allen, 2001). A supportive supervisor perceives that handling family responsibilities of his employees is authorised part of his job and has knowledge regarding company policies and handles work-family problems fairly and without favouritism (Galinsky and Stein, 1990).

Organisation commitment is a three-component model which consists of affective commitment, continuance commitment and normative commitment (Meyer and Allen, 1991).

### Review of Literature

#### *Supervisor Support and Organizational Commitment*

Supervisor support can encourage or discourage employees from using such policies. Benefits from formal initiatives can be improved when informal initiatives in the form of support are present so that employees can take the maximum out of it (Anderson *et al.* 2002). To support this, Thompson *et al.* (1999) explained that greater utilization of such benefits would be made due to the perception of a supportive work-family culture. Thus, the organisation would yield better results in forming a more family-supportive culture rather

than framing formal policies (Wayne *et al.* 2006). Supervisor Support will magnify perceived work-family enrichment (Wayne *et al.* 2006) which in turn, was found to be related to an increased level of affective commitment (Baral and Bhargava, 2010). Also, there had been a direct significant and positive effect of supervisor support on organizational commitment (Aryee *et al.* 1998). When a supervisor does not support the use of family-friendly policies then these policies will fail certainly to encourage organizational attachment (Grover and Crooker, 1995). There exists a positive association between child-care subsidy, maternity leave, child care leave and organizational commitment (Bae and Yang, 2017). Similarly, informal support such as supervisor support rather than formal support predicts greater enrichment which in turn increases affective commitment (Wayne *et al.* 2006). Results suggested that when employees interpret that their supervisors are challenging, inspiring and individually thoughtful as transformational leaders, there will be increased levels of organizational commitment (Wang and Walumbwa, 2007). Another study found that less work-family conflict and high affective commitment will be there if supportive work-family culture prevails in an organization (De Janasz *et al.* 2013).

H<sub>01</sub>: There is a significant and positive effect of supervisor support on organizational commitment.

#### *Flexible work arrangements and Organizational Commitment*

Flexible work arrangements were found to be significantly and positively related to organizational commitment (Choo *et al.* 2016). Directly benefited employees were found to be more psychologically attached to their organizations as compared to people who attach small values with such policies (Chiu and Ng, 1999). Work-family culture and availability of policies had a positive relationship with affective commitment (Thompson *et al.* 1999). Research studies also found that sabbaticals and flexible work schedules except telecommuting help in raising organizational commitment (Menke *et al.* 2018). Perception of the availability of flexible schedules is associated with greater job satisfaction and organizational commitment for people with greater family responsibilities (Scandura and Lankau, 1997). Reach to the family-friendly policy significantly effect high organizational commitment and lowers intention to quit (Grover and Crooker, 1995). Results

showed that in case of the commitment of nurses working in public hospital has been significantly and positively associated with flexible work arrangement and commitment of nurses in public hospitals of Kenya (Okemwa, 2016). A greater level of organizational commitment was found among people who had access to family-friendly policies at their workplaces (Grover and Crooker, 1995).

H<sub>02</sub>: There is a significant and positive effect of flexible work arrangement on organizational commitment.

H<sub>03</sub>: There is a significant and positive effect of Family-friendly workplace support (flexible work arrangement and supervisor support) on organizational commitment.

### **Research Methodology**

#### *The sample*

For getting an overview of the demographic profile of the respondents, descriptive statistics were used (Table 1). Total of 320 employees was approached using a questionnaire, from which 182 questionnaires were received back. From 182 filled questionnaires, 45 were incomplete or incorrectly filled. Thus, 137 responses were kept for further analysis. The population of this study consisted of the employees working in the service sector in NCR. The sample comprised of 57.7% male, and 42.3% female employees. 10.9% of employees were working in the public sector and 89.1% were from the private sector. In terms of qualification, the sample contained 32.1% married, 66.4% unmarried, 0.7% divorced and 0.7% were separated employees. The sample consisted of 21.9% of employees having children and 78.1% people who did not have children. The sample had 28.5% employees having age under 25 years, 52.6% were having age between 26 to 30 years, 18.2% belong to the age group of 31 to 40 years and 0.7% employees from the age group of 41 years or above. 48.9% of the employees with experience up to three years, 33.6% of the employees had experience between three to six years, 10.9% had experience between six to ten years, 6.6% had experience above ten years. 30.7% of the employee were graduates, 64.7 % of the employee were postgraduates, 3.6 % of the employees were above P.G., 1.5% of the employees were having another type of qualification. Employees from different types of industries such as education, food and beverages, hospitality, banking and finance, construction, healthcare, automobile, IT, telecom etc. were included in the sample.

## The Instrument

Flexible work arrangements (independent variable) - Statements related to flexible arrangements were adapted from Clark (2001), Al-Kasasbeh, (2016), Kundu and Ghalawat, (2018). Cronbach  $\alpha$  which shows the internal consistency of the scale was 0.831 (Table-2) which shows that the instrument had good reliability. Five-point Likert scale was used where 1 means strongly disagree to 5 depicts strongly agree for measuring the items.

Supervisor Support (independent variable): Statements related to supervisor support were adapted from Anderson *et al.* (2002). Cronbach  $\alpha$  for the scale was 0.857. Five-point Likert scale ranging from 1 strongly disagree to 5 strongly agree was used for measuring the items.

Organizational Commitment (dependent variable): Statements related to organizational commitment were adapted from Mowday *et al.* (1979). Cronbach  $\alpha$  for the scale was 0.873 for organizational commitment. Collection of responses was performed using Five-point Likert scale ranging from 1 strongly disagree to 5 strongly agree.

Control Variables: Marital status, sector and qualification were treated as control variables. Coding for these were performed as follows: Marital status (1=married, 2=unmarried), Sector (1=Public, 2=Private), Qualification (1=Graduation, 2=Post Graduation, 3=Above P.G., 4=Others).

## Tools and Techniques

Initially descriptive statistic was used. Then, inferential statistics such as correlations and regression analysis were performed using SPSS software.

## Correlation Analysis

To check the existence of the relationship between the variables, the correlation analysis has been conducted (Table 3). Results show that gender and marital status have no significant effect on organization commitment. Supervisor support has a positively significant relationship with organization commitment ( $r = .250^{**}$ ,  $p < 0.01$ ). Also, flexible work arrangements have positive and significant association with organizational commitment ( $r = .320^{**}$ ,  $p < 0.01$ ). This table also represents mean and standard deviation.

## Regression Analysis

For the hypothesis testing of this study, multiple regression analysis was used. For hypothesis to be true, the independent variable (supervisor support and flexible work arrangement) must have a significant effect on the dependent variable. Results of regression analysis were shown in Table 4. Model1 uses supervisor support as an independent variable and organizational commitment as the dependent variable. Model 2 captures the effect of flexible work arrangements on organizational commitment. Model 3 captures the combined effect of family- friendly workplace support on organizational commitment.

Result of model 1 shows that significance value is .003 (see Table 4) which is less than 0.05 and hence this model is significant (F value is 8.998 and  $P = .003$ ). Also, we can conclude from the value of R square that 6.2% of all the variance in the organizational commitment can be explained by supervisor support. Also, table 4 shows Beta value equals to .211 is the slope for supervisor support, constant value 2.861 is y-intercept. To see whether or not the slope of supervisor support is significant, the significant value (which is .003) corresponding to the t value which is 3.000, was examined, Hence results are significant which provides enough evidence to accept hypothesis1 (see Ttable 5). Similarly, the ANOVA table of model 2 shows that the model is significant (p-value of .000 which is smaller than .05 and F value equals to 15.423). R square value tells that 10.3% of all variance in the organizational commitment can be explained through flexible work arrangements. Beta value is .234, the constant is 2.951 and its corresponding t value is 3.927. Flexible work arrangement has a significance value of .000 which shows that the result is significant and thus hypothesis 2 is accepted (see table 5). Results for model 3 shows that this model is also significant model due to the significance value of .000, F value = 18.956. R square value tells that 12.1% of all variance in the organizational commitment can be explained through family-friendly workplace support (when both supervisor support and flexible work arrangements taken together). Beta value is .321 and sig. value .000, which is considered significant. Hence hypothesis 3 is accepted (see Table 5).

## Discussion

This paper investigates the impact of family-friendly workplace support (flexible work arrangements and

supervisor support) on job outcome such as organizational commitment. Descriptive statistics, correlation analysis and regression analysis are computed on the data collected through the questionnaire survey data. Results of regression analysis shows that supervisor support has a positive and significant effect on organization commitment. Also, flexible work arrangement has a significant and positive effect on organization commitment. Results conclude that family-friendly workplace support has a positive and significant effect on organizational commitment. Results of this study resembles with Choo *et al.*, 2016; Scandura and Lankau, 1997; Okemwa, 2016 and Grover and Crooker, 1995. Results show that flexible work arrangement has a stronger effect on organizational commitment as compared to supervisor support.

### Implications and Future Research

The research will help managers in getting the required learning about the creation of a productive and supportive work environment to achieve higher performance from employees through increased organizational commitment. It will help the policymakers in framing policies that fit the needs of employees. This will further help in improving the quality of life and well-being of employees. More stakeholders are needed to be encouraged to participate in research related to the impact of family-friendly policies, to get a better insight into the effectiveness of such policies. However, an increasing number of studies found that employees benefit from work-life balance policies, but there is less empirical evidence in case of Indian organizations for putting money in such programs. This requires instant attention of scholars working in this area (Baral and Bhargava, 2011). Additional research is needed covering both male and female population to know whether more usage of family-friendly policies in an organization can lead to gender inequalities (Lippe *et al.*, (2019). A comparative study between the organizations offering family-friendly programs and the ones who do not have provision for such policies can be performed (Thompson *et al.*, 2004). Longitudinal research over a period of time can also be performed.

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**Table 1: Sample Characteristics**

Variables	Categories	Numbers	Percentage
1. Sector	Public	15	10.9
	Private	122	89.1
2. Type of company	MNC/Collaborate	89	65
	Indian	48	35
3. Work Experience	Upto 3 years	67	48.9
	Above 3 to 6 years	46	33.6
	Above 6 to 10 years	15	10.9
	Above 10 years	09	6.6
4. Qualification	Graduation	42	30.7
	Postgraduation	88	64.7
	Above PG	05	3.6
	Others	02	1.5
5. Gender	Male	79	57.7
	Female	58	42.3
6. Marital Status	Married	44	32.1
	Unmarried	91	66.4
	Divorced	01	0.7
	Separated	01	0.7
7. Children	Yes	30	21.9
	No	107	78.1
8. Age	Under 25 years	39	28.5
	26-30 years	72	52.6
	31-40 years	25	18.2
	41 or above	01	0.7
9. Industry	Education	10	7.3
	Food and beverage	05	3.6
	Hospitality	04	2.9
	Banking and Finance	42	30.7
	Construction	07	5.1
	Automobile	03	2.2
	Healthcare	07	5.1
	ITES and IT	22	16.1
	Telecom	01	0.7
Retail	08	5.8	
Others	28	20.4	

Source: Questionnaire Survey

**Table2: Reliability Analysis**

Variables alpha	No. of items	Cronbach's
Flexible work arrangement	8	.831
Supervisor support	6	.857
Organizational Commitment	15	.873

Source: Questionnaire Survey

**Table 3: Correlation Analysis**

Variables	No. of items	Mean	SD	1	2	3	4	5
1. Gender		1.42	.496	1				
2. Marital		1.71	.558	.025	1			
3. SS	6	3.6022	.708	.023	-.064	1		
4. FWA	8	2.869	.819	-.025	-.051	.916**	1	
5. Org Comm.	15	3.6229	.599	.035	.004	.250**	.320**	1

\*\*Correlation is significant at the 0.01 level (2-tailed)

\*Correlation is significant at the 0.05 level (2-tailed)

Source: Questionnaire Survey

Notes: FWA= Flexible work arrangement, SS= Supervisor support, Org Comm= Organizational commitment

**Table 4: Results of Multiple Regression Analysis**

Independent variable	Dependent variable (Organizational Commitment)		
	Model 1	Model 2	Model 3
Constant	2.861	2.951	2.601
Supervisor support	.211		
FWA		.234	
Overall FFWS			.321
R SQUARE	.062	.103	.121
Adjusted R2	.056	.096	.115
F statistic	8.998**	15.423**	18.956**
N	137	137	137

Notes: FWA= flexible work arrangements, FFWS= family-friendly workplace support,

\*p<0.05 level; \*\*p<0.01

Source: Questionnaire Survey

**Table 5: Depicts the acceptance of hypothesis along with their supportive justifications.**

Hypothesis	Decision	Justifications
H <sub>01</sub> : There is significant and positive effect of supervisor support on organizational commitment.	Accept	(Beta = .211, t-test = 3.000 Sig p=.003<0.01)
H <sub>01</sub> : There is significant and positive effect of flexible work arrangement on organizational commitment.	Accept	(Beta = .234, t-test = 3.927 Sig p=.000<0.01)
H <sub>02</sub> : There is significant and positive effect of family-friendly workplace support (Supervisor support and flexible work arrangement on organizational commitment.	Accept	(Beta = .321, t-test = 2.994 Sig p =.000< 0.01)

Source: Questionnaire Survey

# Mediating Role of Mindfulness: Positive Affect and Perceived Stress among Employees



**T. S. Sreekumar**  
Research Scholar  
Swami Vivekananda Yoga-  
Anusandhana Samsthana  
KG Nagar, Bangalore.  
Email: ts.sreekumar@gmail.com



**Dr. H. R. Nagendra**  
Chancellor  
Swami Vivekananda Yoga-  
Anusandhana Samsthana  
KG Nagar, Bangalore.  
Email: chancellor@svyasa.edu.in



**Dr. Judu V. Ilavarasu**  
Associate Professor  
Swami Vivekananda Yoga-  
Anusandhana Samsthana  
KG Nagar, Bangalore.  
Email: judu@svyasa.edu.in

## A b s t r a c t

Effect of a five-day residential yoga intervention and three months follow up after home practice, on 77 offshore employees of the Oil and Natural Gas Corporation, who are exposed to a high-risk working environment, was studied. Mindfulness, emotion regulation, affect, and stress were measured. Repeated measures ANOVA using linear mixed-effects model showed that all the variables had significantly influenced the perceived stress, except for emotion regulation. Mediation analysis revealed 51.4% mediating role of mindfulness between positive affect and perceived stress, suggesting yoga intervention can help to reduce stress, enhance mindfulness and psychological wellbeing of high-risk offshore employees.

**Keywords:** *Yoga, Stress, High-risk Job, Mindfulness, Emotion Regulation, Mediation*

**W**orkplace stress management and corporate stress management training programs are increasing across the globe to mitigate the ever-growing problem of occupational stress. Challenges involved in different work setups are varied, and employees face a variety of stressful situations. Certain occupations are inherently flagged to have a higher stressful atmosphere. More than a decade ago, high-risk occupations identified in a study conducted in Canada, health, sales and services, and trade (Marchand, 2007). Oil and Natural Gas Corporation (ONGC) is one such organization in India that involves certain jobs which belong to the high-risk category. Many of their employees work in shifts, at offshore locations, for days together away from family. Working offshore usually involves working at sites in the interior sea, far away from immediate land resources, maintaining high-risk operations with a high vigil. The nature of this working environment can pose a significant challenge to the psychological wellbeing of the employees working in such conditions. High stress, fear of danger, working away from family, etc., maybe some of the issues faced by these employees, which may impair the long-term productivity of the organization. Hence, not only identifying these issues but also to find a suitable solution becomes a priority.

In a survey study done in the UK on 200 offshore installation managers across 157 oil and gas installations representing 36 organizations showed that experience may not be a dominant factor in determining safety attitudes and behaviour, however, those managers who were less experienced and had directive style of leadership were found to overestimate their ability to have control over the situation (Dea & Flin, 2001). Recent works have focused on enhancing the safety aspects in an organization and thereby ensuring a good work ambience devoid of risks (Iqbal, Waheed, Haider, Tesfamariam, & Sadiq, 2019). Integrity management program was developed, and along with that practice of robust safety culture was encouraged. The integrity management program is a safety and loss management system. It is a set of policies, plans, schedules, and documentation of technical procedures. It was shown that these initiatives were helpful in managing workplace stress. Apart from enhancing safety it is also necessary to empower the employees to handle the stressful conditions. Cooper and Cartwright (1997) suggested a three tier strategy of stress management, the first to reduce the environmental workplace stress, then to enable the employees to handle stressful situations, and finally offering support to those who are experiencing stress events (Cooper & Cartwright, 1997).

Mindfulness based interventions are quite popular in workplace setups. In a meta analysis on workplace-based mindfulness interventions mindfulness-based interventions have shown to improve a number of physiological variables like the diurnal cortisol, HRV coherence, and some immunity markers. HPA axis is primarily influenced than the cardiovascular and SNS systems. It is important to note that more than the stress it is the emotional state which influences physiological reactivity (Heckenberg, Eddy, Kent, & Wright, 2018).

Cyclic meditation (CM) involves a sequence of mindful, slow movement along with maintaining certain yoga postures. The whole process involves consciously stimulating and relaxing the body, thereby achieving greater mind-body relaxation. Relaxation after an optimal amount of stimulation leads to greater subsequent relaxation, and helpful in reaching a state of mental equilibrium (Sarang & Telles, 2006). Cyclic meditation has different types of benefits, it reduces occupational stress (Vempati & Telles, 2000), reduces oxygen consumption (Sarang & Telles, 2006), improves psychological attributes like positive affect, self-esteem (Rabindra, Pradhan, & Nagendra, 2014), and general health (Maharana, Patra, Srinivasan, & Nagendra, 2014), reduces psychophysiological stress in managers (Kushwah, Srinivasan, Nagendra, & Ilavarasu, 2016).

The study is done in a group of high-risk employees of ONGC and gave them a mindfulness based yoga intervention and followed them after their residential course after 3 months. Various parameters like stress, mindfulness, emotion regulation, and affect were assessed. The mediating role of mindfulness in the relationship between positive affect and perceived stress were also tested.

## **Method**

### *Participants*

#### *Source of participants*

Participants were recruited from a large multinational public sector undertaking, Oil and Natural Gas Corporation (ONGC). Researches adopted a convenience sampling procedure. Program details were shared with offshore employees working at the various levels. Sample was drawn from offshore employees who voluntary opted for the program. All volunteers were included for the study and the sample had only male participants. Participants were sent in 4 consecutive batches, spanning across two months.

### **Sample size**

Seventy-seven offshore male employees of ONGC reported for the residential program located in a Yoga university at Bengaluru. The participants had a mean age of 42.67 years and ranging from 23 to 59 years and were given one-week residential yoga-based stress reduction program. Later they were asked to continue the practices at home and assessments were made at the baseline, after the residential program and following three months of home practice. Out of the seventy-seven participants who attended the full 5-day residential intervention, 61 participants provided follow-up data after three months.

### **Design**

Repeated measures design with a single group followed at three-time points, baseline, after the intervention, and after the follow up for three months.

### **Assessments**

They were assessed for mindfulness, emotion regulation, positive and negative affect, perceived stress, and demographic details. Mindfulness was measured using the Mindfulness Attention Awareness Scale (MAAS). MAAS is a 15-item scale, exclusively focuses on attention/awareness component of mindfulness construct (Brown & Ryan, 2003). The items are answered on a six-point scale (1 = Almost always; 6 = Almost never) on which higher scores are an indication of a higher trait mindfulness. The MAAS has been validated in various samples of students ( $\alpha=0.82$ ) and adults from the general community ( $\alpha=0.87$ ).

Emotion regulation was measured using the Emotion Regulation Questionnaire (ERQ). ERQ is designed to assess individual differences in the habitual use of two emotion regulation strategies: cognitive reappraisal and expressive suppression (Gross & John, 2003). The questions involve two distinct aspects of emotional life. One is on the emotional experience, of what you feel like inside. The other is on emotional expression, or how you show your emotions in the way you talk, gesture, or behave. ERQ has 10 items and is self-reported on a 7-point scale (1 = strongly disagree; 7 = strongly agree).

Positive affect and negative affect were measured using the positive affect and negative affect schedule (PANAS). PANAS consists of 20 items with two sub-scales and 10-items each measure to assess positive and negative effect. This is measured using a 5-point scale that ranges from very slightly (1) to extremely (5). It can show a relationship

between positive and negative affect with personality states and traits. The internal consistency, alpha reported for PANAS ranges from 0.86–0.90 for positive affect and from 0.84–0.87 for negative affect (Watson, 1988; Watson, Clark & Tellegen, 1988).

Perceived stress was measured using the Perceived Stress Scale (PSS). PSS is a widely used and well-validated 10-item scale that measures the degree to which the situations in one's life are appraised as stressful (Cohen, et al.; 1983). A higher score indicates a greater degree of perceived stress. 10-item version of PSS showed adequate internal consistency with a Cronbach's alpha of 0.67 (Leung et al., 2010).

The assessments were conducted at three different time points. The first assessment was done as the baseline on day 1 before the commencement of the intervention. The second assessment was done on day 5, on the last day of the residential intervention program, in a computer lab in supervised settings. The third assessment was done after three months of home practice, following the residential intervention. The same was administered online through a confidential google form link where the participants duly submitted their responses on the various questionnaires.

### **Intervention**

The residential program covered theory sessions that provided conceptual understanding of yoga, stress and its release, concept of executive growth and group dynamics. Theory sessions were followed up with practice sessions on cyclic meditation (CM) technique. Interaction sessions were conducted to address any participant queries. In addition, the program had components on yogasanas (postures), kriyas (cleansing techniques), pranayama (breathing practices) and bhajan (devotional sessions). Simple, healthy nutrient rich vegetarian diet was served.

Following the residential program, participants were expected to continue their daily practice of 35 minutes of cyclic meditation on their own for an additional period of 3 months. Standardized guided instructions in audio format were provided to facilitate the individual practice.

### **Ethical considerations**

A signed informed consent form was obtained from participants before the beginning of the study, after explaining in detail about the study. Their rights to withdraw from the study at any point in time were also explained. The current study was approved by the Institute Ethics committee before commencing the study.

## Results

### Data extraction and analysis

Data were extracted from the google. Data were cleaned by checking for outliers and missing values. Outliers were checked using boxplot and the Grubbs tests. There were no outliers, and all the values fell in the acceptable range. There were no missing data at T1 (baseline) and T2 (after residential intervention) however, after the home practice followup, there were 16 dropouts, and at T3 only 61 were left for analysis. Various assumption tests were checked for suitability of running parametric tests. Linear mixed-effects models for the analysis were used of repeated measures data. R statistical software for the analysis were used (R Development Core Team, 2018) and its packages were used for mixed effect modelling (Pinheiro et al., 2012).

### Baseline characteristics

The Table 1 contains the descriptive statistics of all the measured dependent variables across T1, T2, and T3. It was 77 at T1 and T2. Most of the variables have improved in scores after the residential intervention at T2 tend some of them tend to diminish after 3-months of follow-up. Table 2 shows the correlation between the measured variables at the baseline.

The internal consistencies, Cronbach's alpha for various questionnaires used in this study were: 0.89 for Mindfulness Attention Awareness Scale, 0.85 for Negative Affect of PANAS, 0.82 for Positive Affect of PANAS scale, 0.70 for perceived stress scale, 0.69 for ERQ Reappraisal, and 0.63 for ERQ Suppression.

**Table 1**  
Mean and standard deviations of dependent variables at baseline (T1) after residential intervention (T2), and after 3-months follow up (T3)

Variable	T1 (n=77)		T2 (n=77)		T3 (n=61)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1. Mindfulness	4.1	0.87	4.43	0.87	4.59	0.8
2. Reappraisal	27.83	6.36	30.61	6.47	28.93	6.9
3. Suppression	16.25	4.57	16.32	4.83	16.34	5.03
4. PosAffect	36.05	6.44	42.56	5.66	38.57	7.23
5. NegAffect	20.51	7.07	15.19	4.92	17.92	6.22
6. Perceived Stress	15.87	5.02	14.17	5.98	14.00	5.67

**Table 2**  
**Correlations with 95% confidence intervals of all the variables at baseline**

Variable	1	2	3	4	5
1. Mindfulness_T1					
2. Reappraisal_T1	.22 [-.01, .42]				
3. Suppression_T1	-.11 [-.32, .12]	.32** [.11, .51]			
4. PosAffect_T1	.28* [.06, .48]	.23* [.01, .44]	-.02 [-.25, .20]		
5. NegAffect_T1	-.43** [-.60, -.23]	-.26* [-.46, -.04]	-.04 [-.26, .18]	-.10 [-.31, .13]	
6. PSS_T1	-.49** [-.64, -.30]	.04 [-.19, .26]	.08 [-.14, .30]	-.25* [-.45, -.03]	.52** [.34, .67]

Note. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .

It shows that mindfulness has a significant positive correlation with positive affect, and a significant negative correlation with negative affect and perceived stress. Similarly, negative and positive affect were significantly correlated with perceived stress. Emotion regulation strategies were not found to be correlated with any of the variables.

#### **Linear Mixed-Effects Model**

Linear mixed-effects model was used as design had some missing values. One-way repeated measures analysis was performed, using linear mixed effect model with Time (T1, T2, and T3), the fixed factor and each of the measured variables as dependent variables one at a times. Subject was a random factor in all these models. The results are presented in table 3. Planned contrasts were done using the paired sample t-test to test if the means have changed at T2 and T3 compared to the baseline T1. 0.05 was fixed as the level of statistical significance. The mindfulness score has changed

significantly over three assessment points. The change after the residential program compared to baseline was significant,  $t(76) = 3.83, p < .001, d = 0.44$ , and the increase in the MAAS scores after the follow up compared to the baseline was also significant,  $t(60) = 4.24, p < .001, d = 0.54$ , where  $t$  is the  $t$ -statistic from paired samples  $t$ -test,  $p$  is the  $p$ -value of the statistic, and  $d$  is the Cohen's effect size. The Perceived Stress Scores (PSS) have reduced significantly after residential orientation compared to the baseline,  $t(76) = -3.50, p < .001, d = -0.40$ , and there was a decrease after the follow up compared to the baseline,  $t(60) = -1.83, p = .072, d = -0.23$ . The ERQ-Reappraisal scores have improved significantly after residential orientation compared to baseline,  $t(76) = 2.97, p = .004, d = 0.34$ , the increase after the follow up compared to the baseline was not significant,  $t(60) = 0.95, p = .347, d = 0.12$ , showing that the ERQ-Reappraisal scores have little regressed.

**Table 3: Repeated measures results using linear mixed effects model**

		Value	Std.Error	DF	t-value	p-value
Baseline	(Intercept)	4.34	0.08	138	51.98	< .001
Model 1	(Intercept)	4.10	0.10	136	42.50	< .001
MAAS	TIMemaasmean2	0.33	0.09	136	3.78	< .001
	TIMemaasmean3	0.45	0.09	136	4.78	< .001
Comparison of model Fit:					$\chi^2(2) = 24.30, p < .001$	
Baseline	(Intercept)	14.83	0.53	138	27.81	< .001
Model 2	(Intercept)	15.87	0.63	136	25.07	< .001
PSS	TIMepsstot2	-1.70	0.60	136	-2.82	0.006
	TIMepsstot3	-1.54	0.66	136	-2.36	0.020
Comparison of model Fit:					$\chi^2(2) = 9.22, p = .01$	
Baseline	(Intercept)	29.12	0.53	138	55.14	< .001
Model 2	(Intercept)	27.83	0.75	136	37.21	< .001
ERQ-Reappraisal	TIMereapptot2	2.78	0.93	136	2.98	0.003
	TIMereapptot3	1.02	1.00	136	1.02	0.311
Comparison of model Fit:					$\chi^2(2) = 8.90, p = .012$	
Baseline	(Intercept)	16.29	0.43	138	37.89	< .001
Model 2	(Intercept)	16.25	0.55	136	29.70	< .001
ERQ-Suppression	TIMesupptot2	0.08	0.60	136	0.13	0.896
	TIMesupptot3	0.07	0.64	136	0.11	0.916
Comparison of model Fit:					$\chi^2(2) = 0.02, p = .99$	
Baseline	(Intercept)	39.08	0.58	138	67.43	< .001
Model 2	(Intercept)	36.05	0.73	136	49.30	< .001
PANAS-Positive	TIMEposaffect2	6.51	0.78	136	8.31	< .001
	TIMEposaffect3	2.39	0.85	136	2.82	0.006
Comparison of model Fit:					$\chi^2(2) = 57.52, p < .001$	
Baseline	(Intercept)	17.89	0.49	138	36.30	< .001
Model 2	(Intercept)	20.51	0.70	136	29.40	< .001
PANAS-Negative	TIMenegaffect2	-5.31	0.87	136	-6.09	< .001
	TIMenegaffect3	-2.48	0.94	136	-2.65	0.009
Comparison of model Fit:					$\chi^2(2) = 33.34, p < .001$	

Note. MAAS= Mindfulness Attention Awareness Scale, ERQ= Emotion Regulation Questionnaire, PANAS= Positive and Negative Affect Scale

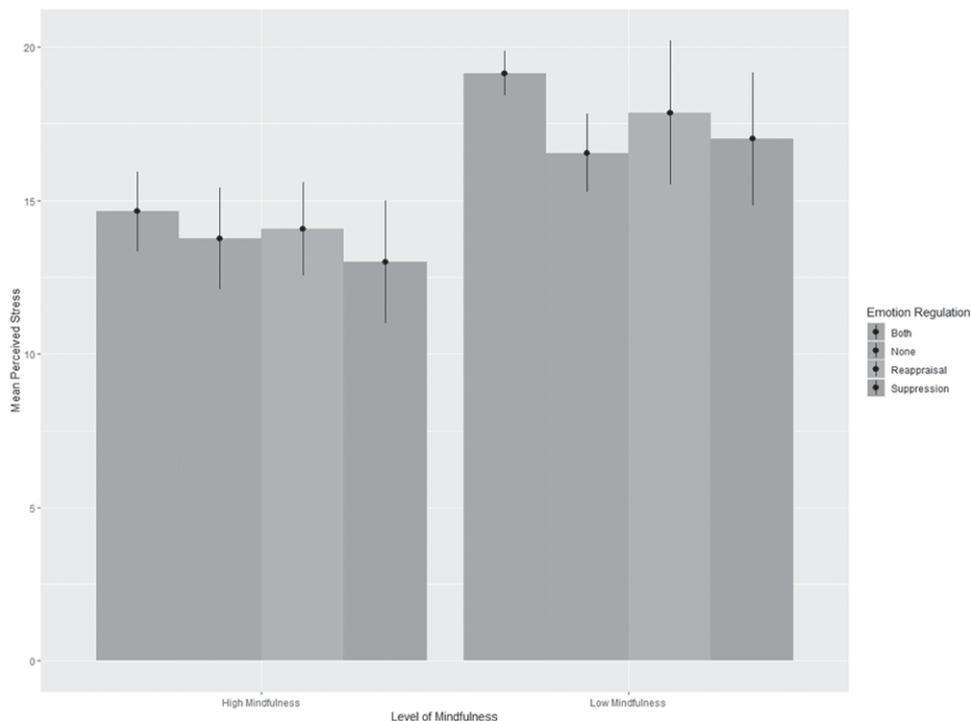
The ERQ-Suppression scores have increased after residential program compared to the baseline, but the change was not statistically significant,  $t(76) = 0.15, p = .881, d = 0.02$ , and the scores increased after the follow up compared to the baseline, but again statistically non-significant,  $t(60) = 0.32, p = .752, d = 0.04$ . The PANAS Positive Affect scores have increased significantly after residential orientation compared to the baseline  $t(76) = 8.92, p < .001, d = 1.02$ , and there was an increase after the follow up compared to the baseline which was not statistically significant,  $t(60) = 2.28, p = .026, d = 0.29$ . The Negative Affect scores decreased significantly after residential orientation compared to the baseline,  $t(76) = -5.56, p < .001, d = -0.65$ , and there was a non-significant decrease after the follow up compared to the baseline,  $t(60) = -1.89, p = .064, d = -0.24$ .

**Mediating effect of Mindfulness**

Researchers conducted a mediation analysis using the nonparametric bootstrap method with the mediation package of R statistical software (Tingley, Yamamoto, Hirose, Keele, & Imai, 2014). A simple mediation model

was used in which Perceived Stress was the dependent variable, Positive Affect was the independent variable, and Mindfulness was the mediator. The Average Direct Effect was not significant ( $b = -0.095, p = .312$ ), Average Causal Mediation Effect was significant ( $b = -0.100, p = .008$ ), Total Effect was also significant ( $b = -0.195, p = .036$ ). Proportion of mediation was found to be 51.4%.

Even though the emotion regulation did not have any effect on the perceived stress, it was observed that the perception of stress was quite different across the levels of mindfulness. Researches derived four categories using the standardized z scores of reappraisal and suppression domains of emotion regulation scale. Researchers considered participants with  $z > 0$  on both reappraisal and suppression to be using both the strategies, when reappraisal score was  $> 0$  and suppression score was  $< 0$  then it was considered as using only one strategy predominantly, i.e., reappraisal. Similarly, for suppression, the z score was  $< 0$  and suppression score was  $> 0$ . Finally, when both the domain scores were less than 0, then it was considered as following no specific strategy. Figure 1 depicts the difference in perceived stress across high and low mindfulness and categories of emotional regulation.



**Figure 1: Effect of Mindfulness and Emotion Regulation on Perceived Stress**

*The figure 1 shows that people with a lower level of mindfulness tend to have higher stress compared to people with a higher level of mindfulness.*

## Discussion

The study aimed to evaluate the efficacy of yoga-based intervention on mindfulness, perceived stress, emotion regulation, and positive and negative affect in employees involved in high-risk offshore jobs. It also to evaluate how far the effects are retained after three months of home practice. There was an improvement in all the variables after the 5-day residential interventional program. After three months of home practice, except for the variable ERQ-Suppression, which was not affected at any timepoints. Notably mindfulness showed statistically significant improvement at both the time points (after the residential program and follow up) compared to the baseline, and all other variables showed statistical significance only after the 5-day residential program and not after the 3 months followup, however, the trend of results remained same. Mediation analysis showed that mindfulness mediated 51.4% of the relationship between positive affect and perceived stress. In order to explore further the role of emotion regulation, sub analysis was done making four different styles of emotion regulation, i.e., people who use only reappraisal, only suppression, both of these, and none of these two strategies. As the results showed that people predominantly following suppression strategy to regulate their emotion tend to have least stress in high mindfulness group. This suggests that by enhancement of mindfulness, the tendency to use appraisal strategy indirectly increases and thereby, stress perception is reduced. Researchers consider mindfully being aware of suppression is akin to reappraisal, as any mindful process involves a substantial degree of appraisal. Can being mindfully aware of suppression be a better emotion regulation strategy than cognitive reappraisal? At this point of time it may be difficult to conclude due to the lower sample size of this sub-analysis, and need for larger reproducible results.

These results show that the 5-day yoga-based residential intervention was helpful in managing the stress levels of employees involved in high-risk jobs at offshore sites, however, self-practice at home appears to be a little less effective compared to the residential intervention. The exact ambience of a residential interventional setup cannot be reproduced at workplace or home, but still a supervised yoga session at the workplace or home may yield better results as there is a personal guide to regulate the yoga regimen. The overall adherence rate was found to be 86% during the home practice period, which suggests that probably due to confusion in practice, they might have shown poor results and not merely due to lack of interest. At any rate, having a

short workplace scheduled intervention and periodic residential interventional campus at least once or twice a year will help to sustain the positive benefits of this yoga based intervention for a longer duration.

Mindfulness based interventions were reported to be of high need and acceptance, and therefore highly feasible for primary care professionals, however, the study also reported a need for a shorter intervention and retention factor as another barrier. This suggests that customization of mindfulness based intervention, preferably with a shorter package is the expectation from workplace setups (Heckenberg et al., 2018). Mindfulness intervention has revealed to promote less paranoid cognition even in a choiceless hostile situation like workplace discrimination. Perceived discrimination in the workplace was considered to bring up more emotion exhaustion (Thoroughgood, Sawyer, & Webster, 2019). So, implementing a yoga based intervention will have a positive influence on productivity through enhancing mindfulness even in offshore working conditions of oil and natural gas companies.

Cyclic meditation (CM) involves a sequence of yoga postures done along with awareness. Quite often, meditation appears to abstract and to engage with the intangible mind appears to be a big challenge. In CM being aware of all the movements being performed induced a higher degree of mindfulness, and as the focus is on the tangible body movements which is not abstract, this method of practice can easily help individuals to develop mindfulness and thereby reduce the appraisal of stress.

In a study, mindfulness was found to reduce burnout. Applying job demand-resource model in which employees are said to undergo first emotional exhaustion, and then cynicism, and finally reduced professional efficacy, when the employees perceive work pressure superseding their available resources and inherent trains to manage them. Mindfulness has been shown to be an important component which cushions the impact of these three stages of burnout (Taylor & Millier, 2016). Another study that support the idea that mindfulness training must be integrated in a workspace considering the organizational framework (Rupprecht, Koole, Chaskalson, Tamdjidi, & West, 2019). Reasoned Action Approach (RAA) based analysis of an online mindfulness intervention reviewed various factors that support the implementation of online interventional programs (Laurie & Blandford, 2016).

Cooper and Cartwright (1997) have suggested a three-dimensional interventional strategy, which includes stress

reduction as the primary factor, stress management as the secondary factor, and remedial support as the tertiary factor (Cooper & Cartwright, 1997). Not only equipping employees how to reduce stress, but some researchers have opined that the nature of the stressful environment itself should be addressed in order to develop an overall good ambience for work. They have argued that focus should be centred on the workplace culture through proper management strategies rather than providing aids to employees to handle stress effectively. Their point questions the weak workplace management practices that mar the scope of creating a good work ambience (Tinline & Cooper, 2019). This may be partly true, but there are many organizational setups where high-risk operations are routine chore and workers are involved in such situations day in and day out. In such situations, even though a good management setup may be in place but augmenting with a good cope up strategies would go a long way to bringing up overall work satisfaction and organizational productivity. The ASSET model of workplace wellbeing suggests that workplace conditions influence the individual-level psychological wellbeing and productivity, and thereby it influences organizational outcome. Any weak links at workplace may detrimentally affect the employee wellbeing. A support system at workplace may cushion such an adverse situation, but that requires a highly committed management that recognizes and proactively act on the need for employee wellbeing at the workplace (Robertson & Cooper, 2011).

It is also important to understand why in spite of knowing the high-risk nature of work, people take up such jobs? Unlike high-risk jobs like combat and military where there is high existential threat an operational environment like oil and natural gas companies pose threat towards accidents. Maintaining daily chore without incurring any adverse events itself is a stressful proposition. In such work environments, financial prospect, utility benefits and job security maybe some of the motivating reasons to inspire people to take up such high-risk operational jobs. However, inability to meet the inevitable daily workplace stress may lead to long term stress and burnout, and for this a good yoga based intervention becomes very essential. According to Tinline and Smeed (2014), an intervention can be provided at three levels. First one at the workplace, where changes are brought in to make a difference in the work demand. At the second level, for better resilience an individual is trained to cope up with the stressful situations through various workplace interventions, and once the symptoms of stress and strain start to manifest at the third level, provide

treatment and rehabilitation to come out of the stressful situation. For an organization there must be customization of workplace intervention in order to perfectly suit to the need. Researchers have reported that flexible work arrangements in which an employee gets the freedom to flexibly choose their place and time of work, most often they work at home taking care of other family and social demands. These strategies are being used by eminent companies to enhance job satisfaction and to retain high potential human resources (Smith, Gilmer, & Stockdale, 2019). Flexible work arrangements may help reduce the stress in a demanding workplace but sometimes, such arrangements are not possible given the nature of demanding work life that of ONGC offshore workers.

In a qualitative review of mindfulness based training interventions for employees, it was reported that most of the studies used a pretest-post test design and not much with further follow-up. There was heterogeneity in program content, duration and frequency of intervention. A most important purpose of mindfulness based programs are conducted was stress reduction (Eby et al., 2019). In the study, a three-month follow up was alone and instructed the participants to practice regularly with suitable materials to aid in their daily practice. It clearly revealed that presence of a trained instructor was quite essential not only to motivate them for yoga practice but also as an external agent of authority whose presence could dispel any practice related doubts. Over a period this would strengthen their confidence to independently perform yoga practices.

Mindfulness need not always be useful for all workplace situations. There are instances where mindfulness could be counterproductive as well. In a study on understanding mindfulness and task motivation and performance, it was revealed that mindfulness reduced task motivation but performance was not affected (Hafenbrack & Vohs, 2018). Psychosocial risk audit has been developed to understand the stress and ill-health issues in oil and natural gas industries that has a further effect on organizational productivity. These indicators put in place with regular audits have been found to help us understand and manage organizational stress and health issues of employees (Bergh, Hinna, Leka, & Zwetsloot, 2015; Vestly Bergh, Hinna, Leka, & Jain, 2014). Factors like control, social support, work-home conciliation, sports and leisure were also shown to help in stress management (Gonzalo, 2016). In an organizational study evaluating the effort-reward imbalance

model and over commitment of employees on immune system, it was found that higher effort reward imbalance and over commitment leads to poor immune system. This theory proposed that an employee should feel the physical, emotional, and psychological efforts, should be rewarded. Otherwise will be a sort of dissatisfaction within and may lead to lower immunity. Similarly over commitment was suggested as a cognitive style according to which an employee is unable to detach from the work. That again adversely influences immunity (Eddy et al., 2016). In this study even though effort-reward imbalance appears less likely, over commitment may still remain as a potential factor which can influence poor health, and a yoga based intervention may really help in this aspect.

Sometimes institutional policies emphasizing implementation of such stress management interventions may attract higher program adherence. In a study on implementing a medical yoga program in a working setup, it was reported that getting approval of senior managerial staff was a barrier in effective implementation of the intervention (Axén & Follin, 2017). Recently, mode or delivery of mindfulness interventions have even gone online (Jayewardene, Lohrmann, Erbe, & Torabi, 2017). Such attempts should pave way to an easy implementation of mindfulness based interventions at workplace.

### Limitation and future scope

In this study researchers could not have a control group and all the participants were participating in the program as a part of their institution's wellbeing program, Future studies can be conducted in different work settings and also with a control group in order to enhance external validity. Different methods of incorporating this intervention into the daily or weekly activities of the organization can also be one potential area to focus in the future.

### Conclusion

Yoga intervention program is effective in addressing the stress of offshore employees working in oil and natural gas company by improving mindfulness, positive affect, and better emotion regulation strategy, but to sustain their effects of yoga after the supervised guidance, periodic interventional camps may be needed without which they may succumb to further relapse.

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# FIRO Based Understanding of Interpersonal Relationship: Orientation of the Employees



**Debjani Mitra**  
Senior Counsellor  
Tata institute of Social Sciences  
Mumbai, Maharashtra  
Email: debjani.mitra15@gmail.com



**Ishita Chatterjee**  
Assistant Professor  
Department of Applied Psychology  
University of Calcutta  
Kolkata - West Bengal  
E mail: ishm55@gmailcom

## A b s t r a c t

The study investigated the significant difference between various interpersonal relationship needs of the employees of service and manufacturing organizations; 437 employees were selected from 56 service and manufacturing organizations in and around Kolkata. Fundamental Interpersonal Relationship Orientation - Behavior (FIRO-B) scale developed by William Schutz in 1958, was administered to collect the data from the sample. For analysis of the data, descriptive statistics and one-way ANOVA and Brown Forsythe test were used. The findings revealed that significant differences existed between the employees of service organizations and the employees of manufacturing organizations with regards to Expressed Inclusion, Expressed Control, Total Expressed, Total Inclusion and Total Control

**Keywords:** Interpersonal Needs, Inclusion, Control, Service Organizations Manufacturing Organizations.

Interpersonal relationship orientation has been an integral part of the management in the present scenario (Patricia). Researchers have been embarking on the exploration of different domains of interpersonal relationship for quite some time and trying to build up its importance not only in terms of social skill enhancer or social exchange process between supervisor and subordinates but also with regard to managerial effectiveness and skill building specifically across service-manufacturing dichotomy (Di Marco; Ahmetogluet al.; Siegel & Schultz; Umashankar & Charithra). With the undeniable impact of globalization on our existing and upcoming workforce, exploration of employee relationship with each other and also with the management has become necessary to get a better understanding of the workplace dynamics about various policy formulations.

Globalization is a term that is most researched in the present context considering its impact on world technology, economic growth, employability, attrition rate as well as overall lifestyle dimension of youth population specifically (World Youth Report, UNESCO). The ever-changing work culture has been demanding our present and future work generation to be able to take risks while keeping up with the ongoing competitiveness encompassing various fields and striking a balance between their professional and personal commitments (Gratton). With global changes happening at different levels in terms of the economic, technological, psychological, emotional and professional domain of an individual, is making it a challenging task for them to strike an equilibrium in varied aspects of their life. Keeping up with these challenges has surely become a strenuous process at the cost of employees well-being (Idris et al.) considering professional identity to be one of the most essential part of one's self-concept (Hogg & Terry). Hence, in this exhausting process of growth, organizations are banking on their most important resource that is their employees to gain a sustainable competitive advantage over the other players in the professional domain (Jassim & Jaber). Emphasis has been given on the needs, values, expectations and well-being of the employees over the years. To have a more sustainable workforce (Önday) thus leading to its greater focus on building a more interconnected, enduring social exchange and communication process across hierarchy which has been a real test for both the leader and the subordinates presently. As Gratton had put it across that collaborative working is going to be the primary concern in the coming

years rather than work in isolation and, gradually we must have to grow to prioritize the quality of experience over the standard of living.

According to Stoetzer, interpersonal relationship at workplace builds on the pattern of communication among co-workers, managers and employees which Patricia (2015) felt is potential enough to influence workplace performance if only teamed with goal-directed, cooperative behaviours from the organizational management.

Pincus and Ansell had defined 'interpersonal' as a term "to convey a sense of primacy, a set of fundamental phenomena important for personality development, structuralization, function, and pathology. It is not a geographic indicator of locale: it is not meant to generate a dichotomy between what is inside the person and what is outside the person" (212). Interpersonal relationship first received its due attention when Sullivan emphasised its importance in personality development, considering the development to be entangled in the complex interpersonal relationships (Fiest & Fiest). From a Social Exchange theory perspective, the interpersonal relationship can be described as a series of interactions that are considered as interdependent and contingent on other people's actions (Blau). Social Exchange Theory is built on a few of the assumptions which hold interpersonal relationship as an integral part of maintaining a trusted, mutual, committed exchange between two parties. According to Cropanzano and Mitchell, rule of reciprocity and rule of negotiation govern the social exchange process along with a series of probable tangible and non-tangible exchanges that might occur between two potential parties (Foa & Foa). People work for multiple varied reasons and social exchange relationships are often being considered as important motivators for people to work as it fulfil few important human needs like the need for dominance and the need for nurturance (Wiggins & Trapnell). Wiggins and Pincus had explained an interpersonal relationship to be "complimentary if the behaviours of the two participants endorse and confirm each other's self-presentations with respect to both dominance and nurturance" (484). They also went ahead explaining how needs get complemented "on the basis of 'reciprocity' with regard to dominance (dominance pulls submission, submission pulls dominance) and 'correspondence' with regard to nurturance (hostility pulls hostility, friendliness pulls friendliness)" (484) in interpersonal circle. While

explaining the desirability of the social contact, Hill emphasised on four specific social rewards, “(a) Positive affect or stimulation associated with interpersonal closeness and communion, (b) attention or praise, (c) reduction of negative affect through social contact, and (d) social comparison” (1008).

However, in spite of being such an essential and integral part of management, and being the focus of discussion for the longest of time, interpersonal relationship orientation of the employees had been one of the least explored domains of organizational behavior and human resource management specifically in India (Natarajan et al.)

#### 1.4.2. Theories of Fundamental Interpersonal Relationship Orientation (FIRO).

The Theory of Fundamental Interpersonal Relationship Orientation proposed that interpersonal relationship is measured by the person's intention to interact with others (Schutz, 1958). As Schutz, the proponent of this theory emphasised the fact that a person's intention to interact with others depends on three basic needs of the concerned individual: the need for inclusion, control and affection which get expressed in two behavior directions- expressed and wanted behavior. The interaction between these needs and behaviors provide us with a matrix involving six dimensions- Expressed Inclusion, Wanted Inclusion, Expressed Control, Wanted Control, Expressed Affection and Wanted Affection. As defined by Schutz, 'Need for Inclusion' is the inner drive “to establish and maintain a satisfactory relationship with people with respect to interaction and association” (18). An individual can hold a desire within to be included in a group leading to “Wanted Inclusion” or might have a need to connect to people to avoid being isolated and lonely leading to “Expressed Inclusion”. Schutz had proposed 'Need for Control' as “the need to establish and maintain a satisfactory relationship with people with respect to control and power” (18). “Expressed Control” means the need of a person to demonstrate control, influence, organize and direct people whereas “Wanted Control” defines the extent to which an individual is permitting others to direct or influence him or her (Schutz). The 'Need for Affection' as proposed by Schutz is “the need to establish and maintain a satisfactory relationship with others with respect to love and affection” (20). How much an individual would make an effort to have intimate supportive

relationship with others, define “Expressed Affection” whereas how much they want others to initiate warm, supportive acts towards them, define “Wanted Affection”. The characteristics associated with three interpersonal needs, according to Schnell and Hammer is as follows:

- ◆ Inclusion- It involves distinction, recognition, attention, participation, involvement, association, acknowledgement, contact, belonging, and acceptance.
- ◆ Control- It involves power, authority, influence, responsibility seeking behavior, managerial skills, directive, leadership behavior, decisive, consistency, regulation.
- ◆ Affection: It involves supportive, sensitive, empathetic, open, affirming nature, consensus-oriented, closeness, faithfulness, and warmth.

Series of research studies were organized to explore the application of FIRO theory in various practical situations. In this context, a study by Li and Lai, demonstrated how interpersonal need orientation could be explored from three different levels: individual level (one person), family level (more than two persons) and group level (much more than two). Another study by Liddell and Slocum had proposed how interpersonally congenial groups make faster decisions registering fewer errors than random and discordant groups. FIRO theory found its ground in terms of its association with the leadership and managerial studies. Daft had defined management as the 'attainment of organizational goals in an effective and efficient manner through planning, organizing, leading, and controlling organizational resources' (4). However, the lens of Human Behavior School helps to perceive management to be majorly concerned with getting work done with and through the people (Koontz) which invariably emphasize on the importance of studying group dynamics and interpersonal relationships as a part of the socio- psychological relationship (Koontz). The draft had mentioned how managerial skills and abilities get reflected through the way a manager connect, coordinate, support, facilitate and motivate the employees while resolving the conflicts among team members. Leading the team or supervising them is often considered to be the two most important roles played by the managers (Cieślińska). Hence, Leader - Member exchange theories also analyse the relationship between an employee and his or her leader or supervisor as a kind of social exchange relationship (Wayne). It is being studied how the discriminatory

treatments by a supervisor to employees often lead them to discuss the unfairness of the treatment among team members, influencing the communication among them as well (Gaur & Ebrahimi).

### **Service- Manufacturing Dichotomy**

The basic division between Goods and Services according to Stevenson, is that “Goods are physical items that include raw materials, parts, subassemblies such as motherboards that go into computers, and final products such as cell phones and automobiles” whereas “Services are activities that provide some combination of time, location, form, or psychological value”. Manufacturing sector deals with production of tangible goods. Whereas service sector involves serving the customers, a greater degree of customer connect and also revolves mostly around the interaction between service and customers. In spite of being grossly different from each other, service and manufacturing units are getting merged in various organizations currently which follow unique operations management emphasising mostly on the process of the production of goods as well as services (Jiang). Over the years, investigations have been leading to a scenario when increased business service openness with regard to greater trades and Foreign Direct Investment impacting manufacturing industries like heavy machinery, motor vehicles, chemicals and electronic equipment to quite some extent (Francois & Woerz). The Indian service sector is expanded, starting from the unorganized sectors to the Information technology and financial sectors whereas Indian [product industry includes mining, manufacturing and electricity (Union Budget & Economic Survey). Indian economy witnesses the dominance of service sector after it reflects a sharp growth in its contribution to GDP starting from 33.5 percent in 1950-51 to a whopping 56.3 percent in 2011-12 whereas manufacturing sector starts showing a decline in growth from 2.7 percent in 2011-12 to 1.9 percent in 2012-13 (Union Budget & Economic Survey). Globally, the service sector has started transforming into a skill intensive sector encountering a high demand for technological superiority which eventually leading to a wage-based inequality (Buera & Kabosky; Ramaswamy & Agarwal) than what is there in manufacturing sector. Besides, Indian manufacturing and service sector do differ in terms of workplace allocation, informal employment and size of the enterprise, age-specific workforce distribution, wage distribution and assurance of social security (Ramaswamy & Agarwal). However, multiple research studies have been highlighting the contrast between these

two industries in terms of operational management, market presence, customer involvement, productivity etc. (Morris & Johnston; Evangelista; Miozzo & Soete; Amin; Guerrieri & Meliciani). On the contrary, multiple research initiatives are taking place investigating the probable transmission of different supply chain strategies from manufacturing sectors to service sector (Anderson & Morris; Sengupta et al.). And innovation has been registering a lot of interest considering the consistently blurred boundaries between services and manufacturing sector with regard to automation and implying various innovation strategies (Collier; Segarra-Blasco). According to Hughes and Woods, manufacturing and service sector do differ mostly within their own sectoral distribution rather than between themselves especially in the field like innovation.

### **Research Gap:**

Review of existing literature gives an overview of the application of FIRO theory across service and manufacturing dichotomy with regards to different variables like supervisor- subordinate lifestyle (Marco); predicting the leadership capabilities and managerial level of attainment (Ahmetoglu et al.); preferred social skills among U.S. auditors (Siegel & Schultz); and also in terms skill requirements of young professionals (Umashankar & Charitra). However, none of these research studies provides any detailed profile based understanding of the interpersonal orientation of the employees across the service-manufacturing dichotomous sector. Besides, interpersonal relationship orientation of the employees seems to be the least explored area of interest for the research scholars with regard to FIRO based interpretation in the Indian context (Manoharan & Suresh; Sayeed; Natarajan et al.). Hence, the research study was an attempt to connect the loose ends in the research studies in exploring the present variable from the FIRO perspective in the Indian context.

### **Objectives of the Study**

- (1) To determine the extent to which employees from service sector and employees from manufacturing sector differ each other with respect to their interpersonal relationship orientation.
- (2) Determine detailed Interpersonal Relationship Orientation profile of the employees the of the service sector and the employees of manufacturing sector organizations.

## Hypotheses

The research aimed at testing the following hypothesis:

H1: There is a significant difference between the employees belonging to the service sector organizations and the employees belonging to the manufacturing sector organizations in terms of Interpersonal Relationship Orientation [i.e., i. Individual cell scores (A. Expressed Inclusion, B. Expressed Control, C. Expressed Affection, D. Wanted Inclusion, E. Wanted Control, F. Wanted Affection), ii. Total Behavior score of the employees (A. Total Wanted, B. Total Expression), ii. Total Need score of the employees (A. Total Inclusion, B. Total Control, C. Total Affection), iii. Overall Need Score of the employees].

## Methodology

(I) Data Collection: The present research study was done to explore the significant differences of Interpersonal Relationship Orientation of the employees from service organizations and employees from manufacturing organizations in Kolkata, West Bengal. Kolkata was considered to the present research context due to the availability of the sample and role this city has been playing in terms of its performance in world economy and also in Indian GDP (Berube et al. in Global Metro Monitor Report; Bouchet et al. in Global Metro Monitor Report) However, It was an Ex-post facto research where the data was collected following the cross sectional survey research design considering its comparative approach to different sectors. The service and manufacturing organizations situated in Kolkata were selected following multistage stratified random sampling method after considering five zones of the city, Kolkata- North, South, East, West, and Central (As mentioned in Brief Industrial Profile of Kolkata District, West Bengal by MSME, Govt. of India). Informed consent was procured from all the employees before following it with FIRO- B questionnaire. It took 6 months (August 2015 to January 2016) to the completion of data collection procedure with one month of analysis following that.

(ii) Final Sample: The final sample was comprised of 235 employees from service organizations and 202 employees of manufacturing organizations leading to 437 employees from these two operational sectors. Only middle managers who had served their organizations for a minimum of 2 years were considered for the study. The age range of the

participants was decided to be between 25 years and 55 years. Only male employees were considered due to the lack of female participants in those organizations. Also, the criterion for the educational background was kept to the minimum level of graduation and above.

(iii) Measures Used: Interpersonal Relationship Orientation of the employees was measured with the FIRO- B scale developed by William Schutz in 1958. Schutz (1958) created this instrument to measure the interactions between two individuals for the research purpose and later modified it for general usage in larger settings. However, FIRO- B instrument has 54 items that provide feedback on six aspects of interpersonal behavior while element B provides the same information with twelve additional measures providing a single response scale with simplified wording and greater scale integrity. FIRO element B focuses on the behavior (i.e. of two types- Expressed and Wanted) in three interpersonal need areas: Inclusion, Control and Affection (Schutz, 1958). 12 types of scores can be generated in FIRO-B instrument: 1 : Overall Need Score, 2 : Total Behavior scores (Total Expressed, and Total Wanted), 3 : Total Need Scores (Total Inclusion, Total Control, and Total Affection), six individual cell scores expressed by eI (Expressed Inclusion), wI (Wanted Inclusion), eC (Expressed Control), wC (Wanted Control), eA (Expressed Affection), wA (Wanted Affection). This is a self-administered scale developed using Guttman Scaling Procedure and can be administered to individuals ranging from 14 years to 90 years. All of the scales hold good internal consistency reliability [eI = .87, wI = .96, eC = .93, wC = .86, eA = .86, wA = .85]. Informed consent was taken before proceeding with the scale administration with each participant. The data were analysed using descriptive statistics and One Way Analysis of Variance (One way ANOVA) as inferential statistics.

However, Levene's Test of Homogeneity was considered to check the homogeneity of variance across different sample groups. In few cases, Levene's Test result did come significant proving those samples to not be homogeneous by nature. In those cases, Brown Forsythe Test was applied (as an alternative to One way ANOVA) as it is considered to be the most robust and reliable test to be followed when heteroscedasticity increases or when small deviations from homogeneity of variances occur in an otherwise balanced data (Mendes & Pala).

**Table 1**  
**Descriptive Statistics (Mean, Median, SD, Skewness, and Kurtosis) of 437 Employees of**  
**Different Organizations, Irrespective of their mode of operations (N = 437)**

	<b>Mean</b>	<b>SD</b>	<b>Skewness</b>	<b>Kurtosis</b>
<b>Wanted Inclusion</b>	1.01	1.592	1.771	2.718
<b>Wanted Control</b>	6.87	2.131	-1.042	0.461
<b>Wanted Affection</b>	1.47	1.512	1.003	0.632
<b>Expressed Inclusion</b>	2.43	1.754	0.420	-0.299
<b>Expressed Control</b>	3.65	2.168	0.643	-0.038
<b>Expressed Affection</b>	2.02	1.742	1.082	0.998
<b>Total Wanted</b>	9.32	3.417	0.506	0.627
<b>Total Expressed</b>	8.08	3.918	0.412	-0.060
<b>Total Inclusion</b>	3.37	2.671	1.079	1.532
<b>Total Control</b>	10.32	3.440	-0.029	0.024
<b>Total Affection</b>	3.36	2.543	0.598	-0.189
<b>ONS</b>	17.27	6.218	0.439	0.027

**Table 2**  
**Results of Levene's Test of Equality of Error Variances as per all the variables**

	<b>Levene's statistics</b>	<b>Significant/ Not significant</b>	<b>Which test to be applied</b>
<b>Wanted Inclusion</b>	0.254	Non sig.	One way ANOVA
<b>Wanted Control</b>	0.000	Sig.	Brown- Forsythe
<b>Wanted Affection</b>	0.010	Sig.	Brown- Forsythe
<b>Expressed Inclusion</b>	0.977	Non sig.	One way ANOVA
<b>Expressed Control</b>	0.167	Non sig.	One way ANOVA
<b>Expressed Affection</b>	0.438	Non sig.	One way ANOVA
<b>Total Wanted</b>	0.004	Sig.	Brown- Forsythe
<b>Total Expressed</b>	0.216	Non sig.	One way ANOVA
<b>Total Inclusion</b>	0.010	Sig.	Brown- Forsythe
<b>Total Control</b>	0.289	Non sig.	One way ANOVA
<b>Total Affection</b>	0.261	Non sig.	One way ANOVA
<b>ONS</b>	0.002	Sig.	Brown- Forsythe

**Table 3**  
**Results of Brown- Forsythe Test**

	<b>Mode of operations</b>	<b>Mean</b>	<b>SD</b>	<b>Statistics</b>	<b>Sig.</b>
<b>Wanted Control</b>	<b>Service</b>	6.78	1.870	0.982	0.322
	<b>Manufacturing</b>	6.99	2.399		
<b>Wanted Affection</b>	<b>Service</b>	1.37	1.400	2.132	0.145
	<b>Manufacturing</b>	1.58	1.629		
<b>Total Wanted</b>	<b>Service</b>	9.21	3.094	0.510	0.476
	<b>Manufacturing</b>	9.45	3.763		
<b>Total Inclusion</b>	<b>Service</b>	3.66	2.811	6.053	0.014**
	<b>Manufacturing</b>	3.03	2.462		
<b>ONS</b>	<b>Service</b>	17.57	5.652	1.086	0.298
	<b>Manufacturing</b>	16.94	6.816		

\* $p < 0.05$ , \*\* $p < 0.01$

**Table 4**  
**Results of One way ANOVA**

	<b>Mode of operations</b>	<b>Mean</b>	<b>SD</b>	<b>F</b>	<b>Sig.</b>
<b>Wanted Inclusion</b>	<b>Service</b>	1.06	1.569	0.650	0.420
	<b>Manufacturing</b>	0.94	1.620		
<b>Expressed Inclusion</b>	<b>Service</b>	2.63	1.769	6.961	0.009**
	<b>Manufacturing</b>	2.19	1.710		
<b>Expressed Control</b>	<b>Service</b>	3.95	2.242	10.472	0.001**
	<b>Manufacturing</b>	3.29	2.026		
<b>Expressed Affection</b>	<b>Service</b>	1.93	1.642	1.186	0.277
	<b>Manufacturing</b>	2.11	1.851		
<b>Total Expressed</b>	<b>Service</b>	8.51	3.776	5.958	0.015*
	<b>Manufacturing</b>	7.59	4.030		
<b>Total Control</b>	<b>Service</b>	10.65	3.364	4.551	0.033*
	<b>Manufacturing</b>	9.95	3.497		
<b>Total Affection</b>	<b>Service</b>	3.30	2.513	0.299	0.585
	<b>Manufacturing</b>	3.44	2.582		

\* $p < 0.05$ , \*\* $p < 0.01$

**Table 5**  
**Interpretations of the FIRO- B scores of the employees**  
**of service sector organizations and the employees of manufacturing sector organizations**

	<b>Mode of operations</b>	<b>Mean</b>	<b>Interpretation of the scores</b>
<b>Expressed Inclusion</b>	<b>Service</b>	2.63	<b>Medium</b>
	<b>Manufacturing</b>	2.19	<b>Medium</b>
<b>Expressed Control</b>	<b>Service</b>	3.95	<b>Medium</b>
	<b>Manufacturing</b>	3.29	<b>Medium</b>
<b>Expressed Affection</b>	<b>Service</b>	1.93	<b>Low</b>
	<b>Manufacturing</b>	2.11	<b>Low</b>
<b>Total Expressed</b>	<b>Service</b>	8.51	<b>Medium</b>
	<b>Manufacturing</b>	7.59	<b>Medium</b>
<b>Wanted Inclusion</b>	<b>Service</b>	1.06	<b>Low</b>
	<b>Manufacturing</b>	0.94	<b>Low</b>
<b>Wanted Control</b>	<b>Service</b>	6.78	<b>High</b>
	<b>Manufacturing</b>	6.99	<b>High</b>
<b>Wanted Affection</b>	<b>Service</b>	1.37	<b>Low</b>
	<b>Manufacturing</b>	1.58	<b>Medium</b>
<b>Total Wanted</b>	<b>Service</b>	9.21	<b>Medium</b>
	<b>Manufacturing</b>	9.45	<b>Medium</b>
<b>Total Inclusion</b>	<b>Service</b>	3.66	<b>Low</b>
	<b>Manufacturing</b>	3.03	<b>Low</b>
<b>Total Control</b>	<b>Service</b>	10.65	<b>Medium</b>
	<b>Manufacturing</b>	9.95	<b>Medium</b>
<b>Total Affection</b>	<b>Service</b>	3.30	<b>Low</b>
	<b>Manufacturing</b>	3.44	<b>Low</b>
<b>ONS</b>	<b>Service</b>	17.57	<b>Medium Low</b>
	<b>Manufacturing</b>	16.94	<b>Medium Low</b>

## Analysis, Results, and Discussion

### *Descriptive Analysis:*

From the table 1, it can be seen that the sample distribution is highly skewed for variables like Wanted Inclusion ( $1.771 > 1$ ), Wanted Control ( $-1.042 > 1$ ), Wanted Affection ( $1.003 > 1$ ) and Total Inclusion ( $1.079 > 1$ ) as the skewness score is greater than 1 in each of these sample sets. For all other variables, value of skewness (sk) is lesser than 1. For Wanted Control, and Total Control, the sample is distributed in negatively skewed pattern whereas for all other variables the sample is positively skewed. The kurtosis value for normal distribution is designated to be 3 and values lesser than 3 would mean a distribution is platykurtic by nature and

greater than 3 means a distribution to be leptokurtic in nature (Pearson, 1905 as cited in Westfall, 2014). However, according to Westfall, rather than peakedness or shape of the curve, kurtosis value explains the trail extremity or the distribution of the outliers. A negative kurtosis means the outlier character of the distribution is less extreme than a normal distribution (Westfall). In the present research study, Expressed Inclusion, Expressed Control, Total Expressed and Total Affection hold negative kurtosis value which means they have lesser extreme outliers than normal distribution. However, kurtosis values in the present sample distribution reflect the platykurtic nature of the distribution as all of them are lesser than 3.

### **Inferential Analysis:**

The table 2 represents the results from the Levene's Test of Equality of Error variance. The homogeneity of the sample distribution was measured by applying Levene's Test of Equality of Error variance. The test came significant for the variables, Wanted Control, Wanted Affection, Total Wanted, Total Inclusion, and Overall Need Score. For the rest of the variables (i.e. Wanted Inclusion, Expressed Inclusion, Expressed Control, Expressed Affection, Total Expressed, Total Control, and Total Affection) criteria of homogeneity were maintained. Hence one way ANOVA was administered for those variables which fulfil the criteria of homogeneity and for the rest of the other variables Brown- Forsythe test was administered.

Table 3 and Table 4 demonstrated the results of Brown-Forsythe test and One way ANOVA with regard to the Interpersonal Relationship Orientation of the employees from two different modes of operations, i.e. service organizations and manufacturing organizations. The F values were significant for Expressed Inclusion, Expressed Control, Total Expressed, Total Inclusion, and Total Control. In all of these cases, p- values were lesser than 0.01 except for Total Expressed and total Control. It can also be seen that employees from service sector organizations scored higher than the employees of manufacturing sector organizations with regard to all of these variables. Hence, there is a significant difference between the employees of service sector organizations and the employees of manufacturing sector organizations in terms of Expressed Inclusion, Expressed Control, Total Expressed, Total Inclusion, and Total Control. No significant difference was observed for Wanted Inclusion, Wanted Control, Wanted Affection, Expressed Affection, Total Wanted, Total Affection and Overall Need Score.

### **Can an operational process be responsible for exerting control in social interaction?**

In the present research study, employees of the service sector have a higher need for Expression and also a greater need for Control than their manufacturing counterparts. Total Expression score indicates how much an individual initiate behavior towards others to get the desired outcome, and also it explains the extent to which one is comfortable in being proactive or taking actions accordingly (Schnell & Hammer). Service sector holds its most significant trait in its way of customer service. The very nature of the service

industry makes proactive customer service performance obvious for its customer satisfaction (Raub & Liao). There often occur a lot of unprecedented and accidental situations in the service industry outside existing service standards (Bitner et al.) which deserves a “self-starting, proactive behaviors by service employees” (Raub & Liao 5) and also a “forward thinking, anticipatory actions” (Raub & Liao 5) to keep a check on service delivery failure. Hence, it is quite natural for the employees of the service industry to hold a stronger need to initiate social interactions than their manufacturing counterparts in which employees are strictly instructed to follow the existing production management and not required to use their interpersonal skill to resolve any technical concerns.

On the other hand, according to a PwC Report (2013), manufacturing sector employees are mostly doubtful and concerned over their demands to be heard by the higher management and also unsure about the impact of the existing information flow in the management. This uncertainty and doubts about the management efficiency to attend employees' demands might have impacted their desire to initiate social interaction and also might have made them feel helpless leading to a lower need for control than their service counterparts. Need for control signifies the need of the employees for better career opportunities, accountabilities for the oversight of the organization, being a part in decision making process and also the need to be guided with definite standards and procedures (Schnell & Hammer). Service industry sales intangible products involving feelings and momentary experiences of the clients/ customers as well as the service providers (Sallaz). Hence, rather than a strategic absolute control mechanisms, providing greater autonomy to the workers might be necessary to customize their service offerings (Sallaz). Also, service work environment often stands for a decentralized, unpredictable and interpersonally stressful atmosphere due to its constant social exchange with the customers (Smith) which make it furthermore necessary for the workers to hold a certain sense of autonomy to manage unprecedented situations if anything occurs. With this higher need for autonomy among service, employees might have increased their need for control in the social interaction as well as influence them to initiate more actions to gain control over certain situational interactions as they demonstrated higher need for Expressed Control as well in the present research study.

### Why service sector employees seek greater inclusion?

Service sector employees in the present research study expressed a higher need for Inclusion that make them mostly satisfied with personal interaction, prestige and status, a stronghold in the organizational decision making process, and also a strong body of acknowledgement through incentives and rewards (Schnell & Hammer). The reason might be ingrained in the operational process service sector follows. It focuses on customer satisfaction leading to greater collective engagement and also a strong shared service climate (Salanova et al. 2005). Also service work environment is characterised by the greater involvement in the decision making process, safe physical work environment and also the ability to develop social relationships through the work (Bo & BengtOve). Besides, service sector involves more human interactions than mechanical processing which make their managers more able to be engaged with subordinates at the interpersonal level and also to be included more in workplace concerns than their manufacturing counterparts. All of these traits across service industry might have been responsible for the higher need for inclusion among its employees.

### Profiling of Interpersonal Relationship Orientation:

From the scores of the employees of service organizations and the scores of the employees of manufacturing organizations on FIRO- B scale, a basic profile of their Interpersonal Relationship Orientation can be observed.

Employees of service organizations were observed to score medium in the domain of Expressed Inclusion (2.63), Expressed Control (3.95), Total Expressed (8.51), Total Wanted (9.21), and Total Control (10.65) whereas, they had scored low on Expressed Affection (1.93), Wanted Inclusion (1.06), Wanted Affection (1.37), Total Inclusion (3.66) and Total Affection (3.30). They were observed scoring high on Wanted Control with a medium low score on Overall Need domain. The score of the employees of manufacturing organizations fall in the same range like their service counterparts for the domains like Expressed Inclusion (2.19), Expressed Control (3.29), Total Expressed (8.51), Total Wanted (9.45), and Total Control (9.95) where they scored medium; Expressed Affection (2.11), Wanted Inclusion (0.94), Total Inclusion (3.03) and Total Affection (3.44) where they had scored low; Wanted Control (6.99) where they had scored high, and medium low on Overall

Need domain. Only in the domain of Wanted affection, they scored medium (1.58) instead of low like their service counterparts. Based on Schnell and Hammer (1993), 'Introduction to the FIRO- B in organizations', the scores might be interpreted in the following way:

The strongest interpersonal need of the employees in both the service organizations and the manufacturing organizations was observed to be the need for Control (10.65 & 9.95 respectively) which means they feel most comfortable in this specific interpersonal domain. However the strength of this need was observed to be medium which means they might be involved in initiating interactions to ensure the control over a situation or elicit certain actions among team members so that it would fulfil their need for higher control. Whatever be the situations, employees of both of these organizations would be more focused on "understanding the order and structure of the situations: who is in charge, how decisions are made, rules and policies, and work priorities" (Schnell & Hammer). Employees would try to satisfy their needs in the area of control most frequently. On the other hand, the weakest interpersonal need was found out to be the need for Affection among the employees of service organizations and the need for Inclusion in case of the employees of manufacturing organizations. An individual's weakest area of interpersonal needs denotes the most probable area of social interaction where the person will be most willing to give up in different social situations. With its highest interpersonal need being Control and the lowest being Affection, employees of service organizations will choose to be more in control of the situation, or opting for better clarity, direction and structure over any opportunity to get close and personal with people in the work settings. On the other hand, Control being the highest and the Inclusion being the lowest interpersonal need, employees of manufacturing organization will prefer to be more in charge of any task and being involved in a situation characterised by rigorous planning, structure, regulations, decision making procedures in exchange of task demanding them to be involved with team members and building on their enthusiasm, self-esteem or motivation.

Control being the most dominant interpersonal need across service and manufacturing sector in the present study. The employees can be said to be more satisfied with the opportunities provided by the organizations in terms of oversight responsibilities, and being able to contribute to an

impactful decision making process, and/ or being a part of the implementation of formal standards and operating procedures (Schnell & Hammer). With a high need for Wanted Control and a moderate need for Expressed Control, it can be said that employees of both service and manufacturing organizations will be most inclined to work in a well-defined structured situations with a clear instructions and goal settings. Whereas there might come certain situations when they would also like to be in charge of that specific task rather than following others' instructions. And as per the results of the inferential statistics in the present study, employees of service organizations would like to be in charge of different tasks or situations more than their manufacturing counterparts. Also a high need for Wanted Control will make them asking for precise instruction, and clarification, also permission and help when needed, they would also be like to defer from the opinions of their fellow colleagues and raising issues for others to consider (Schnell & Hammer).

With low strength of both Expressed Affection and Wanted Affection, employees of service organizations would find it difficult to make an effort to get close to fellow team members, expressing personal feelings or building on trustworthy or supportive relationship with others. They would also feel inhibited in accepting people's appreciations of their efforts and to let others come close to them, or to listen to others concerns (Schnell & Hammer). The employees of manufacturing organizations also showed a low strength in Expressed Affection and medium on Wanted affection. Considering employees of both service and manufacturing organizations were low on Expressed Affection, it can be said that they would find it difficult to reassure and support colleagues, extend their appreciations over the materialistic exchanges, face difficulties in exhibiting concerns over other people's life challenges, or being a confidant to them; also they might restrict themselves from sharing personal feelings and opinions. Being low on Wanted Affection might make it difficult for the employees of service organizations to be accommodating, flexible, open to others in terms of being a good listener. Whereas employees of manufacturing organizations (as they had medium strength on Wanted Affection) might overcome this inhibition in certain situations and allow themselves to be present when others need them and allow own selves to confide with others.

The employees of both service and manufacturing organizations had also scored low on the domain of Wanted Inclusion. They don't feel like belonging to larger teams and don't like to be noticed among people (Schnell & Hammer). Considering their unwillingness to be noticed in group, they would not prefer to wear distinct clothes, or decorate their workstations with personal belongings, also would prefer to stay away from high-profile projects or activities and might also show a non-confirming attitude in the organizations (Schnell & Hammer).

According to Schnell and Hammer, FIRO- B results of an individual can also be interpreted in terms of the impressions an individual might be creating on others or else the specific way they would prefer to perceive others. With low strength on Expressed Affection, Wanted Inclusion, and high strength on Wanted Control, employees of both service and manufacturing organizations might be perceived by others as "aloof, tentative, rational, business like", and "private, selective, low-profile" however at the same time, "demanding, dependent, responsive and critical" (12). They would also tend to perceive most of the group activities as wasteful and any specific invitations as obligatory due to their low need for Wanted Inclusion. They often are considered as "Individualist" as a team member who "is not an active team player, sees meetings as unnecessary or distracting, may work on other tasks or hold side conversations during meetings, may not follow through or cooperate with group decisions" (Schnell & Hammer 18). At the same time, due to their high need for Wanted Control, they might feel critical of any structuring frequently, would emphasise a lot on the standard procedure and would refrain from taking sole accountability of tasks. Hence, though they would like to be a part of the team so that their responsibility would be divided, they would be considered as an overly critical team member as "Questioner" who "Seeks orientation and clarification, is a constructive critic of the team and its members, may use questions to postpone closure or decision" (Schnell & Hammer 18). On the other hand being low on Wanted Affection, would make the employees of service organizations to be perceived as "distant, cautious, tough and intimidating" (12) and they might consider reassurances as superficial, considers personal questions as intrusive and emotions to be exhausting and distracting at the same time (Schnell & Hammer 12).

The overall interpersonal need score of the employees of both service and manufacturing organizations is 17.57 and 16.94 respectively, both of which fall in the medium- low category. The result reflects the importance of situational context as the determinant of the involvement with the other people in the workplace.

### Findings:

- i. Employees of service organizations showed a significantly greater need for Expression than their manufacturing counterparts. Proactive customer service and the demands of their job role might be held responsible for their greater need to initiate social interaction.
- ii. Employees of the Service sector holds a greater need for Inclusion and Control than the manufacturing sector. Autonomy as a part of their job role and the need to have a clearer goal and significant career growth may help service sector employees to exert control rather than being doubtful of their demands to be heard by the management- a significant fear across the manufacturing sector.
- iii. Employees do differ in terms of Expressed Inclusion and Expressed Control with service sector scoring significantly high in these domains
- iv. The Need for Control came out to be the strongest of all the other interpersonal needs for the employees of both service and manufacturing organizations which signifies the blurred division between these two methods of operations. It is a significant finding considering the initiation of automation and assimilation of product management in both the sector.

### Implications:

A motivated and well directed workforce is the key to the competitive advantage for any organizations. Knowing them better in terms of their needs, desires, expectations as well as the inhibitions and restriction might help the management in understanding the psyche of its employees for further pronouncement of different HR policies and training proposals. Not only this, the present research study might be considered important in understanding how specific organizational system prevailed across service and manufacturing sector, contributes to the build-up of an

employee's interpersonal needs in the workplace. It might guide the management not only in ensuring their level of satisfactions but also in socialization process for the new joiners if need assessment done at the time of the recruitment.

The research study also has effectively shown how interpersonal relationship orientation of the employees is not necessarily dependent on the organizational dichotomy. Rather it is showing how gradual thinning of the boundaries between manufacturing and service has been quite impactful in giving rise to the almost similar relationship orientation among employees from both the sector in the workplace. Further studies might give us an idea of what have been the moderating factors to align two different sectors in terms of Interpersonal relationship Orientation of the employees.

### Conclusion

If considered profile description, the interpersonal relationship orientation seems to be falling in almost similar categories for the employees of both service and manufacturing organizations. However, the variance analysis is reflecting quite a few instances where employees of service organizations hold significantly stronger position than their manufacturing counterparts in terms of Interpersonal relationship orientation. The employees of service organizations showed greater need for Control, Inclusion, Expressed Control and Expressed Inclusion. However, the increased autonomy that employees exercise in service organizations might be cited as a reason behind their increased sense of control along with the operational management strategy that these organizations follow as a process.

### Limitations of the Study and Scope for Further Research

Being a cross sectional survey research, the present study involved a good deal of time, energy and observation for a specific period of time. However, the longitudinal study might be a better alternative to have intensive research based on the evolution of concerned organizations in different socio political scenarios and its variations in relation to the present variable. Also, significant lesser representations of female employees make the present study gender specific where only male employees were included. It would be interesting to study the interpersonal relationship orientation across the gender spectrum to understand how gender and sexuality contribute to the Interpersonal Relationship

Orientation of the employees in the workplace. Besides, the inter sectional representation of service organization (like hospitality sector, education sector, IT sector etc.) is required to be explored as only the financial sector (Banking sector & Insurance sector) was analysed with regard to the present variable in this research study. Also, further research in this domain is always welcomed because of the dearth of research studies on FIRO- B analysis of Interpersonal Relationship Orientation of the employees in India.

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# Shared Identity: Development and Validation of a Scale



**Dr. Tanvi Paras Kothari**  
Assistant Professor  
Shri Jairambhai Patel Institute of  
Business Management  
NICM, Gandhinagar, Gujarat  
Email: tanvi.faldu@gmail.com



**Dr. Sameer Pingle**  
Associate Professor  
Institute of Management, Nirma University  
Ahmedabad, Gujarat.  
Email: sameer@nirmauni.ac.in

## A b s t r a c t

Shared identity is the main focus of team and group studies, where interaction among group members is the prime concern. Shared identity can also be a good measure for the couples for understanding their cognition, affection, behaviour, inclusion and perception. This study was the part of the larger study of a doctoral thesis. Shared identity scale was developed and validated using the collected data from dual career couples. In the initial study 19 items measure was developed. It was modified based on experts' suggestion from the psychological field. Data of 426 dual career couples were factor analysed, and five-factor structures (affective, cognitive, perceived similarities, behaviour and inclusion) were identified. Further factor structure was validated by confirmatory factor analysis and finally convergent and discriminate validity quantitative analysis. Theoretical and practical implications are also discussed.

**Keywords:** Dual Career Couples, Shared Identity, Affective, Cognitive, Perceived Similarities, Behaviour, Inclusion

In India, for centuries traditional system of joint families have been followed. With the advent of industrialization, globalization, modernization and urbanization have changed the traditional family system. Besides, that changes might be due to by chance (death, migration or separation) or by preference. It has given rise to multiple family systems, such as nuclear families, single-parent families, and dual-career families (D'Cruz & Bharat, 2001). These changes are due to some push and pull factors. Push factors, such as growing cost of living and inflation forced the families to increase the income, while pull factors, such as women's career aspirations, the drive to be an independent person, brought about these changes in the family structure. Presence of professional women at the workplace is contributing to an increase in dual-career couples who try to manage work and no-work domains simultaneously (Saxena & Bhatnagar, 2009). These all factors contribute to changing the behavioural and interactional pattern and ties among and within the families. In such a scenario, role reversals cannot be ruled out, i.e. husbands would take charge of household activities and working wives would be at earning front (Arora, 2007). The familial functions and the organizations may undergo changes depending on who constitute the emergent family and what role each one has been ascribed to play (Gregory, 2009). Which is why, this interface between work and life domain is an area receiving a lot of attention from academicians, professionals, government, management, and media (Nord et al., 2002).

The dual-career couples, which at one time was considered as a rarity, is a lifestyle being accepted by more and more couples today. It is necessary to re-examine the identity development, work-life roles, and career development among dual-career couples, because the presence of two careers in one family results into more complex career development processes, especially in the families with children (Pixely & Moen, 2003). As career decisions made by one parent have an impact on the career and life of their spouse and children. They need to consult each other before making any career decision. A common practice adopted by most families is the withdrawal of women from workforces, with the men continuing in their respective workforces. This results in a long career break for women. All of these discussion points highlight that the social changes altered the work and family roles and career choices for men and women.

The structure of this article is as follows:

- ◆ The first section of this article presents a review of the relevant studies,
- ◆ The second section provides a detailed account of the methodology used and the statistical procedures adopted,
- ◆ The final section of the article presents the summary of the findings, conclusion and direction for future research.

This study focuses on dual-career couples and aims to develop a Shared Identity Scale.

## **Theoretical framework**

### **Identity Theory**

The Identity theory was originally formulated by Stryker (1968). It explains social behaviour in terms of the reciprocal relations between self and society (Stryker, 1968). Society was defined as complexity differentiation but nevertheless organized. Self, in identity theory, is viewed as a multifaceted social construct that emerged from one's role in society. Identity theorist defined role identities of individuals as multiple components of role identities. (Simon, 1992; Stryker, 1980 & Thoits, 1991).

According to identity theory, a role is a set of expectations prescribing behaviours that were considered appropriate by others (Simon, 1992). As identity is a multifaceted social construct, will be enacted in a situation based on the development of self-structure. The probability that one will invoke a specific identity across situations is known as Identity Saliency (Stryker, 1968).

In sociology, there are two different traditions in the study of the conception of self.

### **The Iowa School**

It is known as structural interactionist perspective. Identity theorists of this school, view roles as connecting people to social context and studied the identity through the roles people play. Identities were viewed as internalized roles. In this perspective, self-concept was structured as a hierarchical organization of an individual's role identities. If one was more involved in the relationship of a particular role, the greater is one's commitment to that aspect of identity (Stryker, 1968; Stryker & Burke, 2000). In this view,

identities are self-meanings and that develop in the context of the meaning of roles and counter roles (Burke, 1980).

### ***The Chicago School***

It is also known as processual interactionist approach. Identity theorists of this perspective emphasized more on the ongoing process of negotiation of identity in a social context. They viewed action and interaction as interminate because of the unpredictable 'I' and the problem involved in aligning actions (Gecas, 1982).

The first view focuses on the linkages of social structures with identities and second on the internal processes of self-verification. Both views understand the self as partially a structure of multiple identities. Identities are linked to roles and behaviour through meanings. Persons occupying densely connected positions and holding related roles will have identities associated with that position and roles that are more salient.

### ***Interdependence Theory***

The Interdependence theory, originally developed by John Thibaut and Harold Kelley (1959). This theory has been extended, first by Kelly & Thibaut (1978) and by Kelly et al. (2003) as a comprehensive theory of social interaction.

It describes the ways in which the structure of an outcome shapes motivation and behaviour in dyads (Kelley, 1979; Kelley & Thibaut, 1978). It examines interactions between two people, both in terms of each person's needs, cognitions, and motives relative to each other and in terms of the context of the interaction (Thibault & Kelley, 1959).

Interdependence theory grew out of two previous classic theories - Exchange theory and Game theory. Both are innovative and important framework for understanding interpersonal relations and group dynamics. This theory uses two formal tools to represent the outcomes of interactions-matrices and transition lists (Kelley, 1984). One must consider (a) what situation they confront, (b) what we call person A's needs, thoughts, and motives for these interactions (c) person B's needs, thoughts, and motives concerning to these interactions.

These interactions resulted in outcomes which might be satisfying or frustrating important needs, such as security, belongingness, and exploration (Baumeister & Leary, 1997; Reis et al., 2000). Analysis of a person's possible behaviours

would affect each person's outcomes. One can discern the structure of a situation to the degree and type of interdependence, examining:

- (a) Actor control: the impact of each person's actions on his or her outcomes,
- (b) Partner control: the impact of each person's actions on the partner's outcomes,
- (c) Joint control: the impact of the partner's joint actions on each person's outcomes (Van Lange & Balliet, 2015).

In interdependence theory, situation structure matters because it is the interpersonal reality within which motives are activated, towards which cognition is oriented, and around which interaction unfolds. Interdependence structure has six dimensions, listed below:

1. Level of dependence: The degree to which an actor relies on an interaction partner, in that his or her outcomes are influenced by the partner's actions,
2. Mutuality of dependence: To whether two people are equally dependent on one another,
3. Basis of dependence: How partner influence each other's outcomes. The relative importance of partner verse joint control as a source of dependence,
4. Covariation of interests: Partner's outcomes correspond or conflict, whether partners' joint activities yield similarly gratifying outcomes. Covariation ranges from perfectly corresponding patterns (coordination) through mixed-motive patterns to perfectly conflicting patterns (zero-sum),
5. Temporal structure: It highlights dynamic and sequential processes. As a result of the interaction, certain subsequent behaviours, outcomes, or situations may be made available, and others may be eliminated,
6. Information availability: It is about certain and uncertain information:
  - a. Impact of actions of each on both partners' outcomes
  - b. The goals and motives are guiding each person's actions
  - c. The opportunities that will be made available as the consequences of the actions

## **Brief historical development of interdependence theory**

### ***Thibaut & Kelly (1959)***

They developed the theory based on using games as a conceptual tool and focused on the analysis of the dependence of power, rewards, costs, needs, and outcomes in exchange relations. They focused on social exchange analysis of interactions and relationships between individuals in dyads and small groups.

### ***Kelly & Thibaut (1978)***

They provided a comprehensive analysis of interaction in terms of four dimension: Degree of dependence, Mutuality of dependence, Correspondence of outcomes, and Basis of dependence. They also introduced the concept of transformation by formalizing interaction goals broader than immediate self-interest.

### ***Kelley et al. (2003)***

They provided the list of 21 basic interaction situations. They also extended the interaction dimension from four to six, which are Degree of dependence, Mutuality of dependence, Basis of dependence, Covariation of interest, Temporal structure, and Information availability.

Identity theory focuses on role identities. The role is external and identity is internal. The role is linked to social position and identity is internalized meanings and expectations associated with a role. From this perspective, social structure is made up of interconnecting positions and associated roles, each linked through the activities, resources, and meanings that are controlled mutually and sequentially (Stryker & Burke, 2000).

Thoits (1991) categorised identities into various types of role identities, such as social roles (father, wife, employee), social attributes (tall, Hispanic), stigmatizing characteristics (criminal, thieves), social biographical characteristics (retired army officer, widow) and social types (sports person, intellectual). In this study, the focus is on work and family roles, hence, Thoits's social roles were relevant. Burke & Stets (1999) presented evidence that when several persons interacting in a common situation mutually verify the identities held by each, their commitment to one another increases. Further, they begin to view themselves as a group that is, as a new social structure. Burke & Cast (1997) found that gender identities are highly stable, but are subject to change as a result of social psychological processes.

That occur in one's identity standard because of taking the role of another – one's spouse – in an effort to reduce conflicts and to lessen the continued discrepancies between perception and standard. Another reason for the change was more disruptive; it was caused by an altered social situation containing a persistent and dissident change in self-perception, the changes caused by the birth of a child.

Due to this, individuals became increasingly committed to the relationship. They came to think of their partners as part of the self and came to regard themselves as a part of a collective unit that includes the partner. Kegan (1982) proposes a series of levels of identity, an individual's shift from being highly dependent and self-focused, to being more autonomous, and perhaps later to being capable of interdependence. Increased commitment also resulted in the shift in nature of personal identity and self-representation, the individual was likely to develop a relatively couple oriented identity and develop a representation of the self-in-representation. This collective mental representation of self-in-representation is termed as 'cognitive interdependence' (Agnew et. al., 1998). Based on this, Agnew et. al. (1998) and Acitellie et. al. (1999) examined construct couple identity which defined the extent to which a person views oneself as part of a couple and to which it is considered an important part of the self.

## **Literature review**

### ***Dual Career Couples***

The family is defined as an ideal homogenous unit with a strong coping mechanism (Sonawat, 2001). Its members are bound by interpersonal relationships in a wider network of roles and social relations; it is considered a link between community and change (Tata Institute of Social Sciences, 1993). Desai (1994) defined family as a unit of two or more persons united by marriage, blood, adoption, or consensual union, in general consulting a single household, interacting and communicating with each other.

Dual-earner families were defined as those in which both husband and wife are simultaneously employed in full time paid jobs outside their home. The jobs may be professional or non-professional, and it may vary with respect to their social prestige. Still they were generally undertaken due to mounting economic pressure rather than choice alone (Bharat, 1995). Whereas in dual-career families women were in a professional, job requiring professional education

and high work commitment that is undertaken not merely due to economic necessity but also for personal fulfilment (Bharat, 1995).

The term 'dual-career couple' was first introduced in the late sixties by Rapoport and Rapoport (1969). It was the type of family structure in which both heads of the household - the husband and wife - pursue active careers and family lives. "A dual-earner couple can be defined as a couple in which both members earn income to support the family unit, whereas a dual-career couple emphasized that both partners were psychologically committed to their professions" (Harvey and Buckley, 1998) in which they have typically invested heavily as the main source of self-fulfilment (Bird and Schnurman-Crook, 2005).

### Shared identity

Shared Identity is the construct which was extensively studied among groups and teams. In the literature of group and team it has been considered the key factor that allows groups of individuals to act in their collective best interest, even in situations such as social dilemmas (Kollock, 1998). It has been understood to provide a common interpretive framework from which to understand and direct coordinated group behaviour (Postmes, 2003). Tajfel (1978) stated that forming into such groups is extremely common and can be triggered by many things: a sense of shared fate, personal similarities, shared experience, and even opportunities to communicate.

Various antecedents were studied in the literature which resulted in the formation of Shared Identity in the group. Antecedents such as communication, (Ellemers et al., 1999; Moore et al., 1999; Haslam, 2001; Hinds and Mortensen, 2005; Postmes et al., 2005; Swaab et al., 2007, 2008; Koudenburg et al., 2013), perceived similarities (Billing and Tajfel, 1973; Tajfel, 1978), social interactions (Gaertner et al., 2006), individual distinctiveness (Jans et al., 2011). The high quality of communication can lead to the development of Shared Identity. This resulted in better negotiation among the group.

Hind and Mortensen (2005) found that spontaneous communication contributed to a Shared Identity, facilitated the creation of shared context and aids distributed team in identifying and resolving conflict. As it created a psychological tie between distance team members that helped them to bridge the physical and contextual distance

that otherwise separates them. The translation of Shared Identity from an abstract to a concrete form i.e., the value of critical and independent thought can be translated into specific action such as sharing of information (Postmes et al., 2005). They also indicated that communication between group members translate individual tendencies into socially shared cognition. It resulted in much better negotiation outcomes.

Salient social identity influenced the behaviour and cognition of individuals in the group (Turner et al., 1987). It led the group to behave in a way which was consistent with group norms and advances group interest (Ellemers et al., 1999). Hence, sharing of identity with a communication partner (in a group) would be associated with a more positive attitude towards one's partner. Moore et al. (1999), in their experimental research, found that social communication through email also developed a strong Shared Identity in a team. This shared team identity was important in the building of rapport within teams and was considered as an integral part of reaching consensus and thus reducing conflict and increase negotiation. Communication was considered as the vehicle, through which group members' interpersonal differences and commonalities, as well as interpersonal relations translated into concrete, Shared Identity (Swaab et al., 2008)

Shared Identity would also be associated with seeing one's partner as more similar to the self. Shared Identity was based in part on the perceived similarities between group members (Billing and Tajfel, 1973). Postmes et al., (2005) found that interpersonal attraction was the underlying reason why Shared Identity and shared cognition had such a strong effect on negotiation outcomes. When people made the comparison with relevant outgroup and identify highly with their in-group, they share common ideology and values in such situations (Swaab et al., 2008).

Jans et al. (2011) found that greater experience of independence and freedom were important to the efficacy of the community. The awareness of individual distinctiveness could strengthen the awareness of the unity of the group. Individual distinctiveness can be an antecedent of perceived entity and in turn identification (Castano, 2004). It indicated that the feeling of individual distinctiveness might strengthen one's perception of group unity and one's attachment to the group. The development of shared cognition follows the exchange of tasks relevant understanding and experience.

Shared Identity had a significant influence on a variety of decision-making settings such as collaborative decision making (Postmes et al., 2001), negotiations and dispute resolution (Swaab et al., 2007), and social dilemmas (Dawes et al., 1988). These different researches have concluded that group identification positively affects groups because it gave rise to prosocial behaviour, trust, and commitment (De Dreu and Weingart, 2003).

Above literature concludes that development of Shared Identity would result in reduce conflict, increase performance, collaboration, increase negotiation, and increase the unity among groups.

Budworth et al. (2008) initiated to conceptualize the Shared Identity of dual-career couples. They defined it as a partner involved in a common understanding of roles and corresponding behaviour. Miller and Caughlin (2013) defined it as Couple identity. Couple identity is a partner's sense of who they were as a unit, whereas Agnew et. al., (1998) in their study conceptualized couple identity as the extent to which a person views oneself as part of a couple and considers an important part of the self.

Budworth et al. (2008) based on the literature, outlined the process of developing the Shared Identity. They indicated that Shared Identity was based on interdependence theory, identity theory, and gender role ideology. Shared Identity developed through cognitive interdependence (Agnew et. al., 1998), the salience of role identities (Wiley, 1991), counter roles, and overlapping roles performed by each individual and accepted by both partners (Stets and Burke, 1996).

For this study, Shared Identity is defined as the couple's sense of unity and understanding for each other on different dimensions. Shared identity constructs not studied for the couples, hence there is no readymade scale is available to measure shared identity for couples.

### **Objective**

Based on the earlier studies mentioned in the literature review, the objective of this study is to develop a scale that measure, the shared identity as a construct. Further, the study aims to test the factorial validity of shared identity through exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA) so that it can be incorporated in future research.

### **Rationale of the Study**

One of the primary reasons for conducting this research is that extensive literature of group and the team and relevance of shared identity for group and team. High relevance of shared identity for group and team also create a possibility of presence of shared identity among couples also. This neither has been researched so rigorously nor has a comprehensively scale been presented to capture the shared identity construct. Moreover, there is a lack of such studies in the Indian context.

### **Methodology**

#### *Item generation*

The qualitative study is an ideal method for both developing a new construct and refining existing theories (Ragin et al., 2004). For item generation, group and team literature have been reviewed, and 20 items have been generated for measure shared identity. To refine the item further experts from the psychology domain have been interviewed. This process was defined as content validity or face validity. Content validity, also known as face validity, is the subjective validation of the scale i.e., systematic evaluation of the content of scale to represent the measurement task of the instrument with respect to the target population. It is subjective evaluations of the items by researcher or domain experts to verify that items are adequately designed to measure the intended construct.

For this study, to measure Shared Identity of dual-career couples, items were designed based on the previous literature and were examined by 12 experts from the psychology domain. They were approached and interviewed personally to confirm the validity of the scale. Based on experts' opinions some modifications were made to the final instrument to measure Shared Identity.

#### *Methods*

Participants: No proper list of dual-career couples have been available for survey purposes in India. Hence, to generate the sample for this study the Convenience sampling technique was used followed by the Snowball sampling technique, as one couple could be in contact with other couples as they share the same needs. Only those couples who fit into the particular criteria have been selected for the study. Sample characteristics were that both partners living together, both partner will be full time, salaried employees

in the organization and both partners are professionals in the area, such as medicine, management, law, journalism, public administration, teaching, architecture.

19 items were distributed to 440 dual-career couples in the state of Gujarat, India (880 individuals) out of which 413 dual-career couples (826 individuals) were retained for further analysis. This study was a small part of a larger study carried out for a doctoral thesis.

**Exploratory factor analysis (EFA)**

Factor analysis is a class of procedures primarily used for data reduction and summarization. In this process relationship among sets of many interrelated variables are examined and represented in terms of a few underlying

factors (Malhotra and Das, 2008). To proceed further, EFA was used for the 'Shared Identity' questionnaire.

An iterative EFA was undertaken using principal component analysis and orthogonal rotation using the varimax method. In order to explore the suitability of the data for factor analysis, the Kaiser-Meyer Olkin (KMO) measure of sample adequacy and Bartlett's test of sphericity was conducted. The KMO result was significant having a value of 0.839 which is above the threshold level of 0.6. Bartlett's test for sphericity ( $\chi^2= 1411.979$ ,  $df=171$ ) (table -1) suggests that correlation matrix of the scale items does not behave identically in the matrix i.e., few of the items are intercorrelated (Hair et al, 1998).

**Table 1: KMO and Bartlett's test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.839
Bartlett's Test of Sphericity	Approx. Chi-Square	1411.979
	df	171
	Sig.	.000

The number of factors retained after observing the eigenvalue, which was greater than 1 (Kaiser and Rice, 1974). Factor loading of 0.3 was considered to be significant on the basis of prior thumb rule loading criteria. In

comparison to that new rule of loading, criteria have been identified based on sample size, which is given in table 2 (Hair et al, 2006).

**Table 2: Guidelines for identifying Significant Factor Loading Based on Sample Size**

Factor Loading	Sample Size needed for Significance
.30	350
.35	250
.40	200
.45	150
.50	120
.55	100
.60	85
.65	70
.70	60
.75	50

The sample size for this study was 413 dual-career couples (826 individuals) hence, 0.30 loading criteria were considered to be significant.

Out of 19 items, all the items loaded more than 0.3 on the five factors. Overall the extracted items showed the factor loading ranging from 0.3 to 0.7. Total variance explained by

the five factors was 50.24 %. Table – 3 showed the rotated component matrix of the construct. It has been observed that item numbers 10 and 19 were cross loaded and the difference of cross loading was less than 1. Hence both the items were dropped from further analysis. Factor loading along with their labels are reported in the table – 4 along with their Cronbach alpha value.

**Table 3: Rotated component matrix**

	Component				
	1	2	3	4	5
Item 12	.703				
Item 18	.626				
Item 11	.544		.327		
Item 14	.544				
Item 13	.461				
Item 3		.776			
Item 2		.650			
Item 7		.580			
Item 5		.524		.357	
<b>Item 19</b>	<b>.370</b>	<b>.456</b>		<b>.304</b>	<b>-.336</b>
Item 8			.755		
Item 4			.607	.312	
Item 6		.374	.509		
Item 9		.302	.496		
Item 16				.670	
Item 17				.592	
Item 15	.319			.479	.378
Item 1					.735
<b>Item 10</b>	<b>.424</b>	<b>.315</b>			<b>-.462</b>

**Table 4: Factor loading with labels and Cronbach alpha value**

Factor	Label	Items	Factor loading
F1	<b>Affective (ASI)</b> (Cronbach $\alpha$ - 0.68)	<i>Item 12: I enjoy interacting with my partner about work matters</i>	.703
		<i>Item 11: I enjoy intimate conversation with my partner</i>	.626
		<i>Item 18: We take care others household duties, if the other has sudden increase in work load</i>	.544
		<i>Item 14: I enjoy interacting with my partner about children</i>	.544
		<i>Item 13: I enjoy interacting with my partner about home matters</i>	.461
F2	<b>Cognitive (CSI)</b> (Cronbach $\alpha$ - 0.67)	<i>Item 3: When I think of myself, I often think of my partner</i>	.776
		<i>Item 2 I see myself as a one, with my partner</i>	.650
		<i>Item 7 :When someone praises any accomplishment of my spouse, I feel it is a personal compliment to me</i>	.580
		<i>Item 5: I have a strong sense of Identification with my partner</i>	.524
F3	<b>Perceived Similarity (PSSI)</b> (Cronbach $\alpha$ - 0.64)	<i>Item 8: I feel that there is no difference between who I think we are as a couple and who my partner thinks we are as a couple</i>	.755
		<i>Item 4: I would prefer to be with my partner</i>	.607
		<i>Item 6: My relationship with my partner is an important part of my self- image</i>	.509
		<i>Item 9: My opinions are often considered by partner</i>	.496

F4	<b>Behavioural (BSI)</b> (Cronbach $\alpha$ - 0.52)	<i>Item 16:</i> I can count on my partner to help me whenever I need help	.670
		<i>Item 17:</i> My partner listens to me when I need someone to talk to about problems I encounter	.592
		<i>Item 15:</i> I enjoy interacting with my partner about future plan	.479
F5	<b>Inclusion (ISI)</b> (Test-retest reliability - 0.85)		.735

**Reliability**

Reliability basically refers to the consistency of the scale. It refers to the extent to which a scale produces a consistent result if repeated measurements are made (Malhotra and Das, 2008).

Internal consistency reliability was more acceptable in academia and research. It is the reliability of the summated scale, where several items are summed to form a total score. The Cronbach alpha is the most commonly accepted method for assessing the internal consistency reliability of a scale. Cronbach alpha value of the factor was shown in table - 4. Cronbach alpha is sensitive to the number of items in the construct, if items are less than 3, Cronbach alpha may have the low value (Tavakol and Demnick, 2011; Peterson, 1994; Vaske et al., 2016)

**Confirmatory Factor Analysis**

CFA is a technique used to estimate the measurement model. It confirms the number of factors and the loadings of observed variables on them conform to what is expected on the basis of theory (Malhotra and Das, 2008). CFA is one of the measurement refining processes where, it focuses on the link between factors and their measured variables (Muller, 1996). Moreover, performing CFA on the elements extracted from EFA gives a more robust measure of tests of unidimensionality of construct. CFA was performed using standard AMOS graphic 20.

There are various fit indices that have been suggested and used by the previous researchers to assess the overall fit of measurement model before arriving at the final factor loadings. For these study, the goodness of fit (GFI), Comparative fit index (CFI), CMIN/df, Root mean square error of approximation (RMSEA) were used to check the overall fit of the model.

**Table –5: Model Fit indices for**

Fit indices	Value	Cut off value
CMIN/df	2.37	Between 2-5
GFI	.96	Greater than 0.90
CFI	.94	Greater than 0.90
RMSEA	.041	Less than 0.10

Looking at the different fit indices discussed earlier, it can be ascertained that they are very close or will be above the established cutoff value and hence indicated that overall the measurement model for shared identity possesses exceptionally good fit.

The standard regression weights (size of factor loading) are an important consideration for convergent validity. Factor loading of 0.5 or above is acceptable (Hair et al. 2006). The average variance extracted (AVE) is the percentage of variance interpreted by the latent factors from measurement

error. The larger AVE is, the larger indicator variance could be interpreted by the latent variables and the smaller relative measured error. The criteria for the cut off value of AVE is 0.5 or greater (Hair et al., 2006). Composite reliability is another measure to assess the construct validity of the scale. It measures the overall reliability of the items loaded on a latent construct. Values greater than 0.70 reflect good reliability, whereas values from 0.60 to 0.70 are also acceptable (Hair et al., 2006)

***Affective – Convergent validity***

Factor loading of all the five items for construct affective is shown in the table – 6. Values of factor loading are above 0.5 which is above the threshold limit. Hence, all the item was considered for further analysis. AVE of affective component was 0.58 and Composite reliability was 0.97. Both AVE and composite reliability were above the cut off values.

**Table – 6: Standard regression weights (Affective)**

Items	Direction	Construct	Estimates
Item 12	<---	Affective	.694
Item 11	<---	Affective	.761
Item 18	<---	Affective	.793
Item 14	<---	Affective	.766
Item 13	<---	Affective	.806

***Cognitive-convergent validity***

Factor loading of all the four items for construct intimate relations is shown in table – 7. All the items loaded on the construct with the value above 0.5, which is higher than the

threshold of 0.5. Hence, all the items were considered for the final analysis. AVE of the construct was 0.60 and Composite reliability was 0.97.

**Table-7: Standard regression weights (Cognitive)**

Items	Direction	Construct	Estimates
Item 3	<---	Cognitive	.758
Item 2	<---	Cognitive	.807
Item 7	<---	Cognitive	.722
Item 5	<---	Cognitive	.799

***Perceived similarities – convergent validity***

As shown in table- 8 all four items have factor loading above 0.5. AVE for the construct was 0.62 and composite reliability was 0.91.

**Table-8: Standard regression weights (Perceived similarities)**

Items	Direction	Construct	Estimates
Item 8	<---	Perceived similarities	.803
Item 4	<---	Perceived similarities	.689
Item 6	<---	Perceived similarities	.840
Item 9	<---	Perceived similarities	.820

***Behavioural-convergent validity***

Factor loading of all the three items for construct intimate relations is shown in table – 9. All the items loaded on the

construct with the value near or above 0.5 except B1. Hence B1 was dropped from the final analysis. AVE of the construct was 0.65 and Composite reliability was 0.91.

**Table-9: Standard regression weights (Behaviour)**

Items	Direction	Construct	Estimates
Item 16	<---	Behavioural	.416

**Inclusion**

As the only item was loaded on this factor, it is not possible to conduct inter-item consistency measures. (Russell et al.,1989). The item loaded on factor was adopted from the “Inclusion of other in Self” (IOS) developed by Aron et. al. (1992) having of the reliability of .93.

EFA and CFA were carried out to validate the items to measure shared identity of dual career couples. Based on the result, out of 19 items, three items were dropped. For the final analysis scale of five constructs was considered.

**Discriminant validity**

Discriminant validity is the “type of validity that assesses the extent to which a measure does not correlate with other constructs from which it is supposed to differ” (Malhotra and Das, 2008). CFA is the better way to assess discriminant validity i.e. compare the variance extracted percentage of any two constructs with the square of the correlation estimate between these two constructs. The thumb rule for assessing discriminant validity requires that the square root of AVE be larger than the squared correlation between constructs (Hair et al. 2006).

**Table -10: Correlation and the square root of AVE for each construct**

	ASI	CSI	PSSI	BSI
ASI	0.76			
CSI	.403**	0.77		
PSSI	.507**	.522**	0.79	
BSI	.490**	.371**	.457**	0.80

Above table -10 shows that each correlation estimates is less than the square root of the corresponding AVE. Hence, there was no presence of any discriminant validity.

**Discussion**

Factors	Authors	Findings
<b>F1 Affective</b>	Bouas and Arrow (1996)	Group identity include cognitive and affective components
	Festinger et. al. (1950)	affective aspects focusing on interpersonal attraction in a group
	Piper et. al. (1983)	
	Turner et. al. (1984)	
	Kerr and Kaufman -Gilliland (1994)	group identification develops as a result of affective bonds among group members
	Brewer and Gardener (2005)	Group identities can also influenced cognition, emotions and behaviour aspects
<b>F2 Cognitive</b>	Bouas and Arrow (1996)	Group identity include cognitive and affective components
	Tajfel et. al. (1971)	Emphasized on cognitive aspect as awareness of a group as a member
	Cross and Gors (2004)	Couple identity involved restructuring of the individual's cognitive system to integrate aspects of the partner and the relationships into one's sense of self
	Brewer and Gardener (2005)	Group identities can also influenced cognition, emotions and behaviour aspects

<b>F3 Perceived Similarity</b>	Flippen et. al. (1996)	similarity may be responsible for initial attractions which leads to repeated positive interaction resulting in interdependence
	Bos et. al. (2010)	forming of social shared identity triggered by things such as sense of shared fate, personal similarities, shared experience and opportunities and communications
	Miller (1990)	intimate relationships required cooperation of both partners, and individuals with strong intimacy goals need a similarity oriented partner
	Miller and Read (1991)	
<b>F4 Behavioural</b>	Brewer and Karmer (1986)	Emphasized on importance of interdependence of behaviour aspect
	Chen (1996)	
	Burke and Reitzes (1981)	among dual earner couples, individuals' understanding of who they are as family member are likely shaped by acquire meaning through their interaction with their partner
	Sullivan (1996)	people are found to enjoy leisure activities more when they are done in presence of a partner
	Brewer and Gardener (2005)	Group identities can also influenced cognition, emotions and behaviour aspects
	Aarseth (2007)	"in between" in couples is not mutual dependency and gendered desire, but de-gendered commitments and shared desires
	Beck and Beck Grensheim (2002)	partner over time have come to construct their own forms of togetherness
<b>F5 Inclusion</b>	Aarseth (2007)	"in between" in couples is not mutual dependency and gendered desire, but de-gendered commitments and shared desires
	Beck and Beck Grensheim (2002)	partner over time have come to construct their own forms of togetherness
	Aron et. al (1992)	Close relationships can help expand the self when individuals include their partner into their sense of self, because individuals assume the attributes, interests, resources and experiences of their partner as they form close bond in the relationship.
	Prager and Roberts (2004)	Close intimate relationships shape the self-system over time through the integration of the relationship into the individual's identity

### Conclusion

The significant contribution of this study is that it presents a comprehensive and refined scale to assess the shared identity. It takes into account the multiple aspects such as affective, cognitive, perceived similarities, behaviour and inclusion. Although the scale has been empirically tested on one specific state due to some limitations. Scale can be administered in various states.

### Implications

#### *Research Implications*

The theoretical contribution of this research is that it considers a dual-career couple as a unit of analysis, which is relatively new in work-family literature. The construct of Shared Identity and its development at a couple of level is an addition to the work-life literature.

### **Managerial Implications**

This scale can serve as a diagnostic tool that enables practitioners, such as career counsellors, marriage and family therapists, and organizations. This research offers a new angle—and a scientific measurement tool—for managers to use when implementing management initiatives which are concerned to the dual career couples.

### **Future Research Recommendation**

The scale can be further validated using other samples such as dual-earner couples, single earner couples etc. The study will be further extended to the other state of India. The study will stimulate greater interest in shared identity research with the goal of creating a comprehensive, integrative understanding in India and other parts of the world.

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# Organisational Politics, Peer Support, and Rude Leadership: Employee Attrition



**Dr. Namita Rath**  
Asst. Professor  
Sri Sri University, Cuttack, Odisha  
Email: namita.r@srisriuniversity.edu.in



**Dr. Alok Kumar Sahai**  
Associate Professor  
Sri Sri University, Cuttack, Odisha  
Email: alok.s@srisriuniversity.edu.in

## A b s t r a c t

The study identifies organisational politics, peer support and rudeness of management as three indicators of lack of social dialogue in the workplace. It explores the effect of these three indicators on the intention of the teaching and non-teaching staff in private MBA colleges. Data was collected from seventeen private management colleges in Indore and Ujjain in Madhya Pradesh. The structural equation modelling (SEM) analysis revealed supportive evidence for the positive effect of perceived organisational politics and management rudeness. These results establish significant implications for management and highlight the need and importance of social dialogue in the workplace to contain and reduce the turnover ratio in knowledge organisations.

**Keywords:** *Organisational Politics, Social Dialogue, Turnover Rate, Knowledge Organisation, Peer Group*

The rising attrition rates in the present day scenario of opportunities in the service sector and reduced organisational identification are a cause of concern for human resource managers. It is a critical challenge for HR managers to retain the capable and productive workforce essential for the successful operation and maintenance of the firm's competitive edge. Managing turnover and attrition rates have attracted its due share of attention from senior management and practising industrial relation experts. Certain organisations such as hospitals, colleges, universities and IT companies in the knowledge economy are particularly susceptible to high turnover rates. Containing and reducing employee turnover in such organisations has been of considerable interest to organisational psychologists, management and employers.

Organisational politics and its effect on the reduced social dialogue causes a drop in productivity, job satisfaction, alignment with the organisation, and a willingness to quit the jobs (Harris, Andrews and Kacmar, 2007; Bozeman et al. 2001). Kacmar and Carlson (1997) argued that in general, political behaviour includes selfish behaviour concerned with achieving personal goals rather than organisational goals.

Thus the political environment affects the rewards accruing to the individuals. (Cropanzano et al., 1997). Organisational politics means an interplay of power relations within the organisation, pressure groups and collective bargaining in the place of work. (Pfeffer, 1992). The organisational politics and its influence have received its due share of attention in the management literature. Political behaviour and organisational politics warrant such attention as they are seen as impairing the performance of the organisations (Kacmar & Baron, 1999; Vigoda, 2000). Kacmar et al. (1999) opine that due to political motivations, the individuals are likely to advance their gains without any regard for the growth of their organisation.

Popular models of employee turnover point to the existence of an unwritten contract of mutual dependence between the employer and the employee (Eisenberger et al., 2001). Lack of perceived organisational support may result in withdrawal and attrition (Hom & Griffeth, 1995). Aselage and Eisenberger (2003) observed that employees were benefitting from the support of organisational development bonding and identification with the organisation. Allen, Shore and Griffeth (2003) indicated that greater job

satisfaction stems from organisational support. Organisational support has been seen as a function of several variables such as clarity of job description (Eisenberger et al., 2001), job description, involvement in decision process (Allen, Shore and Griffeth, 2003), Co-worker support (Djurkovic et al., 2004) and also the support from supervisor (Settoon et al., 1996). All these variables add up to increased job satisfaction, performance (Shanock & Eisenberger, 2006) and bring a reduction in turnover. The Organisational Support Theory propounded by Eisenberger et al. (1986) states that the employees evaluate the extent to which the organisation values their effort and nurture them. The employees' perception of the organisational support motivates employees to identify with the organisational culture and also results in improved performance in a quid pro quo. Increased involvement towards the common commercial goal of the organisation results in a reduction in abstinence and attrition. Blau (1964) postulated that a subjective cost reward analysis and the availability of alternatives form the basis of all social transactions. The same is true in case of the relationship of employees and organisation. Employees are under obligation to discharge their duties to the best of their capability in lieu of the care given by organisation. Perceived organisational support has been shown to be negatively correlated with the contemplation of quitting the organisation (Kinnunen, Feldt and Makikangas, 2008). However, there are contradicting views which also prevail. Perceived organisational support may have no or insignificant effect on employees' intention to switch jobs. (Lew, 2009).

Supervisor rudeness in the workplace is another determinant of dissatisfaction and a disincentive to continue in the workforce. The rudeness refers to the unruly behaviour of the supervisor or the deviant behaviour of the superiors with little or no respect for co-workers and subordinates. This uncivilized behaviour of the superior offices renders the workplace a less than desirable place to work and also results in lower productivity (Andersson & Pearson, 1999).

The supervisor rudeness may range from lower intensity verbal abuses to physical abuse. Baron and Neuman, (1996, 1998) have studied the causes and consequences and the increasing incidence of workplace rudeness. The rude behaviour of the supervisors decreases the morale of the employees and is directly correlated with the motivations of the employees. Shim and Chang (2011) found a direct

correspondence between supervisor rudeness in the workplace and the intention to switch jobs.

Eisenberger et al. (1986, 1990) suggest that employees receiving peer support are more likely to stick around despite the supervisor rudeness. Individuals receiving greater organisational support and peer group positive strokes and support are less likely to seek an exit from the organisation. The organisational identification for such employees is likely to be high. Eisenberger et al. (1990) argued that individuals perceiving greater organisational and peer group support would be less likely to leave the organisation. This line of thinking is consistent with the two-way inducement contributions model of voluntary turnover by March and Simon (1958).

The study is set to investigate the relative effects of organisational politics, peer group support and supervisor rudeness on the intention of employees to quit. It investigates whether the three dimensions of social dialogue in the workplace affect the intention to switch.

The following hypotheses were formulated for the purpose:

H<sub>1</sub>: Organisational politics significantly affects intention to switch.

H<sub>2</sub>: Perceived peer support will be negatively related to intention to switch.

H<sub>3</sub>: Supervisor's rudeness significantly affects intention to switch.

## Methodology

### Sample Size and Location

The data was collected from private colleges in Indore and Ujjain in Madhya Pradesh. Three hundred employees from seventeen colleges were contacted for the study. Indore was selected as it is the educational capital of Central India and has a large number of private colleges offering degree programmes. Ujjain is another city in the vicinity and has several engineering and management colleges. The respondents included both teaching and non-teaching staff. They were subjected to a personal interview and responses on a questionnaire was taken.

The participants were aged between 30-55 years with a mean age of 42 years and had work experience exceeding five years. 67% of the respondents had switched jobs at least once in the last five years.

## Questionnaire

The questionnaire consisted of two parts. Part I had 10 questions on demographics and part II had 20 Likert type questions on turnover intention, perceived organisational politics, organisational support and supervisor rudeness scales.

For turnover intention, researchers adopted the Turnover Intention Scale of O'Driscoll & Beehr (1994). This is a three-item scale, and researchers retained all three items. The Cronbach alpha of 0.79 was found for this scale. To measure perceived organisational politics, the Kacmar and Carlson scale was used. This scale has 15 items under three subgroups which gave a Cronbach alpha of 0.77. Perceived Organisational Support was measured on the 16 item Survey of Organisational Support (Eisenberger et al., 1986) and returned a Cronbach alpha of 0.71. For measuring the rudeness of the supervisor in the workplace, Abusive Supervision Scale of Tepper (2000) was used. This scale has 15 items which returned a Cronbach alpha of 0.81.

The items of the questionnaire were measured using a five-point Likert scale spanning between Agree=5, Somewhat Agree=4, Can't Say=3, Somewhat Disagree=2 and Disagree=1. A pilot study was done with 49 Likert type items, and for the final survey, researchers adopted a shorter version of the questionnaire with 21 questions with three items on Turnover Intention Scale, six items on Perceived Organisational Politics, Six items on Perceived Organisational Support and six items on the supervisor rudeness.

### Preliminary Testing of Data

The collected data was coded and fed into SPSS 21 software. Suitability of the data for the application of parametric tests was ascertained by a variety of tests. These are described below:

### Missing/Incomplete Data

Out of the 300 responses collected, only 239 responses were found to be complete and usable in all respects. This translates to approximately 80%, which is very good.

For statistical analysis of data using parametric tests, the data must conform to the normality of data, homogeneity of variance, independence of observation and interval data (Field, 2009). Results of tests:

### Test of Normality

The test of normality is a prerequisite for the data to be subjected to several parametric statistical procedures, including factor analysis. Skewness and kurtosis values are the most commonly used statistics to check for normality of data. West, Finch and Curran (1995) proposed a reference value of absolute skewness value of greater than 2 and a reference value of absolute kurtosis above 7 for substantial departure from normality. The data returned acceptable values of skewness and kurtosis.

### Test of Homogeneity of Variance

Levene's test is applied for testing the homogeneity of variance. The significance levels are above 0.05, which confirmed the homogeneity of variance.

### Independence of Observations

For this study, data independence is confirmed by the fact that all respondents have completed the questionnaire individually and independently of other respondents.

### Use of Interval Scale

For this study, the use of a five-point Likert scale (1-5) confirms the data as interval level data.

### Validity Tests

Scores of the questionnaire was submitted to three professional journalists and two faculty members to ensure face and content validity. The purpose of testing the face validity is to assess whether the questions are phrased in an easy to understand language and measure what exactly they purport to measure.

### Multicollinearity Tests

A quick method to identify multicollinearity is to examine the correlation matrix and look for correlation numbers larger than 0.90, which indicates the presence of multicollinearity. Multicollinearity can objectively be measured by the recursive process of regressing each variable as a dependent variable and all other variables as independent variables. Tolerance is calculated by the unexplained variability ( $1-R^2$ ) for each such regression. The tolerance thus computed was below the threshold of 0.10 for all variables. This cutoff value of tolerance corresponds to a

multiple correlation coefficient of 0.95 (Hair et al., 2009).

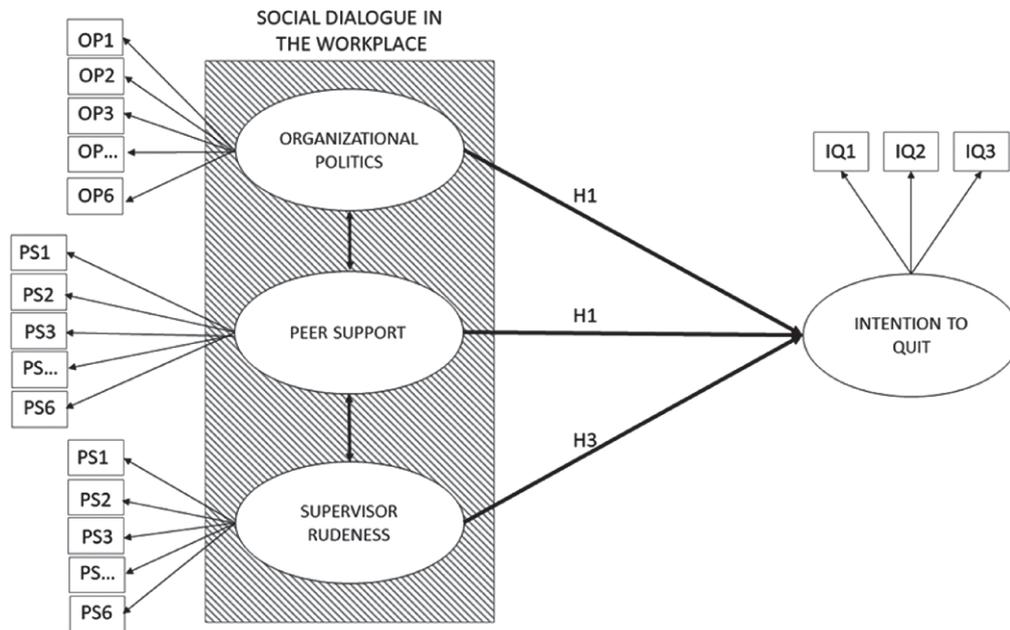
### Factorability Tests

A high level of multicollinearity is not desirable as it confuses the distinction between factors. However, some amount of multicollinearity is needed for factor analysis for the grouping of variables under identifiable factors. The starting point of factor analysis is a diagnosis of the factorability of the intercorrelation matrix of variables. The correlations ranged between 0.30 – 0.80 and the partial correlations on the SPSS output were all less than 0.5, indicating the suitability of data for factor analysis. Suitability of data for factor analysis is also tested to check the hypothesis that the correlation matrix is a non-identity matrix. This is done by Bartlett's test of sphericity which was rejected. The results of the tests conducted to assess factorability are presented as follows:

1. Inter-item correlations. A visual examination of the correlation matrix does not show any anomalously high (>0.90) value of correlation. Midranges for the correlations confirm the factorability.
2. Anti-image correlation matrix diagnosis- The diagonal values on the anti-image correlation matrix are larger than 0.5, while the off-diagonal values are very small. This confirms the presence of a very good factor structure (Hair et al., 2009).
3. Measures of Sampling Adequacy (MSA): Sampling adequacy is tested using Kaiser-Meyer-Olkin (KMO) index. The data returns a KMO index of 0.865, which is greater than the threshold for excellent adequacy (Field, 2009).
4. Bartlett's test of sphericity: The Bartlett's test rejected the hypothesis that the factor matrix was an identity matrix or in other words, the correlation matrix had non zero values. The test results confirmed the factorability of the correlation matrix.

### Data Analysis

The study used a cross-sectional survey design, factor analysis and structural equation modelling. Figure 1 presents the conceptual model with hypotheses.



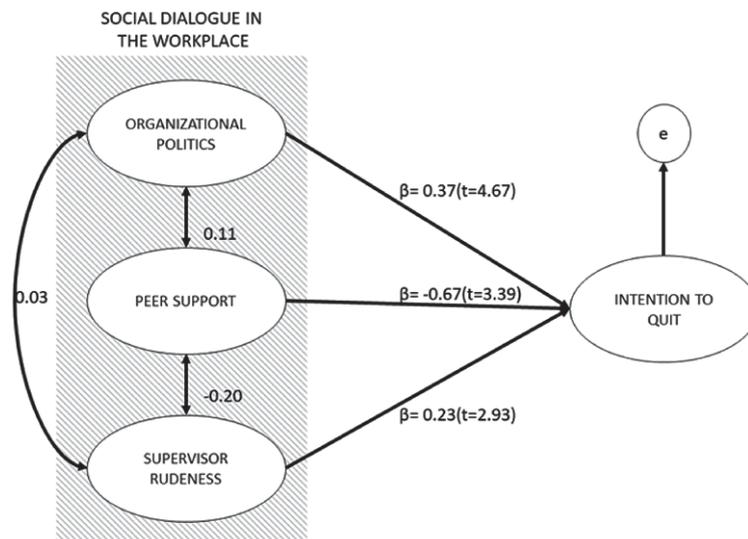
**Figure 1: Conceptual model showing the causal factors of intention to quit**

**Results**

Out of the 300 respondents, 239 (80%) questionnaires were found usable in all respects. 81 (34%) were females. The participants were aged between 30-55 years with a mean age of 42 years and a standard deviation of 5.3 years. The respondents had work experience exceeding five years, and 67% of the

respondents had switched jobs at least once in the last five years. CFA was conducted using SPSS 2,1 and the structural model was tested using AMOS 17.

Figure 3 presents the final fitted model. The regression coefficients are marked on the model. All three hypotheses were accepted at  $p=0001$  ( $t>2.68$ ).



**Figure 2: Structural model fit with results.**

**Table 1: Results of hypothesis testing**

Hypothesis	$\beta$ Coefficient	t value	P value	Result
H <sub>1</sub> : Organisational politics significantly affects intention to switch.	0.37	4.67	0.0000	Accepted
H <sub>2</sub> : Perceived peer support will be negatively related to intention to switch.	-0.67	3.39	0.0000	Accepted
H <sub>3</sub> : Supervisor's rudeness significantly affects intention to switch.	0.23	2.93	0.0000	Accepted

Table 1 presents a snapshot of the hypothesis testing. The factor model returned excellent fit indices. CMIN/df= 4.8631 satisfies the ideal value of less than 5. The goodness of fit index (GFI) at 0.923, Normed fit index at 0.888, Relative Fit Index at 0.851, Incremental Fit index at 0.908 and Tucker Lewis Index at 0.965 all are above or near 0.90 which indicates a reasonably good fit. Root Mean Square Error of Approximation (RMSEA) at 0.076 and Standardized Root Mean Square Residual (SRMR) at 0.0496 further indicate a very good fit.

While perceived organisational politics and rudeness of supervisor were positively related to the turnover intention with positive causal factors ( $\beta$ ) which were significant at  $\alpha < 0.05$  ( $t > 2.58$ ). Thus, organisational politics and supervisor rudeness had a direct and significant relationship with the propensity of employees to seek alternate employment. Peer support was significant ( $t > 2.58$ ) with a negative beta coefficient indicating its inverse proportion to the intention to quit. Thus, Peer support was actually found to be containing the switching intention of employees.

Organisational politics significantly and positively affected the intention to exit ( $\beta = .37$ ,  $t = 4.67$ ). The hypothesis is accepted. Organisational politics makes up 36% of the variability in job switch intention. Perceived peer support is negatively related to exit motivation ( $\beta = -.67$ ,  $t = 3.39$ ), and makes up 29.3% of the variance in job switch motivation. The second hypothesis is accepted, and the negative sign of the coefficient indicates an inverse relationship. The peer support brings the turnover intention or attrition rates down. Lastly, the third hypothesis is also accepted. The supervisor rudeness in the workplace affects the intention to leave the organisation ( $\beta = .23$ ,  $t = 2.93$ ) and makes up 24.6% of the variability in exit motivation.

### Discussion

The results of the first hypothesis that organisational politics had a direct impact on turnover intention of the employees. This result is consistent with the finding of Vigoda (2000), who demonstrated a similar finding in his study in North Israel. The finding also supports a study by Cropanzano et al. (1997). They found a positive relationship between perceived organisational politics and turnover intention. Though organisational politics may be practised blatantly and might benefit the practitioners, it leads to some of the negative job outcomes, dissatisfaction and illusion leading to exit motivation. The second hypothesis is in agreement with the findings of Hui, Teo, & Lee (2007). Kinnunen, Feldt, & Makikangas (2008), also reported similar findings on organisational support and the likelihood of exiting an organisation. Lew (2009) showed the insignificant effect of perceived peer support on the intention to leave. The third hypothesis stated that supervisor rudeness in the workplace affects turnover intention, was supported by the work of Pearson and Porath (2005). They deduced that employees took to leaving the organisation as the only viable means to escape the abuse. Pearson (1999), Shim & Chang (2011) also reported a direct relationship between supervisor rudeness and the employee's motivation to quit.

### Implications of the Findings

The importance of turnover intention in a knowledge economy cannot be overemphasized. The direct and indirect cost of valuable employees leaving for greener pastures is a cause of concern for human resource managers. The turnover intention of employees has a great effect on employee performance and commitment. The present study has taken the three organs of social dialogue in workplace, namely,

organisational politics, peer support and supervisor rudeness based on the popular scales available in the literature and studied their effect on the turnover intention.

The results have an important practical use for the management. Management should strive to create companionship among the employees and design programmes to inculcate empathy and have managers with high emotional quotient. Emotionally intelligent workers and management will build a healthy organisation.

### Conclusion

This study investigated the effect of perceived organisational politics, peer support and supervisor rudeness as causal factors of employees' intention to switch jobs. Three hypotheses were tested, and it was concluded that while organisational politics and supervisor rudeness were directly proportional to the dissatisfaction and a propensity to leave the organisation, the peer support had an inversely proportional relationship with the intention to leave. While organisational politics is difficult to contain, it is possible to teach a better peer to connect and emotionally intelligent management to contain the attrition rates in organisations. An increased social dialogue in the workplace will result in happy and satisfied employees and acceptable lower attrition rates.

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The *SCMS Journal of Indian Management* is a blind peer-reviewed Journal. The Journal deems it its mission to submit to the readers fresh fruit of management thoughts and rich cream of current innovative research. The format of the Journal is designed reader-friendly. The academia and the corporates have an easy access to the Journal.

The Journal looks for articles conceptually sound, at once methodologically rigorous. The Journal loves to deal knowledge in management theory and practice individually and in unison. We wish our effort would bear fruit. We hope the Journal will have a long life in the shelves catering to the needs of b-students and b-faculty.

- ◆ Proposals for articles that demonstrate clear and bold thinking, fresh and useful ideas, accessible and jargon-free expression, and unambiguous authority are invited. The following may be noted while articles are prepared.
- ◆ What is the central message of the article you propose to write? Moreover, what is new, useful, counterintuitive, or important about your idea?
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