

Print : ISSN : 0019-512X | Online : ISSN : 2454-6801



THE INDIAN JOURNAL OF COMMERCE

Quarterly Publication of the Indian Commerce Association

Vol. 75

No. 1

January-March, 2022

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and Preeti R Gotmare*

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From Indian E-commerce Market in a Personalized
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The Indian Journal of Commerce **A Quarterly Refereed Journal**

Aims and Objectives : The Indian Journal of Commerce, started in 1947, is the quarterly publication of the All India Commerce Association to disseminate knowledge and information in the area of trade, commerce, business and management practices. The Journal focusses on theoretical, applied and interdisciplinary research in commerce, business studies and management. It provides a forum for debate and deliberations of academics, industrialists and practitioners.

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The Indian Journal of Commerce is published four times in a year i.e., March, June, September and December. The Indian Journal of Commerce is freely distributed to all members.

Correspondence: All correspondence regarding publications, and membership subscriptions should be addressed to : The Managing Editor, The Indian Journal of Commerce, School of Management Studies, Indira Gandhi National Open University (IGNOU), Maidan Garhi, New Delhi 110 068, E_mail- nkishor@ignou.ac.in



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Notes for Contributors

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Lasertypeset by: Tessa Media & Computers, C-206, A.F.E-II, Jamia Nagar, New Delhi-25

Printed by: KIIT Deemed to be University, Bhubaneswar, Odissa

Published by Prof. Nawal Kishor on behalf of the Indian Commerce Association.

Impact of Perceived Brand Ethicality: An Evidence from Indian E-commerce Market in a Personalized Pricing Context

JENSOLIN ABITHA KUMARI J AND PREETI R GOTMARE

Abstract: In today's digital era, personalized pricing though a legal practice, is still debatable. This paper explores the antecedents influencing customer perception of personalized pricing, and whether customer perception of personalized price affects customer purchase intention and trust, moderated by perceived brand ethicality (PBE). A structured questionnaire was circulated and data collected from 512 respondents were used for further analysis. Partial least squares–structural equation modeling (PLS–SEM) using Smart-PLS 3.3.7 was used to analyze the data. Results showed that price tracking, involvement, social norm, recommender system, and price transparency as crucial antecedents to determine customer personalized price perception, which in turn affects customer purchase intention and trust, and perceived brand ethicality moderate the relationship between perception and purchase intention and do not moderate the relationship between price perception and trust.

Keywords: Price transparency; Personalized price; Involvement; Trust; Perceived brand ethicality; Customer price perception.

Introduction

The impact of brand ethicality on building customer positive intentions towards the brand is still a subject of debate. Recent reports highlight companies investing in brand ethicality may not always lead to positive consumer response (Aaker, Vohs, and Mogilner 2010; Luchs et al., 2010). At the same time, another set of research shows that companies benefit from investment in ethics compared to standard or conventional investment (Michelson et al., 2004). Ethical issues in the field of marketing are not new. They have been criticized for a long in terms of product liability, selling, advertising, pricing, child labor, product dumping, etc. (Nill and Schibrowsky, 2007). This paper focuses on one of the widely used algorithmic pricing techniques (personalized pricing), which is highly criticized

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for ethicality. We study the moderating role of perceived brand ethicality on consumer online purchase intention and trust.

The study adds to existing literature by investigating the antecedents for customer perception regarding social norms and price tracking, which have not been explored in earlier studies (Kumari and Gotmare, 2021, 2022). Next, this study adds to marketing literature by investigating the moderating role of perceived brand ethicality on consumer behavior.

Academic research focuses on regulatory implications of personalized algorithmic pricing which include exploring privacy concerns in PDP (Priester et al., 2020) and legal concerns (Turow et al. 2015). They also focus on societal and consumer welfare implications (Acquisti, et al., 2016; Dubé and Misra, 2019). When the practice of personalized pricing is not communicated explicitly to consumers, it may be considered as a tool to exploit consumers purchase intention and impact-consumer trust towards the brand.

However, the role of perceived brand ethicality in PDP for consumers may be a subject for debate and recent reports highlight the need for a comprehensive study on the advantages of personalized pricing for consumers (Acquisti et al., 2016; Priester et al., 2020) and for focus from customer perspective (Dubé and Misra, 2019). This paper also explore these research gap by weaving it into the aim of this study. The aim of the study can be described in two folds: 1) To explore the factors that influence consumer perception in decision making process with prime focus on the role of personalized pricing. 2) To examine the impact of perceived brand ethicality on customer purchase behavior and trust.

Literature Review

Personalized Price Discrimination

Organizations adopt dynamic pricing strategies to offer discounts to consumers based on purchase history, date and time of purchase and their location (Lastner *et al.*, 2019). Financial benefits are the prime driver for implementing price discrimination policies by organizations (Agrawal and Ferguson, 2007). However, a majority of buyers are unaware that discriminatory pricing practices are legal and tend to have a negative attitude towards it (Turow *et al.*, 2005). Academic literature on personalized price discrimination is vast, multi-faceted and constantly deliberated by academicians and policy makers. Airline tickets and hotel booking by online travel agencies (Melis and Piga, 2017) for instance are few industries where personalized pricing is predominant. Obermiller *et al.* (2012) observed, personalized pricing is a powerful tool and retailers often use this to implement differentiated strategies and stand out in competition (Ghose *et al.*, 2002). Shaffer and Zhang, (2002) stated that firms use price discrimination between their

customers and competitor's customers, their customers were charged prices different from that of competitor's customers. Liu and Zhang (2006) found that personalized pricing by retailer or manufacturer sabotages the retailer in the short run, while beneficial strategically.

Personalized Price Discrimination – Online Store

In 2000, Amazon charged different prices for DVDs based on a buyer's browsing history (Reinartz, 2002). In 2012, Staples, an US-based office supply stores, charged different price to customers based on IP address; in fact, the store charged lower prices to consumers belonging to the high income segment to consumers who stayed away from the store (Valentino-DeVries *et al.*, 2012). E-tailers use technology to advertise to individual online customers through behavioral advertising. However, the bottleneck remains with adoption and implementation of such practices, as they need to be legally permitted and considered fair by consumers (Richards *et al.*, 2016).

Theoretical framework and hypotheses development

A theoretical conceptual model is developed by combining 'Dual process theory' (Xia *et al.*, 2004), and 'Commitment trust theory' (Morgan and Hunt, 1994). The Dual process theory helps in understanding the means by which buyers tend to arrive at judgments for price fairness; herein, the buyer's cognitive and affective evaluation are key. Internal standards and opinions are formed depending on the buyer's past price exposure, based on which they evaluate the new pricing information (Hsieh and Dye, 2017). Moreover, as consumers regularly interact with market, they develop a 'reference price' based on their own idea of fair price. When selling price is lower than reference price, customers are more attracted, as they perceive gain in purchasing the product. Price discrimination on the contrary, leads to a feeling of perceived loss, due to which they may totally avoid the purchase (Kalyanaram and Winer, 1995). The commitment-trust theory emphasizes long-term relationship between online stores and consumers (Li *et al.*, 2006). Trust is quintessential in the commitment among online vendors, intermediaries and customers. Thus, the keys to success of an online store lies in its transitioning from a technical/ transactional view to a relational view.

The antecedents of customer's perception of personalized price discrimination such as price tracking, involvement, recommender system benefits, social norms, and price transparency characterize cognitive evaluation of the price fairness judgment process. These antecedents describe the rationale behind the outcomes, and also justifies whether the outcome achieved was due to customer action. The outcome in itself represents the customer's perception of personalized price action. In fact, extant literature validated and proposed the positive correlation between customer's perception towards purchase vis-à-vis their feelings

(customer purchase intention or trust) as an outcome in itself (Lastner *et al.*, 2019). Thus, an effective evaluation of price fairness judgment process leads to customer purchase intention and trust; this justifies our usage of the 'Dual model process theory' within our conceptual model. Finally, in order to provide personalized products or services, it is essential to have a long-term relationship with the online vendor, whereby customers perceive high switching costs (Thatcher and George, 2004). Thus, from consumers' perspective, the variables influencing personalized price discrimination provide the key to adequate knowledge on price transparency, enhancement of customer purchase intention and trust, justifying thereby the 'Trust commitment theory' to the conceptual model.

Hypotheses Development

Price Tracking

Consumers check the price over a period of time when shopping online. Price tracking can be done through price tracking applications like Keepa for Amazon. Consumers visit the product page multiple times to check for the price. When the price surge is notice, consumers perceive the price surge as unfair and when it is less they consider it fair. Hence we posit:

H₁: Price tracking is positively related to customer's perception of personalized price.

Involvement

A consumer's involvement with a brand may be referred to as the "consumers' level of interest in the brand and his personal relevance to it" (Zaichkowsky, 1985). This involvement influences the consumer's purchase decision, as an involved consumer would spend more time researching about the product online (Lesschaeve and Bruwer, 2010). Involvement thereby has an influence on pricing, consumption behavior, information searching, attribute evaluation, and variety seeking behavior (Zaichkowsky, 1985); in fact, it is an antecedent to customer engagement (Harrigan *et al.*, 2017). Gutiérrez *et al.* (2010) also studied the effect of consumer profile along with social, channel and transactional risks towards consumer involvement in an online context. Consumers who are highly involved in online shopping will be more eager to search for information of products and services on the website, and are more probable to make purchase of products. Novak *et al.*, (2000) also found a positive influence of involvement on buying behavior of online consumers. We posit:

H₂: Involvement is positively related to customer's perception of personalized

price.

Recommender System

Recommender systems (RS) “explore and filter knowledge about items and users to predict the preference that a certain user would give to an item” (Jorroragoneses *et al.*, 2019). Its impact in terms of personalization has been studied (Adomavicius and Tuzhilin, 2005), focusing on analyzing factors that impact consumers’ profile quality. Very few research have explored the relationship between recommender systems and price offered by firms. Bergemann and Dirk (2007) studied how consumer segmentation is done in a personalized and non-personalized firm with an improved recommender system. Park and Han (2013) studied the effect on diversity of sales due to recommender systems. Ghoshal *et al.* (2015) found recommender systems to influence both price and profit of companies under competition with one firm providing personalization and other without personalization. Lee and Rha (2016) studied customer’s response to personalization-privacy paradox and found that customers consider personalization benefits as a gain. Hence, we posit:

H₃: Recommender system is positively related to customer’s perception of personalized price.

Social Norm

Social norm includes “rules, about which there is at least some degree of consensus, that are enforced through social sanctions” (Horne, 2001). Homans (1961) claimed that social norms have no influence in consumer market. While other researchers argued that B2C exchanges involve social norms, whereby ‘stability’ for instance, is a norm in these exchanges, which in turn has an effect on price fairness (Xia *et al.*, 2004). Ching and Ellis (2006) found norms apply to both B2C and B2B transactions online. Choi and Mattila (2009) showed that having the same price across channels appears to be an acceptable norm. Marwell and Garbarino (2010) identified social norms that restrict sellers from price discrimination online. Interestingly, price discrimination once considered unfair in an industry can later be considered fair due to changes in social norms. For example, dynamic pricing or surge pricing while booking hotel rooms or cabs during peak demand was considered unfair initially, unlike the airline industry, but considered fair now. It is imperative to understand that price discrimination occurs due to the lack of information on prices being paid by other people. In fact, it is practiced in the insurance market based on the driving behavior, whereby people are segregated into different risk categories (Business Wire, 2017). Thus, we posit:

H₄: Social norm is positively related to customer’s perception of personalized

price.

Price Transparency

Price transparency is the extent to which information about prices are available to consumers who organizes, explains, clarifies, and projects the contextual direction and/or rationale for the seller's pricing (Hanna *et al.*, 2019). Earlier, Tanford *et al.* (2011) studied the influence of price transparency on consumer's online purchase decisions and found that a firm needs to have consistent and transparent pricing to gain competitive advantage, especially if it plans to price products differently from their competitors. Price transparency tools like MySmartPrice, ShopSavvy, BuyVia, Keepa, StalkOwl, Happy2Purchase, Smartpix are available in the market, and help in comparing product prices between different ecommerce websites, track price history, notify consumers on availability and price drops, etc. (DNA India, 2016). They are widely used in healthcare, insurance, online vacation packages (Tanford *et al.*, 2011). Transparent pricing is vital in a customer driven marketplace like insurance for example, where having transparent pricing sends signals about cost to both consumers and producers (Hilsenrath *et al.*, 2015). Nguyen *et al.* (2016) studied how consumer perceived price fairness affects transparency in pricing strategies, when sharing information through online platforms and communities. This study found that consumers accept dynamic pricing practices if they are familiar with the demand-based pricing information in online communities. Most of literatures in the past have found that lack of price transparency could lead to perception of price unfairness (Nguyen *et al.*, 2016). Bolton's (2015) found that consumers abandon items in their online shopping carts when they see unexpected increase in price during the checkout procedure. Davari *et al.*, (2016) found that when online retailers offer straightforward pricing details, it positively influences customer perception. Hence, we posit:

H₅: Price Transparency is positively related to customer's perception of personalized price.

Personalized pricing, Purchase Intention, and Trust

Personalized pricing that is displayed by considering individual consumer characteristics may impact consumer purchase intentions. Trust can be defined as "a psychological state composing the intention to accept vulnerability based on expectations of behavior of another person or firm (Rousseau *et al.*, 1998). Choi and Ji (2015) mentioned that trust mediates the relationship between human and automation, just as it mediates relationships between humans. Consumer-buyer relationship in an online environment involve fear, risk, and uncertainty, where trust plays an important role in developing a positive relationship between buyer and seller (Hoffman *et al.*, 1999); in fact, there exists a positive association between trust

and buyer intention to engage in purchase through online store via personalization.

An online consumer cannot physically see or touch a product. Hence, product's consistency in terms of its display online and actual product received may differ. Under such performance uncertain scenarios, price perception is likely to play a key role in determining the outcome such as building customer trust (Jarvenpaa and Toad, 1996). Hence, 'price cues' remain the most dependable parameter in e-tailing where a product cannot be examined for its performance. Therefore, customer price perception of personalized price does play a significant role in determining trust. We posit:

H₆: Customers perception of personalized price is positively related to purchase intention.

H₇: Customers perception of personalized price is positively related to trust.

Moderating role of Perceived brand ethicality

Consumer's perceived brand ethicality is "perception of the brand as being honest, responsible, and accountable toward various stakeholders" (Singh *et al.*, 2012). Organizations rely on brand ethicality to strategically position their brand in terms of its definition, differentiation and sustenance in a highly competitive marketplace (Brunk, 2012). Whereas, a consumer's perceived 'brand ethicality' is based on non-consequentialist and consequentialist ethical principles (Shanahan and Hyman, 2003). From a non-consequentialist standpoint, organizations must abide by laws (i.e. financial laws, labor laws, environmental laws etc.). It must also include consumer rule-based approach for moral evaluations (like fairness, honesty, integrity, transparency, among other moral norms). Though brands considered ethical are associated to be reflecting compassion and trust towards humans, from a consequentialist standpoint, customers PBE would result in positive consumer action, wherein consumers might choose to involve themselves in social responsibility, philanthropic activities and proactive social engagement (Brunk, 2012). Studies have highlighted that consumers feel valued when the brand they purchase are involved in ethical initiatives. This, in many ways helps to validate the self-identity of a consumer. It acts as an intangible resource-augmenting factor, while enhancing brand passion among consumers. PBE provides moral reasoning to passion and also buffers customer-brand relationships (Das *et.al.*, 2019). We posit:

H_{8a}: If perceived brand ethicality is low, then the relationship between customer perception of personalized price and customer purchase intention will be positive, but weaker.

H_{8b}: If perceived brand ethicality is high, then the relationship between customer

perception of personalized price and customer purchase intention will be positive and stronger.

H_{9a}: If perceived brand ethicality is low, then the relationship between customer perception of personalized price and trust will be positive, but weaker.

H_{9b}: If perceived brand ethicality is high, then the relationship between customer perception of personalized price and trust will be positive and stronger.

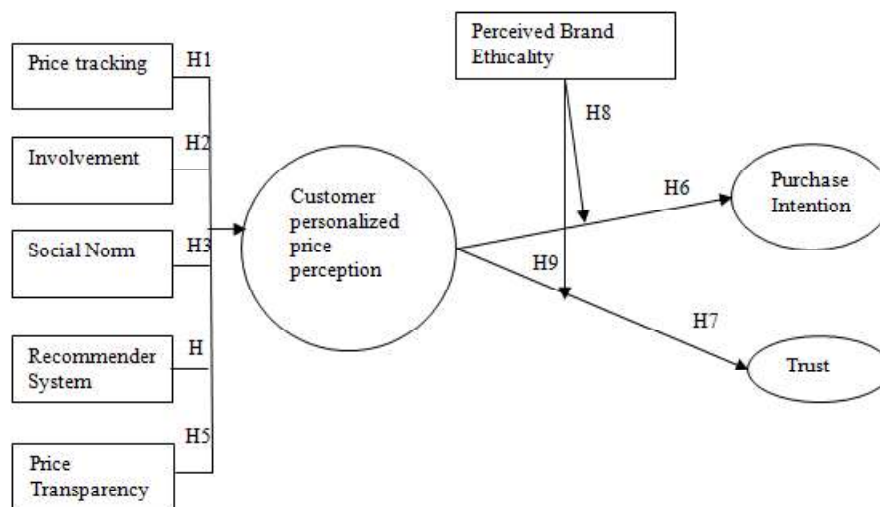


Figure 1. Proposed model and hypotheses

Research Methodology

Measurement Scales

All the items were measured on a five point Likert scale with strongly agree (5), somewhat agree (4), neutral (3), somewhat disagree (2), or strongly disagree (1). The sources of constructs and its measures are given in Appendix A. All items were pilot tested with a sample size of 31, and had high reliability score with Cronbach's alpha coefficients above the recommended level of 0.7 as shown in Table 1.

Table 1: Construct reliability and validity

Constructs	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Customer personalized price perception	0.862	0.906	0.707
Involvement	0.861	0.915	0.781
Perceived Brand Ethicality	0.817	0.888	0.725

Price Tracking	0.868	0.910	0.717
Price Transparency	0.880	0.917	0.736
Purchase Intention	0.797	0.868	0.622
Recommender System Benefits	0.885	0.920	0.742
Social Norm	0.914	0.936	0.744
Trust	0.882	0.919	0.739

Data Collection

To test the hypotheses, we chose participants who have used an online store for purchasing or browsed through an online store with an intention to purchase, but did not place an order. Respondents comprised of students from a large central university and working professionals in India. As actual online shoppers comprise of students and working professionals, they were chosen for data collection. Data was gathered using paper-based and google docs based questionnaire from April 2019 to September 2019. A questionnaire was administered to around 900 respondents, out of which 583 responses were received. 71 responses were deleted due to repeated or incomplete response. Finally, 512 valid responses were accepted with a response rate of 57%. The demographic profile of the sample size (512) comprised of 67.7% male and 32.2% female respondents; 97% had a college level education or above. 47% of respondents belonged to the age group of 18 to 25 years; 38% respondents belonged to 26 to 35 years, and 15% of respondents belonged to 36 years and above category.

Data Analysis

Structural Equation Modeling (SEM) was used to test the conceptual model (Chin, 1998; Haenlein and Kaplan, 2004). SmartPLS® 3.3.7 was chosen because it produces reliable results in a causal-predictive analysis, and when the hypotheses have complex relationships. Additionally, it requires minimum sample size and minimal requirements for sample distribution and measurement scales (Hair *et al.*, 2013). We had 512 samples satisfying the minimal sample size requirement. The reflective measurement model was tested for its reliability, convergent validity and discriminant validity to achieve fitness of measurement model. Internal consistency reliability was measured using Cronbach alpha (Nunnally, 1978), and had a value greater than 0.7.

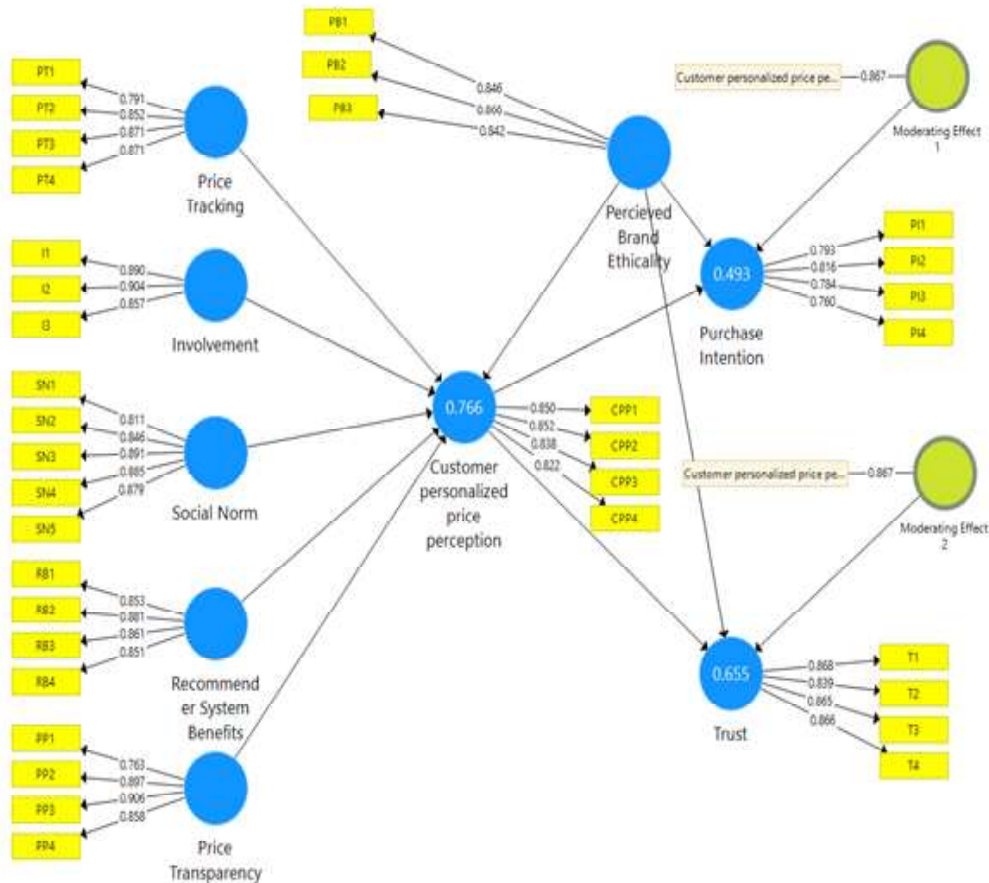


Fig. 2: Factor Loadings

Note: Reliability and convergent validity tests using SmartPLS® 3.3.7

Research Findings

Measurement model

The reflective measurement model was validated by analyzing Cronbach's alpha and composite reliability (CR) for internal consistency; loadings and average variance extracted for convergent validity and discriminant validity (Hair et al., 2017). Cronbach's alpha (higher than 0.7) and composite reliability (values between 0 and 1, where values between 0.7 to 0.9 is satisfactory and values above 0.95 are not desirable) with higher values indicate higher reliability for the model. In this model, all CR values are below 0.95 and above 0.7 (Hair et al., 2017). Convergent validity was verified examining factor item loadings and average value extracted (AVE); results showed values higher than 0.7 and 0.5 respectively (Fornell and Larcker, 1981; Hair et al. 2017) (see Table 1 and 2).

Table 2: Exploratory factor analysis for item loadings and cross loadings

	Customer personalized price perception	Involve ment	Perceived Brand Ethicality	Price Tracking	Price Trans parency	Purchase Intention	Recom mender System Benefits	Social Norm	Trust
CPP1	0.85	0.34	0.559	0.574	0.596	0.517	0.441	0.653	0.608
CPP2	0.852	0.312	0.57	0.632	0.624	0.607	0.445	0.684	0.582
CPP3	0.838	0.568	0.635	0.658	0.679	0.577	0.492	0.703	0.651
CPP4	0.822	0.459	0.569	0.602	0.719	0.574	0.348	0.704	0.682
I1	0.421	0.89	0.351	0.388	0.313	0.266	0.253	0.35	0.338
I2	0.404	0.904	0.34	0.338	0.283	0.23	0.245	0.327	0.316
I3	0.499	0.857	0.451	0.382	0.431	0.315	0.296	0.423	0.435
PB1	0.49	0.328	0.846	0.498	0.434	0.418	0.309	0.578	0.486
PB2	0.521	0.345	0.866	0.507	0.419	0.411	0.322	0.572	0.503
PB3	0.408	0.419	0.842	0.583	0.309	0.545	0.403	0.207	0.207
PI1	0.554	0.286	0.414	0.793	0.524	0.464	0.329	0.519	0.475
PI2	0.57	0.343	0.472	0.816	0.557	0.514	0.339	0.566	0.496
PI3	0.488	0.163	0.429	0.784	0.504	0.393	0.158	0.562	0.551
PI4	0.521	0.173	0.425	0.76	0.502	0.456	0.184	0.578	0.541
PP1	0.519	0.283	0.436	0.397	0.763	0.437	0.248	0.526	0.494
PP2	0.394	0.398	0.585	0.526	0.897	0.512	0.409	0.206	0.303
PP3	0.437	0.368	0.627	0.651	0.906	0.676	0.403	0.384	0.243
PP4	0.205	0.299	0.535	0.575	0.858	0.619	0.403	0.211	0.368
PT1	0.628	0.263	0.522	0.579	0.548	0.791	0.51	0.686	0.536
PT2	0.55	0.318	0.529	0.441	0.512	0.852	0.27	0.588	0.505
PT3	0.565	0.356	0.528	0.455	0.515	0.871	0.318	0.444	0.503
PT4	0.217	0.465	0.553	0.484	0.568	0.871	0.43	0.599	0.524
RB1	0.366	0.209	0.327	0.368	0.338	0.245	0.853	0.369	0.241
RB2	0.405	0.235	0.336	0.429	0.336	0.244	0.881	0.385	0.267
RB3	0.311	0.327	0.428	0.434	0.464	0.326	0.861	0.203	0.402
RB4	0.459	0.25	0.321	0.347	0.334	0.288	0.851	0.384	0.301
SN1	0.496	0.343	0.225	0.238	0.419	0.58	0.453	0.811	0.355
SN2	0.252	0.339	0.387	0.753	0.169	0.266	0.301	0.846	0.404
SN3	0.218	0.379	0.393	0.57	0.253	0.217	0.378	0.891	0.218

Contd...

SN4	0.366	0.357	0.683	0.587	0.716	0.584	0.364	0.885	0.297
SN5	0.287	0.394	0.325	0.546	0.71	0.581	0.378	0.879	0.321
T1	0.428	0.322	0.258	0.526	0.619	0.562	0.256	0.375	0.868
T2	0.569	0.295	0.612	0.48	0.56	0.532	0.282	0.213	0.839
T3	0.376	0.409	0.451	0.513	0.213	0.531	0.322	0.261	0.865
T4	0.507	0.4	0.613	0.582	0.742	0.113	0.376	0.489	0.866

Note: Bold values are item loadings greater than 0.7 using SmartPLS@ 3.3.7

Discriminant validity is the extent to which one construct is distinct from another empirically. Table 3 shows the squared correlations between the factors were lesser than the corresponding AVE estimates (Fornell and Larcker, 1981). In addition, the heterotrait-monotrait ratio (HTMT) was performed for discriminant validity by computing bootstrap confidence level lower than 2.5% and greater than 97.5% as lower and upper bound of 95% confidence level (bias-corrected and accelerated) with 5000 resample (Hair et al., 2017). It can be seen in Table 4, that neither of the values include 1, thereby supporting discriminant validity.

Table 3: Discriminant validity for the measurement model

	Customer person- alized price perception	Invol vement	Perceived Brand Ethicality	Price Tracking	Price Trans- parency	Purchase Intention	Recom mender System Benefits	Social Norm	Trust
Customer personalized price perception	0.841								
Involvement	0.504	0.884							
Perceived Brand Ethicality	0.695	0.437	0.852						
Price Tracking	0.735	0.420	0.631	0.847					
Price Transparency	0.781	0.395	0.642	0.636	0.858				
Purchase Intention	0.678	0.310	0.552	0.581	0.662	0.789			
Recommender System Benefits	0.513	0.302	0.415	0.460	0.434	0.325	0.861		
Social Norm	0.818	0.420	0.792	0.744	0.804	0.704	0.483	0.877	
Trust	0.753	0.417	0.737	0.612	0.769	0.652	0.360	0.657	0.860

Note: The average variance extracted (AVE) of each construct are values in diagonal, below the diagonal line are the shared values variances (r squared)

Table 4: Confidence intervals for HTMT

Hypothesis	lower than 2.5%	upper than 97.5%	Sig.	HTMT confidence interval does not include 0
H ₁ : PT → (+) CPPP	0.181	0.352	0.000	Yes
H ₂ : I → (+) CPPP	0.013	0.109	0.013	Yes
H ₃ : SN → (+) CPPP	0.010	0.103	0.015	Yes
H ₄ : RS → (+) CPPP	0.135	0.257	0.000	Yes
H ₅ : PT → (+) CPPP	0.191	0.387	0.000	Yes
H ₆ : CPPP → (+)PI	0.663	0.746	0.000	Yes
H ₇ : CPPP → (+)T	0.685	0.775	0.000	Yes

Evaluation of Structural Model

Smart PLS was used to test the structural model as shown in Table 5. Relationship between the constructs were assessed by investigating the path coefficients such as coefficients of determination R^2 , f^2 and corresponding t-statistics values to evaluate the structural model (Hair *et al.*, 2017). The steps for determining the predictive capabilities of the model is shown in Table 2. All the VIF values were less than 5. The estimated path coefficients values lie in between -1 and +1 for the hypothesized relationships, with values close to +1 indicating strong positive relation and -1 for strong negative values. Measure for in-sample predictive power was represented by coefficient of determination (R^2 value) (Hair *et al.*, 2017). Values greater than 0.20 are considered high for R^2 values in consumer behavior disciplines. In this study, the values 0.493 and 0.655 mean that 49.3% of customer purchase intention and 65.5% of trust was explained by customer perception of personalized price. The strength of each variable is measured by f^2 effect size and values below 0.02 indicate weak or no effect. Also, the goodness of fit measure SRMR to determine model fit was 0.07 which is less than 0.08 as suggested by Hair *et al.*, 2017. VIF were less than 0.3.

In our study, the values of f^2 are above 0.02. From the analysis, it can be noted that all our hypotheses H₁, H₂, H₃, H₄, H₅, H₆ were supported as summarized in Table 6. Figure 2 represent the Smart PLS model of the general framework and the results achieved through PLS algorithm. Hence H₆ ($\beta=0.522$, $t= 10.781$, $p=0.000$, $R^2 =0.493$, 95% CI=0.160 | 0.304) and H₇ ($\hat{\alpha}=0.470$, $t= 12.017$, $p=0.000$, $R^2 =0.655$, 95% CI=0.667 | 0.749) are supported.

Table 5: Structural model assessment procedure

Hypothesis	Collinearity Assessment VIF	Significance of the path coefficients Hypothesized relationships	Level of R ² R ²	f ² effect size f ²
H ₁ : PT → (+) CPPP	1.386	0.202		0.117
H ₂ : I → (+) CPPP	1.298	0.130		0.254
H ₃ : SN → (+) CPPP	1.180	0.288		0.120
H ₄ : RS → (+) CPPP	1.571	0.091		0.123
H ₅ : PT → (+) CPPP	1.790	0.295		0.111
H ₆ : CPPP → (+) PI	2.475	0.522	0.493	0.910
H ₇ : CPPP → (+) T	1.000	0.470	0.655	1.008

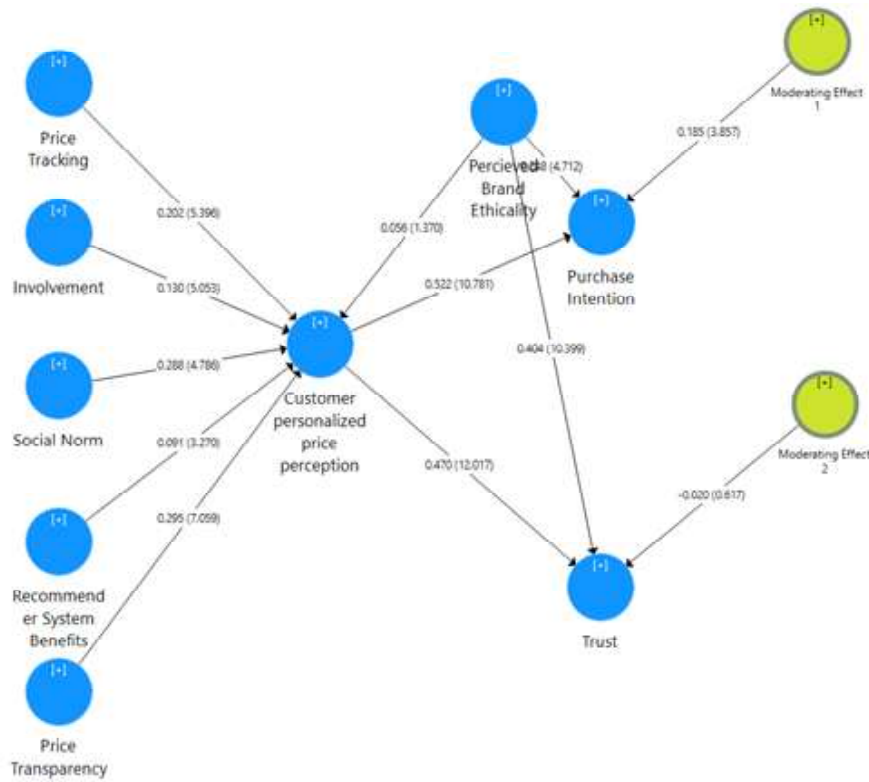


Fig. 3: Path Model

Table 6: General model resolution by smart PLS using PLS algorithm and bootstrapping

Hypotheses	General Framework	Path Coefficient	Standard Error	t-value	p-value	R ²	Confidence Intervals	Results
H ₁	PT → (+) CPPP	0.202	0.044	5.396	0.000		0.183 0.355	Supported
H ₂	I → (+) CPPP	0.130	0.025	5.053	0.000		0.013 0.109	Supported
H ₃	SN → (+) CPPP	0.288	0.023	4.786	0.000		0.012 0.103	Supported
H ₄	RS → (+) CPPP	0.091	0.031	3.270	0.000		0.135 0.257	Supported
H ₅	PT → (+) CPPP	0.295	0.051	7.059	0.000		0.187 0.383	Supported
H ₆	CPPP → (+) PI	0.522	0.036	10.781	0.000	0.493	0.160 0.304	Supported
H ₇	CPPP → (+) T	0.470	0.021	12.017	0.000	0.655	0.667 0.749	Supported
H8:	PBE moderates CPPP and PI	0.185	0.013	3.857	0.000		0.218 0.570	Supported
H8:	PBE moderates CPPP and T	-0.020	0.257	0.617	0.089		-0.069 0.238	Not Supported

Note: t-value should be greater than 1.96 (positive or negative) to be significant at < 0.05. Confidence interval neither of the relations includes the value zero for hypothesis that are supported.

Moderation test - Perceived Brand Ethicality

The moderating effect of perceived brand ethicality was checked by splitting the sample in two groups, high and low ethicality. Multi-group analysis was done in Smart-PLS® 3.2.8. Based on the sample of 512, 131 (26%) had low PBE, 224 (44%) of respondents had high PBE and 157 (31%) were eliminated, with final sample of 355; as used in research of Zaichkowsky (1985). This moderating variable assisted in understanding the effect of PBE on customer purchase intention and trust. Interesting results were obtained. First, low PBE had a positive impact on customer purchase intention but weaker association compared with high PBE ($\hat{\alpha}=0.655$, $t= 10.016$, $p=0.000$, $R^2 =0.469$, 95% CI=0.525 | 0.792) and high PBE had a positive impact on customer purchase intention ($\beta=0.742$, $t= 23.722$, $p=0.000$, $R^2 =0.605$, 95% CI=0.614 | 0.841). This can be evident from higher t values for high PBE than low PBE. Second, low and high PBE did not have an impact on trust ($\beta=0.271$, $t= 0.822$, $p=0.000$, $R^2 =0.101$, 95% CI=-0.478 | 0.681; $\beta=0.422$, $t= 2.722$, $p=0.000$, $R^2 =0.105$, 95% CI=-0.614 | 0.841) respectively. Thus, hypothesis H_{9a} and H_{9b} are not supported while H_{8a} and H_{8b} were supported. Hence, it can be concluded that customers with high level of PBE present stronger impact on the relation between customer perception of personalized price and customer purchase intention.

Discussion

Theoretical Implications

This study makes a number of theoretical contributions to the growing body of consumer perception of price discrimination and price fairness judgment literature. One of the significant contributions of this research is that, we have combined the Dual process theory, and Commitment trust theory to examine customer perception of price fairness (Darke and Dahl, 2003). The model proposed broadens the factors influencing customer perception of personalized price literature by blending findings from various previous studies, while integrating them into one conceptual framework for B-C e-commerce setting. Moreover, the effect of customer's perception of personalized price on customer purchase intention and trust moderated by perceived brand ethicality which has not been studied in the previous research forms the novelty of this paper.

Most importantly, in an online environment, customer price perception plays a very important role for gaining customer trust (Jarvenpaa and Toad, 1996). Taking into account these facts and research gaps, and by building on previous research, the role of involvement, recommender system, social norm and price transparency on customer's perception of personalized price have been studied in an attempt to add value to extant literature. We have also studied the moderating role of PBE on customer purchase intention and trust; this is a seminal contribution, as

it has not been studied comprehensively. This paper provides insights and in depth understanding on how customers respond to personalized price when moderated by variables such as PBE. Firms should focus on building and maintaining perceived brand ethicality.

From the results it is clear that, perceived brand ethicality moderate the intention to purchase from the online store. While comparing it with the direct path t value, the moderation t value of perceived brand ethicality on purchase intention is 3.857 which is much lesser than the direct path t-value of 10.981. Also, the moderating path of perceived brand ethicality on trust does not significantly moderate the relationship between customer perception and trust which is evident from the t value lesser than 1.960 which is 0.617 in comparison to direct path t value of 12.017. It can be concluded that customer personalized price perception play an important role in influencing online purchase intention and trust moderated by perceived brand ethicality.

Limitations and Further Research

This study can be conducted as an experimental study. One of the key factors in online purchase behavior determinants is e-loyalty and stickiness to online stores. Further studies can attempt to understand the role of stickiness to online store and e-loyalty on customer purchase intention and trust. This study does not consider price comparison, in formation of consumer price perception. Further studies can focus on price comparison with other consumers or self and how does it impact consumer purchase decision making and building trust.

Appendix A - Measurement items

Construct (Source)	Measurement items
Price tracking (Victor et al., 2018)	PT1 - I track the price of the products which I intend to buy for a few days before purchase.
	PT2 - I use some software applications or browser extensions to track the changes in the price of the product.
	PT3 - I consider the changing prices as an opportunity to buy products at lower prices.
	PT4 - I motivate my friends and family to track the prices to avoid paying higher prices.
Involvement (Zaichkowsky, 1985)	I1- I would be interested in reading information about how the product is made.
	I2- I would be interested in reading the Consumer reviews and report article about this product
	I3- I have compared product characteristics among brands.
Recommender System Benefits (Lee, & Rha, 2016)	Through recommender system,
	RS1- I can get personalized information tailored to my interests and needs.
	RS2- I can get personalized information tailored to my activity contexts.
	RS3- I can get personalized price information tailored to my shopping patterns.
Social Norm (Park and Smith, 2007)	RS4- I can reduce my time and effort in finding the shopping information I need.
	SN1- Family members whose opinion I value would approve personalized pricing in online store
	SN2- Family members whose opinion I value would approve my purchase of products with personalized pricing in online store
	SN3- Close friends who are important to me would support my purchase of products with personalized pricing in online store
	SN4- The residents in my community would support purchase of products with personalized pricing in online store
Price Transparency (Davari et al., 2016)	SN5- The general public would endorse personalized pricing.
	PP1- The online store does not charge my card without my explicit approval
	PP2- I do not have to worry about being charged additional amounts when I purchase a product online
	PP3- The online store does not have hidden "shipping and han-

	dling” charges
	PP4- The online store clearly mentions what charges will be added to the final price on the website
Customer personalized price perception (Litenstien et al., 1993; Xia et al., 2004)	CPP1- I generally shop around for lower prices on products, but they still must meet certain quality requirements before I buy them
	CPP2- Money saved by finding low prices is not worth the time and effort.
	CPP3- I perceive personalized price is fair and just.
	CPP4 - People ask me for information about prices for different types of products.
Perceived brand ethicality (Brunk, 2012)	PB1 - Online store brand I purchase from always adheres to the law.
	PB2 - Online store brand I purchase from is socially responsible.
	PB3 - Online store brand I purchase from will make a decision only after careful consideration of the potential positive or negative consequences for all those involved.
Trust (Liang et al., 2018)	T1- I believe the shopping through online store is trustworthy.
	T2- I believe online vendor keeps its promises and commitments.
	T3- I believe online vendor has high integrity.
	T4- I believe that retail website keeps my interests in mind during my transactions with it.
Purchase Intention (Jang, 2005)	PI1 - I intend to purchase from the online store that gives personalized price.
	PI2 - I would feel happy to receive personalized price for my product from the online store.
	PI3 - I am willing to pay personalized price for my product.
	PI4 - I intend to purchase from the online store as I felt acknowledged as a unique customer through personalized price.

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Determinants of Foreign Direct Investment in Indian Telecom Sector: A Co-integration Analysis

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Abstract: The Indian telecom sector is growing at a rapid rate due to the adoption of liberalization policies and increased participation of the private sector since 1991. FDI in telecom services in India has brought in a large amount of foreign capital, latest technology, increased market competition and remarkable development in the telecom industry and the Indian economy. The present study identifies the vital determinants of FDI inflows in the Indian telecom sector in the long-run as well as in the short-run using the cointegration technique, Auto-Regressive Distributed Lag (ARDL) approach for the period 1991-2017. The study has considered six economic determinants viz. domestic credit to the private sector, external debt, education level of the workforce, market size, physical infrastructure and internet usage and five policy determinants viz. trade openness, exchange rate, macro-economic stability, business policy & regulatory environment and fiscal policy. The empirical findings show that among the economic determinants, physical infrastructure is the only significant determinant of FDI in the long-run. Among the policy determinants, exchange rate, macro-economic stability and business policy & regulatory environment are the significant determinants of FDI inflows in the long-run.

Keywords: Indian Telecom Sector, Foreign Direct Investment (FDI), Economic Determinants, Policy Determinants, Auto-Regressive Distributed Lag Model (ARDL)

Introduction

Most of the developing countries have started welcoming Foreign Direct Investment (FDI) in their territories. India has also opened its doors to FDI and with the adoption of economic liberalization since 1990s, there is a consistent increase in FDI inflows in India. Many new sectors are now open to FDI such as mining, banking, insurance, telecommunications, airlines and construction. From 2000 to 2019, the services sector has attracted the highest amount of FDI with

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17.65% of total FDI, followed by computer software & hardware with 8.87% and telecommunications with 7.82% of total FDI inflows in India (DIPP 2019).

The focus area of the present study is on FDI in Indian Telecom Sector which is also known as a “sunrise industry”. The past three decades has been considered as the golden period for this industry with exponential growth and development in terms of technology, penetration, as well as policy. The Indian telecom market has the second-largest subscriber base and has the second-highest number of internet users in the world after China. The mobile industry contributed 6.5% of India’s GDP and provided 2.2 million direct jobs and 1.8 million indirect jobs across both organized and unorganized sectors (GSMA 2016). The telecom industry has not only accelerated the rate of economic growth in India but also assisted in the benefits of growth to ‘trickle down’ to poorer socio-economic groups in the country. According to the Global Infrastructure Hub forecast, with an increasing subscriber base especially in rural and remote areas, India needs huge investments for building telecom infrastructure over the next two decades. Since the telecom sector is a capital-intensive sector, the gap between investment requirements and the current trends in investments is widening over time. This indicates the excessive dependence of the Indian telecom sector on external financial assistance for its growth and FDI can play a vital role in meeting these fund requirements.

The Indian telecom sector was a regulated sector since independence and the government was reluctant to allow foreign investment in it. Until 1990, foreign companies were confined to the supply of telecom equipment only. Since liberalization, the government and the industry had adopted a positive attitude towards FDI and 49% FDI was allowed in value-added services such as cellular, paging, e-mail, Very Small Aperture Terminal (VSAT), video-conferencing and data communication services. In 2005, the government revised the percentage sectoral cap and allowed 74% FDI. In 2013, the government raised the FDI limit to 100%.

A growing Indian economy with special emphasis on the growth of services sector, favourable demographic dividends in the form of a larger younger age group, rising income of consumers, presence of skilled labour, falling tariffs, active participation of private service providers, adoption of latest technologies and attractive investment policy for foreign investors have made India as one of the most alluring markets in the world for the suppliers of telecom equipment and service providers. Hence it is imperative to conduct an empirical study to show the relative significance of various factors that can further enhance the amount of FDI in the telecom sector of India. In this regard, the present study tries to identify the economic and policy determinants of FDI in the Indian telecom sector in the long run as well as in the short run.

Review of Literature

Green (2005) observes that there are substantial improvements in access to telecom services in India since its opening during the 1990s. The researcher has attempted the econometric analysis of sector-specific factors like market size, level of infrastructure, educational qualifications of workforce, modernization of society, trade openness, public debt and growing labour supply in a variety of models for the time 1993-2003. The results indicate that infrastructure and labour skills are statistically significant factors influencing FDI inflows to the Indian telecom sector. (Hashim et al. (2009) has used the regression analysis to determine the significance of the factors that affect FDI inflows in the telecom sector of Pakistan. The authors conclude that market size, foreign trade, competition, literacy rate and per capita income have a strong positive impact on the FDI flows in the telecom sector of Pakistan. Pannu (2010) has applied horizontal analysis and Karl Pearson Correlation coefficient to determine the factors affecting FDI in the telecom sector of Pakistan and found that the variables like political instability and fluctuations in economic growth are mainly considered by foreign investors. Mahajan (2010) identifies the determinants of FDI in India in the long-run as well as in the short-run by using Auto-Regressive Distributed Lag (ARDL) cointegration approach. The empirical findings show that trade openness, GDP and exchange rate are the main determinants affecting FDI inflows. A study (Shahrudinet al. 2010) has applied co-integration analysis based on an Auto-Regressive Distributed Lag (ARDL) model and Bounds testing technique to test the long-run association between FDI and its determinants in Malaysia. The findings suggest that 1% increase in financial development and economic growth attracts FDI inflows into the country by approximately 0.9% and 0.2% respectively. Luizand (2011) investigate the factors considered by South African telecommunication companies while undertaking investment into Sub-Saharan Africa (SSA) by employing a semi-organized interview study. The researchers have used the Stacey's distribution-fitting approach and find that market size, administrative regulatory environment and government policies are the three most important factors that influence the decision of foreign investors to undertake investment in SSA.

Data and Methodology

Potential Determinants of FDI Inflows

In this study, the determinants of FDI inflows in the Indian telecom sector are examined using time-series data for the period 1991-2017. The variables have been chosen based on their potential relationship to FDI in the telecom sector and their use in previous studies. As per guidelines of UNCTAD 2002, the selected variables have been grouped into two categories-

- I) Economic determinants- Domestic Credit to Private sector, External Debt, Education Level of Workforce, Market Size, Physical Infrastructure and Internet Usage are the economic factors.
- II) Policy determinants- Policy framework includes Trade Openness, Exchange Rate, Macro-Economic Stability, Business Policy & Regulatory Environment and Fiscal Policy.

Data Sources

To analyze the determinants of FDI in the Indian telecom sector, the data for the dependent variable (FDI) and other explanatory variables have been obtained from various sources such as Department of Industrial Policy and Promotion (DIPP), Annual Reports of DoT & TRAI, International Monetary Fund, International Financial Statistics & Data files, RBI, UNESCO, World Bank National Accounts Data, Indian Public Finance Statistics, Ministry of Finance, GOI, World Development Indicators and the Heritage Foundation.

Model Specifications

Model I

The following model has been developed to investigate the relationship between FDI in the Indian telecom sector and its economic determinants:

$$FDI = f(DCP, ED, ELW, MS, PI, IU) \dots\dots\dots (1)$$

where FDI = Foreign Direct Investment in the Indian telecom sector;

DCP= Domestic Credit to Private sector as a percentage of GDP;

ED= External Debt measured by Debt Stock-GDP ratio;

ELW = Education Level of Workforce measured by Gross Enrolment Ratio (GER) in secondary school (as a percent of all eligible children from 14-18 years);

MS=Market Size measured by Gross Domestic Product (GDP) at constant USD 2010 prices;

PI = Physical Infrastructure measured by Total expenditure (Revenue and Capital) of Central Government on transport & communications;

IU= Internet Usage measured by Internet Users as a percent of the total population;

Equation (1) can be represented in the following logarithmic form for carrying out the estimations:

$$\ln(FDI)_t = \beta_0 + \beta_1 \ln(DCP)_t + \beta_2 \ln(ED)_t + \beta_3 \ln(ELW)_t + \beta_4 \ln(MS)_t + \beta_5 \ln(PI)_t + \beta_6 \ln(IU)_t + \epsilon_t \dots\dots\dots (2)$$

In the above equation, β_1 is the intercept term and $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 are the parameters of the economic variables. ϵ_{1t} denotes a white noise error term with zero mean and constant variance. The variables are transformed into their natural logarithm form to avoid the problem of heteroskedasticity in the residuals of the estimated model.

Model II

The following model has been developed to investigate the relationship between FDI in the Indian telecom sector and its policy determinants:

$$FDI = f(TO, ER, MES, BPRE, FP) \dots \dots \dots (3)$$

where FDI = Foreign Direct Investment in the Indian telecom sector;

TO = Trade Openness measured by (Exports + Imports)/GDP* 100;

ER = Exchange Rate measured by annual average exchange rate Rupee vis-à-vis dollar;

MES= Macro-Economic Stability measured by Rate of Inflation;

BPRE= Business Policy and Regulatory Environment measured by Economic Freedom Index;

FP= Fiscal Policy measured by Corporate Tax Rate;

The logarithmic form of equation (3) can be represented as:

$$\ln(FDI)_t = \alpha_2 + \gamma_1 \ln(TO)_t + \gamma_2 \ln(ER)_t + \gamma_3 \ln(MES)_t + \gamma_4 \ln(BPRE)_t + \gamma_5 \ln(FP)_t + \epsilon_{2t} \dots \dots \dots (4)$$

In equation (4), α_2 is the intercept term of the equation and $\gamma_1, \gamma_2, \gamma_3, \gamma_4$ and γ_5 are the parameters of the policy variables. ϵ_{2t} denotes a white noise error term with zero mean and constant variance.

Methodology

Cointegration analysis is a useful econometric tool to examine the long-run equilibrium relationship between two or more time series. Many cointegration techniques have been proposed in the empirical literature such as Engle and Granger (1987), Phillips and Hansen (1990), and Johansen (1988) cointegration. The present study has applied Auto-Regressive Distributed Lag (ARDL) approach to find the determinants of FDI inflows in the Indian telecom sector using EViews software 9. This approach was developed by Pesaran and Pesaran (1997), Pesaran and Smith (1998, 1999) and has several advantages. ARDL model is a dynamic model which can be applied to obtain reliable results for the long run as well as the short run. ARDL approach gives robust estimations in

the case of small samples. The main advantage of using the ARDL approach is that it allows the cointegration of variables with different orders of integration. However, the variables must be integrated either of order zero or one. Therefore, it is necessary to test the data for unit roots. The study has used Augmented Dickey-Fuller (ADF) Test under Schwarz Info Criterion (SIC) to test unit roots in the series. The next step is to choose the optimum lag-length for the model. For this purpose, the Akaike Information Criterion (AIC) has been selected as it has a lower prediction error than that of the Schwarz Bayesian Criterion (SBC) based model.

The null hypothesis of no cointegration for Model I ($\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$), is tested against the alternative hypothesis of cointegration ($\beta_1 \neq 0; \beta_2 \neq 0; \beta_3 \neq 0; \beta_4 \neq 0; \beta_5 \neq 0; \beta_6 \neq 0$).

The null hypothesis of no cointegration for Model II ($\gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = \gamma_5 = 0$) is tested against the alternative hypothesis of cointegration ($\gamma_1 \neq 0; \gamma_2 \neq 0; \gamma_3 \neq 0; \gamma_4 \neq 0; \gamma_5 \neq 0$).

For this purpose, F-statistic is computed by applying the Bounds test. Then the calculated F-statistic is compared with the critical values provided by Pesaran et al. (2001). If the value of computed F-statistic is more than the upper bound, then the null hypothesis of no cointegration is rejected. However, if the computed value of F-statistic is less than the lower bound, the null hypothesis of no cointegration cannot be rejected. The result is inconclusive if the computed value of F-statistic lies between the lower and the upper bound. In such a case, the best way of establishing cointegration is by using the Error Correction Model (ECM) version of the ARDL model. It is based on the guideline that the estimated coefficient of ECT should be negative and significant. The speed of adjustment in a yearly data set can be determined by using the formula $1/ECT_{t-1}$. Finally, to determine the goodness of fit of the ARDL model, the residual diagnostic tests are performed which check the serial correlation, functional form, normality and heteroscedasticity in the model.

Empirical Estimations

Testing Unit Roots: Augmented Dickey-Fuller Test

Firstly, the stationarity of the variables is tested by conducting unit root tests. The present study has applied the Augmented Dickey-Fuller test (ADF) which carries the null hypothesis of non-stationarity (unit root) against the alternative hypothesis of stationarity (no unit root) and the results are shown in Table 1.

It is evident that in the case of FP, data is stationary at a level using intercept,

Table 1: Unit root table: ADF (Schwarz Info Criterion)

S.No	Variables	At Level		Trend and Intercept		Intercept		At First Difference		Order of Integration
		ADF-Statistics	p-value	ADF-Statistics	p-value	ADF-Statistics	p-value	ADF-Statistics	p-value	
1	Foreign Direct Investment (FDI)	-2.205266	0.2092	-2.414137	0.3643	-4.200314	0.0033***			I (1)
2	Domestic Credit to Private Sector (DCP)	-0.691624	0.8319	-0.761096	0.9567	-1.498473	0.5172	-4.027939	0.0210**	I (1)
3	External Debt (ED)	-1.240828	0.6408	-1.308024	0.8632	-5.197945	0.0003***			I (1)
4	Education Level of the Workforce (ELW)	0.937484	0.9944	-1.838441	0.6567	-4.581721	0.0013***			I (1)
5	Market Size (MS)	1.296621	0.9979	-1.959554	0.5952	-4.489278	0.0017***			I (1)
6	Physical Infrastructure (PI)	0.056637	0.9557	-2.320357	0.4087	-4.330613	0.0024***			I (1)
7	Internet Usage (IU)	-1.416531	0.5586	-0.577729	0.9719	-3.799426	0.0084***			I (1)
8	Trade Openness (TO)	-1.864978	0.3426	-0.125225	0.9914	-4.321280	0.0025***			I (1)
9	Exchange Rate (ER)	-2.465842	0.1349	-3.033605	0.1469	-3.979690	0.0055***			I (1)
10	Macro-Economic Stability (MES)	-2.808514	0.0733	-2.806475	0.2096	-5.587834	0.0001***			I (1)
11	Business Policy and Regulatory Environment (BPRES)	-2.126750	0.2365	-1.688728	0.7273	-5.786662	0.0001***			I (1)
12	Fiscal Policy (FP)	-3.148113	0.0352**							I (0)

Note: ** and *** represent significance at 5% and 1% levels of significance respectively

that is, it has I(0) order of integration as p-value is 0.0352 which is statistically significant at 5% level of significance. In the case of FDI, ED, ELW, MS, PI, IU, TO, ER, MES and BPRE, data are stationary at the first-order difference using intercept, that is, they have I(1) order of integration. Their p-values are significant even at 1% level of significance. In the case of DCP, data is stationary at the first-order difference using trend and intercept. It also has I(1) order of integration.

Since the order of integration of all the variables used in the study is either zero or one [I(0) or I(1)], therefore, ARDL methodology can be used in the present study to analyze the existence of a relationship between FDI and the selected variables.

Model I

$$\ln(\text{FDI})_t = \alpha_1 + \beta_1 \ln(\text{DCP})_t + \beta_2 \ln(\text{ED})_t + \beta_3 \ln(\text{ELW})_t + \beta_4 \ln(\text{MS})_t + \beta_5 \ln(\text{PI})_t + \beta_6 \ln(\text{IU})_t + \epsilon_{1t}$$

Model I examines the relationship between FDI and economic determinants viz. DCP, ED, ELW, MS, PI and IU. The optimum lag-length for the given model is chosen based on AIC and SBC criteria and the results obtained from the Vector Autoregressive (VAR) model are depicted in Table 2.

Table 2: Lag-length selection for cointegration: FDI and economic determinants

Lag	LogL	LR	FPE	AIC	SC	HQ
0	37.47667	NA	2.06e-10	-2.438134	-2.096848	-2.343476
1	241.5736	277.5718	9.91e-16	-14.84589	-12.1156	-14.08862
2	360.1395	94.85276*	1.19e-17*	-20.41116*	-15.29188*	-18.99129*

Note: * Indicates lag order selected by the criterion.

As per econometric guidelines, the optimum lag length structure is the one, where the values using AIC and SBC criteria are minimum. In the present case, they are minimum at 1-2 lag length. The selected ARDL framework for the existing variables is (2,1,2,2,2,2,1) and is presented in the form of the following equation:

$$\ln(\text{FDI})_t = \alpha_1 + \sum_{j=1}^q b_j \ln(\text{DCP})_{t-j} + \sum_{j=1}^q c_j \ln(\text{ED})_{t-j} + \sum_{j=1}^q d_j \ln(\text{ELW})_{t-j} + \sum_{j=1}^q e_j \ln(\text{MS})_{t-j} + \sum_{j=1}^q f_j \ln(\text{PI})_{t-j} + \sum_{j=1}^q g_j \ln(\text{IU})_{t-j} + \delta_1 \ln(\text{DCP})_{t-1} + \delta_2 \ln(\text{ED})_{t-1} + \delta_3 \ln(\text{ELW})_{t-1} + \delta_4 \ln(\text{MS})_{t-1} + \delta_5 \ln(\text{PI})_{t-1} + \delta_6 \ln(\text{IU})_{t-1} + \epsilon_{1t}$$

The parameters $\delta_1, \delta_2, \delta_3, \delta_4, \delta_5, \delta_6$ are the corresponding long-run multipliers, while the parameters b_j, c_j, d_j, e_j, f_j and g_j are the short-term dynamic coefficients of ARDL model.

The first stage of the ARDL model shows that the r-square value is 0.988656, which means that 98.87% variation in the model is explained by the endogenous variables. The p-value of F-statistic is 0.0002, indicating that the model is fitted well statistically. The value of the Durbin-Watson statistic is 2.995480 which lies between 2 and 4, so there is no problem of autocorrelation. In the next step, a Bounds test has been conducted for testing the existence of a relationship among the variables and the results are depicted in Table 3.

Table 3: ARDL bounds test for economic determinants

Test Statistic	Value	K
F-statistic	13.54026	6
Significance	I(0)Bound	I(1)Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

The results of the Bounds test show that the null hypothesis is rejected as the computed value of F-statistic is 13.54026 which is greater than the I(1) upper bound value 4.43 even at 1% level of significance. It depicts the existence of a long-run relationship between FDI in the Indian telecom sector and the selected economic variables.

Estimation of Long-run Coefficients of ARDL

The long-run coefficients of economic determinants of ARDL Model 1 along with their p-values are shown in Table 4.

Table 4: Long-run coefficients of economic determinants

Variable	Coefficient	p-values
DCP	4.282883	0.4112
ED	-1.602958	0.6824
ELW	-1.033862	0.9618
MS	21.704683	0.3039
PI	-4.554351	0.0484**
IU	-1.463692	0.4375
C	-103.86377	0.0914

Note: ** represents significance at 5% level of significance.

The equation pertaining to long-run relationship between FDI and economic variables derived from ARDL co-integrating frame work is given below:

$$\ln(\text{FDI}) = -103.8638 + 4.2829 \ln(\text{DCP}) - 1.6030 \ln(\text{ED}) - 1.0339 \ln(\text{ELW}) + 21.7047 \ln(\text{MS}) - 4.5544 \ln(\text{PI}) - 1.4637 \ln(\text{IU})$$

(0.4112) (0.6824) (0.9618) (0.3039) (0.0484) (0.4375)

where values in parentheses are p-values.

Based on the above equation, the following empirical results have been obtained.

- The probability values in the case of these variables are not statistically significant except for PI, which shows that no significant long-run causality is found to be running from DCP, ED, ELW, MS and IU to FDI. The p-value in the case of PI is 0.0484 which is statistically significant at 5% level of significance.
- In the long run, DCP and MS are positively correlated to FDI inflows and 1% increase in DCP and MS will lead to 4.28% and 21.71% increase in FDI respectively. Thus, provision of more domestic credit to the private sector and large market size encourages FDI inflows in the Indian telecom sector.
- MS has the highest positive effect on FDI as compared to other variables as its coefficient is 21.7047.
- ED, ELW, PI and IU are negatively related to FDI in the long run, depicting that 1% increase in these variables, will lead to a decrease in FDI by 1.60%, 1.03%, 4.55% and 1.46% respectively. The increase in external debt adversely affects the FDI inflows in the telecom sector. This result is in accordance with the prior studies. However, the results obtained in the case of PI, ELW and IU, showing the negative relationship between these variables and FDI inflows in the telecom sector are contrary to earlier studies.
- The negative relationship between physical infrastructure and FDI can be traced to the nature of the telecom sector which itself is a part of physical infrastructure. The telecom infrastructure in India has improved substantially over the years, which ceases to be a lucrative investment opportunity for the investors and now discourages them to make further investment. So, the foreign investors have started exploring new markets in African countries where the telecom sector is yet to be fully developed.
- ELW and IU are also negatively related to FDI inflows in the telecom sector of India. It implies that an increase in quality of education and internet usage has lowered FDI inflows. This probably has happened because higher quality of education is associated with higher salaries which are to be paid by the companies to their employees and thus, has lowered the interest of foreign investors in the telecom sector of India. Further, with increased internet usage, foreign investors come to know about the various constraints in doing business in India. So, they hesitate to make investments in India and are shifting towards

new emerging economies.

In the next step, Error Correction Model (ECM) is used to test the stability of the model. That is, if any disequilibrium arises in the long-run, then how much time will it take to restore to an equilibrium position. An Error Correction Term (ECT) is inserted in the equation to obtain results from ECM, given below:

$$\Delta \ln(\text{FDI})_t = \alpha_1 + \sum_{j=1}^q b_j \Delta \ln(\text{DCP})_{t-1} + \sum_{j=1}^q c_j \Delta \ln(\text{ED})_{t-1} + \sum_{j=1}^q d_j \Delta \ln(\text{ELW})_{t-1} + \sum_{j=1}^q e_j \Delta \ln(\text{MS})_{t-1} \\ + \sum_{j=1}^q f_j \Delta \ln(\text{PI})_{t-1} + \sum_{j=1}^q g_j \Delta \ln(\text{IU})_{t-1} + \lambda \text{ECT}_{t-1} + e_{1t}$$

Table 5 presents the calculated values of ECM of the dependent variable.

Table 5: ARDL: Estimation of ECM for economic determinants

FDI (-1)	ECT (-1)
0.473508	-0.87664
(0.0243) **	(0.0039) ***

Note: i) p-value of the coefficient is given in (.ii) ** and *** represent probability value at 5% and 1% levels of significance respectively

The coefficient of ECT_{t-1} is found to be -0.87664 and is statistically significant even at 1% level of significance. It confirms a long-run relationship between FDI in the Indian telecom sector and economic variables. The coefficient of ECM indicates a high speed of adjustment process. There will be about 88% of the speed of adjustment towards long-run equilibrium when there is an imbalance in the short-run and the economic system will take around 1.14 years to restore to long-run equilibrium position if any previous year disequilibrium prevails in the economy.

The short-run dynamics of the model are shown in Table 6.

Table 6: ARDL Co-integration form for economic determinants

Variable	Coefficient	p-value
D (FDI (-1))	0.473508	0.0243
D (DCP)	20.55511	0.0275
D (ED)	-8.592493	0.0793
D (ED (-1))	-6.34614	0.1393
D (ELW)	25.507706	0.0491
D (ELW (-1))	13.518982	0.4336

Contd...

D (IU)	0.470355	0.6947
D (IU (-1))	0.664309	0.4574
D (MS)	-0.530814	0.9742
D (MS (-1))	-92.187795	0.0007
D (PI)	0.95193	0.6288
ECM term i.e. CointEq (-1)	-0.87664	0.0039

It is observed that

- Physical Infrastructure (PI) and Internet Usage (IU) do not affect FDI in the Indian telecom sector in the short-run.
- Domestic Credit to Private Sector (DCP), External Debt (ED), Education level of Workforce (ELW) and Market Size (MS) affect FDI inflows in the short-run as they are significant at 5%, 10%, 5% and 1% level respectively. Their impact on FDI inflows in the short-run is considerable.
- All the variables considered for this study contain the expected signs in the short-run except for market size (MS) that shows a negative relationship with FDI.

The fitness of the model has also been checked and the results are shown in Table 7.

Table 7: Diagnostic testing of model I

Serial Correlation Test Statistic		Heteroscedasticity Test Statistic	
F-statistic	p-value	F- statistic	p- value
2.637911	0.1653	0.621004	0.7985

The results of the serial correlation LM test by Breusch-Godfrey and Heteroscedasticity test by Breusch-Pagan-Godfrey exhibit that there is no evidence of serial correlation and heteroskedasticity in the model as p-value is insignificant in both cases confirming the accuracy and reliability of the model.

Model II

$$\ln(\text{FDI})_t = \alpha_2 + \gamma_1 \ln(\text{TO})_t + \gamma_2 \ln(\text{ER})_t + \gamma_3 \ln(\text{MES})_t + \gamma_4 \ln(\text{BPRE})_t + \gamma_5 \ln(\text{FP})_t + \epsilon_{2t}$$

In the present model, the relationship between FDI in the Indian telecom sector and policy variables viz. TO, ER, MES, BPRE and FP is analyzed. The results of the VAR model for assessing the optimum lag-length of the model are exhibited

in Table 8.

Table 8: Lag-length selection for cointegration: FDI and policy determinants

Lag	LogL	LR	FPE	AIC	SC	HQ
0	55.21585	NA	7.86e-10	-3.937268	-3.644738	-3.856133
1	170.4658	165.9600*	1.52e-12*	-10.27727	-8.229554*	-9.709318*
2	208.0171	36.04923	2.41e-12	-10.40137*	-6.598475	-9.346607

Note: * Indicates lag order selected by the criterion.

The optimum lag-length for the given model is 1-2 based on the AIC criterion. The selected ARDL framework for the existing variables is (1, 1, 0, 2, 0, 1) and to test the existence of a long-run relationship between FDI and policy variables, following equation has been used:

$$\ln(\text{FDI})_t = \alpha_2 + \sum_{j=1}^q b_j \ln(\text{TO})_{t-j} + \sum_{j=1}^q c_j \ln(\text{ER})_{t-j} + \sum_{j=1}^q d_j \ln(\text{MES})_{t-j} + \sum_{j=1}^q e_j \ln(\text{BPRES})_{t-j} + \sum_{j=1}^q f_j \ln(\text{FP})_{t-j} \\ + \delta_1 \ln(\text{TO})_{t-1} + \delta_2 \ln(\text{ER})_{t-1} + \delta_3 \ln(\text{MES})_{t-1} + \delta_4 \ln(\text{BPRES})_{t-1} + \delta_5 \ln(\text{FP})_{t-1} + e_{2t}$$

The value of r-square of ARDL model 2 is 0.931238, indicating that 93% of variations in the model are explained by the policy variables considered in the study. The p-value of F-statistic is zero and Durbin-Watson statistic is 2.248551, depicting that the model is fitted well and is free from autocorrelation. The results of the Bounds test are depicted in Table 9.

Table 9: ARDL Bounds Test for policy determinants

Test Statistic	Value	K
F-statistic	4.637661	5
Significance	I(0)Bound	I(1)Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

The null hypothesis is rejected since F-value is greater than I(1) bound (4.637661 > 4.18) at 2.5% level of significance. This indicates the existence of a long-run cointegration relationship between FDI in the Indian telecom sector and the selected policy variables.

Estimation of Long-run Coefficients of ARDL

The estimates of long-run coefficients of policy variables along with their p-values are shown in Table 10.

Table 10: Long-run coefficients of policy determinants

Variable	Coefficient	p-values
TO	1.3128	0.547
ER	9.848026	0.003***
MES	2.304686	0.0145**
BPRE	-25.709673	0.1078*
FP	-6.711345	0.3396
C	85.854229	0.1782

Note: *, **, *** at 10%, 5% and 1% levels of significance.

The equation derived from ARDL co-integrating frame work, is written as:

$$\ln \text{FDI} = 85.8542 + 1.3128 \ln(\text{TO}) + 9.8480 \ln(\text{ER}) + 2.3047 \ln(\text{MES}) - 25.7097 \ln(\text{BPRE}) - 6.7113 \ln(\text{FP})$$

(0.547) (0.003) (0.0145) (0.1078) (0.3396)

where p-values are displayed in parentheses. It is inferred that

- The probability values in case of ER (0.003), MES (0.0145) and BPRE (0.1078) are significant at 1%, 5% and 10% levels respectively. This means that the exchange rate, macro-economic stability and business policy and regulatory environment are the significant determinants of FDI inflows in the Indian telecom sector in the long run.
- The p-values of TO and FP are not statistically significant even at 10% level of significance, depicting that trade openness and fiscal policy do not affect FDI significantly in the long run.
- FDI in the Indian telecom sector is positively correlated to TO, ER and MES, that is, 1% increase in these variables will lead to 1.31%, 9.85% and 2.31% increase in FDI inflows respectively.
- BPRE and FP are negatively related to FDI in the long run, depicting that 1% increase in these variables, will lead to a decrease in FDI by 25.71% and 6.71% respectively. Thus, the business policy & regulatory environment and fiscal policy of India are acting as deterrents to FDI inflows in the telecom sector. In India, heavy corporate taxes, stringent rules and regulations, procedural delays in obtaining a business license, endless trips to government offices and repeated encounters with officials and sometimes corrupt

bureaucrats, become a deterrent and discourage the foreign investors to make new investments in India.

The long-run ECM equation is written as:

$$\Delta \ln(\text{FDI})_t = \alpha_2 + \sum_{j=1}^q b_j \Delta \ln(\text{TO})_{t-1} + \sum_{j=1}^q c_j \Delta \ln(\text{ER})_{t-1} + \sum_{j=1}^q d_j \Delta \ln(\text{MES})_{t-1} + \sum_{j=1}^q e_j \Delta \ln(\text{BPRES})_{t-1} + \sum_{j=1}^q f_j \Delta \ln(\text{FP})_{t-1} + \lambda \text{ECT}_{t-1} + e_{2t}$$

Table 11 presents the results of ECM.

Table 11: ARDL: Estimation of ECM for policy determinants

FDI (-1)	ECT (-1)
0.473508 (0.0243) **	-0.734056 (0.0027) ***

Note: i) p-value of coefficient is given in (.ii) ** and *** represent probability value at 5% and 1% level of significance respectively.

The coefficient of ECT is found to be -0.734056 and it is statistically significant even at 1% level of significance, indicating that the model is well fitted. The results show an annual speed of 73% per annum which indicates that the economy will take nearly 1.36 years to converge to a long-run equilibrium position.

Further, the short-run impact of the policy variables is studied and the results are presented in Table 12.

Table 12: ARDL Co-integration form for policy determinants

Variable	Coefficient	p-value
D(TO)	-3.894364	0.1853
D(ER)	-2.075477	0.553
D(ER(-1))	-10.49444	0.0175
D(MES)	1.691769	0.0256
D(BPRE)	-18.87234	0.0634
D(FP)	-15.3048	0.0152
ECM term i.e. CointEq (-1)	-0.734056	0.0027

It shows that Trade Openness (TO) does not affect FDI in the Indian telecom sector in the short run as p-value (0.1853) is statistically insignificant. While Exchange Rate (ER), Macro-Economic Stability (MES), Business Policy and

Regulatory Environment (BPRE) and Fiscal Policy (FP) affect FDI inflows in the short run as they are significant at 5%, 5%, 10% and 5% levels respectively. It has also been found that except for MES, all other policy variables (TO, ER, BPRE and FP) are negatively influencing FDI inflows in the Indian telecom sector in the short-run.

The fitness of the model has also been checked. Table 13 shows the results of the serial correlation LM test by Breusch-Godfrey and Heteroscedasticity test by Breusch-Pagan-Godfrey.

Table 13: Diagnostic testing of model II

Serial Correlation Test Statistic		Heteroscedasticity Test Statistic	
f-statistic	p-value	f- statistic	p- value
0.45753	0.6434	1.45256	0.254

It is found that p-value is insignificant in both cases confirming the accuracy and reliability of the model as it passes the standard diagnostic tests of serial correlation and heteroscedasticity.

Conclusion

From the above analysis, it has been observed that among the economic determinants, physical infrastructure is the only significant determinant of FDI in the telecom sector in the long-run. Domestic credit to the private sector and market size are positively correlated to FDI, while external debt, education level of the workforce, physical infrastructure and internet usage are negatively related to FDI.

Among policy determinants, exchange rate, macro-economic stability and business policy & regulatory environment are the significant determinants of FDI inflows in the Indian telecom sector in the long-run. Trade openness, exchange rate and macro-economic stability are positively correlated to FDI, whereas business policy & regulatory environment and fiscal policy are negatively related to FDI, acting as deterrents to FDI inflows in the telecom sector of the country.

It is therefore recommended that Indian Government should take suitable measures to keep the exchange rate, inflation rate and corporate tax rate under control; reduce its external debt and establish investor-friendly business policies and regulatory environment so that the attractiveness of the Indian telecom sector to foreign firms could be maintained further and the country could benefit from the latest technological developments and attract essential finance needed for the development of the telecom industry.

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Financial Literacy and Stock Market Participation in India

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Abstract: The study aims to examine the relationship between financial literacy and the stock market participation in India. The participation in the Stock market includes investment in Stocks as well as Mutual Funds. The study is based on a survey of 408 Indian households. Financial Literacy is measured using objective measures of basic and advanced financial knowledge. Logistic regression was conducted to measure the relationships. The results show that there is a significant and positive influence of financial literacy. Moreover, the socio-demographic variables such as Investment experience, gender, marital status and income exhibit strong relationship with stock market participation. The study has implications for investors, financial services sector, government and policy makers in understanding the reason behind low stock market participation and devising strategies for boosting financial literacy.

Keywords: Financial Literacy; Stock Market Participation; Stockholdings; Investment; Stocks; Mutual Funds

Introduction

Investment in stocks gives high returns as compared to other investment options and helps to increase the saving. Yet, the stock market participation is low in India according to the report by Central Depository Services Ltd. (CDSL), which reveals that India has only about 3.7 per cent investment in equities in December 2020, as compared to 12.7 per cent in China and 55 per cent in US (either individually or through a mutual fund, assuming one account per person) (Mazumdar and Acharya, 2021). Similarly, according to NSE data (2020), only 8 crore Indian households invests in Mutual Funds. Only 12% of GDP of India comprises of Indian Mutual Fund Market Assets.

The Financial Literacy has assumed significant as it helps in managing personal finance, understanding of complex financial products (Rooij, Lusardi & Alessi, 2007) and prevention of financial frauds (Beal & Delpachitra, 2003).

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Several reasons have been identified for low stock market participation that are income risk, inertia, short sale constraints and shift from expected utility maximization (Haliassos and Bertaut, 1995), lack of wealth with younger population to invest in stock market (Constantinides, et al., 2002), life-cycle considerations and gap between lending and borrowing rates (Davis, et al. 2006), trust and culture differences (Guiso, 2008), influence of peers and neighbours (Hong, et al., 2004; Brown et al., 2008), limited numeracy skills, cognitive ability and intelligence quotient (IQ) (Christelis, et al., 2010; Grinblatt, Keloharju, and Linnainmaa, 2011) and lack of awareness about financial products (Guiso and Jappelli, 2005). Moreover, a number of studies indicate low financial literacy causes low stock market participation (Rooij, 2007; Van Rooij et al., 2011; Arrondel et al., 2015; Mouna and Jarboui, 2016; Chu et al., 2017; Liao et al., 2017; Thomas and Spataro, 2018 and Zhu and Xiao, 2021). In India, Mate and Dam (2017) reported that financial literacy as a reason behind low stock market participation in Pune city. However, the study had lack of rigour. Hence, there is paucity of comprehensive studies in Indian context. This acts as a primary motivation for undertaking the present study.

Literature Review

The pioneering studies on financial literacy by Bernheim (1995, 1998) reported low level of financial literacy among US consumers. Several studies reported lack of knowledge of basic concepts such as stocks, bonds and mutual funds in US households (Hilgert, et al., 2003), terms and conditions of consumer loans and mortgages (Moore, 2003). Similarly, other studies have also highlighted the lack of financial literacy worldwide (NCEE, 2005; Mandell, 2008; OECD INFE, 2011, 2013; Smith and Stewart, 2008; Christelis, Jappelli, and Padula, 2010 and Miles, 2004). Cocco et al., (2005) argued that lack of participation in stock market is detrimental to financial wellbeing. Van Rooij et al. (2011) reported that higher financial sophistication leads to increase in wealth and probability of investment in stocks. Rooij, et al., (2007) performed survey to measure financial literacy and its relationship with stock market participation and reported that those having low level of literacy are much less likely to invest in stocks. Van Rooij et al. (2011) surveyed Dutch households and found that those with low financial literacy much less likely invest in stocks. Thomas and Spataro (2018) and Arrondel et al. (2015) studied from nine European countries and documented positive and significant influence of financial literacy on stock market participation. Similar results were also reported in China (Chu et al. 2017; Liao et al. 2017; and Zhu and Xiao, 2021) and in Tunisia (Mouna and Jarboui, 2016). Yamori and Ueyama (2021) surveyed Japanese households and found that high financial literacy increases the stock market participation.

The above-mentioned studies underline that low financial literacy leads to the low stock market participation. The present study contributes to fill the void in the Indian setting.

Data

We have collected the data from the sample of 408 Indian households having minimum high school qualification and holding bank account. The geographical spread of the respondents spanned across the West, North and Central and South India. For collecting the data, convenience sampling method has been chosen. The questionnaire was self-administered. Most of the data was collected through survey by email and the rest was done by direct face-to-face personal interview and telephonic interviews.

The financial literacy is assessed using 16 objective measures of basic and advanced financial knowledge taken from the study of Van Rooij et al. (2011). The questionnaire includes 5 Basic and 11 advanced questions. The Basic questions includes the Big Three questions (Lusardi and Mitchell, 2014). The basic financial literacy questions assess the numeracy and understanding of basic financial concepts. The advanced items test knowledge about investment assets. It is calculated as the sum of the total number of correct responses out of 16, each correct response is given the score of 1 and incorrect as 0. The respondents were categorized on the basis of level of financial literacy i.e., low, medium and high. The method used for scoring and categorization of financial literacy is devised by Atkinson and Messy (2012) for the OECD INFE study (table 2).

Methodology

The logistic regression is used to test the effect of financial literacy on participation in stock market through investment in stocks and mutual funds. The logistic regression equations used are:

$$i. \quad y_{1i} = \hat{a} + b_1 x_i + \hat{a} \quad y_{1i} = \begin{cases} 0, & \text{if } y_{1i} < 0 \\ 1, & \text{if } y_{1i} > 0 \end{cases}$$

$$ii. \quad y_{1i} = \hat{a} + b_1 x_i + b_2 z_1 + \varepsilon$$

$$\text{iii. } y_{1i} = \alpha + b_1 x_i + \varepsilon \quad y_{2i} = \begin{cases} 0, & \text{if } y_{2i} < 0 \\ 1, & \text{if } y_{2i} > 0 \end{cases}$$

$$\text{iv. } y_{2i} = \alpha + b_1 x_i + b_2 z_1 + \varepsilon$$

First, the regression of stock market participation with each socio-demographic variables and financial literacy is carried out separately. Then, the multiple effect is noted by performing the regression of stock market participation along with all the socio-demographic variables combined together and lastly after incorporating all the socio-demographic variables along with financial literacy in the equation, respectively. The stock market participation is represented by two dependent variables i.e., Investment in Stocks (and Investment in Mutual Funds). These are dichotomous variables having value 1 if participated and 0 otherwise. Eight socio-demographic variables included are Age, Gender, Marital Status, Education, Subject of study, Occupation, Annual Average Income and Investment experience and are denoted as in the equation. The regression for stock investment and Mutual Fund Investment is conducted separately.

Results and Discussion

Table 1 provides the mean and standard deviation of the variables in the study. Table 2 provides the distribution of stock market participation directly through stocks and indirectly through mutual funds across socio-demographic variables and financial literacy. There are 29.4% of the respondents who have chosen to invest in stock and the equal proportion of respondents (i.e., 29.4%) have chosen to invest in mutual funds. Investment in both stocks and mutual funds is highest for the age group 31 to 40 years. This is in line with the studies by Bodie and Crane (1997), Campbell and Viceira (2002) and Van Derhei, Holden, and Alonso (2009). Additionally, the stock market participation increases with age until it reaches the 31-40 years group and then decreases with age, displaying hump shape. This is in conformity with the studies by Yoo (1994), Gomes and Michaelides (2005), Ameriks and Zeldes (2004) while showing contrast with the study by Constantinides, Donaldson and Mehra (2002).

Table 1: Summary of statistics of the estimation sample

	Mean	Std. Deviation	Minimum	Maximum
Age	2.25	1.085	1	5
Male	0.69	0.462	0	1
Married	0.75	0.435	0	1
Education (graduation or higher)	0.95	0.226	0	1
Subject (Business and Economics)	0.30	0.459	0	1

Contd...

Occupation (Salaried)	0.60	0.491	0	1
Annual Average Income	2.72	1.492	1	6
Investment experience	2.95	1.973	0	6
Financial Literacy	9.30	3.768	0	16
Investment in Stocks	0.29	0.456	0	1
Investment in Mutual Funds	0.29	0.456	0	1
Number of observations	408			

Table 2: Stock Market Participation across subgroups

	Stock Investment	Mutual Funds Investment		Stock Investment	Mutual Funds Investment
Respondents (Total 408)	29.4%	29.4%	Occupation		
Age	Salaried	62.5%	59.2%		
18-30	16.7%	12.50%	Non- salaried	37.5%	40.8%
31-40	46.7%	42.50%	Income		
41-50	19.2%	24.20%	Less than Rs 2.5 Lakhs	15.0%	10.0%
51-60	9.2%	11.70%	Rs 2.5 Lakhs to Rs 5 Lakhs	30.8%	25.0%
>60	8.3%	9.20%	Rs 5 Lakhs to Rs 10 Lakhs	20.0%	26.7%
Gender			Rs 10 Lakhs to Rs 15 Lakhs	13.3%	14.2%
Male	76.7%	82.5%	Rs 15 Lakhs to Rs 20 Lakhs	4.2%	5.8%
Female	23.3%	17.5%	More than Rs 20 Lakhs	16.7%	18.3%
Marital Status			Investment Experience		
Single	15%	10%	Less than 1 year	11.6%	10.8%
Married	85%	90%	1 to 3 years	16.7%	21.7%
Education	4 to 6 years	17.5%	24.2%		
Graduate and above	95.8%	95%	7 to 9 years	10.0%	10.8%
Below Graduate	4.2%	5%	10 to 15 years	26.7%	10.8%
Subject of Study			More than 15 years	17.5%	21.7%
Business & Economics	42.5%	39.2%	Financial Literacy		
Others	57.5%	60.8%	Low	22.5%	19.2%
			Average	17.5%	26.7%
			High	60.0%	54.2%

Figure 2 shows the distribution of financial literacy score. Only 2.9% of the respondents achieved the highest financial literacy score (answered all the

questions correctly), out of 408 respondents. 1.6% of the respondents have the lowest financial literacy score (answered all questions incorrectly or “do not know”). The mean score of financial literacy is 9.3 and median is 9. It shows that the average level of financial literacy of the sample is medium (i.e., less than 60%).

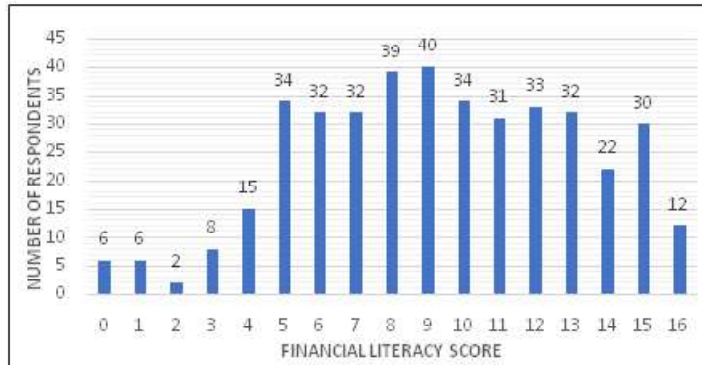


Figure 2: Financial Literacy Score of Total Respondents

Males have better stock market participation as compared to females. The participation in stocks and mutual funds increases with the increase in the level of education and income and vice-versa. The stock participation is highest for those falling under income group “Rs 2.5 lakhs to Rs. 5 Lakhs” and mutual fund participation is highest for income group “Rs 5 lakhs to Rs. 10 Lakhs”. However, it is noteworthy that people having subject of study other than business and economics have higher stock market participation. In case of occupation, salaried people participate more in stocks and mutual funds than non-salaried ones. The stock market participation is highest for those having investment experience of 10 to 15 years for stocks and 4 to 6 years in case of mutual funds. Furthermore, it is noted that higher the financial literacy, higher is the stock market participation and vice-versa. It is the highest in the category of those having high financial literacy.

The table 3 and 4 exhibit logistic regression estimates of individual and multiple regression conducted to gauge the influence of socio demographic variables and financial literacy on the Stock Investment and Mutual Fund Investment respectively. The socio-demographic variables used as dummy in the regression equation are Gender, Marital Status, Education, subject of study and Occupation.

Stock Investment

In table 3, the columns 1 to 8 represents the results of individual regression between socio-demographic variables and stock investment. Column 9 shows

the coefficient of regression between Financial Literacy and Stock Investment. Column 10 shows the regression between stock investment and all socio-demographic variables taken together. The column 11 shows the result of regression between stock investment and all the independent variables by incorporating all the socio-demographic variables and financial literacy together.

In case of individual regressions, it is evident that Age (coefficient= 0.240, significant at 5%), Gender (coefficient= 0.980, significant at 1%), Marital Status (coefficient= 0.864, significant at 1%), Subject of study (coefficient= 0.796, significant at 1%), Annual Average Income (coefficient= 0.238, significant at 1%), Investment experience (coefficient= 0.304, significant at 1%) and Financial Literacy (coefficient= 0.194, significant at 1%) have significant and positive impact on Stock Investment.

When all the socio-demographic variables are combined together in the regression equation, it is observed that only three socio-demographic variables i.e., gender, subject of study and investment experience indicate significant relationship at 1% significance level with Stock Investment. However, when regression of stock investment is conducted by adding Financial Literacy along with all the socio-demographic variables, the coefficients of gender, experience and financial literacy remained positive and significant at 1%. It is noted that subject of study was also having positive and significant relationship with stock investment, but turned insignificant when financial literacy as a control variable was added along with other socio-demographic variables. However, education and occupation have insignificant influence on the stock market participation through stocks investment. Moreover, financial literacy also has positive and significant relationship at 1% significance level with Stock Investment individually as well as by controlling other socio-demographic variables in the regression equation. It is observed that the relationship of gender, experience and financial literacy have remained and significant throughout the stages of regression. The value of R-Squared increased 0.207 (in column 11), when combining financial literacy along with all the socio-demographic variables. It means that 20% of the variation in Stock Investment can be explained by the model.

The major findings of the study reveals that gender has a significant relationship with Stock Investment which is in line with the previous studies such as Mankiw and Zeldes (1991), Yoo (1994), Haliassos and Bertaut (1995), Guiso, Haliassos, and Jappelli (2002), Campbell (2006), Almenberg and Dreber (2015) and Van Rooij, Lusardi, and Alessie (2011). The investment experience has positive and significant relationship with Stock Investment. Financial literacy plays positive and significant role in influencing stock market participation, which is in agreement with the result of other studies of Van Rooij et al. (2011), Arrondel (2012, 2015), Almenberg and Dreber (2015), Thomas and Spataro (2015), and Xia, Wang, and Li (2014).

Mutual Funds Investment

Table 4 exhibit the result of regression estimates of socio-demographic variables and financial literacy on stock market participation through mutual funds. The columns 1 to 8 shows the regression coefficient of individual socio-demographic variables on Mutual Fund Investment. The column 9 shows the coefficient of individual regression between Financial Literacy and Mutual Funds Investment. Column 10 shows the coefficients of regression between Mutual Funds investment and all socio-demographic variables combined together in the equation. The column 11 provides the result of regression between mutual funds investment and all the independent variables by incorporating all the socio-demographic variables and financial literacy together. It is evident from the table 4 that Age (coefficient= 0.435, significant at 1%), Gender (coefficient= 0.512, significant at 5%), Marital Status (coefficient= 1.425, significant at 1%), Subject of study (coefficient= 0.796, significant at 1%), Annual Average Income (coefficient= 0.238, significant at 1%), Investment experience (coefficient= 0.304, significant at 1%) and Financial Literacy (coefficient= 0.194, significant at 1%) have significant positive impact on Mutual Fund Investment in case of individual regression. However, column 10 shows that there exist positive and significant relationship of Mutual Fund Investment with income at 1% significance level and with marital status and subject of study at 5% significance. Furthermore, on incorporating financial literacy along with socio-demographic variables, positive relationship of mutual fund investment is demonstrated with financial literacy at 1% significance level and with Marital Status, Income and investment experience at 5% significance level. The significance of subject of study disappeared when all the socio-demographic variables are combined with financial literacy in the regression. However, the effect of education and occupation on mutual fund investment is insignificant.

We obtain that those who are financially literates, married and possess high investment experience and annual average income more than Rs 10 Lakhs are more likely to invest in mutual funds. Moreover, financial literacy is significant at 1% level and marital status and annual average income are significant at 5% level implies that these factors exhibit positive relationship with mutual fund investment, with or without including the financial literacy along with socio-demographic variables in the regression equation. In column 11, R-Squared value increased to 0.164, when all the independent variables in the regression were included, indicates 16.4% of the variation in Mutual Funds Investment can be explained. Hence, marital Status, annual average Income, investment experience and financial literacy are the most important predictors of Mutual Funds Investment found in the study.

The findings of the study are consistent with the studies of the past. For instance, we obtain that married have more stock market participation through mutual

funds than unmarried is supported by Van Rooij, Lusardi, and Alessie (2011), Haliassos and Bertaut (1995), Guiso, Haliassos, and Jappelli (2002) and Campbell (2006). Income has a positive effect on investment in mutual funds is also supported by Campbell (2006). Financial literacy positively influences the stock market participation through mutual funds, which is in line with the studies by Van Rooij et al. (2011), Arrondel (2012, 2015), Almenberg and Dreber (2015), Thomas and Spataro (2015), and Xia, Wang, and Li (2014). Moreover, the effect of age and gender gap disappeared with the inclusion of financial literacy and other socio-demographic variables as control variables in case of mutual fund investment.

Conclusion

The present study investigates to find the factors of stock market participation in equity stocks and mutual funds. The study documents low financial literacy among Indian households as they have limited knowledge of stocks, mutual funds, risk diversification and the working of financial markets. The participants of the stock market are predominantly male, married, aged between 31-40 years and belongs to upper middle class income group. They also have higher financial literacy as compared to the non- participants.

The regression analysis yields that gender, investment experience and financial literacy are significantly related to stock market participation in case of stocks. Moreover, Marital Status, Investment experience, Annual Average Income and financial literacy have a strong relationship with Mutual Funds investment. However, education and occupation has shown no hint of evidence in relationship with stock market participation either through stocks or mutual funds. Hence, investment experience is the most important socio-demographic factor that influences the stock market participation.

Taken together, the study provides evidence that financial literacy is a crucial determinant of stock market participation in India. However, the findings may be affected by including other dimensions of financial literacy such as financial attitude and financial behaviour. Additionally, the study only pertains to objective measures of financial literacy. Moreover, the subjective measures of financial literacy may impact stock market participation. In addition, the results may be altered by including other factors such as number of investment assets in the portfolio, sources of financial advice and interest in types of financial information.

Furthermore, the measure of stock market participation is self-reported. The findings may differ from the actual figures of stock market participation. Also, the percentage values of stock market participants in stocks and mutual funds across subgroups are not mutually exclusive. The study has implications for investors, financial services sector, government and policy makers in understanding the reason behind low stock market participation.

Table 3: Regression between socio-demographic (SD) variables, financial literacy (FL) and control variables with Investment in Stocks.

Independent Variables	Standardized coefficient (significance)										
	1	2	3	4	5	6	7	8	9	10	11
Age	0.240*									SD	SD+FL
Gender (dummy)		0.980**								-0.144	-0.271
Marital Status (dummy)			0.864**							0.927**	0.900**
Education (dummy)				0.367						0.638	0.657
Subject of study (dummy)					0.796**					-0.037	-0.215
Occupation (dummy)						0.174				0.895**	0.524
Annual Average Income							0.238**			-0.001	0.104
Investment experience								0.304**		0.079	-0.080
Financial Literacy									0.194**	0.291**	0.359**
R squared	0.015	0.036	0.025	0.001	0.029	0.002	0.027	0.068	0.090	0.135	0.207

Dependent Variable: Investment in Stocks (Dummy: Yes=1, No= 0) Significance is shown as 1% (**), 5% (*) and 10% (*) and 5% (*), Dummy description: Gender: Male=1, Female=2; Marital Status: Married= 1, Unmarried=0; Education: Graduate and above= 1, Below Graduate=0; Subject of Study: Business and Economics= 1, Others= 0; Occupation: Salaried=1, non-Salaried= 0

Table 4: Regression between socio-demographic (SD) variables, financial literacy (FL) and control variables with Investment in Mutual Funds.

Independent Variables	Standardized coefficient (significance)										
	1	2	3	4	5	6	7	8	9	10	11
Age	0.435**									SD	SD+FL
Gender (dummy)		0.512*								0.104	0.055
Marital Status (dummy)			1.425**							0.327	0.255
Education (dummy)				0.111						0.951*	0.963*
Subject of study (dummy)					0.586**					-0.516	-0.756
Occupation (dummy)						-0.023				0.482*	0.210
Annual Average Income							0.397**			-0.272	-0.195
Investment experience								0.304**		0.302**	0.214*
Financial Literacy									0.194**	0.114	0.129*
R squared	0.047	0.011	0.056	0.000	0.016	0.000	0.071	0.068	0.090	0.129	0.164

Dependent Variable: Investment in Mutual Funds (Dummy: Yes=1, No= 0) Significance is shown as 1% (**), 5% (*) and 10% (*). Dummy description: Gender: Male=1, Female= 2; Marital Status: Married= 1, Unmarried= 0; Education: Graduate and above= 1, Below Graduate= 0; Subject of Study: Business and Economics= 1, Others= 0; Occupation: Salaried=1, non-Salaried= 0

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Export Competitiveness of Textile Product Lines of India and China

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Abstract: This study is an analysis of the export competitiveness of textile product lines based on HS 2-digit classification for China and India, the two leading emerging economies of the globe, using the Revealed Comparative Advantage Index (RCA) and the Spearman rank correlation method (SRM) for the time period of 2001 to 2019. The results show that both economies compete well in the world market, however, China is leading in more product lines. In China, among the total 14 product lines of textiles, not a single product line is comparatively disadvantageous in the world market whereas, in India 4 product lines (HS 51, HS 56, HS 59 and HS 60) are comparatively disadvantageous in the world trade market. The degree of competition also revealed that India has a long way to go to push back Chinese influence in the world market.

Key words: Export Competitiveness, Spearman, Textiles, India, China, RCA.

Introduction

Textile sector is very important one in the international trade market for developing economies like India and China and has been kept such economies balanced through foreign exchange earnings. Textile industry has been one of the leading industries in India and is currently contributing around 3 percent towards GDP (FY2020) of the nation and has employed around 45 million people directly and indirectly making it the biggest industrial employer in India. Besides, this sector contributed about 12 percent in FY2020 for export earnings in India. Therefore, growth and competition with rival economies of this sector bears an important vitality on Indian export earnings. In a similar manner, textile sector has been the earliest export sectors of the Chinese economy, currently employing around 7 million people. However, among these 7 million workforces more than 70 percent are technical and skilled (Eloot and Lehnich, 2013) which is an important

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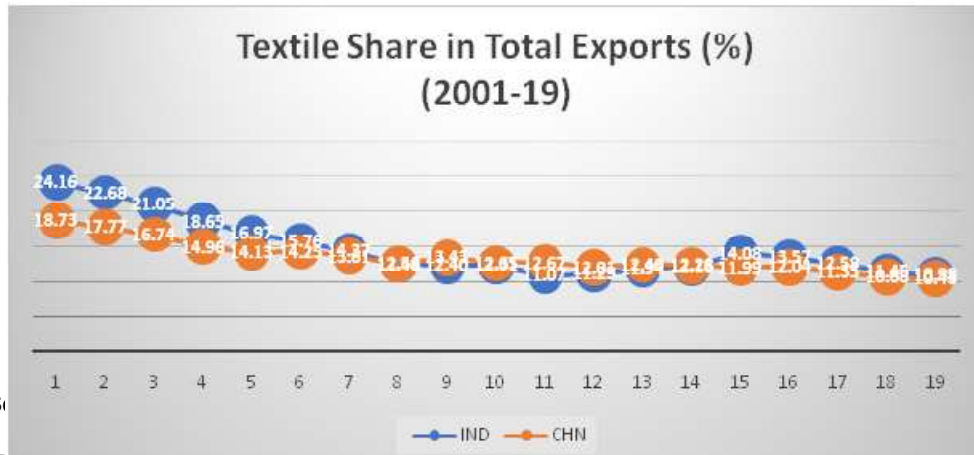
edge over the Indian workforce. Besides this, China has the largest textile industry around the globe contributing around 32 percent of world textile exports. China after becoming a member of World Trade Organisation (WTO) during 2001 has boosted its significance in the global trade market and its exports grew significantly. Additionally, after January 2005, the WTO legitimately incorporated the textile sector into a free trade framework, it has given China and India an ample and extremely beneficial conditions to export textile products in the world trade market (Ghosh and Rao, 2010). Besides this, these economies share the legacy of being the world's major textile exporting economies and thus competition and rivalry between these economies is an apparent consequence in the world trade market (Sun et al., 2018). Fig 1 shows the textile exports for China and India, respectively during 2001-19.



Source: Processing of UN COMTRADE data

The Fig 1 shows that, there is a huge gap between India and China in textile exports to the world market. Where China is heading towards USD 300 billion mark while as India is still creeping below USD 40 billion. Despite being a largest contributor to the employment in India among industries, this sector is showing a constant trend over the period as against China which is somehow trending upwards. However, the share of textile sector to the total exports is declining for both the nations and is almost the same from 2007 onwards as shown in Fig 2.

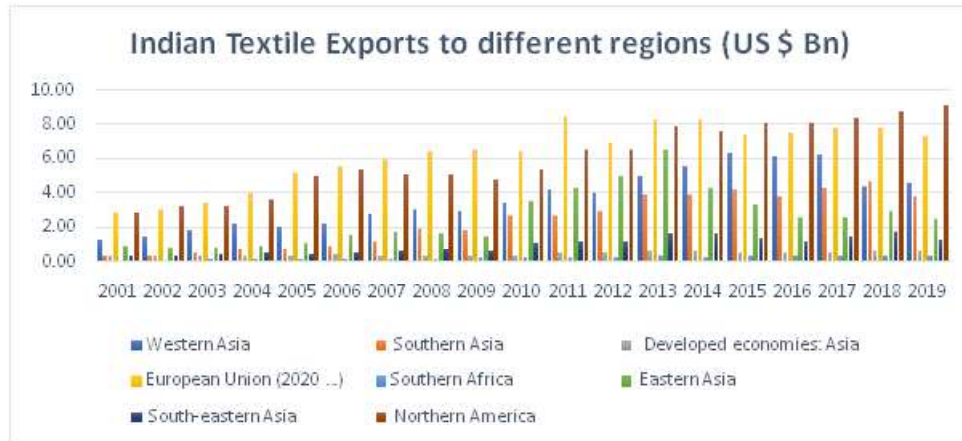
Fig 2 also reveals that the share percentage in total exports was quite high in India during early 2000s than China, touched around 24 percent in 2001 which is continuously declining since then and is 11 percent in 2019 slightly more than China. Chinese share is also declining from around 19 percent in 2001 to 10 percent in 2019. The declining share of India is not any big issue as the economy is moving towards other capital-intensive product lines like Chemicals and Pharmaceuticals, Machinery and Electric equipment (Ganai and Sarin, 2020). However, this industry is not to be underestimated, being a largest employer, it has the potential to make a huge impact on export earnings for Indian economy.



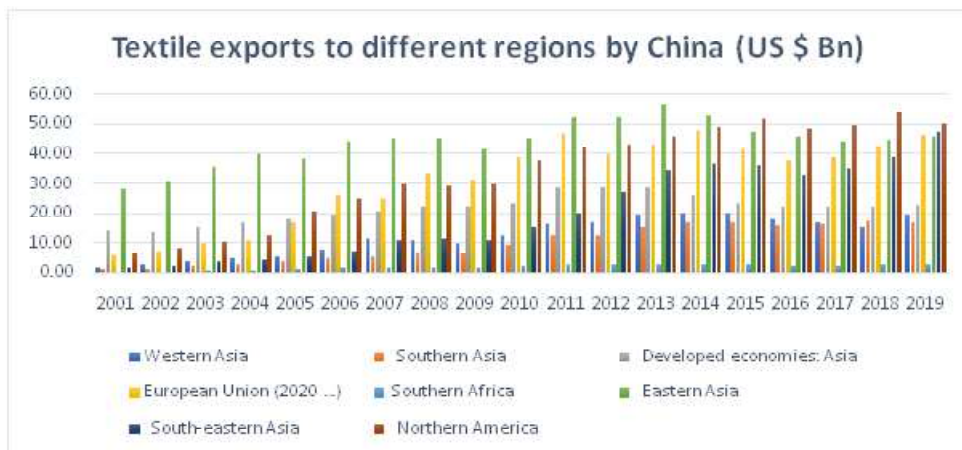
S

The only concerning issue to the Indian economy, arises from the fact that both India and China export their textile products mainly to the common markets of Northern America, the European Union and Eastern Asia. The major trading destinations of textile exports for India and China are given in Fig 3 and 4 respectively. These regions account for around 90 percent of total textile exports from India and China. The figures reveal that Indian major export destinations for its textile products from a long past has been the European Union, Northern America and Western Asia. However, for China, Eastern Asia has been the best market followed by the European Union and then Northern America is showing a huge response 2006 onwards. Fig 4 also shows that the growing presence of China in Northern America and Europe is a tough competition for the Indian textile sector along with other low-cost advantage economies like Bangladesh, Vietnam and Pakistan which are also showing their presence in these markets (Kathuria, 2013; Hossain et al., 2017).

The other regions in the list too have their impact on India-China textile exports and promoting the competition and rivalry between these two economies in the international trade market. Thus, this study would analyse the competitiveness of the textile sector of India and China in the world market and also to show the challenging contention and competition between India and China.



Source: Processing of UNCOMTRADE data



Source: Processing of UNCOMTRADE data

Literature Review

Since the liberalisation, India has globally made a growing position on account of the international trade and so does the China after gradually opening up to the global world. The exports as well as the market destinations of these economies are enlarging each passing year and hence the competition between these economies is also growing. Chinese growing presence in the world market has somehow altered the dynamic competitive positioning of other economies in the world market and so does to India (Miao et al., 2016). Besides this, developing economies also fear that China could outpace them in future in terms of growing exports of manufactures and mainly in the textile and clothing manufactures (Rasiah et al., 2011; Fang, 2012; Ruan and Zhang, 2014). However,

India is not showing any lesser competition to China in the world market in textiles and have been managing their main competitive sector of textiles from a historical past. Besides this comparative advantage of the respective economies of India and China does not show any huge and significant structural change in their manufacturing intensity (Batra and Khan, 2005; Burange and Chaddha, 2008; Pillania and Fetscherin, 2012). The Indian textile sector has been somehow trailing in its competitive advantage in the recent past than its rival economies due to high labour, power and transaction costs and low technical and labour productivity (Kathuria, 2013).

In order to find out the dynamics of the competitive structure of the textile sector, Revealed Comparative Advantage (RCA) will be used in this study. Bella Balassa (1965), developed this technique, known as Revealed Comparative Advantage (RCA), and therefore explores the comparative or competitive advantage of the commodities. It shows whether a commodity is comparatively advantageous over its competitor. This technique has been used by various authors and is one of the most efficient methods to evaluate the competitive structure of any economy (Lim, 1997; Leu, 1998; Mahmood, 2004; Smyth, 2005; Hadad, 2010 and Kathuria, 2013). The RCA method will find out the respective competitive products of India and China in the global market, but further the degree of competitiveness has to be analysed using the Spearman rank correlation method (SRM). This SRM is used to analyse the degree of competition between the economies or industries and has been employed by many researchers like, (Mahmood, 2000; Gautheir, 2001; Shyam, 2003; Kathuria, 2013). Therefore, along with the competitive structure of textiles in India and China, their degree of competition will also come into the picture in the global market. Hence, this study can suggest where India can follow or take note of their respective commodity in the world market against China.

Methodology and Data

The Revealed Comparative Advantage Index (RCA) and Spearman Rank Correlation method (SRM) is given as;

The RCA index is described as;

$$RCA_{cp} = \frac{X_{cp}/X_c}{X_{wp}/X_w}$$

Where;

RCA_{cp} = Revealed comparative advantage of the country c in product p .

X_{cp} = exports of commodity p by the country c ; X_c = total exports of the country c .

X_{wp} = world exports of commodity p ; X_w = total world exports.

Accordingly, country c exhibits the competitive advantage in the export of product p , if RCA_{cp} is greater than one and vice-versa.

This index would address the competitive position of textile products in India and China and one of the main advantages using this index is that it remains consistent with the relative changes in factor endowments or productivity level in an economy due to its static nature and shows the fundamental advantage of exporting commodities.

Another measure to find out the degree of competitiveness and the linear association of Chinese and Indian textile products in the global market, Spearman rank correlation method (SRM) is used and is described by a formula as under;

$$\rho = 1 - 6 \sum_{i=1}^n d_i^2 / n(n^2 - 1)$$

Range values of ρ are between -1 and +1

d_i^2 is the difference of the square of RCA India with RCA China and n being the number of years.

The value of ρ determines the degree of competitiveness between these two economies in the world market. A higher positive value closer to 1 indicates, that the economies are heatedly contesting in the market whereas the negative value indicates the complimentary in the export competitiveness of the concerned product lines. Similarly, value of the coefficient equal to zero, indicates no relationship between the product lines of the economies in question.

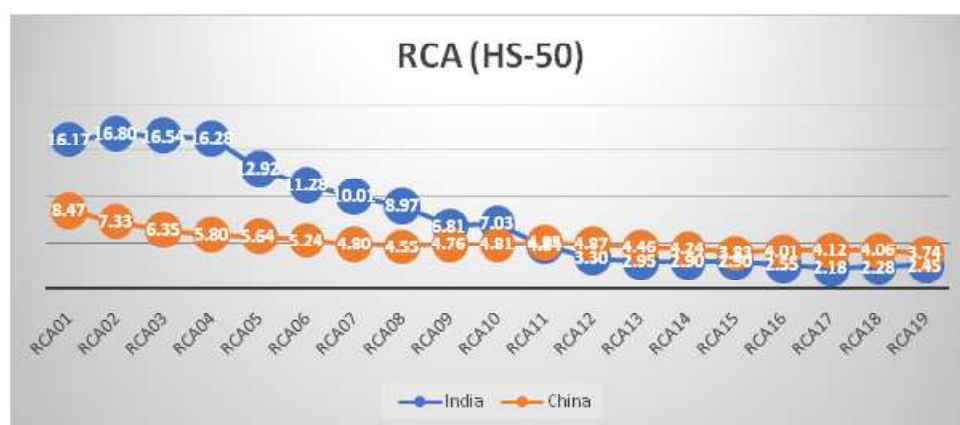
The employing of SRM is due to its non-parametric character and is therefore unaffected by the distribution of data. It is also a simple technique which is easy to apply to small samples. The data for this study is taken from UNCOMTRDAE and UNCTAD for the time period of 2001-19. HS 2-digit classification of UNCOMTRADE for textile product lines has been utilised in this study.

Results and Discussion

1.1 Competitiveness of textile products of China and India in the world market

HS-50 (Silk):

The first and the foremost textile product line is Silk (HS-50) and the competitive advantage of the same in the respective economies of India and China is represented in fig 1a.



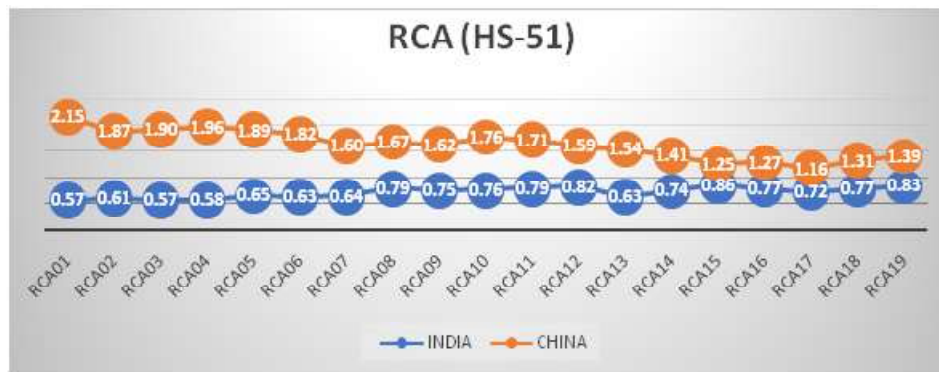
Source: Calculated by the author

The selected product line HS-50 has been very impressive in the early years of 2000s in India as the RCA value revolves around 16 as shown in figure. The RCA value has somehow declined from 16.17 in 2001 to 2.45 in 2019. However, the positive values of RCA greater than 1 show that India still has a significant position in competitiveness in the world market. The same is true for China as well, because China too has the RCA value for HS-50 greater than 1 throughout the period of 2001-19. However, the declining trend of both India and China can give an insight that both these countries can lose their comparative advantage in the future if not checked. This sector so far guarantees competitive advantage for both these economies in this product line.

HS-51 (Wool, fine or coarse animal hair; horsehair yarn and woven fabric):

The competitive position of this product line in India and China is described in fig 1b. It clearly reveals that in the world market, India lacks the competitive structure of this product line against China, as the RCA values are less than 1 throughout the period of 2001-19. The RCA value of HS-51 in India was 0.57 in 2001 and remained only 0.83 in 2019, whereas China had 2.15 and came down to 1.39 during the same period. The RCA values of HS-51 in India indicate that this product line remained insignificant throughout the study period whereas China has an edge over India in this product line. China has remained the top exporter

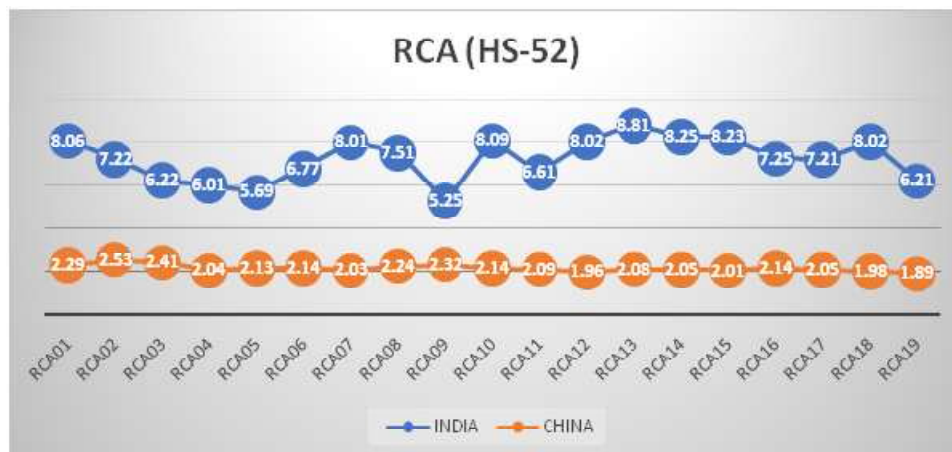
of the product line of HS-51 in global trade market during 2015 and still is the main exporter of this product line.



Source: Calculated by the author

HS-52 (Cotton)

The competitive position of HS-52 is shown in fig 1c, showing that the RCA value remained quite high for India against China during the study period. However, both these economies share competitiveness in the global market in this product line. India has somehow an edge in this product line than China as indicated by the graph and thus can be placed more advantageous than Chinese cotton in the global market.



Source: Calculated by the author

HS-53 (Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn):

The RCA graph is depicted in fig 1d for both India as well as China, which reveals that in this product line also India has an upper hand. The RCA value for HS-53 was 7.55 in 2001 and remained at 5 in 2019 for India, whereas during the same period China had RCA index 3.82 which came down to 1.98 as shown in fig 1d. The declining RCA values in China is somehow beneficial for India as it could grow more in the global market and can outpace the other contestants in the world market.

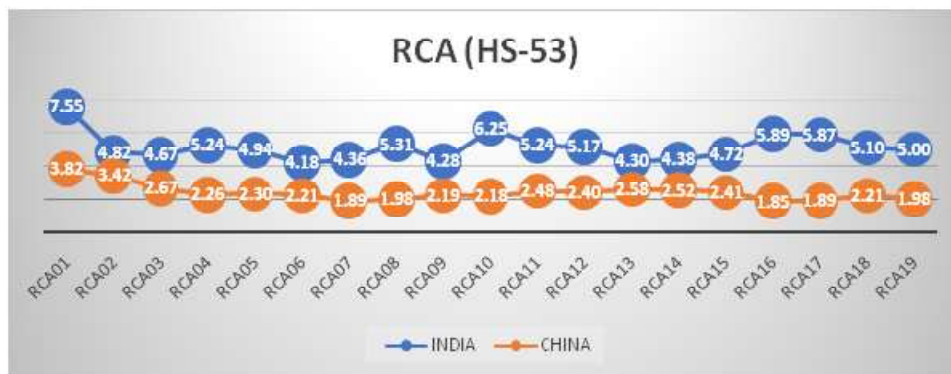


Fig 1d

Source: Calculated by the author

HS-54 (Man-made filaments; strip and the like of man-made textile materials):

Fig. 1e reflects RCA values of HS-54 during 2001-19 and both the economies are comparatively advantageous in the world market. However, the RCA values for Indian product line is on decline from 2010 onwards while that of Chinese RCA has shown an inclining value from 2010 as shown in fig 1e.

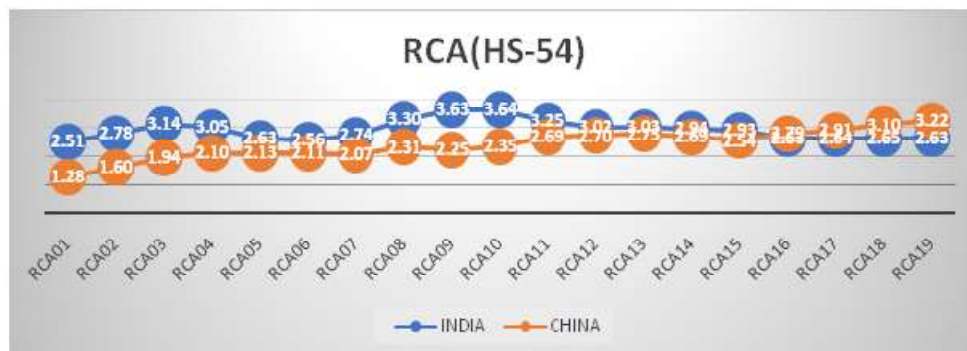


Fig 1e

Source: Calculated by the author

HS-55(Man-made staple fibres):

Fig. 1f reveals the export competitiveness of the product line of HS-55 and elucidates that both India and China are claiming the global market as both these economies have RCA values greater than 1 during the whole study period. India is somehow showing the higher values of RCA in HS-55 than China, but is coming closer to China during the recent periods of 2018 and 2019 as shown in fig 1f.

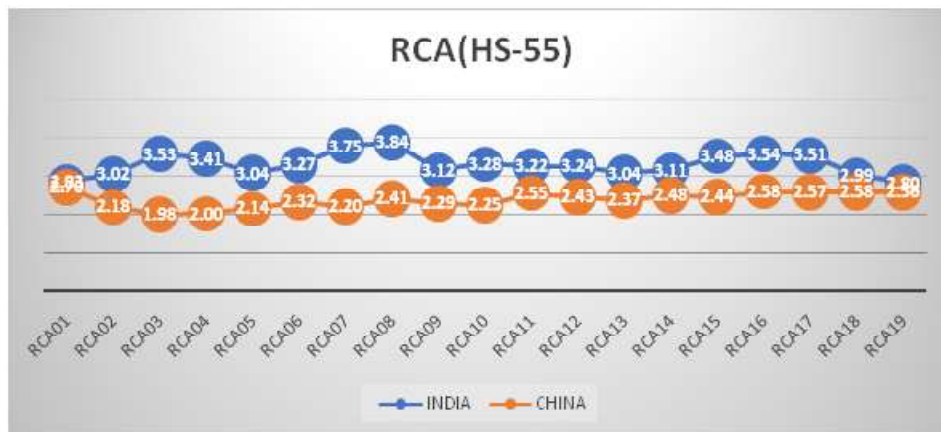


Fig 1f

Source: Calculated by the author

HS-56 (Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof):

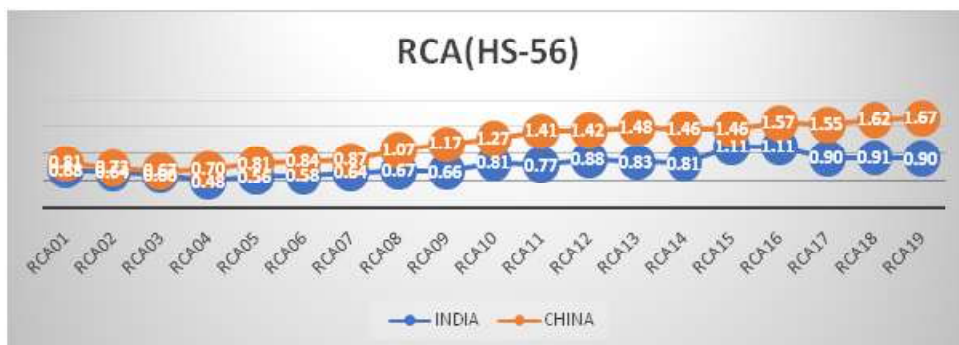


Fig 1g

Source: Calculated by the author

The RCA values of HS-56 are shown in fig 1g. It clearly shows that both the economies were comparatively disadvantageous in HS-56 product line in the global market up to 2007. However, China gained the momentum and RCA values start rising from 2008 and still are showing an inclining trend as shown in

fig. 1g. However, Indian product line of HS 56 could not match the criteria except for two years of 2015 and 2016 and is still comparatively disadvantageous in the world market. So, in this product line of HS 56, China is at the front and outpaces the India in the international trade market.

HS-57 (Carpets and other textile floor coverings):

Fig. 1h shows the RCA graph of HS-57 and clearly indicated that although both the economies are competitively positioned in the world market, but India has an upper mark as its RCA values of HS-57 are completely ahead of Chinese product lines of HS-57 during the whole study period.

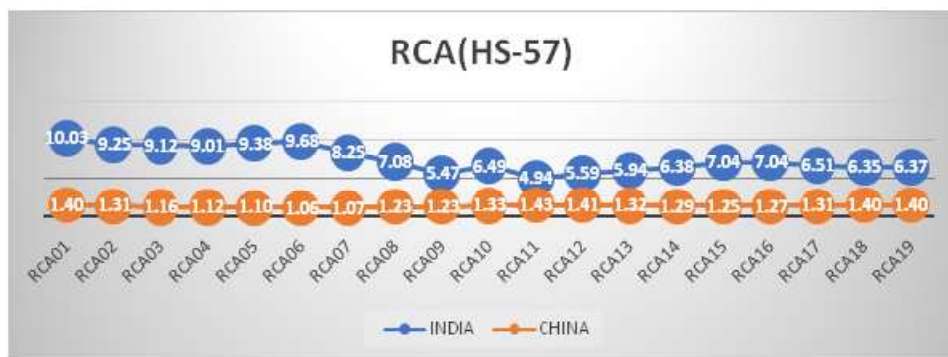


Fig 1h

Source: Calculated by the author

HS-58 (Special woven fabrics, tufted textile fabrics, lace, tapestries, trimmings and embroidery):

Fig 1i shows that in both these economies HS-58 is competitive advantageous in the world market and China is clearly ahead of India in RCA values almost from the beginning of the study period.

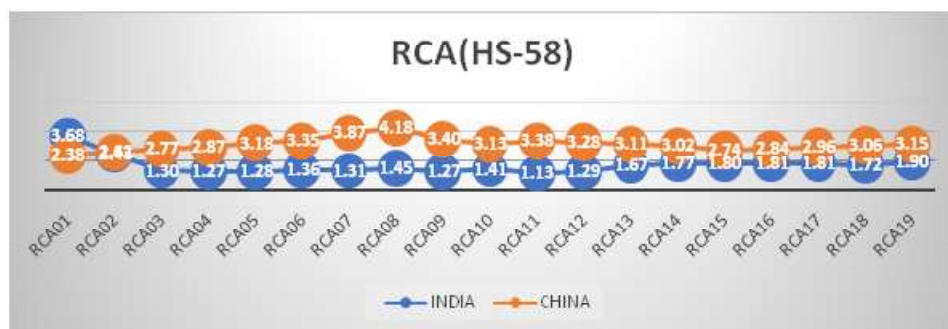


Fig 1i

Source: Calculated by the author

The RCA values for India in HS-58 were 3.68 in 2001 ahead of China, but came to 1.30 in 2003 and remained 1.90 during 2019. While as, China started from 2.38 and touched to 4.18 in 2008 then remained significant around 3 and is currently at 3.15 in 2019 as shown in fig 1i.

HS-59 (Impregnated, coated, covered or laminated textile fabrics):

Fig 1j shows the RCA structure of HS-59 for India and China during 2001-19 and reveals that from 2004 onwards China has maintained its competitive advantage over India in the global market. The Indian product line of HS-59 shows that the RCA values never crossed 1 during the study period and thus are comparatively disadvantageous in the world market.

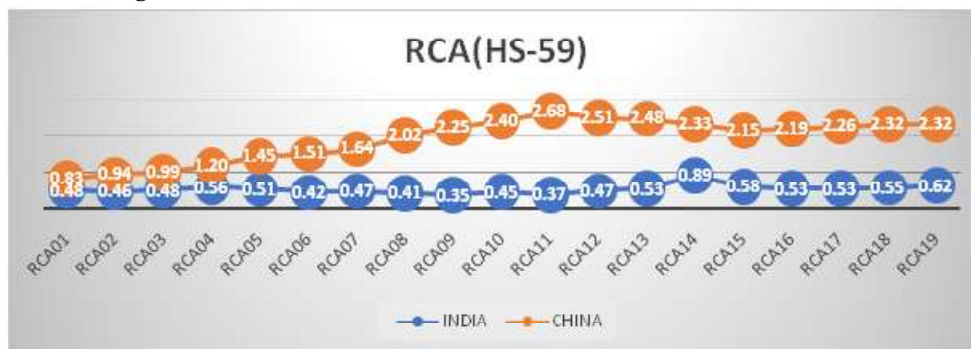


Fig 1j

Source: Calculated by the author

HS-60 (Knitted or crocheted fabrics):

Fig. 1k reveals that HS-60 product line of India is again at the backfoot against China in the world market. China has quite high values of RCA than India during 2001-19 whereas India could not manage to make this sector competitive in the world market as is shown in the figure.

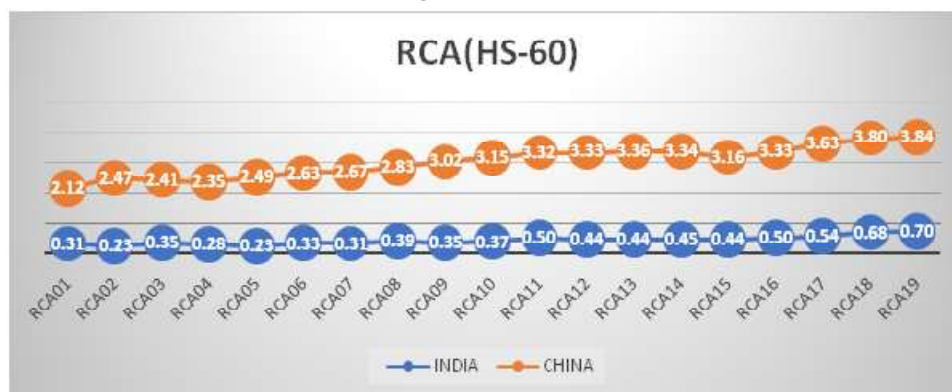


Fig 1k

Source: Calculated by the author

HS-61 (Articles of apparel and clothing accessories, knitted or crocheted):

In this product line of HS-61, both India and China enjoy the comparative advantage in the world market as the RCA values are greater than 1 during the whole study period. Both these economies have a fluctuating RCA values, but are competing very well in the world market as shown in fig 1L.

HS-62 (Articles of apparel and clothing accessories, not knitted or crocheted):

Fig. 1m shows the competitive position of HS-62 and reveal that both these economies are contesting very closely in the world market. The RCA values have been greater than 1 for HS-62 product line throughout the study period for both the economies.

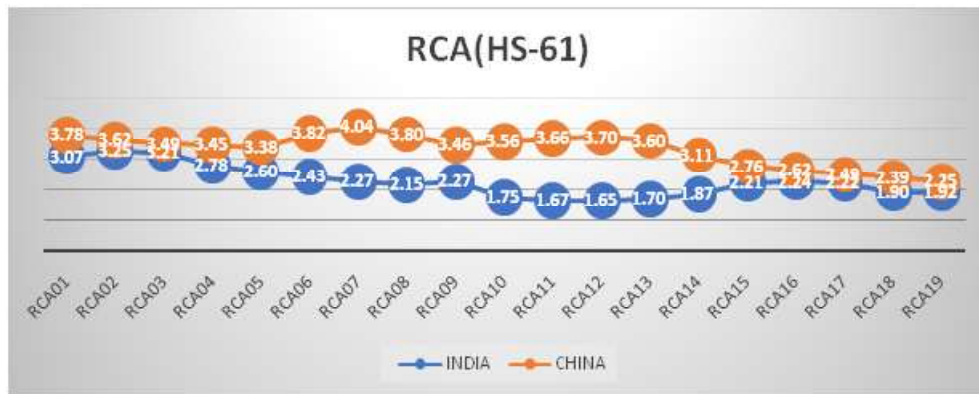


Fig 1L

Source: Calculated by the author

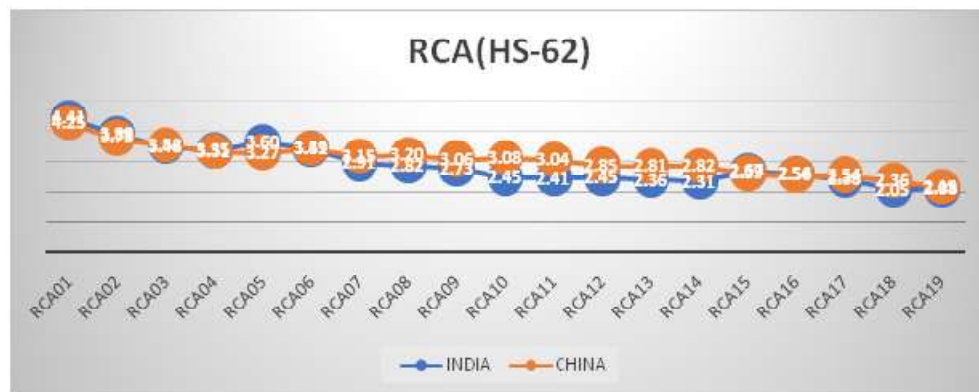


Fig 1m

Source: Calculated by author

HS-63 (Other made-up textile articles)

The RCA index of HS-63 is shown in fig 1n, which reflects that both the economies of India and China share the competitive positioning of this product line in the world market.

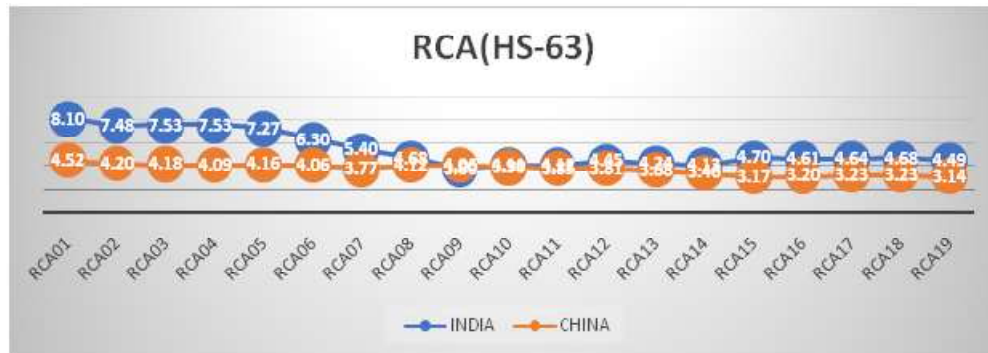


Fig 1n

Source: Calculated by author

Degree and nature of Competitiveness in Textile products between India and China

Table 1 describes the linear association and degree of competition between India and China among textile products in the global trade market. The analysis of textile products in the world market was done through SRM and the results depicted in table 1 shows the competition or complementary of product lines in the global market.

Table 1 (Degree of competitiveness analysed through Spearman coefficient, ρ)

HS Code	Product Names	Value of ρ
When value of ρ lies between 0.50 to 1, Higher competitiveness exhibits between India and China		
HS-50	(Silk)	0.90
HS-56	(Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof)	0.89
HS-59	(Impregnated, coated, covered or laminated textile fabrics)	0.86
HS-60	(Knitted or crocheted fabrics)	0.91
HS-62	(Articles of apparel and clothing accessories, not knitted or crocheted)	0.89
HS-63	(Other made-up textile articles)	0.50
Modest competition when ρ , (0.01 to 0.49)		
HS-61	(Articles of apparel and clothing accessories, knitted or crocheted)	0.11
Lower Competition if $\rho < 0$, Complementary exhibits between India and China		

Contd...

HS-51 (Wool, fine or coarse animal hair; horsehair yarn and woven fabric)	-0.66
HS-52 (Cotton)	-0.21
HS-53 (Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn)	-0.19
HS-54 (Man-made filaments; strip and the like of man-made textile materials)	-0.05
HS-55 (Man-made staple fibres)	-0.25
HS-57 (Carpets and other textile floor coverings)	-0.58
HS-58 (Special woven fabrics, tufted textile fabrics, lace, tapestries, trimmings and embroidery)	-0.59

Source: Calculated by the author

The employing of the SRM model was first passed through a test to find out whether the two variables possess the monotonic relationship, and results showed that both of these variables are significantly monotonic in nature. Three-point interval scale, higher competition when ($\tilde{n}= 0.50-1$), modest competition when ($\tilde{n}= 0.01-0.49$) and lower competition or complementary when ($\tilde{n} < 0$ up to -1) was used to measure the degree of competitiveness as shown in table 1.

The results reveal that textile product lines of (HS50, HS56, HS59, HS60, HS62 and HS63) of India and China possess a higher degree of competition in the world market. However, among these 6 product lines, India has competitive advantage only in 3 product lines (HS50, HS62, HS63). In the other three product lines, China has outpaced the Indian exports and is influencing the global market more than other competitors.

Similarly, only one product line, HS61 of India possesses the modest competition with Chinese counterpart and in this product line both are sharing the competitive edge in the world market. The last degree of competition represented in table 1 reveals that 7 product lines of textiles (HS51, HS52, HS53, HS54, HS55, HS57, HS58), are sharing a lower competition and are complementary to each other in the world market as shown in table 1. However, despite being complementary, HS51 of India is still struggling with its competitive edge.

Conclusion

This study is based on HS 2-digit classification of textile product lines for India and China, the two leading emerging economies of the globe, and competitiveness of such products have been measured using RCA index and SRM for 2001 to 2019. The results show that both economies compete well in the world market, however, China is leading in more product lines than India. In China, among the total 14 product lines of textiles, not a single product line is comparatively disadvantageous in the world market whereas, in India 4 product lines (HS 51, HS 56, HS 59 and HS 60) are comparatively disadvantageous in the global market.

The degree of competition also revealed that India has a long way to go to push back Chinese influence in the world market. India should formulate product wise strategy to outpace China in the export of textile products.

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Analysis of Accreditation of Higher Education Institutions of Uttarakhand

RUCHI TRIPATHI AND A. V. PRASAD

Abstract: The purpose of accreditation is to make sure that education provided by institutions of higher education meets suitable levels of quality accreditation are concerning assuring access quality as well as assuring quality, improvement in institutions and curricula, higher education institutions should ensure academic quality in the colleges, and universities. Based on criteria wise analysis of 38 accredited HEI, criterion one curriculum aspect, none of institutions scored CGPA ranges of 3.51-4.00, and only 2 HEI scored 3.26-3.50. Criterion 2 Teaching-Learning & Evaluation and 3, Research, Innovations & Extension none of HEI scored CGPA range of 3.26-3.50 and 3.51-4.00. Criterion 4, Infrastructure and Learning Resources, 8 HEI scored CGPA ranges of 3.26-3.50 and 3.51-4.00 and performed better than Criterion 1, 2 and 3. Criterion 5, Student Support and Progression, 4 HEI scored 3.26-3.50, Criterion 6, Governance, Leadership and Management, only one HEI scored 3.26-3.50 and criterion 7, Institutional Values and Best Practices, 2 HEI scored 3.26-3.50 and none of Institutions scored CGPA ranges of 3.51-4.00 in criterion 5,6 and 7

Keywords: Criteria, CGPA, Assessment and Accreditation.

Introduction

Comparative analysis is based on scores provided by the institutions under various criteria and some of the information drawn from the self study reports submitted by the institutions, NAAC website has been used and 38 accredited institutions are taken for the analysis purpose. The seven criteria represent the core areas of functions and activities of an HEI. In the revised framework not only the academic and administrative aspects of institutional functioning but also the emerging issues have been included. The seven criteria to serve as basis for assessment of HEIs are: Curricular Aspects, Teaching-Learning and Evaluation, Research, Innovations and Extension, Infrastructure and Learning Resources, Student Support and Progression, Governance, Leadership and Management and Institutional Values and Best Practices.

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Review of Literature

The objective of accreditation and evaluation is to ensure that the quality of education provided by the educational institution is consistent with the accreditation. Along with securing the quality in the institutes, there is a need to come up with shift in the institute with converted and modified curriculum.

It has been observed that the percentage of accredited institutions are more for private and government colleges, which is more than in grant-in-aid colleges. It is also observed that the performance of Deemed Universities is comparatively more than Central, Private and State Universities in overall CGPA (Uttarakhand Quality Fact Sheet 2021). Metric wise analysis is done to know where the institution is performing high. Metrics show areas of strength and best practices which can be promoted, (Quality Fact Sheet Andhra Pradesh, 2021). Ganesh, et al., (2021) found that many government colleges have obtained B grade or C grade. There are very few government colleges which have achieved A grade. According to Best Practices in Higher Education for Quality Management (2005), It is the responsibility of the educational institution to pay attention to its quality, the values they obtain, employability of graduates, and incomes associated with their education.

According to Lee and Sharon (2021) Higher education institutions should be accredited and evaluated by external body for efficient functioning and curricula, program as well as educational activities and reliable representation of individuals who can carry forward the complete evaluation in making the institutions successful. Ravikumar et al; (2021) advocated that NAAC Accreditation and Assessment have been done on the basis of accredited Indian Universities based on their scores, which infers that which region's inter-state university ranks. Under the RAF (revised accreditation framework) evaluation process, it was found that the performance of the northern university is better than the other regions. Abdullah (2020) highlighted that if the educational recognition and its importance is to develop, then the institution should measure in terms of the institution's progression, program and their quality along with increasing the paper and written work. Aithal, et al. (2020) stated that The National Assessment and Accreditation Council of India's Revised Accreditation Framework has evolved a new form of assessment and accreditation since July 2017. Institutional assessment and recognition of quality education is an essential aspect of the sustainability of an emerging and continuing quality university. Cumulative Grade Point Average (CGPA) between 0-4.0 declares the final result as a combination of quantitative and qualitative metrics with peer team visits reports. Kamlesh and Richa (2019) stated that Government agencies in universities, institutions and other major bodies through books, text books, references, should be in the form of current journals which be supposed to national and international

journals which must be included as a database (Saroj, 2017) highlighted that the contribution to the development and improvement of the society in the right way as a whole of higher education institutions which includes a major revolution in recognition to meet the needs of all spheres of social activity and in innovative expansion in the higher education institutions. NAAC has taken many initiatives to promote Indian education. Neha (2016) advocated that in order to streamline the process of assessment and evaluation, the institution needs maximum best practice because such practice will create a good culture. Best practice will increase the marks, grade, and rating of the institute which will rank the institute well. Quality is a must practice to deliver high results and maintain high ratings in future evaluations.

Objectives of the Study

- To analyse the criteria wise performance of accredited institutions areas of functions and activities of an HEI.
- To assess the impact of scoring pattern of each criterion on scoring pattern of overall CGPA.

Methodology

The criteria wise analysis of 38 accredited HEI has been done. The data has been collected from Peer Team Reports and Self Study Reports, Annual Quality Assurance Reports and other materials available from National Assessment and Accreditation Council. Methodology adopted quantitative analysis of scoring patterns, overall CGPA, with respect to the extent to which has been impacted by each criterion on the overall CGPA. Next Chi square test is carried out for the different criterion with the overall CGPA.

Following hypothesis are formulated:

- There is no significant relationship between the scoring pattern of each criterion and scoring pattern of overall CGPA.
- Alternate Hypothesis: There is significant relationship between the each scoring pattern of each criterion and scoring pattern of overall CGPA.

Analysis and Interpretation

The Table 1 mentioned criteria wise comparative CGPA scores of 38 accredited HEI, overall CGPA scores.

Table: 1 Criteria wise CGPA scores, overall CGPA scores, of accredited HEIs of Uttarakhand

No. of HEI	C 1	C 2	C 3	C 4	C 5	C 6	C 7	CGPA
1	1.5	1.97	2.05	1.75	2	2.43	2.6	2.04
2	2.1	2.24	2.7	2.8	2.7	2.2	1.6	2.35
3	2.1	2.37	1.27	2	2.8	2	2.4	2.15
4	3.2	3.21	2.8	2.3	2.6	2.4	2.3	2.85
5	2.12	2.96	1.94	2.14	0.99	3.1	2.95	2.46
6	1.8	2.07	2	2.35	2.3	1.67	2.3	2.5
7	2.1	1.92	1.65	2.85	2.7	2.5	2.3	2.18
8	2.7	2.98	2.45	2.05	3	2.73	2.3	2.75
9	2.5	3	2.2	3.65	2.6	2.73	2	2.83
10	2.5	2.73	1.9	3	2.6	2.8	1.3	2.59
11	1.6	2.81	2.1	2.5	2.3	2.4	2	2.5
12	2.7	2.83	2.35	3.3	3	2.8	2.3	2.81
13	1.5	2.46	2.4	1.8	2.5	1.6	1.1	2.07
14	1.6	2.16	1.4	2.6	1.9	1.93	2.2	2.04
15	2.5	2.9	2.95	3.2	3.3	2.8	2	2.9
16	2.5	2.9	2.95	3.2	3.3	2.8	2	2.9
17	2.6	1.9	1.75	1.3	1.3	1.3	1.6	1.7
18	2.3	2.4	2.7	2.85	3	2.53	2.3	2.55
19	2.2	3	2.33	2.3	3	2.3	2.3	2.61
20	2	2.67	2.45	2.05	2.4	2.43	2.3	2.47
21	2.8	2.3	2.3	2	2.7	2.57	2.6	2.39
22	2	2.43	1.73	1.7	2.5	2	1.3	2.03
23	2.7	2.97	2.07	3.3	3	2.7	3	2.82
24	1.33	2.55	1.55	1.88	1.19	2.43	2.18	2.02
25	2.1	2.32	2	3.3	3	2.67	3.6	2.56
26	2	1.61	1.65	1.95	2.5	2.07	2.2	1.86
27	2.3	2.07	1.65	2.85	2.3	2.27	2.3	2.18
28	2.3	2.71	2.07	2	3.3	2.1	3	2.53
29	1.6	2.04	1.55	2.35	1.9	2.37	1.9	2.03
30	2.8	3.23	2.33	3	3	2.3	1.8	2.77

Contd...

31	2.87	2.8	2.48	3	3	2.6	3.3	2.8
32	2.33	3.05	2.8	3	2.6	2.8	2.7	2.77
33	3.33	2.95	3.24	3.8	3.4	2.8	3.3	3.23
34	3.2	3	3	3.4	3	3.3	3.3	3.13
35	3.33	3.1	2.92	3.5	3	3.1	3	3.11
36	2.87	3.15	2.92	3	3	2.9	3.6	3.04
37	2.47	2.79	0.71	2.6	0.68	1.62	2.18	1.83
38	3	2.65	2.24	3.4	3	2.8	3.3	2.79

Criterion-1 Curricular Aspects

Curricular aspects is mainly in their implementation while its participation in curriculum development, procedural detailing, evaluation procedures as well as certification. Criterion includes Curriculum Design and Development, Planning and Implementation, Academic Flexibility, Curriculum Enrichment and Feedback System.

It is observed that out of 38 accredited HEIs, 15 HEIs have CGPA scores 2.01-2.50, 10 HEIs have CGPA scores 1.51-2.00, 5 HEIs have CGPA scores 2.76-3.00, 4 HEIs have CGPA scores 2.51-2.75 and only 2 HEIs have CGPA scores 3.01-3.25. None of HEI scored 3.26-3.50 and 3.51-4.00 in criterion one, Curriculum aspect.

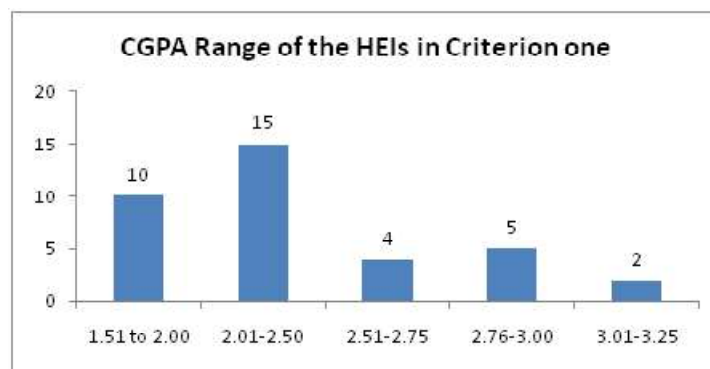


Figure: 1 CGPA range wise HEIs of criterion one

A statistical test has been done to verify the impact of various scoring pattern of criterion one GPA on scoring pattern of overall CGPA. The null hypothesis is framed as "there is no significant impact of scoring pattern of criterion one GPA on scoring pattern of overall CGPA. Chi-Square test is done between various ranges of GPA of criterion one and scoring pattern of overall CGPA.

Table: 2 CGPA wise analyses based on the scoring pattern of criterion one

Criterion-1	CGPA range of overall CGPA					Total
	1.51 to 2.00	2.01 to 2.50	2.51 to 2.75	2.76 to 3.00	3.01 to 3.25	
0 to 1.50	0	3	0	0	0	3
1.51 to 2.00	1	6	0	0	0	7
2.01 to 2.50	1	5	5	4	0	15
2.51 to 2.75	1	0	1	2	0	4
2.76 to 3.00	0	1	0	3	1	5
3.01 to 3.25	0	0	0	1	1	2
3.26 to 3.50	0	0	0	0	2	2
Total	3	15	6	10	4	38

Table: 3 Chi-Square tests of criterion-one

Chi-Square Tests		
Pearson Chi-Square	df	p- value
47.560	24	0.003

It can be concluded from the above chi-square test that the scoring pattern of criterion one has significant impact on the scoring on overall CGPA range.

Criterion-2 Teaching-learning & Evaluation

Criterion two pertains to the efforts of an institution to serve students of different backgrounds and abilities, through effective teaching-learning experiences. Interactive instructional techniques that engage students in higher order thinking and investigation, through the use of interviews, focused group discussions, debates, projects, presentations, experiments, practicum, internship and use of ICT resources are important considerations. Criterion two includes: Student Enrolment and Profile, Catering to Student Diversity, Teaching-Learning Process, Teacher Profile and Quality, Evaluation Process and Reforms, Student Performance and Learning Outcomes and Student Satisfaction Survey.

It is observed that out of 38 accredited HEIs, 11 HEIs have CGPA scores 2.01-250, 4 HEIs have CGPA scores 1.51-2.00, 13 HEIs have CGPA scores 2.76-3.00, 5 HEIs have CGPA scores 2.51-2.75 and 5 HEIs have CGPA scores 3.01-3.25. None of HEI scores 3.26-3.50 and 3.51-4.00 in criterion two Teaching-Learning & Evaluation.

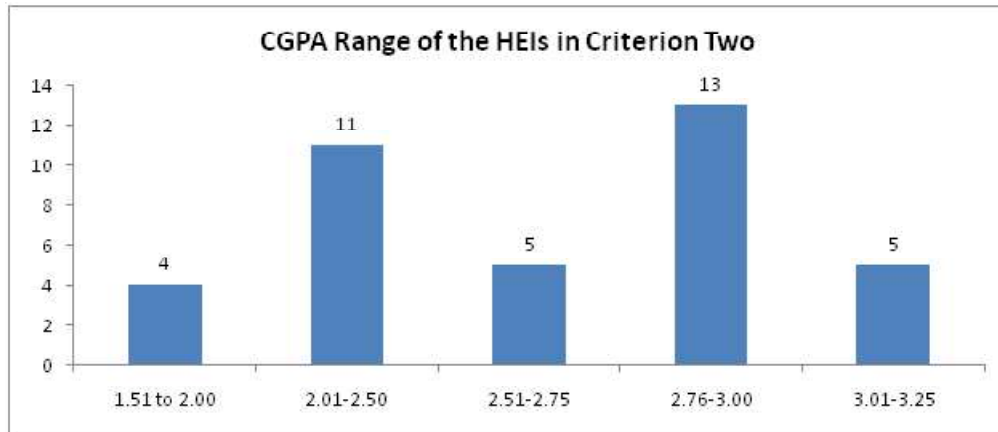


Figure: 2 CGPA Range wise HEIs of criterion two

The null hypothesis is framed as “there is no significant impact of scoring pattern of criterion two GPA on scoring pattern of overall CGPA. Chi-Square test is done between various ranges of GPA of criterion two and scoring pattern of overall CGPA.

Table: 4 CGPA wise analyses based on the scoring pattern of criterion two:

Criterion-2	CGPA range					Total
	1.51 to 2.00	2.01 to 2.50	2.51 to 2.75	2.76 to 3.00	3.01 to 3.25	
1.51 to 2.00	2	2	0	0	0	4
2.01 to 2.50	0	9	2	0	0	11
2.51 to 2.75	0	2	2	1	0	5
2.76 to 3.00	1	2	2	6	2	13
3.01 to 3.25	0	0	0	3	2	5
Total	3	15	6	10	4	38

Table: 5 Chi-square rests of criterion-two

Pearson Chi-SquareValue	df	p-value
37.600	16	0.002

It can be concluded from the above chi-square test that the scoring pattern of criterion two has significant impact on the scoring on overall CGPA range.

Criterion-3 Research, Innovations and Extension

This Criterion three seeks information on the policies, practices and outcomes of the institution, with reference to research, innovations and extension. It deals with the facilities provided and efforts made by the institution to promote a

'research culture'. The institution has the responsibility to enable faculty to undertake research projects useful to the society. Serving the community through extension, which is a social responsibility and a core value to be demonstrated by institutions, is also a major aspect of this criterion. The criterion three includes: Promotion of Research and Facilities, Resource Mobilization for Research, Innovation Ecosystem, Research Publications and Awards, Consultancy, Extension Activities and Collaboration.

It is observed that out of 38 accredited HEIs, 14 HEIs have CGPA scores 2.01-2.50, 14 HEIs have CGPA scores 1.51-2.00, 7 HEIs have CGPA scores 2.76-3.00, 2 HEIs have CGPA scores 2.51-2.75 and only 1 HEIs has CGPA score 3.01-3.25. None of HEI scored 3.26-3.50 and 3.51-4.00 in criterion three, Research, Innovations & Extension.

The null hypothesis is framed as "there is no significant impact of scoring pattern of criterion three GPA on scoring pattern of overall CGPA. Chi-Square test is done between various ranges of GPA of criterion three and scoring pattern of overall CGPA.

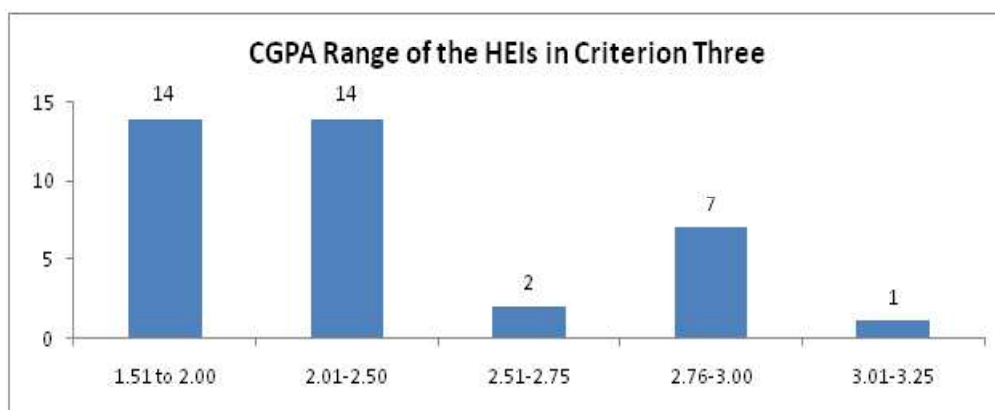


Figure: 3 CGPA range wise HEIs of criterion three

Table: 6CGPA wise analyses based on the scoring pattern of criterion three:

Criterion-3	CGPA range					Total
	1.51 to 2.00	2.01 to 2.50	2.51 to 2.75	2.76 to 3.00	3.01 to 3.25	
0 to 1.50	1	2	0	0	0	3
1.51 to 2.00	2	7	2	0	0	11
2.01 to 2.50	0	5	3	6	0	14
2.51 to 2.75	0	1	1	0	0	2
2.76 to 3.00	0	0	0	4	3	7
3.01 to 3.25	0	0	0	0	1	1
Total	3	15	6	10	4	38

Table: 7 Chi-square tests of criterion-three

Pearson Chi-Square Value	df	p-value
40.994	20	0.004

It can be concluded from the above chi-square test that the scoring pattern of criterion three has significant impact on the scoring on overall CGPA range.

Criterion- 4 Infrastructure and Learning Resources

The adequacy and optimal use of the facilities available in an institution are essential to maintain the quality of academic and other programmes on the campus. It also requires information on how every constituent of the institution - students, teachers and staff - benefit from these facilities. Expansion of facilities to meet future development is included among other concerns. Physical Facilities, Library as a Learning Resource, IT Infrastructure and Maintenance of Campus Infrastructure.

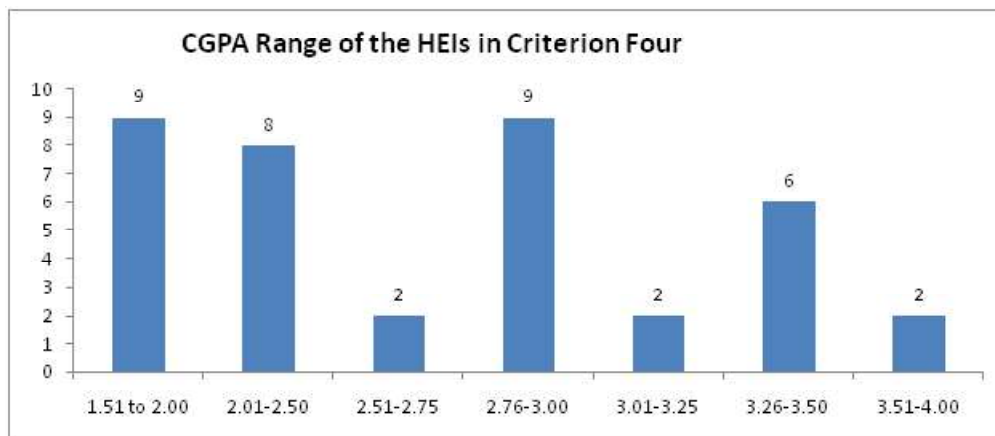


Figure: 4 CGPA range wise HEIs of criterion four

The null hypothesis is framed as “there is no significant impact of scoring pattern of criterion four GPA on scoring pattern of overall CGPA. Chi-Square test is done between various ranges of GPA of criterion four and scoring pattern of overall CGPA.

Table: 8 CGPA wise analyses based on the scoring pattern of criterion four

Criterion-4	CGPA range					Total
	1.51 to 2.00	2.01 to 2.50	2.51 to 2.75	2.76 to 3.00	3.01 to 3.25	
0 to 1.50	1	0	0	0	0	1
1.51 to 2.00	1	6	1	0	0	8
2.01 to 2.50	0	5	2	1	0	8
2.51 to 2.75	1	1	0	0	0	2
2.76 to 3.00	0	3	2	3	1	9
3.01 to 3.25	0	0	0	2	0	2
3.26 to 3.50	0	0	1	3	2	6
3.51 to 4.00	0	0	0	1	1	2
Total	3	15	6	10	4	38

Table: 9 Chi-square tests of criterion-four

Pearson Chi-Square Value	df	p-value
45.143	28	0.021

It can be concluded from the above chi-square test that the scoring pattern of criterion four has significant impact on the scoring on overall CGPA range.

Criterion- 5 Student Support and Progression

The highlights of this criterion are the efforts of an institution to provide necessary assistance to students, to enable them to acquire meaningful experiences of learning at the campus and to facilitate their holistic development and progression. It also looks into student performance and alumni profiles and the progression of students to higher education and gainful employment.

It is observed that out of 38 accredited HEIs, 7 HEIs have CGPA scores 2.01-2.50, 7 HEIs have CGPA scores 1.51-2.00, 13 HEIs have CGPA scores 2.76-3.00, 7 HEIs have CGPA scores 2.51-2.75, 4 HEI have CGPA scores 3.26-3.50, and none of HEIs have CGPA scores 3.01-3.25. None of HEI scores 3.51-4.00 in criterion five, Student Support and Progression.

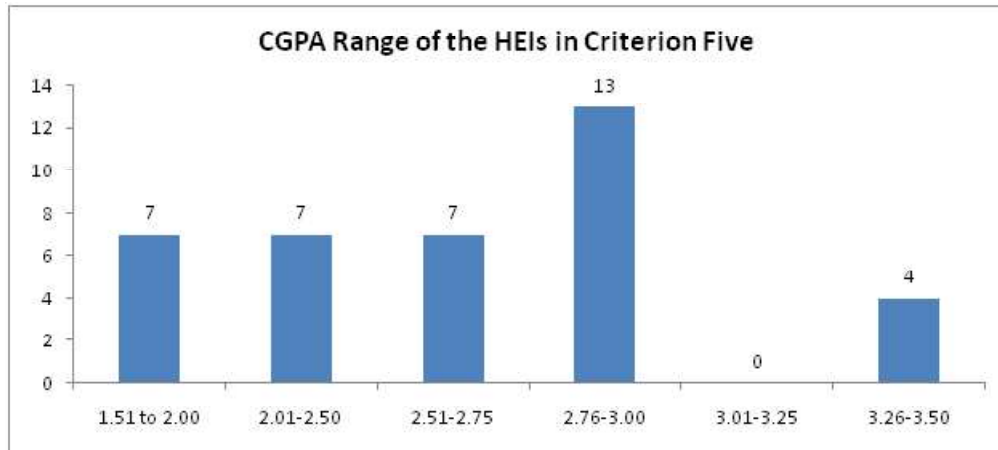


Figure: 5 CGPA Range wise HEIs of criterion five

The null hypothesis is framed as “there is no significant impact of scoring pattern of criterion five GPA on scoring pattern of overall CGPA. Chi-Square test is done between various ranges of GPA of criterion five and scoring pattern of overall CGPA.

Table: 10 CGPA wise analyses based on the scoring pattern of criterion five

Criterion-5	CGPA range					Total
	1.51 to 2.00	2.01 to 2.50	2.51 to 2.75	2.76 to 3.00	3.01 to 3.25	
0 to 1.50	2	2	0	0	0	4
1.51 to 2.00	0	3	0	0	0	3
2.01 to 2.50	1	6	0	0	0	7
2.51 to 2.75	0	3	1	3	0	7
2.76 to 3.00	0	1	4	5	3	13
3.26 to 3.50	0	0	1	2	1	4
Total	3	15	6	10	4	38

Table: 11 Chi-square tests of criterion-five

Pearson Chi-Square Value	df	p-value
38.318	20	0.008

It can be concluded from the above chi-square test that the scoring pattern of criterion five has significant impact on the scoring on overall CGPA range.

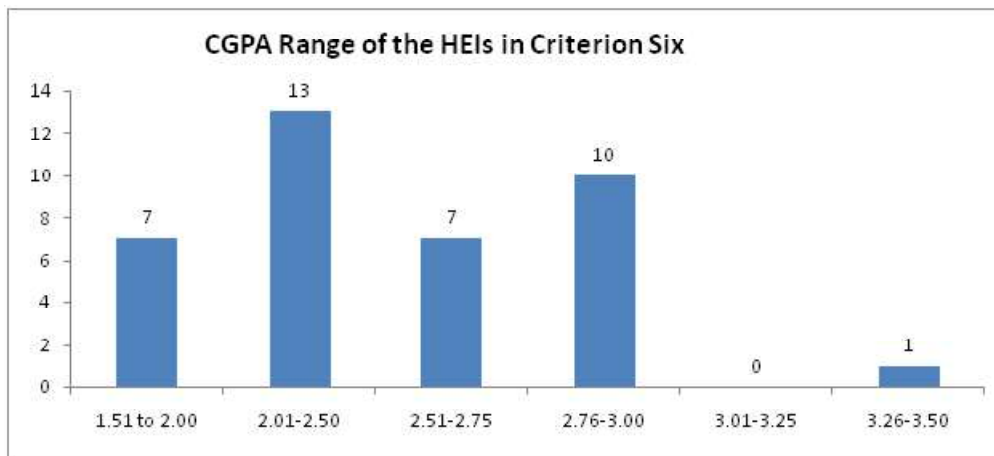
Criterion- 6 Governance, Leadership and Management

Figure: 6 CGPA range wise HEIs of criterion six

Effective functioning of an institution can be gauged by the policies and practices it has evolved in the matter of planning human resources, recruitment, training, performance appraisal, financial management and the overall role of leadership. The Criterion 6 includes. Institutional Vision and Leadership, Strategy Development and Deployment, Faculty Empowerment Strategies, Financial Management and Resource Mobilization and Internal Quality Assurance System (IQAS).

The null hypothesis is framed as “there is no significant impact of scoring pattern of criterion six GPA on scoring pattern of overall CGPA. Chi-Square test is done between various ranges of GPA of criterion six and scoring pattern of overall CGPA.

Table: 12 CGPA wise analyses based on the scoring pattern of criterion six

Criterion-6	CGPA range					Total
	1.51 to 2.00	2.01 to 2.50	2.51 to 2.75	2.76 to 3.00	3.01 to 3.25	
0 to 1.50	1	0	0	0	0	1
1.51 to 2.00	1	5	0	0	0	6
2.01 to 2.50	1	8	2	2	0	13
2.51 to 2.75	0	1	3	3	0	7
2.76 to 3.00	0	0	1	5	2	8
3.01 to 3.25	0	1	0	0	1	2
3.26 to 3.50	0	0	0	0	1	1
Total	3	15	6	10	4	38

Table: 13 Chi-Square Tests of Criterion-six

Pearson Chi-Square Value	df	p-value
50.221	24	0.001

It can be concluded from the above chi-square test that the scoring pattern of criterion six has significant impact on the scoring on overall CGPA range.

Criterion-7 Institutional Values and Best Practices

The role of the institution is reflected in terms of the kinds of programmes, activities and preferences (values) that it incorporates within its regular functioning. The extent to which an institution is impactful in this is a sure reflection of its quality. Every institution has a mandate to be responsive to at least a few pressing issues such as gender equity, environmental consciousness and sustainability, inclusiveness and professional ethics, but the way it addresses these and evolves practices will always be unique. The Criterion includes: Institutional Values and Social Responsibilities, Best Practices and Institutional Distinctiveness.

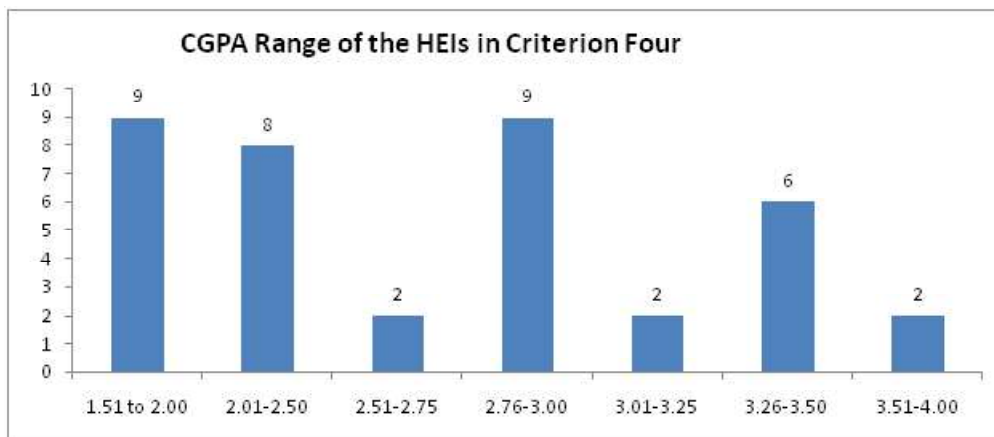


Figure: 7 CGPA range wise HEIs of seven

Table: 14 CGPA wise analyses based on the scoring pattern of criterion seven

Criterion-7	CGPA range					Total
	1.51 to 2.00	2.01 to 2.50	2.51 to 2.75	2.76 to 3.00	3.01 to 3.25	
0 to 1.50	0	2	1	0	0	3
1.51 to 2.00	1	3	0	4	0	8
2.01 to 2.50	2	7	3	2	0	14
2.51 to 2.75	0	2	0	1	0	3

2.76 to 3.00	0	1	1	1	1	4
3.26 to 3.50	0	0	0	2	2	4
3.51 to 4.00	0	0	1	0	1	2
Total	3	15	6	10	4	38

Table: 15Chi-Square Tests of Criterion-seven

Pearson Chi-Square Value	df	p-value
28.568	24	0.237

It is observed that out of 38 accredited HEIs, 14 HEIs have CGPA scores 2.01-2.50, 11 HEIs have CGPA scores 1.51-2.00, none of HEIs have CGPA scores 2.76-3.00, 7 HEIs have CGPA scores 2.51-2.75, 2 HEI have CGPA scores 3.26-3.50, and 4 HEIs have CGPA scores 3.01-3.25. None of HEI scores 2.76-3.00 and 3.51-4.00 in criterion seven Institutional Values and Best Practices.

The null hypothesis is framed as “there is no significant impact of scoring pattern of criterion seven GPA on scoring pattern of overall CGPA. Chi-Square test is done between various ranges of GPA of criterion seven and scoring pattern of overall CGPA.

It can be concluded from the above chi-square test that the scoring pattern of criterion one has no significant impact on the scoring on overall CGPA range.

Conclusion and Implications

Assessment and accreditation in the Higher Education, through transparent and informal external review process, are the effective means of quality assurance in Higher Education to provide a common frame of references for students and others to obtain credible information on academic quality across institutions thereby assisting student mobility across institutions, domestic as well as international. The quality of Higher Education is responsible for developing human resources. The findings are based on the analyses of 38 accredited HEIs. Innovative and relevant curricula should be designed to serve different segments of the job market or provide avenues for self-employment and emphasis must also be given to the expansion of skill-based programmes in order to make our youth employable in the job market.

Institutions have to improve the quality culture internally based on the information provided as Institution’s performance in various aspects mentioned in their assessment outcome document reports. Institutions are continuously reviewing and seeking of suggestions for comprehensive interventions and encouraged to get valid accreditation by NAAC to ensure the quality culture in

the institution. State Government can encourage the Universities and Colleges under their purview to apply for NAAC accreditation. With the inclusion of student satisfaction survey in NAAC assessment process, which is a key indicator too, Institutions need to encourage students and create awareness on extensive use of technology, email usage, e-learning etc. Outcome-based teaching and outcome-based learning needs to be ensured at all higher educational institutions, along with training in soft skills, digital skills and other technical skills to ensure better employability. New subjects with different combinations can be introduced at the UG and PG levels. Students should be encouraged to acquire various skills through online platforms like Ex, MOOC, Courses, SWAYAM, etc which can help students to have better employability. Artificial Intelligence and Machine Learning are to be inducted into the system wherever necessary for better digital learning. Colleges may introduce need based short term career oriented and skill-based programmes along with the existing courses. Community oriented need-based outreach programmes and social action programmes with extension activities in association with NGOs and other local bodies may be started. The findings and status of the HEIs of Uttarakhand would encourage the academic community to comprehend and work collectively towards quality assurance.

HEIs with relatively better performance, especially those with A grade (as per NAAC accreditation) be felicitated accordingly.

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Retail Employability Skills of Graduates and Postgraduates: A Stakeholder's Perspective

KARTIK DAVE, NEHA MALHOTRA AND VIDYA IYER

Abstract: A series of global trends have redefined the nature of organizations and patterns of work. Organizations are giving more weightage to employability skills and individual personality traits rather than subject-relevant knowledge or an applicable degree. There is a widespread mismatch between the job and education in the global market which is affecting both efficiency and recruitments of the workforce. It has become essential for the stakeholders to understand the skills and traits that can help foster employability in students. Research identifies the need to empirically explore and examine employability skills. By evaluating the market from the stakeholders' perspective, the study provides an empirically grounded and holistic understanding of skills that employers deem crucial for students to gain, sustain and enhance employability in the Indian retail industry.

Key words: Retail Employ ability, skills, stakeholders.

Introduction

Employment is the foundation of the economic, social and environmental development process of any country. In today's globally connected and competitive, knowledge driven economy; skills and resourcefulness of its workforce has become the most important source of competitive advantage for any nation (Brown et al. 2013). Hence employability is gaining prominence with policy makers and scholars alike (Peeters et al., 2019). It provides meaning to the lives of its people, gives them self-respect, financial freedom and an opportunity to make contributions to the society (Banerjee & Duflo, 2008; World Bank, 2018). However, that equation is under strain today. A series of global megatrends are influencing the nature of our work and the way we do business by changing the structure of everything. Some of these include globalization, demographic change, environment sustainability, technological change, urbanization, increasing inequality and political uncertainty (Bakhshi et al. 2017). Since we live in an

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interconnected world, these global trends have both a positive and adverse impact on us depending on how equipped are we to face them. These far-reaching changes present huge challenges in front of the stakeholders. The current COVID-19 crises has only accelerated the pace of these changes. The future of work is here and the world is facing reskilling problem. Are we ready to confront this?

Traditional roles are being redefined, and new titles, newer roles and opportunities are being conceived to keep up with the changing pattern of work, changing nature of organizations and labour market in the 21st Century (Bakhshi et al. 2017). Organizations are giving more weightage to employability skills and individual personality traits rather than subject-relevant knowledge or an applicable degree (Messum et al. 2015; Zaharim et al., 2009). In this current framework, several crucial points are beginning to question as to how such developments will alter the dynamics of the education systems. Education is a crucial element to realize the full potential of human beings, to develop an equitable society and for the development of any country. Due to the current transformations, there is a widespread mismatch between the job and education in the global market which is affecting both efficiency and recruitments of the workforce. Lichy and Khvatova (2019), studied the increasing disparity in the operating skills worldwide and call for an urgent addressal of the same. There is a growing need to develop newer models of education, with regards to the contemporary social and economic context. The stakeholders involved need to collectively work towards improving education and training systems and developing agile learners matching the realities and demands that future holds for us. It has become crucial like never before to focus our attention on achieving an inclusive process to equip and empower the people to thrive in their future jobs.

Additionally, our understanding on employability is largely theoretical in nature and research identifies the need to empirically explore and examine employability skills (Chhinzer & Russo, 2018; Wickramasinghe & Perera, 2010). Furthermore, this scant empirical research focuses largely on employee or student perspective (Blackwell et al., 2001; Gault et al., 2000), even when the role of recruitment in assessment of employability is most critical and employers have an important part in the decisions related to labor market outcomes (Chhinzer & Russo, 2018).

By evaluating the market from the perspective of employers, students and trainers, the study provides an empirically grounded and holistic understanding of employability and employability skills.

Employability

Employment and employability are two major attributes related to human

resource development in the modern world. Largely, employability can be referred to the ability of an individual to secure a gainful employment and achieve sustenance and growth of the same. Employability has been treated by different researchers from a variety of dimensions. Cheng et al. (2021) review the three broad groups of employability definitions. A section of literature refers to the intrinsic attributes of an individual; his or her capabilities, achievements, skills, understanding and willingness (Hogan et al., 2013; Morrison, 2012; De Vos et al., 2011; Yorke, 2006; Hillage & Pollard, 1998). Another section emphasizes on the relative dimensions of employability; how employability can be defined and influenced by external political, social, institutional and economic factors (Sin & Amaral, 2017) and social structures such as gender, race, social class (McGinn & Oh, 2017). Though important, these dimensions of employability have not been explored in detail (Cheng et al., 2021, Speight et al. 2012). Another section of literature recognizes the dual aspect of employability, emphasizing on both absolute and relative dimensions of employability (Brown et al., 2003). Herein the individual characteristics, attributes, skills and competencies are deemed important for employability, however the important influence of the external factors on an individual and employability is also acknowledged (Holmes, 2013; Vuksanovic et al., 2014).

Putting together the various perspectives of employability gives us an understanding of the importance of this subject in any society. Different authors and researchers have developed its different constructs at different points of time. These constructs consist of skills, factors of age, employment opportunities, employer perceptions, gender, educational qualification, occupational proficiency, forethought and upsurge, corporate sense, personal flexibility and pay attractiveness amongst others (Heijden 2009). Though skills form the major construct of the employers' requirement and specification of employability, putting a heavy onus on academic and skill learning may nullify the unique individual advantages possessed by students or job seekers; we need to look beyond the academic skills (Atkins, 1999). The most common way to look at skills is to classify them into personal skills (like behavior, aptitude to work, spoken abilities, etc.), group skills (networking, empathy, knowledge exchange among others), and core technical job-related skills. As also put forward by Javadin et al. (2010) technical skills, gained through education and training, when complemented with human skills, skills relating to creativity, networking, self-awareness and others; enable a higher performance by an individual and also of the business unit as a whole (Javadin et al. 2010). Ward (2004) while defining and measuring 'Employee Readiness' have measured employability using 5 dimensions namely - "Career decision-making, or knowing what type of work suits you, skills enhancement, or having the skills for the work you want, job search, or having the skills to find work, job maintenance, or having the skills to

keep work once found and ongoing career management, or being able to manage work transitions". Fugate & Ashforth (2004) propose the importance and applicability of the multiple dimensions of employability namely - career identity, personal adaptability and social and human capital, in both job search and job transition. Their study also states the importance of adaptability and self-development for employees.

Employability; employability is also a contested issue when we take the stakeholders (students, education institutions, employers and government) perception and understanding (Cheng et al., 2021). There is a wide gap between what is required by the companies and employers from the students and how education institutions and government understand this requirement. Hence there is a pressing need to empirically examine the stakeholder's perspective of employability.

Employability in India: The Ecosystem

India, with its maturing skill ecosystem, hold a unique and prominent position in the world today. In its 7th decade of independence, India has become the world's fifth-largest economy by nominal GDP and the third-largest economy by purchasing power parity (PPP) (IMF, 2019). With a GDP of USD 2.06 trillion for 2019-20 and a growth of 4.2% over the previous year (IBEF, 2020), India has been categorized as an emerging economy with a potential to become the second-largest economy world over by 2050 (PWC, 2017). Key factors driving India's stupendous growth include a robust institutional structure and facilities, timely and encouraging demographics, proficient labour force, a rising middle class, its budding culture of entrepreneurship, productivity growth, a buoyant private sector and technological revolution (IBEF & Grant Thornton, 2018). This is backed by India's robust democracy and its strong partnerships.

Last 5 years have been quiet defining for the Indian job market landscape. Global disruptions, brought out by the interplay of mega trends, are mirrored in India as well. India is witnessing a change in the job structure, employment levels, occupation patterns and skill set demand. According to the 2019 India Skills report, India's workforce is expected to increase at a 27 percent from the current 473 million to approximately 600 million by 2022 (Wheebox.com, 2019). Also, the split between unorganized and organized sector will change from a current 92 and 8 percent to 90 and 10 percent in 2020. The recent skill gap analysis by government concludes that 24 key sectors of Indian economy would need another 109 million skilled workers, however only 2.3 percent of the workforce has received any form of formal skills training.

With start-up culture and gig economy taking pace, employment in India is no

longer limited to permanent jobs only. Added by digital technologies, there is a rise in micro entrepreneurship and independent work. This not only is providing newer opportunities but also better pay scales. There is also a better link to the organized value chain, including parts of India which were previously not covered under formal sector. There is an employment shift from agriculture to other sectors specially trade, transport and construction. IT and BPO sectors have been the major job creating sectors and will continue to need newer talent to meet changing needs of the industry.

Clearly the rapidly evolving landscape would result in readjustment and reclassification at a massive scale in the Indian economy as well. These fundamental transitions would surely lead to increased prosperity, productivity and job creation but they pose a great risk and uncertainty as well. It is becoming increasingly important to place right policies and institutions in place so that the opportunities that these imminent transformations will bring can be seized and their risks can be mitigated. India has a huge opportunity in form of its demographic dividend, with stake of its working-age, i.e., 20-59 years, population nearly 63%. Other than boosting its own industrial growth, this demographic advantage can help India become the largest global source of human capital. However, to take advantage of this opportunity India will have to recognize the existing gaps in the market, workout a long-term job and skill requirement plan, and build an advanced skill expansion program. Education, training and development are the strategic prerequisites for India to ensure skills required to enhance productivity, employment and accelerate economic growth. Investments and collaborations between academia, industry and other concerned will help India address the key opportunities and challenges that confronts it. It is important that all the concerned stakeholders work together to build and nurture a cohesive and sustainable development process that could pave the way forward for the next wave of growth.

Indian Retail Industry

India is the 5th largest retail destination globally with its retail sector on the edge of evolution. Growing at a 13% CAGR, Indian Retail Market is pegged at USD 800 Billion (Jain & Naqvi, 2019). Organized retail is projected to grow at a CAGR of 29% with a 7.7 to 11 % increase in penetration of organized players. With development taking place in Tier I, II and III cities, this sector is witnessing rapid growth. E-commerce has been following this rising trajectory and is transforming the business landscape in India. According to a report on Indian e-commerce sector by IBEF (2020), the industry is expected to reach USD 200 billion by 2026 from USD 38.5 billion in 2017. At its current course, by 2034 Indian ecommerce market is expected to become second largest e-commerce market globally, outshining the US market. Ongoing digital transformation in India and the rising

smartphone penetration are helping this industry to become a booming success.

The Indian retail industry has also risen as one of the most dynamic and fast-moving industries in terms of employment opportunities due to its strong market potential, several reforms and entry of several new players. The sector contributes to over 10% of the country's GDP and 8% to the employment (IBEF, 2020). The 68th round National Sample Survey (NSS) reports that over 45% of the personnel in the retail sector are focused amongst the 5 states - Uttar Pradesh, Maharashtra, Andhra Pradesh, West Bengal and Tamil Nadu. The Metropolitan cities in these states are the major consumption centers and hub of retail activity and hence major employers as well. The fast pace of development in the retail sector also presents with a huge employment opportunity. Other than the offline retailing, e-commerce in India has also grown and evolved to become one of the largest employers in India with its market share expected to rise by 15-29% (IBEF, 2020). The industry is projected to expand several folds in the coming decade, with brick-and-mortar formats also turning digital. This will lead to an expansion in the jobs as well, with industry posing a requirement for people from diverse backgrounds.

Research Design

The study pursued an exploratory research design. Following a triangulated approach, it explored the employability factors from the perspectives of key stakeholders - the recruiters, students/candidates and trainers/faculties/academicians. In its first phase, the study explored the generic conditions and factors for employability from literature. This helped in formulating the questionnaire which was finalized post a pilot study. In the second phase the questionnaire was administered as a survey instrument to the data sets of recruiters, students and trainers. Identical questions, with appropriate changes in communication, were framed in the survey questionnaire for all three data sets. The survey was conducted on a sample of close to 3600 respondents and the factors were identified on the data of 3 sets of respondents to understand the relevant factors affecting employability in the select eight North Indian states. Further, multi-level factor analysis was conducted to analyze the common and uncommon factors among the triangulated data sets.

An extensive literature survey was conducted covering employability, psychology, sociology, labour economics, retail sector and employment factors in India. Herein key employability constructs were studied and identified based on employability frameworks like USEM model, CareerEDGE model, Singapore Competency Framework, Australian Skills Framework and reports by organizations like World Economic Forum, The Organization for Economic Co-operation and Development (OECD), National Skill Development Corporation (NSDC) and Retailers

Association's Skill Council of India (RASCI). Additionally, industry relevant variables were also identified based on focus group discussions with retail sector experts.

The variables that were associated with employability were listed. Statements were framed based on the variables on an importance scale of 1-5, 1 being the least important and 5 being the most important. An initial questionnaire was drafted with a set of 98 statements. This was assessed in a pilot study comprising of 100 respondents including Recruiters, Faculty Members/Trainers and Graduate student candidates. Based on the Pilot study and initial factor analysis, the final questionnaire was developed with 76 statements. The questionnaire was developed around the factors – knowledge, skills, attitudes, personal attributes, environment and overall employability.

The study was conducted in 8 states of North India – Delhi, Haryana, Rajasthan, Punjab, Uttar Pradesh, Uttarakhand, Bihar and Madhya Pradesh. Multi-stage sampling technique was adopted wherein cluster sampling was used to split the entire population universe into geographical groups and in the next step stratified sampling was used to identify the various strata and groups of representatives to be included. Further 'Expert Sampling' technique' together with Quota sampling was deployed to draw a list of experts from recruiters and academicians. A total of 3600 respondents participated in the study. A description of the sample profiles, for recruiters, students and trainers, is provided in Table 3.1. A list of about 2000 experts in management, recruitment and training was prepared taking reference from the database of Retailers Association of India, 2018, along with the academicians involved in preparing students for jobs and employment in retail sector jobs. Student lists were drawn from graduation, post-graduation, diploma and other retail industry-oriented programs.

Data Analysis

The study was conducted in eight states of North India i.e., Delhi, Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Bihar, Uttarakhand and Rajasthan. 3600 respondents from these states participated in this extensive study; 1039 recruiters, 1105 trainers 1456 students. Among these recruiters, 876 were male and 163 female respondents; among the students who are prospective employment candidates, 805 were male and 651 female participants; among the trainers or academic faculty involved in undergraduate/graduate or professional training services, 624 male and 481 female participated in the study. Among the recruiters, the largest portion of the sample was with diploma qualification, followed by graduate recruiters. Largely, recruiters with more than 3 years of experience are involved in direct hiring and those with 5 and more years of experience are involved in strategic decisions, planning, competency mapping and final hiring

Table 3.1: Sample Profile – Recruiters, Students and Trainers

Recruiters' Sample (n = 1039)		Students' Sample (n = 1456)		Trainers' Sample (n = 1105)	
Demographics	Freq %	Demographics	Freq %	Demographics	Freq %
State		State		State	
Bihar	49 4.72%	Bihar	32 2.20%	Bihar	130 11.76%
Delhi	100 9.62%	Delhi	137 9.41%	Delhi	430 38.91%
Haryana	178 17.13%	Haryana	208 14.29%	Haryana	156 14.12%
MP	41 3.95%	MP	104 7.14%	MP	52 4.71%
Punjab	201 19.35%	Punjab	137 9.41%	Punjab	8 0.72%
Rajasthan	212 20.40%	Rajasthan	431 29.60%	Rajasthan	86 7.78%
UK	165 15.88%	UK	249 17.10%	UK	164 14.84%
UP	93 8.95%	UP	158 10.85%	UP	79 7.15%
Gender		Gender		Gender	
Male	876 84.31%	Male	805 55.29%	Male	624 56.47%
Female	163 15.69%	Female	651 44.71%	Female	481 43.53%
Qualification		Qualification		Qualification	
XII	118 11.36%	Senior Secondary	200 13.74%	Senior secondary	2 0.18%
Diploma	654 62.95%	Graduate	874 60.03%	Graduate	45 4.07%
Graduate	235 22.62%	Post Graduate and	345 23.70%	Post Graduate &	929 84.07%
Post Graduate	26 2.50%	Higher degree		Higher Degree	
Others	6 0.58%	Diploma	23 1.58%	Diploma	49 4.43%
Experience		Others	14 0.96%	Others	80 7.24%
Up to 1 year	43 4.14%	Experience		Experience	
1 - 3 years	524 52.61%	Up to 1 year	956 65.66%	1 - 2 year	41 3.71%
3 - 5 years	409 66.72%	1 - 3 years	314 21.57%	2 - 3 year	228 20.63%
5 - 10 years	57 16.15%	3 - 5 years	58 3.98%	3 - 4 year	330 29.86%
Above 10 years	6 1.78%	Above 5 years	128 8.79%	4 - 5 year	233 21.09%
Position				Above 5 years	273 24.71%
Asstt. Store Manager	141 13.57%	Job Profile		Job Profile	
Buyer	149 14.34%	Faculty	444 40.18%	Faculty	444 40.18%
Customer Service Associate	42 4.04%	Trainer	91 8.24%	Trainer	91 8.24%
Inventory Specialist	33 3.18%	Faculty (Pvt. Inst.)	372 33.67%	Faculty (Pvt. Inst.)	372 33.67%
Sales Associate	22 2.12%	Other	121 10.95%	Other	121 10.95%
Visual Merchandiser	77 7.41%	Specialist	33 2.99%	Specialist	33 2.99%
Others	575 55.34%	Customer Service Trainer	28 2.53%	Customer Service Trainer	28 2.53%
		Supply Chain Specialist	16 1.45%	Supply Chain Specialist	16 1.45%

Table 4.1: Factor and factor loadings - recruiters analysis

Factor	Statement	Variable	FL
1	educational background (nature of school/college) is considered	v68	0.838
1	social background is considered	v70	0.826
1	parental education background is considered	v69	0.823
1	academic stream matters	v66	0.769
1	economic background is considered	v71	0.766
1	native location matters for the job (town/city/district/state)	v67	0.749
1	qualification level matters for the job	v65	0.574
2	competitors in the business	v6	0.747
2	substitute or alternate products and services	v7	0.74
2	process of customer query handling	v8	0.731
2	nature of target customers	v2	0.721
2	the process of escalation of customer query	v9	0.63
2	products/services dealt by the organization	v1	0.625
3	duties and rights on the job	v12	0.718
3	preferences of local customers	v13	0.704
3	working hours	v11	0.699
3	location(s) of operations	v10	0.694
3	local culture and norms	v14	0.679
4	has interest in seeking more information about the role	v17	0.745

Contd...

4	has interest in advancing in the role in the future	v18	0.736	
4	displays passion to accomplish tasks	v16	0.713	
4	shows willingness in undergoing training for roles/jobs different from current background	v19	0.63	
5	job is relevant for the candidate's social status	v75	0.786	Role relevance
5	candidate is dependent on the job for personal growth	v74	0.781	
5	the recruiter is convinced about the overall suitability of the candidate for the job	v76	0.769	
6	demonstrates respect for key moral principles that include honesty, fairness, equality, dignity, diversity and individual rights.	v32	0.712	Responsible Behaviour
6	is able to take decisions	v31	0.704	
6	understands the role to be played	v33	0.674	
7	displays responsible behaviour consistently	v24	0.727	Accuracy and consistency in performance
7	is capable of producing consistent results	v23	0.661	
7	displays ability to accomplish tasks accurately	v22	0.619	
8	demonstrates ability to hold planned communication	v49	0.788	Communication Skills
8	demonstrates ability to explain his/her position in a communication	v50	0.758	

Table 4.2: Test results for recruiters

Employers	State	Gender	Qualification	Experience	Hiring Position
Socio Economic Background	F	4.009	8.062	9.49	3.997
	DF	1, 1037	4, 1034	4, 1034	6, 1032
Product and Process Related Knowledge	Result	*	***	***	***
	F	13.965	12.932	7.422	0.428
Work Culture and Norms Related Knowledge	DF	1, 1037	4, 1034	4, 1034	6, 1032
	Result	***	***	***	NS
Willingness and Interest	F	1.324	8.431	0.471	17.189
	DF	1, 1037	4, 1034	4, 1034	6, 1032
Role Relevance	Result	NS	***	NS	***
	F	1.243	5.626	0.225	23.855
Responsible Behaviour	DF	1, 1037	4, 1034	4, 1034	6, 1032
	Result	NS	***	NS	***
Accuracy and Consistency in Performance	F	4.604	11.295	3.04	15.597
	DF	1, 1037	4, 1034	4, 1034	6, 1032
Communication Skills	Result	*	***	*	***
	F	11.761	5.806	0.528	8.603
Overall Employability	DF	1, 1037	4, 1034	4, 1034	6, 1032
	Result	***	NS	NS	***
Overall Employability	F	2.311	5.432	0.533	5.542
	DF	1, 1037	4, 1034	4, 1034	6, 1032
Overall Employability	Result	NS	***	NS	***
	F	14	3.805	6.394	17.825
Overall Employability	DF	1, 1037	4, 1034	4, 1034	6, 1032
	Result	***	**	***	***

Contd...

Students	State	Gender	Qualification	Experience	Preferred Role
Socio Economic Background	74.813	1.58	18.185	42.863	18.737
	7, 1448	1, 1454	4, 1451	3, 1452	6, 1449
	***	NS	***	***	***
Product and Process Related Knowledge	80.85	1.171	9.789	109.89	10.059
	7, 1448	1, 1455	4, 1452	3, 1453	6, 1450
	***	NS	***	***	***
Work Culture and Norms Related Knowledge	35.466	0.00314	12.601	10.332	4.964
	7, 1448	1, 1456	4, 1453	3, 1454	6, 1451
	***	NS	***	***	***
Willingness and Interest	43.669	0.19	17.791	18.684	5.21
	7, 1448	1, 1457	4, 1454	3, 1455	6, 1452
	***	NS	***	***	***
Role Relevance	48.379	3.384	19.038	53.13	5.188
	7, 1448	1, 1458	4, 1455	3, 1456	6, 1453
	***	NS	***	***	***
Responsible Behaviour	8.399	0.603	5.611	0.559	3.054
	7, 1448	1, 1459	4, 1456	3, 1457	6, 1454
	***	NS	***	NS	**
Accuracy and Consistency in Performance	21.277	0.012	2.543	4.022	1.207
	7, 1448	1, 1460	4, 1457	3, 1458	6, 1455
	***	NS	*	**	NS
Communication Skills	21.178	0.067	8.8	14.331	3.516
	7, 1448	1, 1461	4, 1458	3, 1459	6, 1456
	***	NS	***	***	**
Overall Employability	F				
	DF				
	Result				

Table 4.3: Test results for students

Students	State	Gender	Qualification	Experience	Preferred Role
Socio Economic Background	F	1.58	18.185	42.863	18.737
	DF	1, 1454	4, 1451	3, 1452	6, 1449
	Result	NS	***	***	***
Product and Process Related Knowledge	F	1.171	9.789	109.89	10.059
	DF	1, 1455	4, 1452	3, 1453	6, 1450
	Result	NS	***	***	***
Work Culture and Norms Related Knowledge	F	0.00314	12.601	10.332	4.964
	DF	1, 1456	4, 1453	3, 1454	6, 1451
	Result	NS	***	***	***
Willingness and Interest	F	0.19	17.791	18.684	5.21
	DF	1, 1457	4, 1454	3, 1455	6, 1452
	Result	NS	***	***	***
Role Relevance	F	3.384	19.038	53.13	5.188
	DF	1, 1458	4, 1455	3, 1456	6, 1453
	Result	NS	***	***	***
Responsible Behaviour	F	0.603	5.611	0.559	3.054
	DF	1, 1459	4, 1456	3, 1457	6, 1454
	Result	NS	***	NS	**
Accuracy and Consistency in Performance	F	0.012	2.543	4.022	1.207
	DF	1, 1460	4, 1457	3, 1458	6, 1455
	Result	NS	*	**	NS
Communication Skills	F	0.067	8.8	14.331	3.516
	DF	1, 1461	4, 1458	3, 1459	6, 1456
	Result	NS	***	***	**
Overall Employability	F				
	DF				
	Result				

Table 4.4: Test results for trainers

Trainers	State	Gender	Qualification	Experience	Profile
Socio Economic Background	F	4.393	5.733	3.673	1.591
	DF	1, 1103	4, 1100	4, 1100	6, 1098
	Result	*	***	**	NS
Product and Process Related Knowledge	F	0.038	8.424	7.741	49.044
	DF	1, 1103	4, 1100	4, 1100	6, 1098
	Result	NS	***	***	***
Work Culture and Norms Related Knowledge	F	3.948	8.424	12.278	9.626
	DF	1, 1103	4, 1100	4, 1100	6, 1098
	Result	*	***	***	***
Willingness and Interest	F	6.82	15.246	21.219	22.355
	DF	1, 1103	4, 1100	4, 1100	6, 1098
	Result	**	***	***	***
Role Relevance	F	1.446	9.295	15.763	6.305
	DF	1, 1103	4, 1100	4, 1100	6, 1098
	Result	NS	***	***	***
Responsible Behaviour	F	2.394	5.074	4.307	5.015
	DF	1, 1103	4, 1100	4, 1100	6, 1098
	Result	NS	***	**	***
Accuracy and Consistency in Performance	F	6.483	6.209	26.983	39.581
	DF	1, 1103	4, 1100	4, 1100	6, 1098
	Result	*	***	***	***
Communication Skills	F	4.24	1.714	5.074	17.193
	DF	1, 1103	4, 1100	4, 1100	6, 1098
	Result	*	NS	***	***

decisions. Thus, the recruiter sample was a mix with varied experiences giving a holistic view of recruiter expectations from the candidates.

The majority of the student respondents were pursuing graduate and postgraduate programs. Also, around 87 percent students were found to be fresher and they are quite unaware about the workplace. Given an opportunity in the retail industry, the majority of the student respondents showed interest in the backend profile. Most of the respondent students from Rajasthan, Uttarakhand and Uttar Pradesh have been pursuing graduate programs. Female participation in the study was found to be more in Haryana, Rajasthan and Uttarakhand. Among the trainer respondents, 85 percent of the respondents were found to be highly qualified like postgraduate and other relevant degrees. Around 75 percent of them were found to be experienced in their respective professions.

The data collected was analyzed using MS-Excel, IBM-SPSS. Analysis was done in two stages. The role of recruitment in assessment of employability has been most critical, keeping this in mind responses collected from the recruiters were deliberated and analyzed. These results were further used for an extensive analysis. Accordingly, the first phase involved factor analysis of the final itemized scale using the recruiter data set. Factors of employability were identified which were then further analyzed in the second phase with all the three data sets – recruiters, students and trainers.

Exploratory Factor Analysis: Recruiters

The 76-item scale was subjected to factor analysis, using the recruiter's data set, through SPSS software. The KMO measure of sampling adequacy was above 0.5 and Barlett's test of Sphericity was significant. For the extraction of the factors, Principal Component Analysis was applied in conjunction with Varimax technique for Rotation., since the factor scores were to be used post the extraction of factor (Tabachnick & Ullman, 2007). Communalities score of minimum 0.5 was considered for retaining any item in the scale. Items were dropped from the scale based on sample size (Hair et al., 2006). 8 factors were left after final iterations, for the same an Eigen values above 1.0 was chosen. Table 4.1 represents the factors and factor loadings. Items with loadings of more than 0.5 were retained for the sake of practical significance. In case of a cross-loading issue with the second highest loading falling above 0.35, that particular scale item was dropped from the set of scale-items.

The eight factors extracted along with their reliability co-efficient Cronbach's α scores are Socio Economic Background ($\alpha = 0.893$), Product and Process Related Knowledge ($\alpha = 0.831$), Work Culture and Norms Related Knowledge ($\alpha = 0.833$), Willingness and Interest ($\alpha = 0.809$), Role Relevance ($\alpha = 0.757$), Responsible

Behaviour ($\alpha = 0.686$), Accuracy and Consistency in Performance ($\alpha = 0.657$), Communication Skills ($\alpha = 0.635$). The eight factors, which were quite similar to the dimensions of earlier studies, were easily interpretable. The factor scores were saved during the final iteration of factor analysis and were used for further analysis.

Hypotheses Testing

The 8 factors of employability as identified above- Socio Economic Background, Product and Process Related Knowledge, Work Culture and Norms Related Knowledge, Willingness and Interest, Role Relevance, Responsible Behavior, Accuracy and Consistency in Performance and Communication Skills; were tested to compare all three sets of respondents based on their demographics. So, respondents' demographic variables i.e., state, gender, qualification, experience and position / role, were used as independent variables against the 8 factors identified as dependent variables. The hypotheses were tested using t-test and analysis of variance (ANOVA). Herein (***) denotes Significance level at 0.1% ($p < 0.001$), (**) denotes Significance level at 1% ($p < 0.01$), (*) denotes Significance level at 5% ($p < 0.05$). NS denotes Not Significant. ANOVA and t-test were adopted to examine the effect of respondent's profile, i.e., their state, gender, qualification, experience and role of the importance given to the factors of employability.

All the factors described above from the recruiters' initial factor analysis were tested again with recruiters', students' and trainers' demographic variables. This helped to understand if recruiters, students or trainers of different states and different background differ on those factors or not. Hypotheses were formulated for each of the respondent sets and tested with the appropriate statistical tests (Table 4.2, 4.3, 4.4). Recruiters' profile with respect to their state, qualification, gender, experience, and role in hiring (recruitment) was used as independent variables and all the factors as mentioned above were used as dependent variables for the hypotheses testing. Similarly, students' profile with respect to their state, qualification, gender, experience, and preferred role was used as independent variables against the employability factors as dependent variables for the hypotheses testing. Finally, trainers' profile with respect to their state, qualification, gender, experience, and teaching/training profile was used as independent variables against the employability factors as dependent variables for the hypotheses testing.

From these hypotheses testing it has been found that with regards to Socio Economic Background all the recruiters were significantly different. With respect to Product and Process Related Knowledge and Recruiters' Role they were found insignificant, which shows a consistency in their perception of the role wise knowledge requirement. This might be due to their prior understanding of the

roles. Similarly Work Culture and Norms Related Knowledge, Willingness and Interest, Responsible Behavior, and Communication Skills as important criteria were also found consistent irrespective of their years of experience. Also, male and female recruiters were found consistent with regards to Communication Skills as an important criterion. However, other factors were found significantly different for the chosen independent variables.

For the students responses it was found that except for gender, all other variables were found to be significantly different towards the factors of employment. Even for the trainers' data set, other than gender, all other variables were found to be significantly different towards the eight factors of employment. This may be due to inconsistency on the trainers' part or due to variability in the roles.

Discussion

The way we live, work and socialize today has undergone a paradigm shift. Workplace culture has changed, and these changes have supported and enabled a shift in the skills that are expected at the workplace. The competition for talent is becoming intense with a shift in the conventional methods used to enter and sustain jobs. Literature on employability shows that there has been range of attempts by the education institutions and even government to address employability however, there are still issues and differences between employers and the other stakeholders in terms of expectations, priorities and attitude concerning employability skills. This study addressed this pressing need by empirically examining the stakeholder's perspective of employability.

This study was undertaken against the backdrop of increasing potential for expansion of the retail industry in India; preparing for human resources to fulfil the needs of the industry has become most critical. On a generic level, the present study includes both the retail channels - offline and online; however, it specifically caters to the employment landscape and skill requirement in the offline or the brick-and-mortar retail formats in India. It covers a prominent retail destination, Delhi NCR, along with 7 other major states of North India - Punjab, Haryana, Rajasthan, Madhya Pradesh, Uttar Pradesh, Bihar, Uttarakhand and Delhi NCR. Accordingly, the study covers Tier II cities like Chandigarh, Jaipur, Lucknow and other tier III cities such as Agra, Kanpur, Ludhiana etc.

This research follows a two-step approach. Initial part of the study provided contextual information on the dimensions relevant to the employability skills, specifically for the Indian retail industry. This was done with a detailed literature review complemented by focused group discussions with experts to get industry specific understanding. Drawing on these insights survey instrument was drafted and administered on three sets of respondents associated with the Indian retail

industry- recruiters, students and trainers. Considering the crucial role of recruiters in employability, their responses were analyzed to identify the key employability skills required in the retail industry. Further, the responses from all three data sets were deliberated to understand whether or not there are significant differences between the respondents of different profiles (geography, gender, education, experience, position etc.) with respect to the employability skills identified.

Though we can see disparities while classifying employability, there seems to be a broad understanding on the types of traits, personalities, attitude, skills and knowledge that can help foster employability in students or candidates. Our study has indicated the eight factors which employers deem crucial to gain, sustain and enhance employability, these being - Socio Economic Background, Product and Process Related Knowledge, Work Culture and Norms Related Knowledge, Willingness and Interest, Role Relevance, Responsible Behavior, Accuracy and Consistency in Performance and Communication Skills.

The inference to be drawn is that candidates are expected to possess technical and discipline proficiencies from their vocational, graduate or postgraduate courses; crucial emphasis is laid on a broader portfolio of skills and attributes including knowledge of the role and business, communication skills, motivation and willingness to learn. The retail industry emphasizes on customer focus, communication and business knowledge which are essential skills for all service sector roles. Training and learning to adapt to retail sector depend specifically on motivation, attitude to learn and knowledge of essential service practices. Also, knowledge of the role and business, on the job communication and motivation are based on the industry practice and are intrinsic to the candidate; the trainer or academician can play a catalytic role in transforming the students' abilities and traits. For this, the trainers need to be aligned with industry needs and practices along with learner backgrounds. Psychological counselling can also help enable emotional character.

The academic institutions have a large role to play by emphasizing on the skill building besides knowledge creation and transfer to students. The industry-academia relationship should engage towards developing the teachers' mindset and skills to meet the industry needs. Besides, training the teachers, the academic institutions can have teachers and trainers to serve a compulsory term in the industry. The Indian industry, especially the retail industry shall enable the higher education institutions by indicating the futuristic jobs, skills and attitudes.

It also calls for a reflection on individual's own attitude, motivation and abilities. The study calls for an assessment of the education systems and academic quality to develop employability among students. It conjures that the alignment of teacher and learner with industry requirements is an imperative requirement for the

expansion of the industry and in particular the retail sector.

For an inclusive and sustainable growth of its economy, it is an absolute necessity for India to provide meaningful employment opportunities for its youth. And with growing qualified population and increasing numbers of youth, it is essential for us to study the factors that facilitate employment and devise systems that create the supply to employment. It is in fact interesting to examine the role of the academic as well as the non-academic environment that affects the students. Beginning with the school level to higher education a student goes through evolution at home as well as at school. The economic, social and cultural surroundings set the tone for the individual's attitudes, values and life goals. Understanding the impact of the factors involved in the upbringing of an individual could prove helpful in identifying the supporting and hindering factors.

Also, with rapid changes happening in the knowledge landscape around the world, there are increasing calls for skilled workforce with multidisciplinary learning. Hence education in India must evolve to make learning more holistic, experiential, flexible and integrated. At the same time, we need to incorporate all-rounded development of the learners to make them more ethical and compassionate. Major reforms are required to bridge the gap between learning outcomes and the industry requirements and to bring integrity and equity in the system.

As with the other sectors, the retail sector in India also faces a skill mismatch problem. Whereas on one end millions of youths are either underemployed or unemployed, employers are facing skill shortages. Even though India has a considerable amount of workforce, are they having the right skill set? This is specifically true for the Tier II and III cities. This dearth of skilled workforce is a challenge faced by the Indian retail sector as well.

Covid-19 has further reset our workplace, major work trends and with that, organizations are rethinking employee planning and performance strategies. Post pandemic job market is further laying emphasis on skills such as adaptability, flexibility, emotional intelligence, critical thinking and digital skills. In order to build a resilient operating model, it has become critical for organizations to adapt the skills and roles of their employees to post-pandemic manner of working. The Indian retail industry is also maneuvering towards a post-pandemic future with adaptive trends that can steer the sector through pandemic disruptions and help in further growth. "Ship from store", "endless aisle", "contactless commerce", "omnichannel shopping" are some of the trends that have been sparked by the pandemic but world not fade alongside it.

This calls for a holistic skill development program. Also, India being a culturally diverse country, with culture, language, food, tradition and buyers change every

50 to 100 km, understanding consumer behavior is also a challenge. There is a steady unmet demand for employees with the desired skills, level of professionalism and a capacity to adapt to the changing nature of the industry. This entire scenario is having a profound effect on the education segment as well and in fact raises some serious concerns about the quality of our education system. There is an ever-growing mismatch between the academics and industry. And as a first step in resolving this employability crisis, critical issues need to be addressed at the intersection of academics and industry.

The academic programs cannot be just dictated by the university, but need to be structured and delivered in accordance with the current shifts in the economy and the requirements of the industry. The learning outcomes of the programs need to be defined so that the students learn what is relevant to their future role in the industry. They should be well equipped to handle their function in the workforce. Also, the educators themselves need to have a relevant understanding of the requirements of the industry. Along with the curriculum, its delivery also matters. Teaching needs to become more engaging and learner centric. The education system needs to support the students with not just domain specific knowledge but also enable them to adapt to the volatility of industry and its competitiveness. Employability skills play a significant role here. These include emotional intelligence, people skills and collaboration, critical thinking and problem solving, team work, lifelong learning, being receptive to change, communication skills and information technology. There needs to be a steady balance between technical skills and employability skills.

With its findings the study identifies the changes or improvements required in teaching-learning mechanisms, grooming students, and societal practices, social and economic biases in accessibility to facilities leading to employability. It also calls for a reflection on individual's own attitude, motivation and abilities. The study will be of significance to the policy makers and academicians while designing the retail specific courses and aims towards addressing the mismatch amidst the demand and supply of manpower in retail industry. The study has been designed to make it highly relevant for the students who are potential manpower to the retail sector as well as the employees who have already entered the industry. It addresses the major factors required for India to develop a cohesive and inclusive ecosystem that provides towards the benefit of millions of youths in India.

This study covers only the eight states of north India viz., Haryana, Delhi, Punjab, Rajasthan and Uttar Pradesh, Bihar, Madhya Pradesh and Uttarakhand, hence the study does not provide any generalizations for the whole country. This is also true in light of the fact that the states differ in terms of cultures as to how they dine and other related issues. Our study focuses on the sample drawn from

the select cities of the eight states and considering that those cities represent the whole population of the state. The comparison between similar cities among different states could also be looked into in future.

Acknowledgements

This research work was funded by Indian Council of Social Science and Research (ICSSR), New Delhi; under their grant-in-aid Scheme rules. Project entitled "Employability of Graduates and Post Graduates in Respect to Retail Industry: A Study of Selected States of North India".

File No.: 02/333/2017-18/RP/MJ (PI: Professor Kartik Dave, Professor, Dr. B.R. Ambedkar University Delhi)

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Regd. No. 4973/60

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Printed by:

KIIT Deemed to be University, Bhubaneswar, Odisha, India
On behalf of Indian Commerce Association