Journal of
INTERNATIONAL ECONOMICS
Volume 16, No 1, January-June 2025

ISSN 0976-0792

INSTITUTE OF PUBLIC ENTERPRISE
Estd : 1964
(Under the aegis of ICSSR, MoE, GoI)
Hyderabad

AIMS AND SCOPE

Journal of International Economics is devoted to the publication of professional and academic research in all the areas of international economics. It is published in the months of January and July. The journal broadly covers areas such as cross country growth models, population and migration patterns, international trade, trade policy and relations, trade organizations and bodies, foreign investment flows, balance of payments and exchange rate mechanism, multinational corporations and cross border manufacturing, etc.

Indexed in:

- Indian Citation Index (ICI)
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- International Institute of Organized Research (I2OR)
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- Research Bible
- IJI Factor Indexing
- J-Gate
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The publication of Journal of International Economics is supported by the grant received from Indian Council of Social Science Research (ICSSR), Ministry of Education, Government of India, New Delhi.

Published by: Satyam N Kandula on behalf of Institute of Public Enterprise

Owned by: Institute of Public Enterprise

Printed by: Satyam N Kandula on behalf of Institute of Public Enterprise

Printed at: Wide Reach Advertising Pvt Ltd, 21, Surya Enclave, Trimulgherry, Hyderabad - 500015

Place of Publication: Institute of Public Enterprise, OU Campus, Hyderabad - 500007

Journal of International Economics

Volume 16 No 1 January-June 2025 ISSN 0976-0792

Contents

From the Editor's Desk...

It gives me immense pleasure to release the Volume 16, Issue 1 of Journal of International Economics. As this latest edition goes into print, let's delve into the current trends in international business strategy. The growing globalization and digitization of markets and sectors is one of the main themes in international business strategy. The term "globalization" describes how trade, investment, communication, and technology have brought economies, civilizations, and cultures closer together and made them more interdependent. Digitalization is the process of creating, delivering, and exchanging value through digital platforms and technology. For instance, businesses can access new markets, cut expenses, improve customer satisfaction, and develop more quickly by utilizing e-commerce, social media, cloud computing, and artificial intelligence.

Another trend in international business strategy is the growing importance of regionalization and localization. Regionalization refers to the formation and strengthening of regional blocs and agreements that facilitate trade and cooperation among neighbouring countries. Localization refers to the adaptation and customization of products, services, and processes to meet the specific needs and preferences of local customers and stakeholders. For example, firms need to comply with different regional rules and standards, such as the European Union's General Data Protection Regulation (GDPR) etc. They also need to tailor their offerings to the local tastes, cultures, and values of their target markets.

The growing focus on sustainability and social responsibility is a third trend in worldwide corporate strategy. The ability of businesses to satisfy their present demands without endangering the capacity of future generations to satisfy theirs is referred to as sustainability. The term "social responsibility" describes a company's duty to improve the environment and society in which it operates. Consumers, investors, workers, and governments are becoming more conscious of and concerned about the social and environmental effects of corporate operations, which is driving these trends. For instance, in their global operations, businesses must handle concerns like diversity and inclusion, human rights, climate change, and ethical behaviour.

This issue consists of articles illustrating on remarkable issues such as Sources of liquidity shocks in the Namibian Banking System: An Application of the Structural VAR model; Evaluating India's RCA using Maximum and Reference Country Benchmarks; Transforming Cross border Trade with the advancement of Digital Platform: An Analysis; Dynamics of Bilateral Merchandise Trade between India and Pakistan: A Comprehensive Analysis (2001-till date); Analysing the Effect of Union Budget on Nifty Sectoral Indices; Essential Strategies for Employee Engagement to retain Talent in India's Banking Sector; and a Case Study on Competition to Monopoly: A Case of Indian Telecom Sector and a Book Review on Of Counsel: The Challenges of the Modi-Jaitley Economy.

I am sure this issue will be a valuable addition for our readers. We request our subscribers and readers to contribute articles, case studies and book reviews.

Dr. K. Bhavana Raj

Journal of International Economics
ISSN 0976-0792 Volume 16 No 1, January-June 2025 pp: 1-17

Sources of Liquidity Shocks in the Namibian Banking System: An Application of the Structural VAR Model

Ravinder Rena[1]
Albert V. Kamuinjo[2]

Abstract

The financial crisis that hit global financial markets from 2007 to 2009 is the scarcity of liquidity in the financial markets with adverse impacts on the real economy. Purpose: The study explores liquidity shocks in Namibia. The purpose of the study was to analyse the foundations of liquidity shocks in Namibia for the period 2009-18 utilizing the Structural Vector Autoregression (SVAR) model is a multivariate time series model that helps to understand and measure the covariance matrix and other coefficient matrices based on economic theory or other assumptions to identify and understand the relationships between contemporaneous variables. Method: The methodology adopted for this research is quantitative method, The paper attempted to evaluate the SVAR backslide appearance, Granger causality, impulse-response capacities, and figure bumble variance rot were utilized and assessed. Individuals of this considered were the Namibian commercial banks. Granger causality test, motivation reaction capacities, and figure blunder variance deterioration illustrated that credit risk is the foremost critical driver of liquidity conditions in Namibia in the medium to long term. An empirical investigation was utilized as a direct, and the nature of the information to the choice of the SVAR to assess and bring out sources of liquidity stuns in Namibia. SVAR was too chosen since of its appropriateness to appear the elements of how sets of macroeconomic factors react to each other utilizing board information. Spurred by the insight of SVAR Granger causality, drive reaction capacities, and change disintegrations the basic stun to liquidity conditions were both distinguished and affirmed. Results: The empirical results showed that liquidity shocks

1 Professor, Economics, Faculty of Management Sciences, Durban University of Technology, ML Sultan Campus, Durban, Republic of South Africa, and can be reached at ravinder.rena@gmail.com / RavinderR@dut.ac.za

2 Namibia Business School, University of Namibia, Private Bag 16004, Pionierspark, Windhoek, Namibia and can be reached at albert.kamuinjo@unam.na

are caused by a combination of structural shocks. The outlined insights are obtained from the liquidity proportions demonstrating that both factors are regularly dispersed, and thus, the assessed demonstration is additionally ordinarily disseminated. Implication of the study is that We find that liquidity stuns are due to a combination of stuns. We recommend that NPLs stuns are the overwhelming sources of liquidity chance in the long run. NPL incorporates an excellent positive relationship with LA_ATL and LA_TA, driven by liquidity stuns. As distinguished within the earlier observational ponders, the higher non-performing advances result in lower liquidity and higher liquidity chances within the banks.

Keywords: CAMELS, Liquidity Risk, Liquidity Shocks

Introduction

The lesson learned from the financial crisis that hit global financial markets from 2007 to 2009 is the scarcity of liquidity in the financial markets, which adversely affected the real economy (Sironi 2018). Igneous to the basic tenet of its efficiency, it has caused several financial disruptions, which include bailouts across the globe. In the banking context, the concept of liquidity speaks to the position of a given bank in funding its commitments and the extraordinary pull out by the depositors (Vousinas 2018). Financial Work Banks, recognized as the financial sector,ranked the concept of liquidity as one of its primary functions, and financial analysts cite enterprise economy activity as one of the main assumptions (Karri et al. 2015). Further, the sheer size and volume of traffic and the constant need for ready cash suggest that liquidity is paramount in an institution.

Liquidity creation is a concept whereby banks get short-term liquid deposits and then use them in long-term periods for borrower (Angora & Roulet 2011, Rena 2006). The banks act for those who wish to place their money in the banks, and the other party consists of those who want to borrow money from the banks. The matching function of savers and borrowers can be explained by the fact that savers possess cash in demand, and borrowers have assets in the form of funds with longer-term returns and redemption periods differing in liquidity, yield, and maturity. In the performance of the intermediary role, risks lead to maturity transformation for banks emanating from a balance sheet variance of assets and liabilities (Bonfim & Kim, 2017). Maturity transformation is a risk in a system where banks cannot honor their contractual commitments, and depositors' withdrawals are not expected (Angora & Roulet 2011). Rena and Kamuinjo(2022) identified the economic functions of banks as the maturity transformation

where they receive short-term deposits and provide long-term loans; hence, their nature subjects them to moderate levels of adverse liquidity risks of both institutional and those of the market. Maturity transformation risk is inevitable because while the money from savers is intended for short-term convenience like saving accounts, the same fund is lent for long-term needs like housing loans (Gobat et al. 2014). Therefore, maturity transformation per se is endogenous in the banking industry if it is due to the maturity gap of the balance sheet.

On the other hand, the credit risk – non-performing loans in the global balance sheet have played a crucial role in determining the availability of liquidity in the banking system. For instance, lower liquidity levels are the same factors that lead to higher non-performing loan ratios in banks (Nabilar & Khushiri, 2018). However, emphasizing maximizing earnings or profit might weaken the liquidity condition of the banks; on the other hand, emphasizing liquidity weakens the earners or profit of a bank (Panigrahi 2014). The vulnerable banking systems did not have the appropriate level of supervisory oversight. They compelled banking institutions to provide adequate capital and liquidity buffers, which appeared to have acquainted other aspects of the globe with systemic risks. These aspects are the reasons for the predicament. A Liquidity threat could dent the image of a banking institution and consumers (Gowri & Ramya 2013). As a result, the Marginal Tax Rate (MTR) could significantly contribute to the increased number of distressed banks. Therefore, purpose of the study was to investigate the relationship between banks' credit risk and profitability on liquidity shocks in Namibia. *The granger causality, impulse-response functions and forecast error variance decomposition analysis showed that credit risk (non-performing loans) is a key factor affecting liquidity conditions in Namibia in the medium to long-run.*

The following section presents a literature review on identity liquidity shocks and the methodology and structural Vector Autoregression (SVAR) model for liquidity shocks in Namibia. Next, analyses and results are presented along with policy recommendations and directions for future study. We also discuss limitations of the study.

Literature Review

Earlier works within the earlier writing for the recognizable proof of money-related stuns can be followed back to 1970 and 1980 by different creators (Barth et al. 1985, Sinkey 1975). Such works were in light of the 1930s and the 1980s budgetary emergencies through which 1500 banks closed in the 1930s and 800 in the 1980s (Demirguc-Kunt 1989). They utilized a few monies-related proportions within the demonstration: In Banking and Finance, Capital adequacy, Asset quality, Management efficiency, Earnings

quality Liquidity, Sensitivity to market risks (CAMELS)is a framework used by banking regulatory authorities to evaluate the health and risk profile of banks, evaluating them on five key areas: Capital Adequacy, Asset Quality, Management, Earnings, and Liquidity, and Sensitivity to market risk. rating and models within the likelihood of monetary limitations. To maintain a strategic distance from the liquidity shortage, the bank is constrained to preserve a significant sum of fluid resources, which can be effortlessly turn into cash, anticipate the sum and timing of inflows and outflows of money, and be in a position to secure advance from associates (Ishag et al. 2015).

Majumder and Rahman (2016) examined the execution of the Bangladesh banks from 2009 to 2013 based on the evaluation of fluid resources to add to resource proportion Liquid Assets to Total Assets ratio (LATA). The LATA was critical in distinguishing the likelihood of bank budgetary stuns. By applying the LATA, Vousinas (2018) inspected Greek banks in 2007-2016 for working liquidity capability of managing an Account Segment. As the information appeared, liquidity expanded within the time of the examined period. Also, LATA was utilized by Makinen and Solanko (2017) in Russian banks for a long time, from 2013 to 2017. It was proposed that LATA incorporate a sensible and critical association level with bank monetary stuns. Subsequently, the result found that LATA incorporates a pertinence in deciding the liquidity. Applying the Liquidity, Asset Disposal, Earnings, Profitability, and Operations (LADEPO) Liquidity capability was measured based on fluid resources to add the proportion of client stores in Bangladesh banks from 2009 to 2013 (Majumder et al. 2016). Agreeing with this inquiry, they concluded that LADEPO recognizes the likelihood of bank monetary shocks. Kumar and Murty (2017) used LADEPO to examine the chosen Indian banks for the 2012 to 2016 period. The discoveries proposed that the proportion of LADEPO holds an esteem in foreseeing the stuns of bank funds. Affes et al. (2017) also back the results for US banks from 2008 to 2013 and the European banks from 2010 to 2014 (Lallour & Mio 2016). The discoveries show the significance of LADEPO for recognizing the likelihood of bank monetary stuns.

Similarly, market hazard affectability is characterized as the capacity of a bank to recognize advertise dangers that debilitate the wage (Tripathi et al. 2014). Financial Institution (FI) is utilized to evaluate the advertising dangers related to the development in costs such as swelling rates, intrigued rates, outside trade rates, product costs, and stock costs and how they influence the salary of a bank (Le 2017). Affectability to advertise chance surveys on how banks react to dangers that decrease profit, which begin from changes in interest rates, costs of commodities, costs of values, and cash rates (Venkatesh & Suresh 2014).

Le (2017) further investigates Vietnamese banks from 2008 to 2013, in which they utilized rate-sensitive resources to dissect the scale of advertising chance. The rate-sensitive resources are enormous between the leading and the most noticeably awful performing banks concerning the likelihood of bank monetary stuns. Comparable to the display considered, the impacts of intrigued rates on the liquidity circumstance of managing an account framework were found (Banti & Phylaktis 2019; Anh and Thanh, 2022). An increment in the interest rate can impact the bank's salary and the capacity for liquidity creation (Casu et al. 2017). Any alteration within the repo rates positively affected house prices because it tends to create liquidity conditions in banks to be fixed (Banti et al. 2019).

In relation to impulse response function, forecast error variance decomposition provides complementary analysis by identifying which variable contributes mostly to causing the shocks. The variance decomposition displays the disparity of an endogenous variable in causing the shocks. For example, which of these bank capital adequacy (Tier 1 RWCR), asset quality (NPL) and earnings quality (ROA) is contributing mostly shocks to the liquidity conditions in Namibia.

The Econometric Model

We collected data from the Bank of Namibia and Namibia Insights Organization. The data consisted of balance-sheet information of banks to decide sources of liquidity stuns. We got the bank's financial information on the adjust sheets from the Bank of Namibia and the National Security Advisor (NSA). The sample period is from 2009 to 2018, and information on the primary quarter is from the Namibian commercial bank. The foremost later financial crisis was in 2007-09, which was a result of a deficiency of liquidity, among other reasons for the think-about period. We compiled a few monetary factors from literature that were fundamentally used to decide the banks' capital ampleness, resource quality, and bank profit. Capital ampleness is intermediary Tier 1 capital proportion (Level 1 Risk-Weighted Capital Ratio (RWCR) and is derived using total value separated by adding up to resources (Hossain et al. 2018). Level 1 RWCR relates to the liquidity conditions that can cause liquidity shocks. One capital proportion may be a capital ampleness inside the bank utilized by diverse universal and national administrative specialists and endorsed by the Basel Committee on Managing an Account Supervision. In this manner, the higher the capital ampleness and productivity, the better the chances a bank would survive (Papanikolaou 2017).

The intermediary and the primary caution flag for the quality of bank resources is the non-performing advances Non-Performing Loan and Non-Performing Assets (NPL/ NPA). NPL implies that the credit portfolio is

inspected by a particular year's past due proportion (Nurazi & Usman 2016). By and large, by perception, it is evident that the higher the NPL proportion is in a bank, the more hazardous a bank is (Kowanda et al. 2014). NPL is one of the components that classify bank liquidity conditions; it comes from borrowers' disappointment in forming the reimbursements for the thought that it lifts liquidity chance that will come full circle in trouble of the bank (Hajja et al. 2015). A positive relationship between credit chance and liquidity risk has been established (Berrios 2013, Hajj & Hussain 2015).

To assess the bank's profit and analyze the effect of the benefit on liquidity conditions of the individual bank, the return on resource (ROA) was considered. ROA gives the sum of returns that a bank gathers from the utilization of resources that have been conveyed (Srinivasan & Swaminathan 2016), demonstrating that a higher return on resources implies an expanded benefit for the bank (Karri et al. 2015). Managing an account with a high-profit level carries a high likelihood of bankruptcy (Papanikolaou 2017). The ROA's relationship with banks is related to liquidity conditions in these last-mentioned envelopes (Ghurtskaia et al. 2016). Hence, a relationship between ROA and liquidity conditions is expected in this manner, showing that the effect of ROA on Namibia's liquidity conditions may be among the sources of liquidity stuns.

As for liquidity proportions, these proportions characterized the capacity of the bank to fulfil its commitments, which stemmed from contributors and speculators. In keeping money liquidity conditions, this considers employing two liquidity ratios in its estimation with other non-liquidity proportions to form the CAMELS system. The primary is the fluid resources that generally add to liabilities Liquid Asset to Average Total Liabilities Ratio (LA_ATL)). They capture the eagerness of a bank to hold a certain level of fluid resources to meet the least levels that financing exercises will request. Savers may humiliate the bank on the off chance that the proportion is moo; this implies that the lower the proportion, the higher the foremost the chance (Srinivasan et al. 2016). LA_ATL may be affected by non-performing credits and the affectability to advertise chance (Banti et al. 2019).

The moment liquidity proportion is fluid resources that add to the proportion of the resource (LA_TA). This proportion is set by the central bank of a given nation, say, Bank of Namibia, and applies to commercial banks(Srinivasan 2016). An increment of fluid resources to add up to the proportion of the resource indicates that a bank is more liquid and will not involve a bank run (Shen & Chen, 2014). LA_TA may be explained by non-performing advances proportion and capital ampleness (Rena & Kamuinjo 2022).

A critical degree of the estimate and capital that a bank will agree to a specific party or nation is the characteristic logarithm of bank resources and less credit misfortune saved. The flags are positive, incorporating the bank's likelihood of default. Besides, numerous creators claimed that financial misfortune is also pivotal when dissecting the lack of bank liquidity and budgetary issues related to distress. For instance, when a particular nation is in a recession, this can cause a decrease in the quality and misfortunes of the bank advance portfolios (Angora & Roulet 2011).

The macroeconomic conditions of a nation are proxies by the yearly development rate of genuine Net Residential Item (Gross Domestic Product), which shows bank liquidity deficiencies and monetary trouble. A negative flag within the framework determines the bank's liquidity hazard and budgetary trouble. The increased request for liquidity from the interbred advertises is additionally inspected for inadequacy and, afterward, fiscal trouble. The interbred is anticipated to deter the keeping of money day-by-day operations due to a deficiency of Liquidity (Rena & Kamuinjo 2022). The effect of interbank credit development on liquidity requests with a one-month interbred rate and central bank approach rate Spread of the One-Month Interbank Rate & the Central Bank Policy Rate (SIB_CDR). is utilized as an intermediary. The esteem of the spread of the one-month interbred rate and the higher central bank arrangement rate will impact the bank. A positive flag decides the bank budgetary trouble. All factors of the inquiry about the investigation have been taken in standard logs, but GDP and SIB_CDR since the proportions are comparatively lower than these two variables. Data were found to be normal (see table-1 below).

Table-1: Normality Tests

	LA_ATL		LA_TA	
Component	**Jarque-Bera/df**	***p***	**Jarque-Bera/df**	***P***
1	102.26/2	.00	57.09/2	0
2	1.65/2	.43	2.37/2	.30
3	.99/2	.60	1.33/2	.51
4	.47/2	.78	.31/2	.85
5	733.91/2	0	3055.60/2	.00

Considering the LA_ATL, with null hypothesis, the study would like to find out whether the residuals are normally distributed. In contrast, with alternative hypothesis, the study aims to find out whether the residuals are not normally distributed. According to Table-1 if the probability values are greater than 5% that conclude that the residuals from the SVAR model are normally distributed. The results imply that the estimated SVAR model was normally distributed.

Focusing on autocorrelation with null hypothesis, the study aimed at finding out whether the residuals from the SVAR model are free from autocorrelation. While with alternative hypothesis, the study at finding out whether the residuals from the model are not free from autocorrelation. If the probability values at different lag length are greater than 5% then based on the results, they failed to reject the null hypothesis. According to the results, the majority probability values are greater than 5%, this means that the models are free from autocorrelation and reject the null hypothesis. In addition, if the characteristics roots lie within the circle, conclude that parameter used in the SVAR model are stable.

Results and Analyses

An empirical investigation was conducted using the nature of the information to the choice of the SVAR to assess and bring out sources of liquidity stuns in Namibia. SVAR was chosen because of its appropriateness in presenting how macroeconomic factors react to each other utilizing board information. The basic stun to liquidity conditions were both distinguished and affirmed by the insight of SVAR Granger causality, drive reaction capacities, and change disintegrations. The region of interest was the relations between other macroeconomic variables and the liquidity position of banks. The SVAR model used is as follows:

$$L_{it} + a_T T_t = B_L + B_{LT1} T_{it-1} + B_{LT2} T_{it-2} + B_{LL1} L_{it-1} + B_{LL2} L_{it-2} + C_L GDP_{it} + e_L$$

$$a_L L_{it} + T_{it} = B_T + B_{TT1} T_{it-1} + B_{TT2} T_{it-2} + B_{TL1} L_{it-1} + B_{TL2} L_{it-2} + C_T GDP_{it} + e_{T\ldots 3.1}$$

L_{it} = Current level of Liquidity conditions, T_{it} = Current level of T, $T_{it-1} = T$ lagged once, T_{it-2} = T lagged twice, L_{it-1} = L lagged once, $L_{it-2} = L$ lagged twice, $GDP_{it} =$ current level of GDP, $e_T =$ white noise error term with zero mean and constant variance, B_L = slope parameter for equation [1] variance intercept, $B_T =$ vertical intercept for equation

The Granger causality test identifies causation links between variables to determine which variables are exogenous and can be used for data analysis (Gottschalk 2001). The Granger causality tool uses a hypothesis to determine whether one variable can forecast another (Wei 2013). This paper employed the Granger causality test to analyze the causality relationship between bank capital adequacy (Tier 1 RWCR), asset quality Non-performing Loans (NPL), and earnings quality Return on Assets (ROA) with liquidity conditions in Namibia. Table-2 reports the Granger causality test results.

Table-2: VAR/Granger Causality/Block Erogeneity Tests

	DV: LNLA_ALTL		DV: LA_TA	
Excluded	**Chi-sq/df**	***p***	**Chi-sq/df**	***p***
LNTIER1RWCR	6.24/4	.18	10.86/7	.14
LNNPL	13.66/4	.00	26.14/7	.00
LNROA	7.84/4	.09	12.31/7	.09
LNRSA_RSL	5.71/4	.22	9.289/7	.23
All	23.79/16	.09	53.01/28	.00

Source: the authors

LNLA_ALTL=***, LA_TA= ***, LNTIER1=***, RWCR =***, LNNPL =***, LNROA=***, LNRSA_RSL=***. Expand***

LAATL: Liquid Asset to Average Total Liabilities Ratio;

The impulse response functions are an instrument that depicts the reaction of each variable to structural shocks originating from an economic time series (see Barnichon & Brownless 2018). The impulse response functions describe the mode of variation of a variable over time (Sims 1980). One advantage of the impulse response function is that it displays the direction of an endogenous variable in identifying the shocks (Yu et al. 2008). The impulse function has been used to model the behavior of liquidity conditions against bank capital adequacy (tier 1 RWCR), asset quality (NPL), and earning quality (ROA). Comparing it with the impulse response function, the forecast error variance decomposition offers an additional analysis of the extent to which each specific variable is most involved in explaining the shocks (Amisano & Giannino 1997). The variance decomposition shows differences in an endogenous variable to inflict the shocks. For example, which of these, bank capital adequacy, asset quality NPL, or earning quality (ROA), is making the most of shocks affecting the liquidity situations in Namibia?

Results

The results from Tables-1 and 2 indicate the sources of liquidity stuns for Namibia from 2009 to 2018 by employing a liquidity proportion inferred from the CAMEL proportions. Notably, we look at the capital ampleness and asset/earning quality-based speculations against the setting of liquidity arrangements of the banks. Thus, we gauge an Auxiliary VAR show by equalling other CAMELS proportions with liquidity proportions of LA_ ATL and LA_TA to look at the sources of stuns in Namibia. Comparing the Granger causality between capital ampleness and liquidity, we see that its interface with NPL and LA_ATL is even stronger. The proof (see Table-2) we get from the investigation recommends that NPL may be a granger cause of the LA_ATL at a one percent factual noteworthiness). This means

that subsidizing liquidity in banks depends on NPL within the borrowers sector. In addition, ROA and LA_ATL uncover (see Table-2) a too-causal relationship at a nine percent level of centrality. Typically,there's a suggestion that there's a causality between salary and liquidity positions in BANKs within the sense of Granger causality. These recommend that, as it were, NPL and ROA proportions can causally relate to LA_ATL proportion. The discoveries point to the plausibility that credit hazard (non-performing advances) and destitute gaining might impact liquidity conditions within the banks.

Our results from Table -1 and 2 indicate that the drive reaction of the fluid resources to normal adds to liabilities (LA_ATL) to stun non-performing credits and return on the resources. Further, it incorporates a positive relationship to the positive accessibility of liquidity stuns. Subsequently, the accessibility of liquidity stun affects their liquidity status – the reaction of liquidity conditions to positive non-performing credits in banks. Liquidity rises within the, to begin with, two, a long time, and after that, slightly stable. As such, stuns (*** explain stuns***) emerging from non-performing advances affect the liquidity status of banks in the long run. From a loaning point of view, the NPL proportion is characterized by the nonattendance of reimbursements of advances from the borrower's side. Table-3 reports the variance decompositions.

Table-3: Variance decomposition

	Variance decomposition of LA_ATL				Variance decomposition of LA_TA			
Period	SE	LNLA_ATL	LNNPL	LNROA	SE	LNLA_TA	LNNPL	LNROA
1	.11	100.00	0	0	.11	100	0	0
2	.11	96.40	.42	1.25	.12	87.08	4.68	2.17
3	.12	89.39	.43	1.19	.14	79.74	12.79	1.97
4	.12	87.40	6.38	1.17	.15	78.77	13.15	2.43
5	.12	84.35	7.25	2.13	.15	75.73	15.26	3.32
6	.12	81.60	8.04	2.77	.17	65.19	25.19	3.8
7	.13	80.44	8.81	2.72	.17	62.34	28.07	4.03
8	.13	79.46	9.23	2.72	.18	57.59	31.36	3.77
9	.13	78.75	9.59	2.72	.19	52.72	35.26	3.40
10	.13	78.24	9.91	2.77	.20	46.79	40.89	3.05
11	.13	77.70	10.09	3.06	.21	42.42	43.82	3.61
12	.13	77.02	10.14	3.48	.22	39.12	45.57	3.85
13	.13	76.39	10.16	3.92	.23	36.02	47.09	4.53
14	.13	75.81	10.16	4.43	.24	33.58	47.92	5.52
15	.13	75.18	10.13	5.08	.25	31.63	47.47	7.33
16	.13	74.54	10.07	5.58	.25	30.26	46.88	8.77
17	.13	73.97	10.00	6.08	.26	29.16	46.13	10.31
18	.13	73.47	9.94	6.56	.26	28.22	45.12	12.11

	Variance decomposition of LA_ATL				Variance decomposition of LA_TA			
Period	**SE**	**LNLA_ATL**	**LNNPL**	**LNROA**	**SE**	**LNLA_TA**	**LNNPL**	**LNROA**
19	.13	73.01	9.89	6.99	.27	27.40	43.95	13.94
20	.13	72.61	9.83	7.35	.27	26.79	42.99	15.41
21	.13	72.28	9.79	7.65	.27	26.28	42.18	16.73
22	.14	72.01	9.75	7.90	.28	25.81	41.45	17.85
23	.14	71.78	9.71	8.11	.28	25.41	40.90	18.61
24	.14	71.60	9.69	8.27	.28	25.11	40.56	19.04

Source: the authors using Eviews 8

We present in Table-3 and Table-4 the vigor checks concerning SVAR demonstrations and liquidity stuns. The outlined insights are obtained from the liquidity proportions demonstrating that both factors are regularly dispersed, and thus, the assessed demonstration is additionally ordinarily disseminated. LA_ATL and LA_TA in Table-4 demonstrate that there's no autocorrelation within the information. Advance the converse roots of VAR characteristics polynomial for solidness, and it appears that the roots of the characteristic lie inside the circle, so the utilized parameters within the SVAR demonstrate that they are steady. Concerning the heteroscedasticity test, the insights recommend that heteroscedasticity is the case among the models, meaning the residuals of the show are homoscedasticity.

Table-4: Autocorrelation

Lag	**LRE* stat**	***Df***	***p***	**Rao F-stat**	***df***	***p***
LA_ATL autocorrelation						
1	43.42	25	.02	1.78	25, 358.1	.01
2	25.82	25	.41	1.03	25, 358.1	.41
3	25.08	25	.45	1.00	25, 358.1	.45
4	16.08	25	.91	0.63	25, 358.1	.91
5	30.04	25	.22	1.21	25, 358.1	.22
LA_TA autocorrelation						
1	27.97	25	.31	1.12	25, 257.8	.31
2	38.223	25	.04	1.57	25, 257.8	.04
3	28.08	25	.30	1.13	25, 257.	.30
4	26.43	25	.38	1.06	25, 257.8	.38
5	12.57	25	.98	0.49	25, 257.8	.98
6	24.94	25	.46	1.00	25, 257.8	.46
7	46.73	25	.00	1.95	25, 257.8	.00
8	22.53	25	.60	0.90	25, 257.8	.60

The investigation from the residuals test of the SVAR reveals that the mistakes within the show are taken after a typical conveyance. In addition, utilizing the moving-average 2009-18 method, the tests uncover

no autocorrelation problem within the results. Furthermore, there is no evidence of heteroscedasticity within the tests. Conjointly, there's no parameter steadiness.

Further, we find that within the beginning a long time as it were the genuinely intrigued rate on bank fluid resources, as well as the spread between the intrigued rate charged on credits; the intrigued rate paid on stores were recorded to have been either boosted or cut back recently, hence it declined to a lesser extent in the long time. The result is hardly critical in the long term. This infers that productivity stuns are characterized by return on resources moved up at that point down and includes a favorable effect on banks' liquidity positions within the brief run. give that a negative productivity stun may be clarified through declined financial execution by referring to Namibia's execution over the a long time.

Besides drive reaction, guided by the estimate mistake fluctuation deterioration of the factors understudy gotten from Basic VAR, the investigation appears that NPL stuns apply the foremost noteworthy impact on the estimate blunder change of the liquidity conditions. It also shows that it has risen 5-10 percent over time. The ROA stuns are the other development for the estimated blunder fluctuation of the liquidity conditions. They rose from ine percent to eight percent over the time. In the long run, ROA is the moment important determinant of the inconstancy of the forecast error of the dependents' liquidity conditions.

Using the Granger causality test result between LA_TA and CAMELS factors, it was found that NPL is the variable that causes Granger liquidity with a significance level5%. This implies an unequivocal solid causality relationship between NPL and LA_TA. In addition, the relationship and causation between ROA is very moo. Liquidity conditions in banks were both increments and diminished within the beginning with four a long time. It slowly diminished within the remaining long-time understudy. The impact is borderline noteworthy in the long run. This implies that benefit stuns measured by return on resources reacted and after that adversely and have an ideal impact on liquidity positions in banks within the brief run. A negative productivity stun may be caused by declined financial execution by alluding to Namibia's execution over the final four long times.

Apart from motivation reaction, considering the figure blunder fluctuation deterioration of the factors understudy inferred from Structural VAR, it illustrates that NPL stuns have the foremost critical effect on the figure blunder fluctuation of the liquidity conditions Table-3. It appears that it has expanded over time from five to 10 percent refer Table-4. The ROA stuns are another vital energy source for the figure mistake change in liquidity conditions. They developed from 1-8 percent over the time. In the long run, ROA is the critical figure of the figure blunder inconsistency of the liquidity conditions.

Considering the Granger causality between LA_TA and other CAMELS factors, NPL causes the liquidity variable at a zero percent noteworthiness. This suggests that the causality between NPL and LA_TA is solid. Encouraging this, the causation between ROA is powerless. LA_TA. This recommends that, as it were, NPL has the Granger causality on LA_TA. The LA_TA increases the accessibility liquidity drive. This suggests that the accessibility of liquidity affects the LA_TA, particularly in terms of liquidity circumstances in Namibia. Further, all LA_TA stuns respond emphatically to the motivation for the NPL proportion.

For NPL stuns, the results indicate an increment taken after by a diminishing drift for the rest of the period, as highlighted within the advancement chart underneath. Subsequently, NPL motivations affect LA_TA, particularly banks' relative liquidity circumstances. We find that LA_TA increments to ROA signals within the starting four a long time. At that point, negative ROA driving forces exist for the remaining six long-term understudies. This implies that earnings inside banks have a few effects on LA_TA, particularly the fluid components in banks.

Conclusion and Policy Implications

We find that liquidity stuns are due to a combination of stuns. We recommend that NPLs stuns are the overwhelming sources of liquidity chance in the long run. NPL incorporates an excellent positive relationship with LA_ATL and LA_TA, driven by liquidity stuns. As distinguished within the earlier observational ponders, the higher non-performing advances result in lower liquidity and higher liquidity chances within the banks (Nabilar et al. 2018). On the other hand, our results suggest limiting the stuns and hazard. Further, we note find that return on resources has a small impact on liquidity circumstance in Namibia. The ROA outlined their affiliation with the LA_ATL and LA_TA proportions. Accentuation on the benefit maximization decreases liquidity conditions, whereas an accentuation on liquidity diminishes the benefit of a bank. Directors should pay attention to controlling and equilibrating the benefit and liquidity requirements of the banks.

We recommend budgetary arrangement as liquidity chance is due to the intelligence of numerous auxiliary stuns from Granger causality, drive reaction, and variance decay. It has moreover clearly brought out the effect of credit chance (non-performing credits) and Return on Assets (ROA) on liquidity stuns in Namibia, requiring macroeconomic approach plans. Credit chance (non-performing advances) lowers liquidity and, thus, liquidity hazard in banks. Medium to long-run Auxiliary impacts of stuns are too influenced by return on resources. The implication is that whereas benefit amplification is desirable, it may cause corruption in the liquidity conditions of a bank.

Direction for Future Research

This study aimed to reveal the sources of liquidity shocks in Namibia and the study provides some valuable policy tools to address liquidity shortages in banks. Beneficiaries for this study include banks, liquidity risk managers, regulatory bodies, academics, bank customers, investors, shareholders and the whole financial system in Namibia. The findings of the study are useful to financial planning, risk management and measurements. The study is relevant to Namibia and particularly to the regulatory bodies since they are in the process to improve their financial policies in order to comply with international standards and practices. With regards to banks, the study may benefit them by understanding the sources of liquidity shocks in Namibia.

In addition, academics may benefit from the generated new knowledge so that they can advance it in the literature and conferences. The results could be useful to customers with regards to their investments and this can enable them to make informed decisions with regards to their savings and borrowings. The results can also benefit investors in terms of their investments' safety as well as allowing them to make informed decisions with regards to investments.

References

Affes Z & Hentati-Kaffel R 2017. Predicting US banks bankruptcy: logit versus Canonical Discriminant analysis. 29th Australasian Finance and Banking Conference 2016, organised by The University of New South Wales. Sydney. 1-32.

Amisano G & Giannini C 1997. Topics in Structural VAR Econometrics. New York: Springer.

Anh H & Thanh HN 2022. Service quality and customer satisfaction in the banking industry: an empirical study in Vietnam. *Journal of the Academy of Business and Emerging Markets*, 22(2), 15-26. https://doi.org/10.5281/zenodo.7089690

Angora A & Roulet C 2011. The use of a Basel III liquidity ratio to predict bank financial distress. University of Limoges, Working Paper.

Banti C & Phylaktis K 2019. Global liquidity, house prices, and policy response. *Journal of Financial Stability*, 43(3), 79-96.

Barnichon R & Brownlees C 2018. Impulse response estimation by smooth local projections. doi.org/10.2139/ssrn.2892508

Barth J, Brumbaugh R, Sauerhaft D & Wang GHK 1985. Thrift-Institution failure: causes and policy issues. Proceedings 68 organized by Federal Reserve Bank of Chicago, Chicago. 380-395.

Basel Committee on Banking Supervision, 2008. Principles for sound liquidity risk management and supervision. Consultative document. https://www.bis.org/publ/bcbs144.htm

Berrios MR 2013. The relationship between bank credit risk and profitability and liquidity. *The International Journal of Business and Finance Research*, 7(3), 105-118.

Bonfin, D. & Kim, M. 2017. Liquidity risk and collective moral hazard, http://dx.doi.org/10.2139/ssrn.2163547. pdf Date of access: 21 November, 2018.

Casu B, Pietro F & Trujillo-Ponce A 2017. Liquidity creation and bank capital in the Eurozone.doi.org/10.2139/ssrn.2828619

Demirguc-Kunt A.1989. Deposit-Institution failure: a review of the empirical literature. Economic Review, 25(4), 2-18.

Ghurtskaia K & Lemonjava G 2016. A study of the relationship between liquidity and profitability in the Georgian banking sector. International Journal of Science and Research, 7(4), 1609-1613.

Gobat J, Yanase M & Maloney J 2014. The net stable funding ratio: impact and issues for consideration. IMF Working Paper, U.S.chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.imf.org/external/pubs/ft/wp/2014/wp14106.pdf

Gottschalk J 2001. An Introduction to the SVAR Methodology: identification, interpretation, and limitations of SVAR models. Kiel working paper, Kiel Inst. of World Economics.

Gowri M & Ramya G 2013. An empirical study on the banking sector using CAMEL model. Sona Global Management Review, 8(1), 10-20.

Hajja AAY & Hussain H 2015. Impact of credit risk (NPLs) and capital on liquidity risk of Malaysian banks. Proceedings of the International Conference on Accounting Studies (ICAS) organized by Universiti Utara Malaysia, Johor Bahru, Johor, 252-256.

Hossain K, Khan A & Sadique S 2018. Basel III and perceived resilience of banks in the BRICS economies. Applied Economics, 50(19), 2133-2146.

Ishag A, Karim A, Zaheer A & Ahmed S 2015. Evaluation performance of commercial banks in Pakistan: an application of CAMEL Model. Army Public College of Management Sciences, Pakistan. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2716691

Karri HK, Meghani K & Mishra BM 2015. A comparative study on the financial performance of public sector banks in India: an analysis on CAMEL model. *Arabian Journal of Business and Management Review*, 4(8), 18-34.

Kowanda D, Pasaribu RBF & Firdaus M 2014. Financial distress prediction on public listed banks in Indonesia stock exchange. The 3rd International Congress on Interdisciplinary Behaviour and Social Science organized by ICIBSOS, Dynasty Resort Kuta, Bali. 364-370.

Kumar KA & Murty, AV 2017. Financial performance of selected public and private sector banks based on CAMEL model with reference to

Indian banking sector. *International Journal in Management and Social Science*, 5(4), 2321-1784.

Lallour A & Mio H 2016. Do we need a stable funding ratio? Banks' funding in the global financial crisis. Staff Working Paper, Bank of England.chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2016/do-we-need-a-stable-funding-ratio-banks-funding-in-the-global-crisis.pdf

Le T 2017. Financial soundness of Vietnamese commercial banks: an CAMELS approach. https://doi.org/10.2139/ssrn.3068529

Majumder TH & Rahman MM 2016. A CAMEL Model analysis of selected banks in Bangladesh. *International Journal of Business and Technopreneurship*, 6(2), 233-266.

Makinen M & Solanko L 2017. Determinants of bank closures: do changes of CAMEL variables matter? The Bank of Finland Institute for Economies in Transition, BOFIT Discussion Papers. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3062513

Martin D 1977. Early warning of bank failure. *Journal of Banking Finance*, 1(3), 249-276.

Nabilah, N.F. & Khushiri, A. 2018. The relationship between risk and performance of Citibank Singapore Limited. http://dx.doi.org/10.2139/ssrn.3302079. [Date accessed: 11/04/2020].

Nurazi R & Usman B 2016. Bank stock returns in responding the contribution of fundamental and macroeconomic effects. *Journal of Economics and Policy*, 9(1), 134-149.

Panigrahi AK 2014. Relationship of working capital with liquidity, profitability and solvency: a case study of ACC limited. *Asian Journal of Management Research*, 4(2), 308-322.

Papanikolaou N 2017. A dual early warning model of bank distress, Economic Letters, 16(2), 127-130.

Rena R & Kamuinjo AV 2022. An empirical analysis of the relationship between capital, market risks and liquidity shocks in the banking industry. Studia Universitatis Babeș-Bolyai Oeconomica, 67(2), 67-83.

Rena R 2006. Financial Institutions in Eritrea, Dar Es Salaam: New Africa Press.

Shen, C. & Chen, T. 2014. Performance analysis of liquidity indicators as early warning signals, http://dx.doi: 10.2139/ssrn.2539410. pdf. Date of access: 15 May 2018.

Sims CA 1980. Macroeconomics and reality. Econometric, 48(1), 1-48.

Sinkey JF 1975. A multivariate statistical analysis of the characteristics of problem banks. *The Journal of Finance*, 30(1), 21-36.

Sironi A 2018. The evolution of banking regulation since the financial crisis: a critical assessment. doi.org/10.22409/economica.15i1

Srinivasan P & Saminathan YP 2016. A Camel Model Analysis of public, private and foreign sector banks in India. Pacific Business Review International, 8(9), 45-57.

Tripathi D, Meghani K & Mahajan S 2014. Financial performance of Axis bank and Kotak Mahindra bank in the post reform era: analysis on CAMEL model. *International Journal of Business Quantitative Economics and Applied Management Research*, 1(2), 108-141.

Venkatesh J & Suresh C 2014. Comparative performance evaluation of selected commercial banks in Kingdom of Bahrain using CAMELS method. doi.org/10.2139/ssrn.2418144

Vousinas GL 2018. Analysing the financial performance of Greek systemic banks during crisis: an application of CAMELS rating system. doi.org/10.2139/ssrn.3163324

Wei W 2013. An empirical analysis of relationship between imports and export of China's foreign-invested enterprises based on vertical specialization. doi.org/10.1016/B978-0-85709-446-9.50006-X

Yu W, Ju'e G & Youmin X 2008. Study on the dynamic relationship between economic growth and China energy based on cointegration analysis and impulse response function. China Population, Resources and Environment, 18(4), 56-61.

Journal of International Economics
ISSN 0976-0792 Volume 16 No 1, January-June 2025 pp: 18-32

Evaluating India's RCA Using Maximum and Reference Country Benchmarks

N. Lalitha*

Abstract

Although trade liberalization has helped India establish a firm foothold in the global market, there is a need to reassess our trade strategies in light of the changing international trade dynamics. Countries are increasingly adopting inward-looking policies, and trade barriers are being used to protect domestic industries. It is therefore imperative to assess India's relative export strengths across different product groups in order to design targeted and effective trade policies. We compared India's RCA in eight product groups classified according to the Standard International Trade Classification Revision 2 framework with that of a reference country, identified on the basis of product-level RCA and share in India's total exports for the year 2000. This unique approach enabled us to make a nuanced comparative evaluation of the trend in RCA against the benchmark country. The period-wise comparison of India's RCA with the maximum RCA value in each product group, along with an analysis of its RCA rank, provided additional insights into India's relative strength in export markets. The study found that between 2000 and 2022 India consistently had a comparative advantage in three product groups and a comparative disadvantage in two, while its RCA rank across all the groups fluctuated over time.

Keywords: Comparative Advantage, Correlation Coefficient, RCA Index

Introduction

Neoclassical trade theories (viz. Ricardian, Hecksher-Ohlin) have argued that the pattern of trade is explained by comparative cost advantage. The comparative cost advantage is determined by factors like resource endowments, technology, government policies, etc. Balassa (1965) developed a tool, the Revealed Comparative Advantage (RCA) Index, to measure a country's relative advantage or disadvantage in the export of a

* Department of Economics, Shyama Prasad Mukherji College For Women, University of Delhi, Delhi, India and can be reached at nlalitha@spm.du.ac.in

particular product by examining its pattern of trade. The underlying logic of this measure was that if "differences in relative productivity determine the pattern of trade, then the (observable) pattern of trade can be used to infer (unobservable) differences in relative productivity" (French 2017). An RCA greater than 1 indicates that a country can produce and export goods or services more efficiently than other countries. This inference, however, may not always be justifiable as the level of exports is influenced by a large number of factors like trade policies, global economic conditions, exchange rates, etc. Though the Balassa Index does not distinguish between structural and policy-induced advantages, we have used this in our study because of its simplicity and intuitive interpretation. Further, as this study aims to understand the trends in RCA over the study period and analyze the change in India's rank in terms of RCA in various product groups, we feel the Balassa Index would be adequate to make broad comparisons.

Literature Review

The RCA Index is a very useful measure to evaluate a country's export strength in relation to the world average. While RCA provides valuable insights into trade patterns, it is essential to recognize its limitations and the dynamic nature of global trade. The evolving global value chains and technological advancements necessitate continuous refinement of RCA measures to accurately reflect comparative advantages.

In the literature, various measures of RCA indicators have been proposed. Moreno-Brieva (2022) developed a new index to measure revealed comparative advantage to overcome the double-counting involved in the estimation of export values for sectors and countries involved in Global Value Chains (GVC). The fragmentation of the production process across countries that takes place in GVCs often results in products crossing a border multiple times and thus inflates the export figures. The author found the new index to be more reliable than other indices that use gross exports for measuring comparative advantage in empirical analysis, especially for high-tech sectors. Escaith (2020) used input-output data that helped distinguish between upstream and downstream competitiveness in the measure of comparative advantage. The paper also emphasized the complementary nature between one-way and two-way trade indices, with the former measuring only the value of exports from one country to another and the latter measuring both exports and imports between countries. The paper also suggested that ranking countries based on performance in trade gave a more robust result as compared to assessing the performance based on absolute cardinal indices.

The Balassa Index and its modified version, the RCA DVA Index i.e., the Revealed Comparative Advantage in Domestic Value Added Index,

are used in many research works on International trade. Fronczek (2018) argued that the RCA DVA incorporates value-added data due to the global value chain and is therefore a better indicator of comparative advantage.

Gnidchenko and Salnikov(2015) proposed a Net Comparative Advantage Index, which they argued was easier to calculate and interpret in empirical exercises. Unlike the traditional measure, this new index is based on net trade and incorporates both the structure of world trade and the openness of the domestic economy, and therefore provides a more comprehensive assessment of comparative advantage.

Hadzhiev (2014) put forward a new method for measuring revealed comparative advantages, as the traditional methods of Bela Balassa did not adequately capture the significant differences between countries that exported lower-processed products and those that exported higher-processed goods. The study suggested that policymakers should consider these patterns of specialization when formulating trade policies and develop strategies to enhance their export capabilities and move up on the value-added chain.

A major limitation of the Balassa RCA measure is related to the skewed nature of its distribution. Since RCA values range from zero to infinity, the distribution is right-skewed. Within a country, RCA values can vary considerably across sectors. As a result, an increase in the RCA of a sector that already has a high RCA can substantially raise the average RCA, even if the median value remains largely unchanged. Researchers will therefore draw different inferences depending on whether they use the mean or the median RCA value when comparing competitiveness across countries. Yu et al. (2009) proposed an improved measure of comparative advantage called the Normalized Revealed Comparative Advantage (NRCA). This index captures the comparative advantage of a country in a commodity with greater accuracy as it normalizes the traditional measure and is therefore useful for examining comparative advantage across commodities, countries, and time.

The literature also includes studies that have examined comparative advantage in both goods and services across countries, often identifying trade opportunities and potential areas for export diversification. Jain (2020) examined India's export strength in various product categories in relation to countries falling under the umbrella of the Regional Comprehensive Economic Partnership (RCEP) using the RCA Index. The paper argued that with a high RCA in sectors like chemicals, textiles, and some agricultural products, India could have done much better in its trade with RCEP countries. In a later study, Jain (2020) examined India's RCA with countries covered under the Association of Southeast Asian Nations (ASEAN) countries and came to a similar conclusion.

Kaleswaran and Arul (2015) in their study of India and nine other leading countries examined the comparative and competitive advantage of these countries in selected service exports during the period 2000 to 2013. The study found that India had a strong comparative advantage over other countries in computer and information services and other business services. Further, the country's competitive advantage lies in sectors like travel, communication services, and cultural and recreation services sector.

Burange and Chaddha (2008) studied India's comparative advantage in merchandise trade from 1996 to 2005. The study found that India's advantage lay in exporting labor-intensive goods, such as textiles, as well as scale-intensive items like chemicals, iron, and steel. Classifying goods as Ricardo goods and Heckscher-Ohlin goods based on the determinants of comparative cost advantage, the authors reported that India enjoyed a comparative advantage in both categories.

Gupta and Kumar (2017) in their study of exports of Rwanda found that the RCA of its primary exports declined due to competition from other exporting economies. They suggested that the country needs to invest in research and development and facilitate greater participation by the private sector. Ishchukova and Smutka (2013) examined the competitive strength of the various products of the Russian agriculture sector using the twin criteria of RCA and trade balance. They classified the products into four groups based on comparative advantage/disadvantage and positive/negative trade balance. The study found that for the period 1998 to 2010 about 50% of total agricultural export value came from a very small percentage (5%) of exported goods. Further, about 80% of agricultural products had no comparative advantage and the country was therefore heavily dependent on imports.

Objective of the Study

This study aims to examine the trends in India's revealed comparative advantage (RCA) across eight product groups from 2000 to 2022 and to benchmark India's performance by comparing its RCA values with the maximum RCA and the RCA of the reference country, identified for each product group, to assess India's relative export strength over the study period.

Methodology

In this study, we examined the RCA values for broad product groups. The World Integrated Trade Solution (WITS), an online platform developed by the World Bank in collaboration with UNCTAD, WTO, and other international agencies, provides data on merchandise trade, tariffs, and non-tariff measures. The World Integrated Trade Solutions (WITS) reports RCA for product groups based on Standard International Trade Classification

Revision 2 groups (SITC Rev2) or sectors or stages of processing. This paper analyzed the RCA values of products classified according to the SITC Revision 2 groups. In all, RCA values for 8 product groups over the period 2000 to 2022 were examined. The product groups are textiles, food, manufactures, ores and metals, fuel, chemicals, agricultural raw materials, and machinery and transport equipment. The RCA Index was calculated as a country's share in the world exports of a commodity divided by its share in the total world exports. Thus, the RCA for country A in product 'i' is defined as:

$$RCA_i^A = \frac{X_{iA}/X_A}{X_{iW}/X_W}$$

Here X_{iA} and X_{iW} are the exports of product 'i' by country A and the world. And X_A and X_W are the total exports of country A and the world.

To analyze the change in India's export strength across all eight product groups over the study period, we compared India's RCA with that of the maximum RCA value for each product during the study period. As small countries, generally, have their exports concentrated in select products, their RCA would be high. In contrast, for large countries like India with diversified export baskets, the share of a product in total exports would be low. Therefore, to make a meaningful analysis of the trend in RCA for all the eight product groups we identified a reference country for each product group by following a two-step process. In the first step, we identified countries for which the share of the product in total export was similar to that of India in the year 2000. In the next step, we looked at the share of these selected countries in India's exports and zeroed in on the country which had the highest share in India's exports in the year 2000. This approach enabled us to have a balanced assessment of India's comparative advantage relative to structurally comparable and strategically important trade partners.

As an additional exercise, we also examined India's rank in terms of RCA for all eight product groups over the study period to get a more objective idea of its relative position.

Results and Discussion

Trends in RCA

Changes in a country's RCA over time can indicate shifts in its trade patterns, competitiveness, or the impact of trade policies and market conditions. The RCA Index is often taken as a measure of a country's competitive strengths in exports. An RCA value greater than 1 indicates that the country is relatively more specialized in the production and export

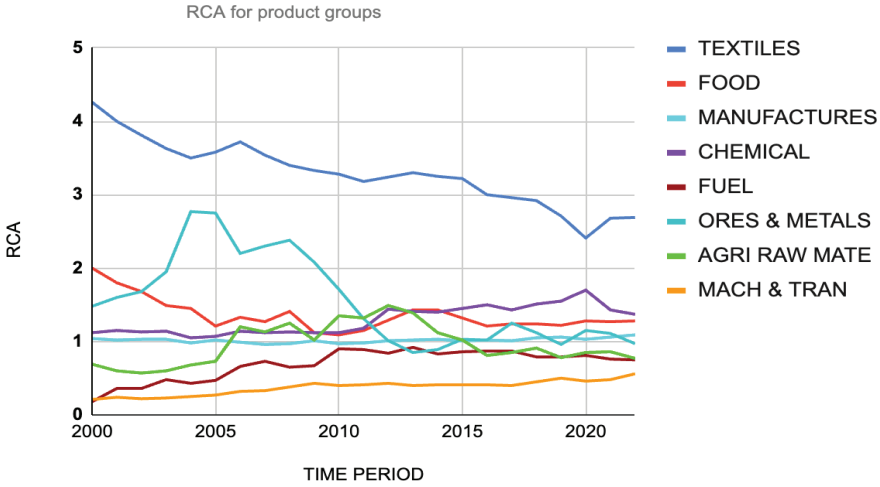
of a particular good than the global average. If a country has a high RCA for certain goods, it means that the country has a competitive edge in those specific goods, either due to better technology, or more abundant factor endowments.

The trend analysis of RCA shows that among the 8 product groups, India consistently had a comparative advantage in three groups and a comparative disadvantage in two groups for the entire study period. The product group with the highest RCA was textiles. The RCA was 4.26 in 2000 and was greater than 3 during the 2000-16 period reflecting India's strong comparative advantage in this product. From 2017 to 2022 the RCA value was below 3. The decline in RCA over 23 year period can be seen clearly in Figure-1.

The other two products where India enjoyed a comparative advantage throughout the period were food and chemicals. The RCA for both these groups was between 1 and 2 during the study period showing a moderate comparative advantage. For fuel, machinery, and transport, the RCA value was less than 1 during the entire study period, indicating a comparative disadvantage at the aggregate product level.

For the product groups manufactures, ores and metals, & agriculture raw materials the RCA values were greater than 1 in some years and less than 1 in other years. For manufactures the RCA hovered around 1 throughout the study period taking a minimum value of 0.96 in 2007 and a maximum of 1.09 in 2022. The range in RCA values was greater for agriculture and raw materials with a minimum value of 0.57 in 2002 and 1.49 in 2012. Ores and metals had RCA exceeding 2 from 2004 to 2009 with a high RCA of 2.77 in the year 2004. This group, however, had a comparative disadvantage for 4 years when the RCA dropped below one.

Figure-1: Trends in RCA for all the product groups



Maximum RCA, India's RCA, and Reference Country RCA

To put in perspective the trends in RCA we compared the RCA of India in each product group with the maximum RCA registered in the concerned product. For all 8 product groups, the data reveals that in most cases, the maximum RCA in any given year was registered by countries that rank lower than India in terms of GDP. As larger countries with exports diversified across many sectors may have low RCA, a comparison of India's RCA with the maximum RCA values of a product group would not be useful in evaluating the relative comparative advantage in the particular product group.

We, therefore, decided to evaluate RCA with respect to a reference country identified as one that had a similar export product share and a high partner share in India's exports. For instance, the share of textiles in India's total exports in the year 2000 was 27.59. The countries that had similar export shares for textiles were Romania (24.52), Togo (23.02), and China (21.49). Since Romania's share in our total exports was a very small 0.03 in 2000 as against China's 1.73 in the same year, we decided to consider China as our reference country for textiles. A similar exercise was done for all the product groups, and the reference countries identified were the Netherlands for food, Belgium for manufactures and ores and metals, Thailand for fuel, Israel for chemicals, China for agricultural raw materials, and the UAE for machinery and transport equipment. Table-1 shows the reference country for each product group, its share in India's exports in the year 2000, and also the value of the correlation coefficient between its RCA and that of India.

Table-1: Product-wise Reference Country, Share in India's Exports, and RCA Correlation with India

Product Group	Reference Country	Reference Country's Share in India's Total Exports in the Year 2000	Pearson Correlation Coefficient between the RCA of the Reference Country and that of India
Textiles	China	1.73	0.845902194
Food	Netherlands	0.03	0.4276918635
Manufactures	Belgium	3.37	-0.2696149375
Ores and Metals	Belgium	3.37	0.4675338118.
Fuel	Thailand	1.24	-0.3007215906.
Chemical	Israel	1.23	0.1774626902
Agri Raw Materials	China	1.73	-0.4314230497
Mach & Transport Equipment	UAE	5.75	-0.1057461407

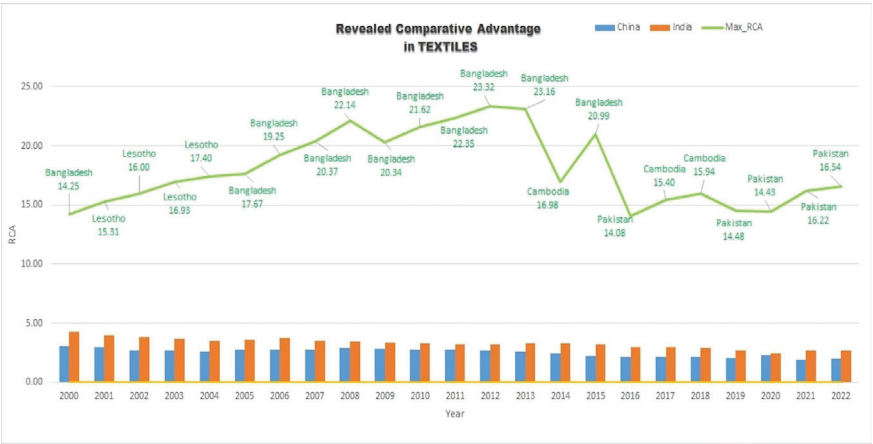
Source: Author's calculations based on WITS data

A comparative analysis of India's RCA with the RCA of the reference country would give us meaningful insights into understanding the trends in

RCA. Figures 2 to 9 show the plot of the maximum RCA, RCA of India, and RCA of the reference country identified for each product group during the study period.

Figure-2 shows the three RCA Indices for textiles. From the figure, we note that Bangladesh had the highest RCA in eleven out of the twenty-three years of the study period, and the highest value of 23.32 was registered in the year 2012. In comparison, India's RCA fluctuated between 2.41 and 4.26. A look at China's RCA, which is the reference country for textiles shows a similar trend. For both India and China, the RCA in textiles shows a downward trend from the beginning of the study period. Pearson's correlation coefficient between the RCA of the two countries was a very high 0.845902194 indicating a similar trend in comparative advantage in textiles.

Figure-2: Maximum RCA, RCA India, RCA China in textiles



In Figure-3, we show the plot of the three RCA Indices for food. The reference country for food is the Netherlands. Except for the year 2000, India's RCA in food was less than 2 during the entire study period and Netherland's RCA hovered around 2 and reached a maximum value of 2.28 in the year 2002 and a minimum value of 1.79 during 2021. The correlation coefficient between the RCA of the two countries was a modest 0.4276918635 indicating similar specialization. The maximum RCA for this product group was again registered by small countries in each period with values ranging from 10.47 to 13.45. Interestingly all three RCA Indices showed a downward trend during the study period. A possible explanation for this could be countries diversifying their export basket and/or a change in the composition of food exports from high RCA items to low RCA items. However, without going into disaggregate data we cannot draw inferences.

Figure-3: Maximum RCA, RCA India, and RCA Netherlands in food

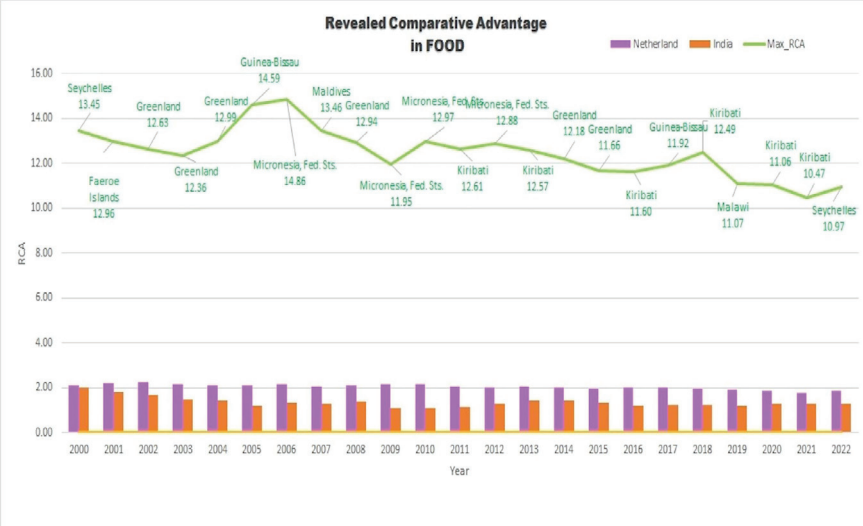
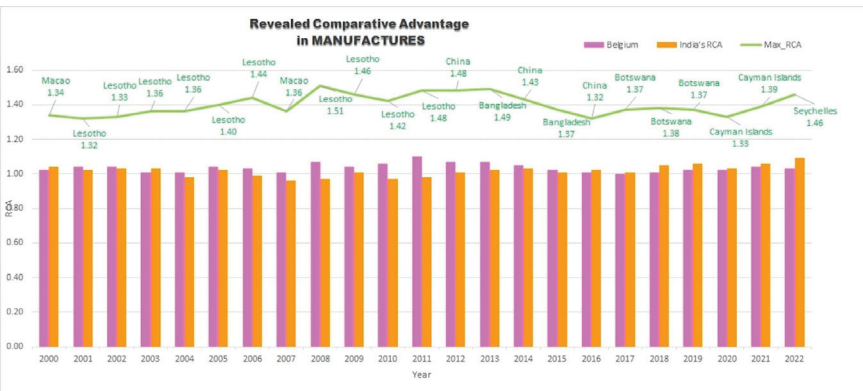


Figure-4 shows the RCA Indices for the product group manufactures. India's RCA values for the various years show that it had a mild comparative advantage in most years, and for six out of the twenty-three years studied, it had a comparative disadvantage. The RCA values for Belgium, the reference country were marginally above one for the entire period indicating a mild comparative advantage for Belgium also. The maximum RCA registered in this product group was between one and two by countries like China, Bangladesh, and Botswana. This means the share of manufactures in the total exports of all these countries namely India, Belgium, China, Bangladesh, Botswana, and the world were not very different from each other. The RCA values of India and Belgium show a negative correlation and the value of the correlation coefficient is:

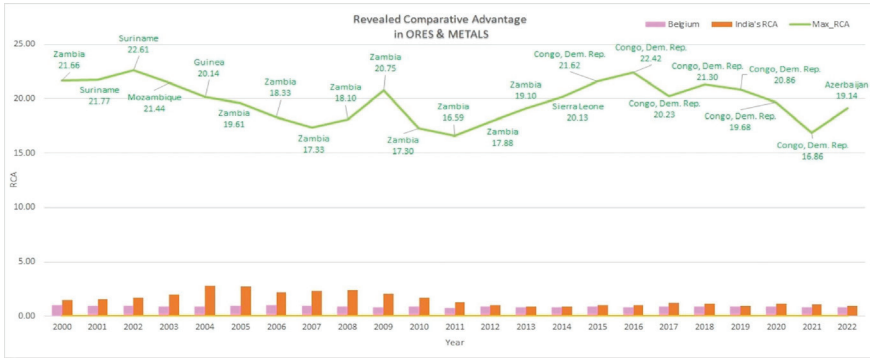
-0.2696149375.

Figure-4: Maximum RCA, RCA India, RCA Belgium in Manufactures



The RCA Indices for the product group Ores and Metals are shown in Figure 5. The RCA for Belgium, which was identified as the reference country for this product group, was less than 1 for almost the entire study period indicating a comparative disadvantage. In contrast, India had a moderate revealed comparative advantage in most of the years between 2000 and 2022, indicating India's greater specialization in Ores and Metals than Belgium. The coefficient of correlation between the RCA of India and Belgium was again a moderate 0.4675338118. Zambia had the maximum RCA amongst all the trading countries in this product for ten out of the twenty-three years data was analyzed.

Figure-5: Maximum RCA, R CA India, RCA Belgium in Ores and Metals

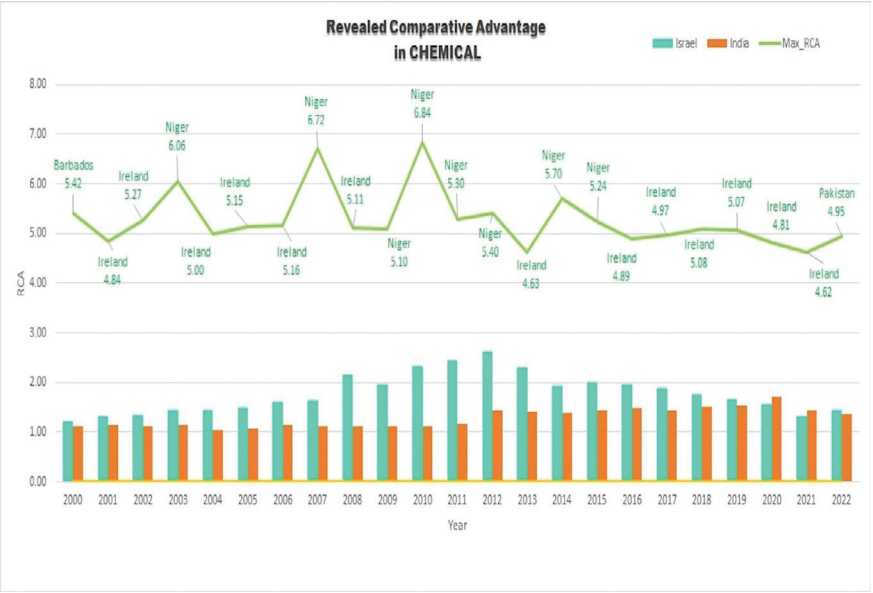


The RCA Indices for fuel is shown in Figure-6. For this product group, India and Thailand (reference country) both had comparative disadvantages throughout the study period. Further, while the share of fuel in India's exports showed an upward trend, Thailand showed a downward trend. Thus, the correlation coefficient between the two countries' RCA was -0.3007215906. The maximum RCA in fuel for most of the years was registered by small African nations.

Figure-6: Maximum RCA, RCA India, RCA Thailand in Fuel

For chemical the reference country identified was Israel. Figure-7 shows that except for the years 2020 and 2021, Israel's RCA was greater than India's. The correlation coefficient between the RCA of the two countries was a low 0.1774626902 indicating a very weak correlation. The two countries, therefore, were possibly specializing in different products and consequently were not strong competitors in the export of chemical.

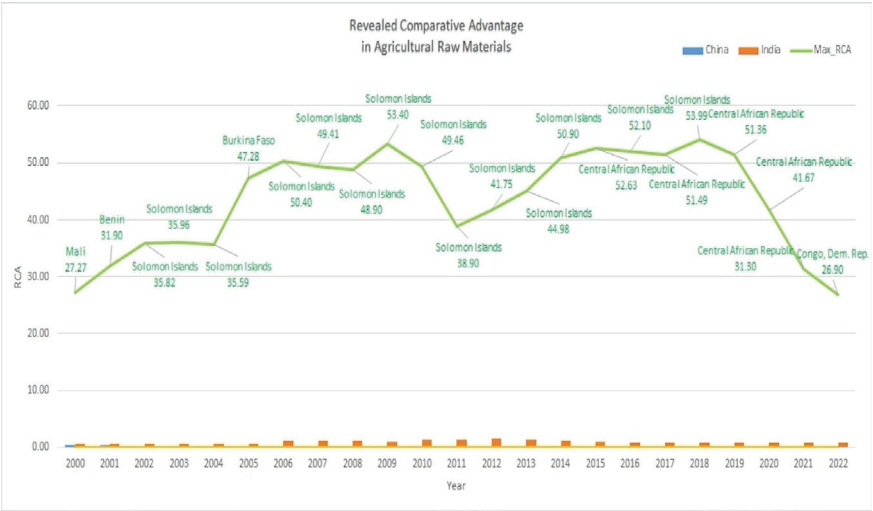
Figure-7: Maximum RCA, RCA India, RCA Israel in Chemical



The RCA Indices for the product group agricultural raw materials are shown in Figure-8. Out of the twenty-three years of the study period, India had a comparative advantage for ten years. This meant the share of agricultural raw materials in India's total exports was greater than the world average for these ten years. In contrast, the reference country China's share of agricultural raw materials in its total exports was less than the world average during the entire study period. The negative correlation (r = -0.4314230497) in RCA between the two countries implies that there is a possible bilateral trade potential between the two Asian giants. Here again, small countries like the Solomon Islands had maximum RCA for 14 of the 23 years studied.

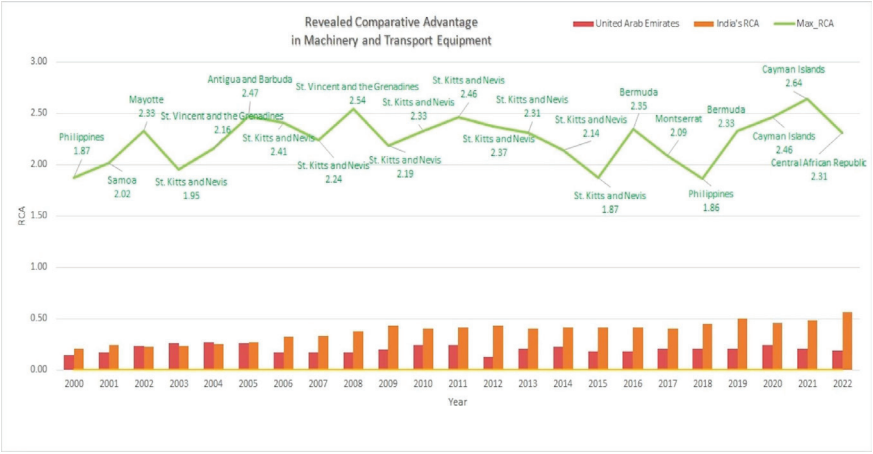
The last product group that we analyzed was machinery and transport equipment. Both India and the reference country United Arab Emirates (UAE) showed comparative disadvantages for the entire study period. Their RCA values showed a negative correlation and the value of r, the correlation coefficient, was -0.1057461407.

Figure-8: Maximum RCA, RCA India, RCA China in Agricultural Raw Materials



However, this negative relationship is weak and without looking at the RCA values at the disaggregate level for both the countries, it is difficult to identify trade opportunities.

Figure-9: Maximum RCA, RCA India, RCA UAE in Machinery and Transport Equipment



India's RCA Rank in the Product Groups

India's position in the global rankings based on the RCA index fluctuated throughout the study period, indicating changes in its relative export specialization compared to the world average across different product categories. The highest and lowest RCA ranks by product group, along with the years they occurred are given in Table-2.

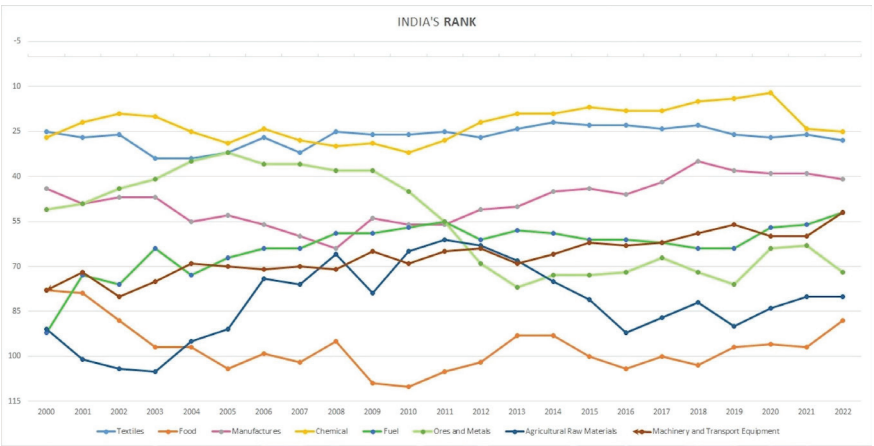
Table-2: Highest and Lowest RCA ranks by Product Groups

Product Groups	Highest Rank	Year of Highest Rank	Lowest Rank	Year/s of Lowest Rank
Textiles	22	2014	34	2003, 2004
Food	78	2000	110	2010
Manufactures	35	2018	64	2008
Ores and Metals	32	2005	77	2013
Fuel	52	2022	92	2000
Chemical	12	2020	32	2010
Agri Raw Materials	61	2011	105	2003
Mach & Transport Equipment	52	2022	80	2002

Source: Author's calculations based on WITS data

The changing position of India in the global market in terms of comparative advantage in all eight products is shown in Figure-10. The analysis is done using 'bump charts' which show India's rank in terms of RCA each period for all product groups. The 'y-axis', which shows the rank in each period, is on an inverted scale and the highest rank is at the top of the chart. In terms of rank India's competitive strength in the global market showed some improvement for agricultural raw materials after 2003 and its best performance in terms of RCA was in 2011. Similarly, for chemicals, India's rank improved from 32 in the year 2010 to 12 in the year 2020, with a lot of fluctuations in the intervening period. For textiles, India's position fluctuated between 22 and 34 over the study period. For the rest five groups India lost close to 30 to 40 ranks between its best and worst-performing years.

Figure-10: India's rank in terms of RCA in all the product groups



Conclusions

By examining the RCA Indices this study sheds light on India's export orientation across different product groups. The study revealed that India's exports were heavily concentrated in textiles in which the country enjoys high competitive strength. The high correlation coefficient between the RCA of India and China in textiles indicates that the two countries had a similar trend in their export specialization over the study period.

India also had a comparative advantage in food and chemicals and the share of chemicals in its export basket had gone up over time. The negative correlation between India and China's RCA values in agricultural raw materials indicates that the two countries can develop trade strategies that would benefit both of them. However, without looking at our import composition, global political and economic conditions, and growth potentials of the products as determined by technological changes, changes in consumer tastes, etc. it would be difficult to suggest an appropriate trade strategy.

References

Balassa, B. (1965). Trade Liberalisation and Revealed Comparative Advantage. The Manchester School. 33(2), 99-123.

Burange, L. G., and Chaddha, S. J. (2008). India's Revealed Comparative Advantage in Merchandise Trade. *Artha Vijnana: Journal of The Gokhale Institute of Politics and Economics*. 50(4), 332-363. https://doi.org/10.21648/ARTHAVIJ/2008/V50/I4/115413.

Escaith, H. (2020). Contrasting Revealed Comparative Advantages when Trade is (also) in Intermediate Products. MPRA Paper 103666, University Library of Munich, Germany. https://ideas.repec.org/p/pra/mprapa/103666.html.

French, S. (2017). Revealed comparative advantage: what is it good for? *J. Int. Econ.* 106, 83-103.

Fronczek, M. (2018). The structure of exports and revealed comparative advantage of the world largest exporters. Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu. 523, 128-137.

Gnidchenko A. A. and V. A. Salnikov (2015). Net Comparative Advantage Index: Overcoming the Drawbacks of the Existing Indices. WP BRP 119/EC.

Gupta, M. and Kumar, H. (2017). Revealed Comparative Advantage: An Analysis of Exports of Rwanda. *IOSR Journal of Economics and Finance (IOSR-JEF)*, 8(3) 69-76. Available at SSRN: https://ssrn.com/abstract=2983796.

Hadzhiev, V. (2014). Overall Revealed Comparative Advantages. Eurasian *Journal of Economics and Finance*. 2(1), 47-53.

Ishchukova, N., and Smutka, L. (2013). Comparative advantage: products mapping of the Russian agricultural exports in relation to individual regions. Agris on-line Papers in Economics and Informatics. V(3), 13-24.

Jain, M. (2020). Revealed Comparative Advantage Index: An Analysis of Regional Comprehensive Economic Partnership from Indian Perspective. *Academy of Marketing Studies Journal*, 24(4), 1-7.

Jain, M. (2020). Review of ASEAN-India Free Trade Agreement Using Revealed Comparative Advantage Index. *International Journal of Business & Economics*. 5(2), 56-65.

Kaleswaran, R. and Arul, P. G. (2015). Revealed Comparative and Competitive Advantage in Trade in Services: Evidence from India and Other Leading Countries. European Academic Research. III(6), 6096-6112.

Moreno-Brieva, F. (2022). Effective Way to Measure the Specialization Levels of an Economy in the Era of Global Value Chains. Structural Change and Economic Dynamics. 62, 420-429.

Yu R., J., Cai, and PS. Leung (2009). The Normalized Revealed Comparative Advantage Index. *Annuals of Regional Science*. 43, 267-282. https://doi.org/10.1007/s00168-008-0213-3.

Journal of International Economics
ISSN 0976-0792 Volume 16 No 1, January-June 2025 pp: 33-44

Transforming Cross Border Trade with the Advancement of Digital Platform: An Analysis

Mansi Trivedi[1]
Jitendra Kumar Gautam[2]

Abstract

The swift growth of cross-border trade and e-commerce has changed the trade dynamics globally. Digital platform plays a pivotal role in the development of cross border trade. the small business has been given way to the growth and advancement of their business. The paper analyzes the impact of digital platforms on cross-border e-commerce expansion with a focus on their function in allowing seamless international transactions. Digital platforms simplify difficult procedures such as payment integration, logistics management, and compliance with a variety of regulatory frameworks, allowing firms to operate abroad. The study also looks into the advantages of employing digital platforms, such as market accessibility, scalability, and increased customer interaction, as well as the disadvantages, which include cyber security risks, data privacy concerns, and platform dependency. These findings highlight the revolutionary power of digital platforms, supporting their role in promoting global trade and developing e-commerce innovation. The advent of digital platforms has transformed the landscape of international trade, enabling seamless transactions, reducing costs, and enhancing market accessibility for businesses of all sizes. This paper examines how advancements in digital platforms are revolutionizing cross-border trade by addressing conventional trade barriers, streamlining supply chain processes, and ensuring regulatory compliance. Various digital platforms, the advent of Artificial Intelligence, blockchain, machine learning technologies, big data and cloud computing have promoted transactions faster and easier and transparent. the various e commerce platforms like Amazon, flipkart, myntra etc. have transformed how businesses connect with foreign markets, allowing small and medium-sized firms (SMEs) to expand their reach beyond local borders. Furthermore, fintech developments such as digital payments, smart

1 Assistant Professor, Amity Law School, Amity University, Gwalior and can be reached at trivedi.maansi03@gmail.com
2 Assistant Professor, Amity Law School, Amity University, Gwalior, and can be reached at Gautam.jitendrarml@gmail.com

contracts, and cryptocurrency solutions have enabled secure and efficient cross-border financial transactions, reducing reliance on traditional banking systems and lowering exchange rate concerns. Regulatory frameworks and trade laws have also changed to reflect the digital transformation of cross-border trade. Governments and international organizations have implemented digital trade agreements, electronic customs clearing systems, and standardized digital documentation to make transactions run more smoothly. Regulatory sandboxes have played an important role in encouraging innovation while also assuring compliance with trade rules and security norms. As technology continues to evolve, businesses, policymakers, and international organizations must collaborate to create a sustainable and secure digital trade ecosystem that fosters economic growth and global connectivity.

Keywords: Cross-Border, Digital, E-Commerce, Regulatory Framework, Technology

Introduction

The evolution of digital platforms has significantly reshaped the global economy, particularly in the realm of cross-border trade. As international commerce continues to expand, businesses and governments are increasingly leveraging digital technologies to streamline operations, enhance efficiency, and reduce barriers to trade. From e-commerce marketplaces and blockchain technology to artificial intelligence (AI) and big data analytics, digital platforms have introduced new paradigms in the way goods and services are exchanged across borders. This transformation is not only altering traditional business models but also fostering economic inclusivity, enabling small and medium-sized enterprises (SMEs) to participate in global trade more effectively than ever before.

The acceleration of digital transformation in cross-border trade is driven by several factors, including the rising adoption of e-commerce, advancements in logistics and supply chain management, and the proliferation of digital payment systems. The COVID-19 pandemic further emphasized the necessity of digital trade, as businesses faced unprecedented disruptions in physical supply chains. Consequently, the adoption of digital platforms has become a crucial strategy for businesses seeking resilience and growth in a rapidly changing global trade environment.

This paper provides an in-depth analysis of how digital platforms are revolutionizing cross-border trade, highlighting the opportunities and challenges they present. By examining key technologies such as blockchain, AI, and cloud computing, as well as the role of policy frameworks and international cooperation, we aim to explore the broader

implications of digital trade transformation on businesses, consumers, and regulatory bodies. Digital platforms have become indispensable in facilitating international trade. The emergence of global e-commerce giants such as Amazon, Alibaba, and Shopify has provided businesses with unprecedented access to international markets. These platforms offer a seamless marketplace for buyers and sellers, enabling businesses to reach customers worldwide without the need for a physical presence in multiple countries.

Furthermore, digital platforms are enhancing supply chain transparency and efficiency. Technologies such as the Internet of Things (IoT) and big data analytics are enabling real-time tracking of shipments, optimizing inventory management, and reducing transaction costs. Automated documentation processes are also minimizing the bureaucratic hurdles associated with cross-border trade, accelerating the movement of goods across international borders.

One of the most promising advancements in digital trade is blockchain technology. By providing a decentralized and tamper-proof ledger, blockchain enhances transparency, reduces fraud, and ensures the security of trade transactions. Traditional cross-border trade processes are often plagued by inefficiencies, including lengthy documentation procedures and a lack of trust between trading partners. Blockchain addresses these issues by enabling secure and transparent transactions, reducing the reliance on intermediaries.

Smart contracts, powered by blockchain, further revolutionize trade by automating contract execution. These self-executing contracts reduce delays, minimize human errors, and ensure that all parties involved adhere to agreed-upon terms. For instance, in international shipping, smart contracts can trigger automatic payments once goods have reached their destination, mitigating risks associated with payment delays and disputes.

The Impact of Artificial Intelligence on Cross-Border Trade

Artificial Intelligence (AI) is another transformative force in digital trade. AI-powered algorithms are enhancing trade by predicting market trends, optimizing pricing strategies, and personalizing customer experiences. Businesses can leverage AI-driven analytics to identify new market opportunities, assess risks, and streamline decision-making processes.

AI-powered chatbots and virtual assistants are also playing a crucial role in improving customer service in cross-border trade. By providing real-time support and handling inquiries in multiple languages, AI-driven communication tools enhance the efficiency of global trade interactions, fostering better relationships between businesses and international customers.

The advancement of digital payment solutions is another key factor in transforming cross-border trade. Traditional banking systems often present barriers to international transactions due to high fees, long processing times, and currency exchange complexities. However, the rise of fintech innovations, including digital wallets, cryptocurrency, and decentralized finance (DeFi) solutions, has significantly improved the ease and efficiency of cross-border payments.

Platforms such as PayPal, Stripe, and Alipay have simplified digital transactions, making it easier for businesses and consumers to conduct international trade. Moreover, blockchain-based payment solutions, such as Ripple and stablecoins, provide faster and more cost-effective alternatives to conventional banking systems. These advancements are particularly beneficial for SMEs and businesses in emerging markets, as they facilitate financial inclusion and reduce dependency on traditional banking infrastructures.

While digital platforms offer numerous advantages, they also present several challenges. Cybersecurity risks, data privacy concerns, and regulatory complexities remain significant barriers to the widespread adoption of digital trade solutions. The rise in cyber threats, including data breaches and digital fraud, necessitates robust cybersecurity measures to safeguard international trade transactions.

Additionally, regulatory fragmentation poses challenges for businesses operating across multiple jurisdictions. Different countries have varying regulations concerning data protection, e-commerce taxation, and digital payments, creating compliance complexities for international traders. Harmonizing global trade regulations and establishing international standards for digital commerce are critical steps toward overcoming these obstacles.

To fully realize the potential of digital trade, policymakers must foster international cooperation and create an enabling regulatory environment. Governments and international organizations, such as the World Trade Organization (WTO) and the United Nations Conference on Trade and Development (UNCTAD), play a crucial role in shaping policies that promote digital trade while ensuring fair competition and consumer protection.

Initiatives such as the WTO's Joint Statement Initiative on E-commerce and regional digital trade agreements are essential in establishing guidelines for cross-border data flows, digital taxation, and intellectual property rights. Additionally, public-private partnerships can drive innovation and investment in digital trade infrastructure, facilitating seamless global commerce.

Evolution of Cross-Border Trade and Digital Platforms

Historically, cross-border trade was constrained by geographical barriers, trade regulations, and inefficient communication networks. The digital revolution has significantly altered this landscape of e-commerce Expansion, Digital Payment Solutions and Logistics and Supply Chain Innovations. The Platforms like Myntra, flipkart, Shopify, Fintech advancements, cryptocurrency transactions, digital freight and global supply chains have created new opportunities for businesses worldwide along with the improved payment security and accessibility.

Blockchain Technology

Blockchain is a distributed ledger technology that records transactions in an immutable and transparent manner. It consists of a chain of blocks, each containing a list of transactions that are verified and validated through a consensus mechanism. It Eliminates reliance on central authorities, reducing bottlenecks and inefficiencies. Provides all participants with access to the same information, reducing disputes and fraud. Uses cryptographic techniques to ensure data integrity and prevent unauthorized alterations. Self-executing contracts with predefined rules that automate transactions and reduce human intervention.

Application of Blockchain in Cross-Border Trade

Blockchain technology has significant applications in cross-border trade, revolutionizing various aspects of the global supply chain, payments, and compliance. Traditional trade finance processes are slow, costly, and involve multiple intermediaries. Blockchain enhances trade finance by enabling faster and more secure cross-border payments through cryptocurrencies and stablecoins. Reducing transaction costs by eliminating banks and financial intermediaries. Enhancing transparency in financial transactions, reducing fraud and delays. Blockchain improves supply chain management by providing real-time tracking of goods, ensuring authenticity and reducing counterfeiting. Automating customs clearance and compliance processes through smart contracts. Enhancing trust among stakeholders by offering a tamper-proof record of transactions. Cross-border trade requires compliance with various regulations, often leading to delays and additional costs. It creates an immutable record of trade transactions for easy regulatory auditing. Reducing paperwork and administrative costs by digitizing trade documents. Facilitating automatic verification of compliance requirements through smart contracts. Ensuring data integrity through cryptographic validation, preventing identity theft and financial fraud with decentralized identity management are regulated by blockchain reducing reliance on vulnerable centralized databases. Despite its advantages, blockchain adoption in cross-border trade faces several

challenges like Different countries have varying regulations regarding blockchain and cryptocurrencies. Multiple blockchain platforms exist, requiring seamless integration for global trade. High transaction volumes in global trade may challenge blockchain network. Implementing blockchain solutions requires significant investment in technology and training.

Blockchain technology holds immense potential in transforming cross-border trade by enhancing efficiency, transparency, and security. While challenges remain, continued advancements, regulatory clarity, and industry collaboration will drive wider adoption. By leveraging blockchain, businesses and governments can foster a more seamless, cost-effective, and secure global trade ecosystem.

Blockchain enhances trade transparency, reduces fraud, and simplifies compliance. Smart contracts automate agreements, reducing the need for intermediaries.

Artificial Intelligence and Machine Learning

AI-powered solutions help businesses navigate complex international trade regulations by analyzing vast amounts of regulatory data and ensuring compliance. AI tools can automate documentation, reducing errors and ensuring that trade documents meet the requirements of customs authorities. AI and ML enhance supply chain efficiency by predicting demand, optimizing routes, and managing inventory levels. Predictive analytics help businesses anticipate supply chain disruptions and mitigate risks associated with delays, ensuring timely delivery of goods. ML algorithms analyze historical transaction data to identify patterns of fraudulent activities, such as money laundering, invoice manipulation, and counterfeit goods. AI-powered risk management tools assess transactions in real time, flagging suspicious activities and preventing financial losses. AI-driven financial solutions facilitate secure and efficient trade financing by assessing credit risk and automating payment processing. Smart contracts powered by blockchain and AI ensure transparency in cross-border transactions, reducing the risk of default and enhancing trust among trading partners. AI-powered logistics platforms use real-time tracking and predictive analytics to optimize shipment routes and reduce transportation costs. Machine learning algorithms analyze weather patterns, traffic conditions, and customs clearance times to provide accurate delivery estimates. AI-driven market intelligence tools analyze global trade trends, consumer preferences, and competitor strategies to provide businesses with actionable insights. By leveraging AI for trade analytics, businesses can identify emerging markets and tailor their products to meet international demand. While AI and ML offer numerous benefits, their implementation in cross-border trade comes with challenges of handling sensitive trade and financial data requires robust cybersecurity measures. Ensuring AI-

driven solutions adhere to international trade laws and regulations. Many businesses operate on traditional trade management systems that may not seamlessly integrate with AI-powered solutions. AI algorithms must be trained on diverse datasets to avoid biased decision-making that could lead to unfair trade practices. AI and ML are transforming cross-border trade by improving efficiency, reducing risks, and enhancing decision-making. Businesses that adopt AI-driven trade solutions can navigate regulatory complexities, optimize supply chains, and gain a competitive edge in the global market. However, addressing challenges related to data security, compliance, and ethical AI use is crucial for the sustainable adoption of these technologies in international trade. As AI and ML continue to evolve, their role in shaping the future of cross-border trade will become increasingly significant.

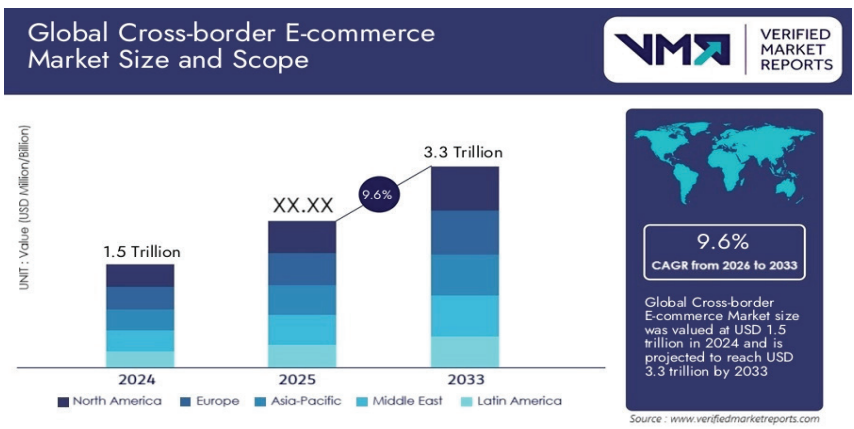
Big Data and Analytics

Data-driven insights help businesses optimize trade routes, manage inventory, and understand global demand patterns. Predictive analytics reduce risks in foreign market entry.

Real time Growth of global cross-border trade

Globalization has increasingly digitalized international trade, largely driven by digital platforms like Amazon, Alibaba, Shopify, and regional networks like India's ONDC. Global cross-border B2C e-commerce reached US $785 billion in 2021 and is projected to hit US $7.9 trillion by 2030.

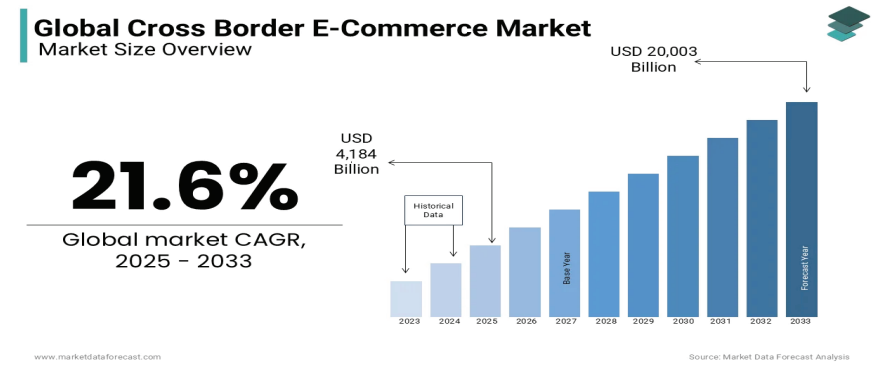
As of 2023, 67 % of the global population uses the internet, with 63 % of e-commerce purchases made via mobile devices.[3]

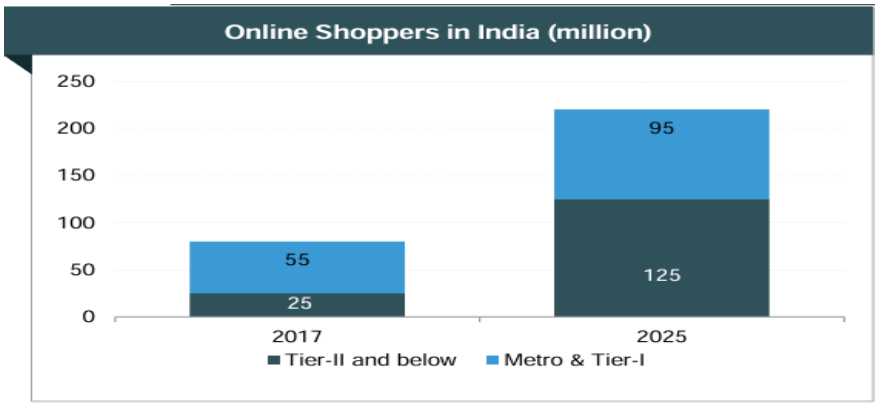


3 Global Cross-border E-commerce Market Size By Product Categories (Fashion and Apparel, Electronics and Gadgets), By Customer Demographics (Age Group, Gender), By Purchase Behavior (Frequency of Purchase, Preferred Payment Methods), By Sales Channel (Online Marketplaces, Brand-Owned Websites), By Logistics and Delivery Preferences (Delivery Speed, Shipping Cost), By Geographic Scope And Forecast available at Cross-border E-commerce Market Size, Competitive Insights & Trends 2033 accessed on 2nd February 2025

The Indian E-commerce industry has been on an upward growth trajectory and is expected to surpass the US to become the second largest E-commerce market in the world by 2034. The E-commerce market is expected to reach US$ 200 billion by 2026 from US$ 38.5 billion in 2017[4].

Propelled by rising smartphone penetration, the launch of 4G networks and increasing consumer wealth, the Indian E-commerce market is expected to grow to US$200 billion by 2027 from US$ 38.5 billion in 2017.





4 Media sources, BCG – The $250 billion Digital Volcano, BCG – Digital Consumer Spending in India, Kalaari Capital - Imagining Trillion Dollar Digital India

The online retail market in India is estimated to be worth US$17.8 billion in terms of gross merchandise value (GMV) as of 2017.

India has secured the highest CAGR among major economies in online sales at 70 percent in the online retail market over the years 2012-17. Online retail sales in India are expected to grow by 31 percent to touch US$32.70 billion in 2018, led by Flipkart, Amazon India and Paytm Mall[5].

The Role of Digital Marketplaces in Cross-Border Trade

Platforms like Amazon, Alibaba, and eBay connect sellers and buyers across borders, eliminating traditional trade barriers. Benefits include:

- **Market Expansion**: Businesses access a global customer base.
- **Cost Efficiency**: Digital storefronts reduce overhead costs.
- **Consumer Trust**: Secure transactions and buyer protections enhance trade confidence.

Challenges in Digital Cross-Border Trade

Despite advancements, several challenges persist:

Regulatory and Compliance Issues

Diverse international trade regulations create complexity for digital businesses. Compliance with customs, taxation, and data protection laws remains a challenge.

Cybersecurity and Data Privacy

Cross-border transactions are vulnerable to cyber threats. Ensuring robust data protection frameworks is critical to securing digital trade.

Digital Divide and Technological Barriers

Disparities in internet access and digital literacy hinder the full adoption of digital trade solutions in developing regions.

Future Prospects and Policy Recommendations

Harmonization of Digital Trade Regulations

Governments and international organizations should work towards standardized digital trade policies to ease global business operations.

Investment in Digital Infrastructure

Enhancing broadband access, cybersecurity frameworks, and digital literacy will further accelerate cross-border trade digitization.

Adoption of Emerging Technologies

Integrating AI, blockchain, and IoT in trade processes will continue to enhance efficiency and reduce risks.

5 Report by eMarketer, KalaariCapital –Imagining Trillion Dollar India

Conclusion

The advancement of digital platforms has fundamentally transformed cross-border trade, enabling greater market access, reducing operational costs, and enhancing trade efficiency. However, regulatory challenges, cybersecurity concerns, and technological disparities must be addressed to fully realize the potential of digital trade. Future developments in AI, blockchain, and big data will further reshape global trade dynamics, fostering a more interconnected and efficient global marketplace.

Technologies such as blockchain, AI, and digital payment systems are revolutionizing traditional trade processes, reducing costs, and enhancing transparency. However, to fully leverage these advancements, businesses and governments must address challenges related to cybersecurity, regulatory compliance, and digital infrastructure.

By fostering international cooperation and adopting forward-thinking policies, stakeholders can create a more inclusive and resilient global trade ecosystem. As digital transformation continues to evolve, its impact on cross-border trade will only deepen, paving the way for a more interconnected and digitally empowered global economy.

References

Alaveras, G., Duch-Brown, N., & Martens, B. (2020). Geo-blocking regulation: An assessment of its impact on the EU Digital Single Market. JRC Digital Economy Working Paper.

Benhamou, F. (2018). Quelle régulation face aux plateformesnumériques? Annales des Mines - Réalitésindustrielles, 2018(1), 77.

Cauffman, C. (2019). New EU rules on business-to-consumer and platform-to-business relationships. *Maastricht Journal of European and Comparative Law*, 26(4), 474.

European Commission. (2017). Communication on the mid-term review on the implementation of the Digital Single Market Strategy: A connected digital single market for all. COM(2017) 228 final.

European Commission. (2021). Geo-blocking. Retrieved from https://ec.europa.eu/digital-strategy/our-policies/geo-blocking_en

European Commission. (2021). Platform-to-business trading practices. Retrieved from https://ec.europa.eu/digital-strategy/our-policies/platform-business-trading-practices_en

Farfetch to discontinue Farfetch Platform Solutions (FPS) following acquisition by Coupang. (2024). Vogue Business. Retrieved from https://www.voguebusiness.com/technology/farfetch-to-discontinue-farfetch-platform-solutions-fps-following-acquisition-by-coupang

HSBC Hong Kong joins China's Cross-Border Interbank Payment System (CIPS). (2024). Financial Times. Retrieved from https://www.ft.com/content/2c96f54c-f831-495b-85ca-4defaf5432f0

Kim, J., Li, G., & Chan, H. K. (2017). The impact of product-service system on supply chain integration and performance: The moderating role of environmental uncertainty. *International Journal of Production Economics*, 187, 52-63.

Li, G., & Li, N. (2019). Customs classification for cross-border e-commerce based on text-image adaptive convolutional neural network. Electronic Commerce Research, 19, 779-800.

Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. Information Systems Journal, 28, 1129-1157.

Lin, C. L., Chen, Z., Jiang, X., Chen, G. L., & Jin, P. (2022). A study of cross-border e-commerce research trends: Based on knowledge mapping and literature analysis. Frontiers in Psychology, 13, 1009216.

Maughan, A., & Samavi, M. (2017). The EU Digital Market Strategy – A mid-term review. Morrison Foerster. Retrieved from https://www.mofo.com/resources/insights/170609-eu-digital-market-strategy.html

O'Donoghue, C., & Taylor, C. (2016). European Commission targets cross-border parcel delivery as part of its Digital Single Market Strategy. ReedSmith. Retrieved from https://www.reedsmith.com/en/perspectives/2016/01/european-commission-targets-crossborder-parcel-delivery

Post-Brexit border scheme to simplify trade put on pause again. (2024). The Guardian. Retrieved from https://www.theguardian.com/world/2024/nov/06/delay-brexit-border-single-trade-window

Russia, China turn to digital payments as sanctions hamper bilateral trade settlements. (2024). Reuters. Retrieved from https://www.reuters.com/technology/russia-china-turn-digital-payments-sanctions-hamper-bilateral-trade-settlements-2024-07-25/

Samavi, M., Banks, K., & James, T. (2018). EU Digital Market VAT reform. Morrison Foerster. Retrieved from https://www.mofo.com/resources/insights/180430-eu-digital-market-vat-reform.html

Stojkoski, V., Koch, P., Coll, E., & Hidalgo, C. A. (2023). Estimating digital product trade through corporate revenue data. arXiv preprint arXiv:2310.02253.

The Digital Platform, Enterprise Digital Transformation, and Enterprise Performance of Cross-Border E-Commerce – From the Perspective of Digital Transformation and Data Elements. (2023). *Journal of Theoretical and Applied Electronic Commerce Research*, 18(2), 40.

Tikhomirova, A., Huang, J., Chuanmin, S., Khayyam, M., Ali, H., & Khramchenko, D. S. (2021). How culture and trustworthiness interact in different e-commerce contexts: A comparative analysis of consumers' intention to purchase on platforms of different origins. Frontiers in Psychology, 12, 746467.

Trump tariffs target loophole utilized by Temu, Shein. Why thatmattersfor Meta. (2024). Investor's Business Daily. Retrieved from https://www.investors.com/news/technology/meta-stock-trump-tariffs-temu-pdd-de-minimis/

UNCTAD. (2016). Cross-border e-commerce trade data: UNCTAD technical notes on ICT for development. Retrieved from https://unctad.org/webflyer/cross-border-e-commerce-trade-data

UNNExT. (n.d.). Retrieved from https://unnext.unescap.org/

Walmsley, T. L., & Minor, P. (2015).

ISSN 0976-0792 Volume 16 No 1, January-June 2025 pp: 45-65

Dynamics of Bilateral Merchandise Trade between India and Pakistan: A Comprehensive Analysis (2001-till date)

Neha N. Karnik[1]
Shruti R. Panday[2]

Abstract

The objective of the paper is to analyse the bilateral merchandise trade relationship between India and Pakistan during the period 2001 to 2022. The study examines growth, trade concentration and compositional change in the trade basket using UNCTAD trade classification of the products at HS-06. The Herfindahl Index (HI) suggests a trend towards diversification of products exported to Pakistan over time, with some fluctuations and the contribution of the top 10 products provide insights into the concentration of exports, with periods of both high concentration and diversification observed over the 22-year period. The study inferred that a Few sections consistently dominate the export basket. However, the variability across sections and years indicates changing trade patterns influenced by economic, political, and social factors affecting both countries. The study evidently suggests India's export strategy of moving away from primary commodities and toward more manufactured goods. The study highlights significant changes in India's import patterns from Pakistan as well. While earlier years showed a more diversified import basket, recent years indicate a strong concentration on a few products. from chemical and allied industries (S-06) and textiles and related articles (S-11) while other sections remain consistently low or fluctuate minimally.

Keywords: India-Pakistan Trade, Trade Composition, Trade Concentration, UNCTAD Trade Classification

1 Associate Professor, Atlas SkillTech University, Mumbai, India and can be reached at nkarnik20@gmail.com

2 Associate Professor, SIES College of Arts, Science and Commerce, Mumbai, India and can be reached at shrutip@sies.edu.in

Many analysts opined that withdrawing MFN's status from Pakistan is symbolic in nature. It would not affect merchandise bilateral trade between India and Pakistan. On the contrary, the bilateral trade stood at only $0.65 billion in 2022 as against $2.98 million in 2018. India's contribution in Pakistan's total imports is greater in comparison with India's share in Pakistan's total exports. India's share was 1.64 and 3.20 percent of Pakistan's total export and import basket to/from the world respectively. Hence, it is observed that Pakistan has been importing extensively from India. However. In 2018, Pakistan accounted for only 0.32 percent of India's total merchandise trade basket which touched rock bottom to 0.05 percent in 2022.

The development in negotiations at multilateral (WTO) and regional levels, paved the way towards building bilateral relationship. India granted MFN status to Pakistan in 1996, formation of SAPTA and transformation of SAPTA to SAFTA in 2006 has resulted into modest increase in India's bilateral trade with Pakistan. It registered a rate of 36.29 percent per annum during 2001-2010. Owing to the steps undertaken for normalisation of mutual relation with composite political dialogues at various levels of government which laid down the foundation for deciding future steps. Thereafter, on the backdrop of the Mumbai terrorist attack in 2008, India's merchandise bilateral trade with Pakistan experienced a considerable decline. All the efforts made by the Indian side including the friendly surprise visit of Indian Prime Minister Mr. Narendra Modi to Pakistan did not improve economic relations between the two countries. It grew at the rate of (-) 14.23 percent per annum during 2011 to 2022. The paper, therefore, tries to explore and assess growth, structure, and composition of India's merchandise bilateral trade with Pakistan. The study also examines product concentration in India's bilateral trade with Pakistan by applying Hirschman Index (HI).

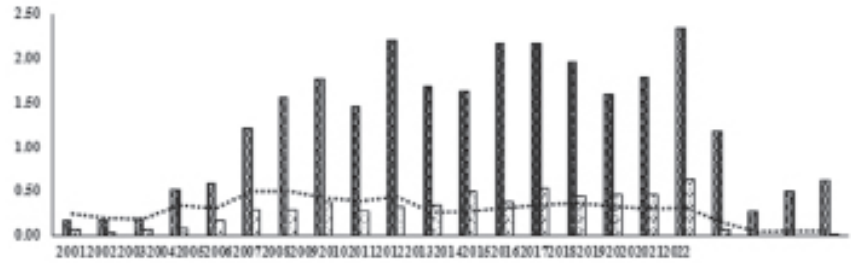
The reminder of the paper is as follows; Introduction in Section One is followed by Literature review in Section Two. Section Three covers the data coverage and methodology used for examining merchandise bilateral trade between India and Pakistan. Section Four delves into empirical findings and discussion which is followed by conclusion in Section Five.

Table-1: Growth In India's Merchandise Bilateral Trade With Pakistan (2001 to 2022)

Year	India's Total Merchandise Export to Pakistan	India's Total Merchandise Import from Pakistan	India's Total Merchandise Bilateral Trade with Pakistan
CAGR (2001-2022)	5.37	-5.96	0.00*
CAGR (2001-2010)	38.02	28.06	35.97
CAGR (2011-2022)	-12.43	-35.92	-14.23

*significant at 0.05

Figure-1: India's Merchandise Bilateral Trade with Pakistan During 2001 to 2022 (US $ Billions)



Literature Review

There are several studies that examine the pattern of economic relation, bilateral ties, trade volume, its trend and emerging issues, potential trade, future also recommendations to exploit potential trade and measures for normalization of trade between the two nations. However, existing literature on India-Pakistan trade can broadly be categorised into two. Firstly, studies were focusing on untapped trade potential between two countries and secondly, studies that elaborated the obstracles in achieving potential trade. According to both streams, India-Pakistan trade relations are of paramount importance not only to the two countries, but the whole of the South Asian region.

Taneja and Pohit (2014) identified three channels of trade between India and Pakistan: formal trade through official means, informal trade via smuggling across porous borders, and trade through third countries. They found that informal trade via third countries exceeds formal trade. Khan (2013) analysed India-Pakistan trade relations and found that their actual-to-potential trade (APT) ratios were extremely low, with minimal improvements post-Uruguay Round. Studies by De *et al*. () , Raihan *et al.*(), and Khan (2011) using gravity models also confirmed significant untapped potential in bilateral trade, suggesting that greater cooperation could benefit both economies. Husain (2011) highlighted that Pakistan's exports are not fully compatible with India's needs due to India's larger, more diversified economy. However, Pakistan could import products cheaply from India and supply goods at lower costs than India currently imports from other countries. Zaidi (2012) identified key sectors – automobiles, pharmaceuticals, agriculture, and textiles – that offer strong potential for bilateral trade, given their prominence in both countries' economies

Many studies have opined that better terms of trade will benefit both nations. Due to their shared border and the prospect of normalising

economic relations, the two countries have vast untapped trade potential that will increase commerce and yield various welfare benefits. trading with Pakistan is beneficial for India, and it would also make trading with Afghanistan and the Central Asian nations easier. Therefore, more trade between the two nations would be beneficial to both (Batra (2004), World Bank (2005), Taneja (2008), FICCI (2012), Khan (2013), Kugelman *et. al* (2013), Chengappa (2013), Ahmed and Batool (2014)). Various studies have explored the reasons behind the low and unstable trade flows between India and Pakistan. The trade potential and shared economic benefits remain unrealized due to trade barriers and volatile political relations. Neither country is a dominant trading partner of the other, and formal trade has been hindered by tariff barriers and non-tariff barriers (NTBs). Informal trade has flourished due to Pakistan's positive list of 1,938 items, further reducing formal trade significance (Ph. D Research Bureau, 2013). Taneja (2016) and Khan (2013) emphasize that removing transport restrictions, improving customs infrastructure, and allowing more goods through land routes could benefit both nations. However, political and infrastructural challenges, including Pakistan's delay in granting India Most Favoured Nation (MFN) status, continue to impede trade. Political and military tensions have also contributed to the lack of progress in strengthening bilateral trade relations (Khan, 2013 Panda, 2014, Ahmed and Batool, 2014).

Asmma (2016) applied a Stochastic Frontier Gravity Model (SFGM) to analyse the impact of "behind the border" constraints on Pakistan's export potential to India between 2013-2015, finding significant trade barriers. Despite SAFTA's aim to boost trade, it has been ineffective for both countries. Pakistan's high tariffs and negative/sensitive lists, along with India's sensitive list, have restricted formal trade. Pakistan's limited interest in regional integration and political tensions have further impeded trade. Informal trade, often through third countries, has led to revenue losses and higher consumer costs, as indirect routes like Mumbai-Dubai-Karachi increase transport costs by 1.4 to 1.7 times compared to direct trade routes (Noshina, 2014, Singla and Arora 2020).

The politics of the modern world is changing every day, and all developing countries look for new markets to survive in all situations. For India, the trade dependency on Pakistan is not of such magnitude that it can significantly influence its economy. At the same time, past incidents show that Pakistan has not positively reciprocated to India's MFN status and time to time covertly supported terrorist activities, the future scope of expanding cordial trade relations between India and Pakistan does not seem to be plausible. Therefore, India needs to have a practical and concrete trade policy towards Pakistan. It may also be desirable from the point of view of nationalism and security.

Research Methodology

To examine India's bilateral merchandise trade between India and Pakistan, the present study has used secondary data from UN COMTRADE. It is retrieved from World Integrated Trade Solutions (WITS). It provides data for export and import of a country for calendar years. The analysis is constructed for the period 2001 to 2022. However, there are few limitations of WITS, UN COMTRADE database. Firstly, the world trade data is available up to HS-06 digits. Secondly, project goods (Chapter 98) and unspecified products (Chapter 99) are reserved for national use. Thus, these chapters are excluded because of inconsistency in reporting data in the UN COMTRADE database. Chapter 98 comprises special classification provisions, and chapter 99 contains temporary modifications pursuant to a parties' national directive or legislation.

UNCTAD's technology-based classification

To evaluate compositional change in the bilateral trade between India and Japan, the study used UNCTAD's technology-based classification in this study. Technological development plays a crucial role in determining the production and trading pattern of a country. UNCTAD classifies Standard International Trade Classification SITC (Rev 3) products into mainly (1) primary and (2) manufacturing products and then as per different levels of technology used in disaggregated export activities and their up-gradation over time. Manufacturing products are further classified into four sub-categories based on degrees of skill, technology, capital and scale. According to UNCTAD classification, manufacturing products are further classified as.

UNCTAD's technology-based classification for manufacturing products is:

- **Labour-Intensive Resource-Based (LIR):** Uses simple techniques, reliant on natural resources.
- **Low-Technology Skill-Based (LTS):** Employs basic technologies with low R&D and skill needs.
- **Medium-Technology Skill-Based (MTS):** Involves complex but stable technologies, moderate R&D, and advanced skills.
- **High-Technology Skill-Based (HTS):** Utilizes advanced technologies, significant R&D, and close collaboration with research institutions.
- **Other Manufacturing Products:** Products that don't fit into the above categories. (Karnik and Burange, 2018)

However, to classify products Standard International Trade Classification (SITC) is being used. SITC has been developed by the United Nations. It classifies traded products based on their material and physical properties,

stage of processing and their economic functions while the HS classification has the merit of detailed disaggregation but is restricted only to a precise breakdown of the individual products categories. Thus, the preliminary and important step is to map HS-06 digits with SITC (Rev 3) products based on concordance, using the UN COMTRADE classification registry. The second step is to aggregate these products into SITC three-digit level, as product classification available is only up to SITC three-digit level of aggregation.

Hirschman Index (HI)

This index was first developed and used by Hirschman in his study, where the square root of the sum of squared market shares of products was calculated (Hirschman, 1945, 1964). Thus, it is popularly known as Hirschman Index (HI). It is widely used to measure the product concentration in the trade basket of the country. The HI is as follows.

$$H_j = \sqrt{\sum_{i=1}^{n} \left(\frac{x_i}{X}\right)^2} \times 100 \qquad \ldots 1$$

where, H_j is the Hirschman Index for country j, x_i is the value of exports/ imports of product i in export/import basket of j defined at the HS-06-digit classification) and X is the total export/import of country j. The index ranges between 0 and 100, lower values indicate less concentration in trade structure and vice-versa.

To examine merchandise trade between India and Pakistan statistical tools such as percentage, ratio, Compound Annual Growth Rate (CAGR), Y-o-Y, Average growth rate etc. are being used.

India's Merchandise Bilateral Trade with Pakistan

This section illustrates India's bilateral trade with Pakistan. The study tries to examine composition and structure of the two-way trade by applying UNCTAD's classification of products and assesses trade concentration by calculating HI.

India's Exports to Pakistan

This subsection is divided in two parts, First, sheds a light on growth and trade concentration and Second covers trade composition of India's exports to Pakistan.

Growth and Concentration in India's Exports to Pakistan

India's exports to Pakistan grew from USD 164.17 million in 2001 to USD 1,787.46 million in 2018, with a compound annual growth rate (CAGR) of 5.37 percent from 2001 to 2022. During the first decade of this period,

India's exports to Pakistan saw significant growth, with a CAGR of 38.02 percent per year. In 2004, exports surged by 188.89 percent year-on-year (Y-o-Y), driven by positive political dialogue at the 12th SAARC summit and tariff reductions. However, tensions such as ceasefire violations, terrorist attacks, and military actions led to a decline in export growth, as seen in the downward trend in the Y-o-Y growth rate.

In 2001, India exported 571 products to Pakistan, with the top 10 accounting for 64% of the total exports, resulting in a product concentration of 28.95 percent. Over the years, the concentration fluctuated, with a significant reduction in 2014, when the contribution of the top 10 products dropped, lowering the product concentration to

18.54 percent. By 2021, the concentration increased to 40.79 percent, with the top 10 products contributing 74.40% of total exports. In contrast, 2017 showed more diversification, with the top 10 products contributing only 37.89 percent. Overall, India's export basket to Pakistan has diversified, increasing from 577 products in 2001 to 1,795 in 2018. However, fluctuations occurred, especially in 2020 due to the COVID-19 pandemic, before a gradual recovery in export diversity.

Figure-2: Y-o-Y (%) Growth Rate of India's Export to Pakistan 2001-2022

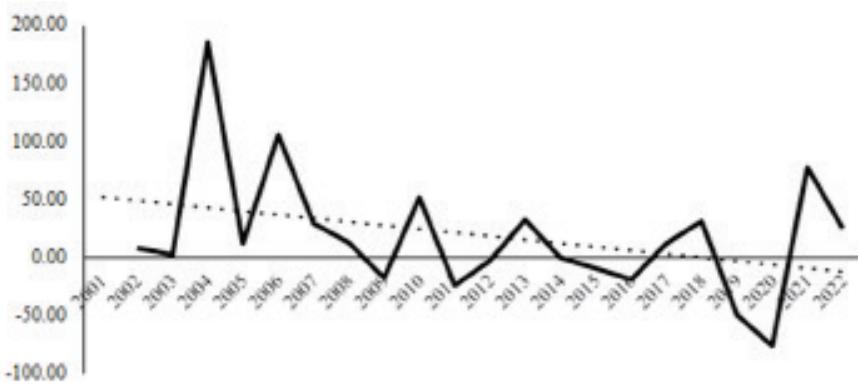
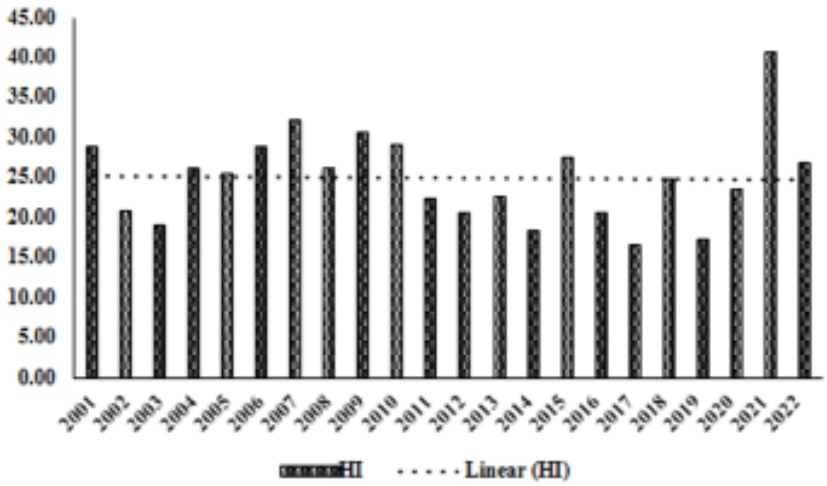


Table-2: Product Concentration in Export of India to Pakistan (at HS-06) (2001-2022)

Year	HI	No of Products Exported to Pakistan	Contribution of top 10 products in Export basket
2001	28.95	577	64.72
2002	20.80	626	52.93
2003	18.98	662	49.25
2004	26.14	879	64.02
2005	25.52	1142	59.56

Year	HI	No of Products Exported to Pakistan	Contribution of top 10 products in Export basket
2006	28.79	1148	70.21
2007	32.29	1175	69.88
2008	26.30	1287	61.77
2009	30.64	1272	63.91
2010	29.00	1210	66.15
2011	22.41	1227	50.21
2012	20.71	1354	48.33
2013	22.54	1503	53.13
2014	18.47	1635	45.22
2015	27.51	1560	47.95
2016	20.56	1568	43.77
2017	16.74	1637	37.89
2018	24.94	1795	48.87
2019	17.31	1436	40.25
2020	23.59	360	59.19
2021	40.79	437	74.40
2022	26.79	641	62.41

Figure-3: Product Concentration in India's Export to Pakistan (2001-2022)



Composition of Export of India to Pakistan and its Changing Scenario

Section-wise analysis of India's export basket to Pakistan evidenced that in 2001, almost 10 percent of Indian exports to Pakistan consisted of vegetable products (S-2). It is observed that its share has been fluctuating within the range of 10 to 20 percent throughout the period. Initially, due to the products such as black tea fermented and partly fermented in packages less than 3kg (090230), black tea fermented and partly fermented in packages more than 3kg (090240) and fruits of genus capsicum or pimenta

(090420) etc. coffee, tea, mate and spices (C-9) was dominant under this section. However, it was replaced by tomatoes, fresh or chilled (070200) and dried chickpeas, shelled (071320) from edible vegetables and certain roots and tubers (C-7) from 2005. In 2001, the share of prepared foodstuff, beverages, spirits, vinegar, tobacco and manufactured tobacco substitutes (S-4) was most proponent in India's export to Pakistan. However, it was not at all persistent due to unstable contribution of raw cane sugar, in solid form (170111) and cane or beet sugar, in solid form (170199) and oil- cake and other solid residues from the extraction of soyabean oil (230400) from sugars and sugar confectionery (C-17) and residues and waste from the food industries; prepared animal fodder (C-23) etc. The unstable contribution is a result of low productivity of oil seeds in India. Narayan (2016) stated one of the reasons of low productivity is a fall in the area under cultivation. Indian farmers are switching owing to low output prices, high risk, attack of insects and pests, weather threats, higher government minimum support prices (MSP) for wheat and rice, which are important competing crops for oil seeds in some regions. The contribution of products of chemicals and allied industries (S-6) has also been remarkable but inconsistent in India's export to Pakistan. This is due to instability in the share of products from organic chemicals (C-29) in the export basket. Products such as o-Xylene (290241), p-Xylene (290243), other cyclic hydrocarbons, (not elsewhere specified) nes (not elsewhere specified) (290290), terephthalic acid and its salts (291736) and other organic compounds, nes (294200) marked significant share from organic chemicals (C-29). However, tanning or dyeing extracts; tannins and their derivatives; (C-32) in this section, witnessed an increase in its share in India's export due to reactive dyes and preparations base (320416) and pigments and preparations base (320417). On the other hand, there has been a decrease in the contribution of products of plastic and rubber and articles thereof (S-7) due to fall in the export of polypropylene, in primary forms (390210) and new pneumatic tyres of rubber (401120).

Sections such as textile and textile articles (S-11), base metals (S-15) and machinery and mechanical appliances (S-16) recorded substantial increase in their contribution in India's export basket to Pakistan. The share of textile and textile articles (S-11) was merely 1 percent in 2001 which was increased to almost 38 percent in 2018. This is due to increase in export of products such as cotton (C-52), filaments man-made (C-54) and man-made staple fibres (C-55). There has been significant increase in the share of cotton (C-52). In 2001, it was merely 0.40 percent which was increased to more than 37 percent in 2019. Dominant product from this chapter is cotton, not carded or combed (520100) which contributed almost 22 percent in India's exports to Pakistan. Other products such as uncombed

Table-3: Section-wise Share of India's Export to Pakistan during 2001-2022 (Percentage)

Section	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
S-01	0.04	0.10	0.11	0.20	1.20	2.89	1.53	0.49	0.44	0.58	0.95	0.93	1.76	1.80	1.36	1.58	0.71	0.81	0.54	0.24	0.61	0.22
S-02	9.06	8.05	10.97	6.72	10.47	6.47	6.45	10.81	12.08	9.72	19.69	17.90	13.63	18.59	13.38	10.27	7.24	7.12	6.88	1.05	2.32	4.83
S-03	0.07	0.38	0.09	0.10	0.07	0.08	0.06	0.04	0.04	0.03	0.04	0.03	0.03	0.04	0.06	0.42	0.84	0.52	0.57	0.01	0.00	0.03
S-04	42.55	3.96	14.28	8.34	8.78	35.70	10.82	7.03	6.44	30.86	12.74	11.43	10.63	10.04	6.56	3.87	1.42	1.08	3.25	12.58	23.96	36.43
S-05	3.10	18.10	6.63	14.73	7.81	2.32	13.60	9.30	1.11	1.81	1.37	1.77	2.93	1.84	0.94	1.09	1.29	1.43	1.04	0.97	1.14	2.33
S-06	25.97	32.67	40.53	41.04	39.54	25.24	28.92	32.60	27.14	16.66	24.98	25.76	22.11	22.93	17.37	27.46	29.69	33.72	45.87	74.46	67.33	42.36
S-07	13.39	24.33	15.08	12.11	11.88	11.44	8.54	6.77	4.70	3.63	8.35	7.41	10.16	9.45	8.04	8.23	8.40	7.62	7.81	0.95	0.64	1.56
S-08	0.00	0.07	0.16	0.01	0.02	0.01	0.01	0.05	0.03	0.02	0.03	0.03	0.08	0.07	0.07	0.12	0.13	0.05	0.03	0.00	0.00	0.00
S-09	0.02	0.03	0.01	0.02	0.01	0.00	0.00	0.03	0.02	0.02	0.01	0.05	0.11	0.09	0.11	0.11	0.04	0.01	0.00	0.00	0.00	0.00
S-10	0.34	0.31	1.49	0.56	0.72	0.35	0.38	0.44	0.40	0.23	0.31	0.82	0.27	0.29	0.11	0.10	0.17	0.20	0.25	0.06	0.06	1.47
S-11	0.99	3.54	3.75	10.46	10.05	9.48	22.18	24.46	39.14	29.26	23.49	25.32	30.14	26.06	42.65	36.21	37.92	37.69	21.96	4.08	1.20	7.28
S-12	0.01	0.01	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.05	0.08	0.07	0.01	0.01
S-13	0.23	0.28	0.24	0.21	0.32	0.20	0.31	0.38	0.44	0.24	0.42	0.48	0.57	0.50	0.57	0.47	0.47	0.38	0.31	0.00	0.04	0.03
S-14	0.01	0.00	0.00	0.02	0.02	0.00	0.01	0.12	0.22	0.15	0.01	1.68	1.04	1.14	1.90	1.48	1.57	0.49	0.12	0.01	0.04	0.06
S-15	1.93	5.80	4.74	4.44	6.26	4.53	5.32	4.80	4.83	3.44	5.33	3.80	2.81	2.71	2.75	2.97	4.20	3.55	4.40	1.81	0.89	1.41
S-16	1.93	1.94	1.51	0.79	1.28	0.80	1.62	2.40	2.42	1.69	1.63	1.81	2.41	3.30	3.23	4.49	4.96	4.61	6.12	3.33	0.17	0.76
S-17	0.08	0.10	0.10	0.03	0.05	0.22	0.03	0.03	0.05	0.02	0.01	0.01	0.05	0.02	0.09	0.11	0.02	0.02	0.02	0.00	1.12	0.28
S-18	0.16	0.21	0.20	0.09	0.31	0.13	0.11	0.12	0.15	0.06	0.12	0.18	0.26	0.32	0.29	0.30	0.27	0.21	0.27	0.35	0.38	0.66
S-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S-20	0.10	0.12	0.09	0.06	0.65	0.11	0.06	0.13	0.31	0.33	0.49	0.55	0.55	0.54	0.46	0.70	0.64	0.45	0.48	0.04	0.07	0.28
S-21	0.00	0.00	0.01	0.05	0.56	0.03	0.06	0.00	0.04	1.24	0.01	0.03	0.45	0.27	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

single cotton yarn, measuring less than 714.29 decitex but not less than 232.56 decitex (520512), uncombed single cotton yarn measuring less than 232.56 decitex but not less than 192.31 decitex (520513), combed single cotton yarn, measuring less than 192.31 decitex but not less than 125 decitex (520524) and combed single cotton yarn, with (520525) also witnessed increase in their contribution in Indian export basket to Pakistan. All these products could be used as raw materials in the textile industries in Pakistan. Similarly, over the period, there has been consistent increase in the contribution of base metals (S-15) owning to rise in the share of ferro-manganese, (720211) and ferro-silicomanganese (720230) iron and steel (C-72). Likewise, increase in the share parts of steam or vapour generating (840290), steam and vapour turbines nes (840690), harvesting machinery nes (843359), textile spinning machines (844520), textile doubling or twisting machine (844530), hot or combination hot and cold metal (845521), electric generating sets nes (850230), industrial and laboratory electric induction (851420), industrial and laboratory electric furnaces (851430) and parts of metal rolling mills and roll (845590) lead to enlarging share of machinery and mechanical appliances (S-16) in India's export to Pakistan.

The sections such as raw hides and skins, leather fur skin and article thereof (S- 08), wood and articles thereof (S-09), footwear and umbrellas etc (S-12), and works of arts antiques and pieces (S-21) have very low percentages throughout the years, indicating that the products in these categories contribute minimally to the overall export basket to Pakistan. Notably, after pandemic organic chemicals (C-29) and pharmaceutical products (C-30) contributed to the larger extent in India's exports to Pakistan. Products such as, organic compounds, not elsewhere specified separate chemically defined organic compounds, nes (294200), heterocyclic compounds containing an unfused pyridine (293339), medicaments, in measured doses, etc. (excluding vaccines, etc., coated bandages etc. and pharmaceutical goods), others. 300490, vaccines for human medicine (300220) solid sugar, raw sugar not containing added flavour (170111), no additives cane or beet sugar and chemically pure sucrose, in solid form (170199) contributed almost 45 to 65 percent in the export basket based on trade dynamics after covid. This suggests that exports may have concentrated around essential or in-demand products during that period.

The study analyzing India-Pakistan trade using UNCTAD's technology-based classification reveals a significant shift in India's export composition. Initially, India primarily exported primary products to Pakistan. However, since 2008, there has been a transition towards more manufacturing products, indicating a move towards processed or value-added goods. High-Technology Skill-Based (HTS) products have consistently dominated

India's manufacturing exports to Pakistan, with their share remaining high except for two years. Although Medium-Technology Skill-Based (MTS) products initially held a strong position from 2001 to 2008, they were later overtaken by Labour-Intensive Resource-Based (LIR) products in the export basket after 2009. This shift reflects a broader trend towards advanced manufacturing and diversification in India's exports.

India's import from Pakistan

This subsection is divided in two parts, first outlines growth and trade concentration and second illustrates composition of India's import from Pakistan.

Growth and Concentration in India's Imports from Pakistan

India's import basket from Pakistan was initially quite limited, comprising only a few products at the HS-6-digit level. From 2001 to 2018, it grew at an annual rate of 15.20 percent, increasing from $68.64 million to $469.43 million. Significant growth was recorded in 2004, with a 165 percent year-on-year increase due to diplomatic dialogues and high-level meetings. Between 2001 and 2010, imports from Pakistan grew at a compound annual growth rate (CAGR) of 28.49 percent. However, a notable surge occurred in 2022, driven by a massive 800% increase due to India's imports of tankers (HS code 890120), which are used for transporting or storing liquids or gases in bulk. This dramatic rise indicates a substantial spike in year-on-year growth in 2022.

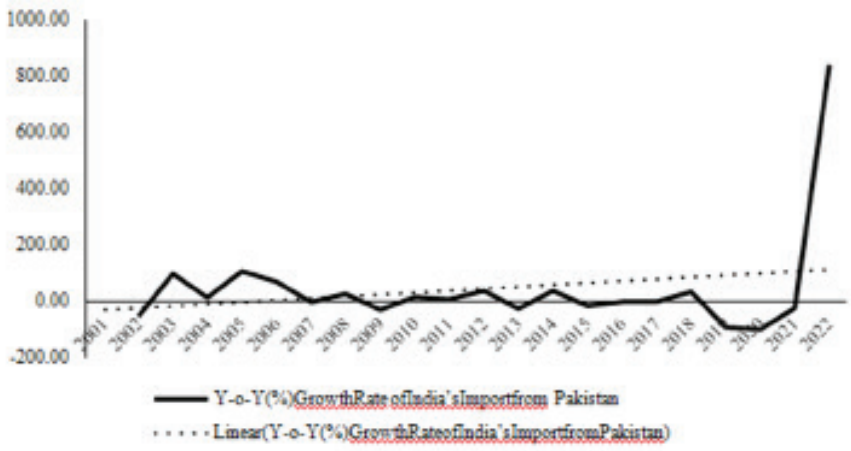
Table-4: Composition of India's Export to Pakistan: UNCTAD Classification (Percent)

Year	Primary	Manu-facturing	Manufacturing				
			LIR	LTS	MTS	HTS	Unspecified
2001	56.01	43.99	1.26	1.17	6.09	35.04	0.43
2002	32.83	67.17	3.95	4.43	9.48	49.01	0.31
2003	36.49	63.51	3.50	2.52	9.04	47.42	1.03
2004	39.86	60.14	2.17	3.56	6.00	47.73	0.70
2005	35.51	64.49	4.98	5.34	7.90	44.85	1.43
2006	56.64	43.36	1.69	3.58	4.01	33.65	0.43
2007	54.47	45.53	2.51	3.52	4.67	34.34	0.49
2008	46.54	53.46	7.87	3.58	4.72	36.65	0.64
2009	31.06	68.94	30.53	3.50	4.43	29.63	0.85
2010	59.60	40.40	15.37	2.34	3.72	18.34	0.64
2011	55.01	44.99	6.18	3.77	5.37	28.99	0.69
2012	48.96	51.04	11.10	2.21	4.72	30.19	2.82
2013	48.23	51.77	13.50	1.62	5.17	29.66	1.81
2014	47.61	52.39	13.23	1.67	5.31	30.27	1.91
2015	50.81	49.19	15.99	2.11	5.36	23.27	2.47
2016	37.02	62.98	18.14	2.55	5.88	34.11	2.29
2017	27.38	72.62	24.22	3.70	6.64	35.65	2.41

Year	Primary	Manu-facturing	Manufacturing				
			LIR	LTS	MTS	HTS	Unspecified
2018	34.47	65.53	16.11	3.14	5.69	39.43	1.16
2019	19.28	80.72	16.70	4.13	6.81	52.20	0.89
2020	14.91	85.09	4.21	1.75	3.50	75.42	0.22
2021	28.04	71.96	1.38	2.02	0.48	67.82	0.25
2022	43.85	56.15	7.60	1.51	1.93	43.46	1.66

Note: LIR= Labour-intensive Resource-based manufacturing products, LTS= Low-technology Skill-based Manufacturing Products, MTS= Medium-technology Skill-based Manufacturing Products, HTS= High- technology Skill-based Manufacturing Products.

Figure-4: Y-o-Y (%) Growth Rate of India's Import from Pakistan



Y-o-Y (%) Growth Rate of India's Import from Pakistan

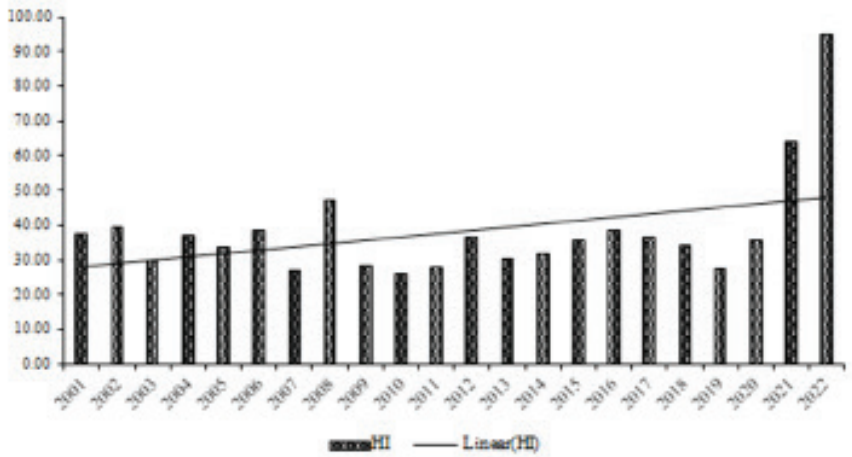
Linear (Y-o-Y (%) Growth Rate of India's Import from Pakistan)

The Herfindahl Index (HI) analysis indicates a high concentration in India's imports from Pakistan, reflecting that trade has become increasingly concentrated in a few products. In 2001, the HI was 37.40%, with only 233 products being imported from Pakistan and the top ten products contributing over 76% of total imports. The HI dropped to 25.69% in 2010, with a broader range of 579 products and the top ten products contributing about 62% of imports. In 2011, despite importing the highest number of products (820), the HI rose to 27.60%, showing a significant concentration. Over the years, the contribution of the top ten products remained high, peaking at 86.65% in 2020, 95.67% in 2021, and reaching 99.92% in 2022. This indicates that nearly all imports in recent years are concentrated in just a few products. The HI has remained consistently high, with only 15 products imported in 2022, suggesting a narrowing of the import basket to a small number of key products.

Table-5: Product Concentration in Import of India from Pakistan (at HS-06) (2001-2022)

Year	HI	No of Products Imported from Pakistan	Contribution of top 10 products in Import basket
2001	37.40	233	76.46
2002	39.28	143	84.31
2003	29.88	228	79.89
2004	37.10	360	71.53
2005	33.51	375	73.21
2006	38.24	398	73.08
2007	26.88	411	58.01
2008	47.14	432	81.12
2009	28.48	423	64.43
2010	25.69	579	61.75
2011	27.60	820	62.98
2012	36.47	761	74.22
2013	30.25	500	63.85
2014	31.77	487	71.57
2015	35.40	455	77.07
2016	38.66	417	82.19
2017	36.30	432	80.06
2018	34.29	480	76.63
2019	27.56	320	63.86
2020	35.79	30	86.65
2021	64.15	21	95.67
2022	94.74	15	99.92

Figure-5: Product Concentration in India's Import from to Pakistan (2001-2022)



Composition of India's Import from Pakistan and its Changing Scenario

Section-wise picture of India's import from Pakistan suggests that in 2001, vegetable products (S-2) was most dominant in India's import basket from Pakistan which was followed by prepared foodstuff, beverages, spirits,

vinegar, tobacco and manufactured tobacco substitutes (S-4) and mineral products (S-5). In 2001, share of vegetable products (S-2) was 63 percent which was reduced to 26 percent in 2018. This descent in the contribution was due to sharp fall in imports of products such as dried leguminous vegetables etc. (71390), dried grapes (80620), seeds of cumin (90930), other plants or parts, of a kind used in primarily in perfumery, in pharmacy or for insecticidal, fungicidal (121190), natural gums, resins, gum-resins (130190) etc. The most dominant imported product from this section is dates, fresh or dried (80410). However, there has been decreasing trend in the volume of imports. In 2001, its share was almost 32 percent of Indian import basket from Pakistan which was reduced to 21 percent in 2018. However, it is second most imported products in Pakistan's export basket to India. In 2001, on the account of raw cane sugar, in solid form (170111), cane or beet sugar, in solid form (170199), oil cake and other solid residues, (230400) prepared foodstuff, beverages, spirits, vinegar, tobacco and manufactured tobacco substitutes (S-4) contributed almost 18 percent in India's import basket from Pakistan.

Mineral products (S-5) was the third most imported section in India's imports from Pakistan. In 2001, its contribution was 6.90 percent which was increased significantly to almost 48 percent in 2018. In 2001, imports of mineral products (S-5) was dominated by two products such as salt and pure sodium chloride; sea (250100) with 1.62 percent and 270799 with 5.12 percent. However, import of both the products has not been consistent over the period of study. The contribution of mineral products (S-5) increased over the years due to increase in imports of products such as gypsum; anhydrite (252010), portland cement (excl. white) (252329), aluminium ores and concentrates (260600), petroleum oils, etc, (excl. crude) (271000) etc. petroleum oils, etc, (excl. crude) (271000) was the most dominant imported product with a share of 21.50 percent in the total import basket from Pakistan.

Over the period, chemicals and allied industries (S-6), products of plastic and rubber articles thereof (S-7), raw hides and skins, leather fur skin and article thereof (S-8) and textiles and textiles articles (S-11) depicted increasing trend in its contribution in India's imports from Pakistan. The share of chemicals and allied industries (S-6) was intensified from 1.66 in 2001 to 5 percent in 2018 due to disodium carbonate (283620). Table-6 shows that the contribution of products of plastic and rubber articles thereof (S-7) has enlarged from 1.19 percent in 2001 to 3.56 percent in 2018. This acceleration is because of polyethylene terephthalate, in prime (390760) and waste, parings and scrap of rubber (400400). Rise in the share of bovine and equine leather, prepared (410439) resulted in an increase in share of raw hides and skins, leather fur skin and article thereof (S-8).

Table-6: Section-wise Share of India's Import from Pakistan during 2001-2022 (Percent)

Section	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
S-01	0.00	0.31	0.03	0.06	0.40	0.04	0.39	0.20	0.26	0.27	0.38	0.28	0.03	0.04	0.11	0.39	0.06	0.00	0.05	0.00	0.00	0.00
S-02	63.13	65.72	63.38	40.64	57.39	27.37	27.47	11.05	21.59	23.98	23.31	8.07	33.02	25.68	23.43	26.90	28.29	25.73	30.13	48.11	79.61	4.48
S-03	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.63	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S-04	17.59	0.00	0.01	34.28	8.56	0.25	2.57	0.23	1.61	0.56	0.60	0.87	3.19	0.64	0.87	1.31	1.29	1.58	2.38	14.84	5.28	0.01
S-05	6.90	19.32	13.61	1.40	1.39	34.27	24.89	61.73	29.98	24.00	24.20	14.47	18.14	36.68	47.42	49.94	42.28	47.48	27.19	12.01	3.52	0.14
S-06	1.69	0.62	0.30	1.88	4.47	12.26	3.64	2.19	16.73	15.92	8.55	10.71	11.20	4.87	3.82	3.68	11.06	5.04	3.50	6.63	2.82	0.64
S-07	1.19	1.48	0.91	1.53	1.08	0.73	0.91	1.07	1.86	4.04	3.48	2.93	2.93	3.94	2.84	1.42	1.61	3.56	3.12	5.53	0.00	0.00
S-08	0.66	0.56	0.72	1.53	0.95	0.92	4.03	3.54	2.94	3.99	2.93	1.86	5.18	6.33	3.51	3.36	4.96	4.03	3.32	0.00	1.10	0.00
S-09	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.12	0.13	0.12	0.06	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S-10	0.72	0.03	4.27	0.34	0.23	0.06	0.45	0.08	0.09	0.96	0.29	0.18	0.14	0.05	0.11	0.03	0.12	0.19	0.15	0.00	0.00	0.00
S-11	6.07	10.44	10.16	15.17	21.71	18.70	20.43	15.44	16.68	13.61	11.18	20.55	17.49	15.37	15.08	9.80	7.16	8.43	24.68	5.36	0.25	0.00
S-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.00	0.00	0.00
S-13	0.13	0.00	0.07	0.09	0.14	0.17	0.77	0.32	0.78	0.26	0.32	0.34	1.74	3.44	1.32	1.78	1.07	0.58	0.37	0.00	0.00	0.02
S-14	0.51	0.44	0.35	0.70	0.15	0.11	0.74	0.05	0.08	0.09	9.28	0.15	0.37	0.09	0.01	0.03	0.04	0.09	0.03	0.00	0.00	0.00
S-15	0.17	0.03	0.58	0.56	2.60	4.36	12.00	2.92	5.69	9.73	9.49	33.83	3.89	1.00	0.24	0.06	0.15	0.22	0.24	1.14	6.12	0.00
S-16	0.59	0.34	5.02	0.73	0.37	0.15	0.77	0.13	0.41	0.88	2.95	2.46	0.17	0.14	0.10	0.06	0.07	0.68	1.36	0.23	1.16	0.00
S-17	0.07	0.00	0.00	0.04	0.03	0.12	0.15	0.28	0.09	0.09	0.38	0.17	0.16	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.71
S-18	0.53	0.70	0.58	1.01	0.42	0.40	0.72	0.67	0.85	1.19	1.56	1.41	1.45	1.39	0.87	1.04	1.47	2.02	2.65	6.14	0.14	0.00
S-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S-20	0.04	0.02	0.04	0.02	0.09	0.06	0.08	0.10	0.09	0.25	0.26	0.22	0.34	0.30	0.23	0.14	0.34	0.25	0.51	0.00	0.00	0.00
S-21	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.27	0.05	0.05	1.29	0.51	0.01	0.02	0.06	0.01	0.04	0.29	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Textiles and textiles articles (S-11) amplified its share from 6 percent in 2001 to 8.43 percent in 2018. India's import from Pakistan was most diversified in textiles and textiles articles (S-11). However, uncombed single cotton yarn, containing 85% or more by weight of cotton (520511) was most dominant in 2001. Even so, over the years, its importance decreased and replaced by other products such as cotton, not carded or combed (520100), degreased wool (excl. shorn), not c (510129), dyed plain cotton weave, with >=85%(520931), dyed 3 or 4-thread twill (incl. cro (520932), dyed woven cotton fabrics, with >=8 (520939) etc. greasy wool (excl. shorn), not card (510119), degreased wool (excl. shorn), not c (510129), men's or boys' trousers, breeches (620342), used or new rags, worn out scrap (631090) also intensified its contribution in India's import basket from Pakistan. Articles of stones, cement, plaster and ceramic products (S-13) and optical, musical, cinematographic, medical instruments (S-18) are the new entrant in the import basket from Pakistan. Due to float glass etc in sheets, non- wire (700529) share of (S-13) has been increasing from 2013 onwards. Its share has been hovering around 1 to 2 percent. Similarly, optical, musical, cinematographic, medical instruments (S-18) also represent share in between 1 and 2 from 2010 onwards. Instruments and appliances used in medical, surgical, dental or veterinary sciences, including scient-graphic apparatus, other electromedical apparatus and sight-testing instruments 901849 901890, parts accessories nes for optical electric instrument (903300).In the intermediate period from 2005 to 2013, base metals (S-15) also contributed significantly to India's imports from Pakistan. Its share has fluctuated between 2 to 10 percent except for 2012. In 2012, base metals (S-15) was the most dominant section in India's import from Pakistan. Aftermath of covid there were very few produced being imported from Pakistan mainly dates (80410), figs (080420), ethyl alcohol and other spirits (220720), aluminium waste and scrap. (760200) etc.

According to UNCTAD classification, India's import basket to Pakistan was predominantly composed of primary products. However, over the period, there has been a decrease in the share of primary products. Simultaneous enlarging share is visible in the composition of manufacturing products. LIR products dominated India's basket of manufacturing products from Pakistan. The share of LTS and MTS has been marginal throughout the period. In the case of HTS manufacturing products a fluctuating trend is evident during 2001 to 2018. Exceptionally, in 2009, the share of manufacturing products overshadowed primary products owing to an increase in the share of HTS manufacturing products.

Conclusion

The paper provides a detailed analysis of the bilateral merchandise trade between India and Pakistan, highlighting key trends and shifts over the years. India's exports to Pakistan have shown both high concentration and periods of diversification. While there has been a trend towards concentration in recent years, particularly in chemicals and allied industries, the export basket has evolved from primarily primary products to include more manufactured goods, with medium-technology products becoming prominent.

Table-7: Composition of India's Import from Pakistan: UNCTAD Classification (Percent)

Year	Primary	Manufac-turing	Manufacturing				
			LIR	LTS	MTS	HTS	Unspeci-fied
2001	89.31	10.69	5.70	0.08	1.27	2.78	0.86
2002	88.06	11.94	8.73	0.04	1.55	1.57	0.04
2003	85.18	14.82	7.83	0.03	4.98	1.74	0.24
2004	79.54	20.46	15.01	0.12	1.15	3.79	0.39
2005	73.62	26.38	19.84	0.04	1.10	5.24	0.16
2006	67.69	32.31	18.55	0.04	0.79	12.86	0.07
2007	64.96	35.04	26.03	0.62	1.56	6.74	0.09
2008	60.82	39.18	34.70	0.05	1.30	3.02	0.12
2009	48.28	51.72	30.83	0.08	1.50	19.18	0.12
2010	51.46	48.54	26.00	0.42	3.36	18.70	0.06
2011	59.83	40.17	23.05	0.35	3.13	13.41	0.22
2012	67.87	32.13	13.61	0.32	2.84	15.22	0.13
2013	63.37	36.63	20.47	0.17	1.35	14.52	0.13
2014	65.22	34.78	24.59	0.09	0.27	9.77	0.07
2015	71.57	28.43	20.87	0.04	0.17	7.31	0.04
2016	66.59	33.41	27.00	0.02	0.09	6.20	0.10
2017	60.37	39.63	25.80	0.05	0.12	13.54	0.13
2018	65.32	34.68	23.89	0.12	0.74	9.79	0.15
2019	49.15	50.85	39.15	0.12	1.38	10.13	0.08
2020	59.81	40.19	6.82	0.00	0.23	33.14	0.00
2021	89.84	10.16	1.35	0.00	0.00	8.81	0.00
2022	4.60	95.40	0.05	94.71	0.00	0.64	0.00

Note: LIR= Labour-intensive Resource-based manufacturing products, LTS= Low-technology Skill-based Manufacturing Products, MTS= Medium-technology Skill-based Manufacturing Products, HTS= High- technology Skill-based Manufacturing Products.

This shift reflects India's strategic focus on value-added products and advanced manufacturing, aligning with broader economic goals. India's import basket from Pakistan, on the other hand, has become increasingly concentrated, with a significant drop in the number of products and a spike in the Herfindahl Index (HI) in recent years. The number of imported products fell dramatically from 320 in 2019 to just 15 in 2022, with the

HI rising sharply. This indicates a narrowing of trade relations, potentially due to geopolitical tensions or trade restrictions. The high concentration of imports suggests a reliance on a few key products from Pakistan. To address these imbalances and enhance trade, both countries could focus on reducing trade barriers, such as tariffs and non-tariff measures, and engaging in diplomatic efforts to ease tensions. India could diversify its export sectors, particularly by expanding high- technology goods and supporting small and medium enterprises (SMEs) through initiatives like the Make in India plan. Meanwhile, Pakistan should work on diversifying its exports to India, investing in sectors with growth potential, and exploring opportunities for higher-value exports.

References

Ahmed, V., Batool, S. & Bhatti, U. (2014) 'Pakistan's trade with India: Case of auto sector in Pakistan', *India-Pakistan Trade Newsletter*, Indian Council for Research on International Economic Relations.

Batra, A. (2004) 'India's global trade potential: The gravity model approach', *Working Paper No. 151*, Indian Council for Research on International Economic Relations, New Delhi.

Chengappa, B.M. (1999) 'India-Pakistan trade relations', *Strategic Analysis*, 23(3), pp.443-457. Available at: https://doi.org/10.1080/09700169908455059.

De, P., Raihan, S. & Ghani, E. (2013) 'What does MFN trade mean for India and Pakistan? Can MFN be a panacea?', *Policy Research Working Paper No. 6483*, World Bank, Washington, DC.

Hirschman, A.O. (1945) *National power and the structure of foreign trade*. Berkeley: University of California Press.

Hirschman, A.O. (1964) 'The paternity of index', *The American Economic Review*, 54(5), pp. 761.

Husain, I. (2011) 'Prospects and challenges for increasing India-Pakistan trade', *Issue Brief*. Available at: https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/prospects-and-challenges-for-increasing-indiapakistan- trade/ [Accessed 25 June 2023].

Husain, I. (2013) 'Managing India-Pakistan trade relations: What needs to be done? What does it matter?', in M. Kugelman & R.M. Hathaway (eds.), *The Wilson Center*, Washington, DC: The Wilson Center.

Irshad, M.S. & Xin, Q. (2014) 'A new perspective of the China-ASEAN free trade area and the story of top ten products', *European Journal of Business and Management*, 6(18), pp. 1-8.

Kamal, A. (2016) 'Beyond normalization of trade ties: A Pakistan-India free trade agreement (FTA): A stochastic frontier gravity model (SFGM) approach', *Munich Personal RePEc Archive (MPRA), MPRA Paper No. 87743*. Available at: https://mpra.ub.uni-muenchen.de/87743/ [Accessed 15 May 2022].

Karnik, N.N. & Burange, L.G. (2018) 'Trends and patterns of India's bilateral merchandise trade with Japan', *Journal of Indian School of Political Economy*, 30(1-2), pp. 31-110.

Khalid, S. (n.d.) 'Bilateral trade between Pakistan and India', *Research and Development Department, The Rawalpindi Chamber of Commerce & Industry*. Available at: http://www.rcci.org.pk/wpcontent/uploads/2012/12/pibt.pdf [Accessed 17 July 2016].

Khan, M.S. (2011) 'Expanding India-Pakistan trade', *Paper prepared for the 11th Annual SANEI Conference, Dhaka, Bangladesh, December 21-22, 2011*, Peterson Institute for International Economics, Washington, DC.

Khan, M. (2013) 'India-Pakistan trade relations: A new beginning', *New America Foundation*. Available at: https://www.indiapakistantrade.org/resources/Khan_India- PakistanTrade_NAF2.pdf [Accessed 15 July 2023].

Narayan, P. (2016) 'Recent demand-supply and growth of oil seeds and edible oil in India: An analytical approach', *International Journal of Advanced Engineering Research and Science (IJAERS)*, 4(1), pp. 32-46.

Ph.D Research Bureau (2013) 'India-Pakistan bilateral trade: Past, present & future', *PHD Research Bureau, PHD Chamber of Commerce and Industry*. Available at: https://phdcci.in/file/research_paper/_India- Pakistan%20Bilateral%20Trade%20Past,%20Present%20&%20Future.pdf [Accessed 23 June 2023].

Press Information Bureau (2018) 'Social welfare surcharge on imported goods to provide for social welfare schemes of the government', *Ministry of Finance, New Delhi*.

Raihan, S. & De, P. (2013) *India-Pakistan economic cooperation: Implications for regional integration in South Asia*, Commonwealth Secretariat, London.

Singla, N. & Arora, P. (2020) 'The Dubai angled triangle', *Bureau of Research on Industry and Economic Fundamentals*. Available at: https://www.briefindia.com/wp-content/uploads/2020/10/The-Dubai-Angled-Triangle-2020.pdf [Accessed 25 May 2024].

Taneja, N. (2006) *India-Pakistan trade (Working Paper No. 182)*, Indian Council for Research on International Economic Relations. Available at: http://icrier.org/ [Accessed 15 August 2016].

Taneja, N. (2007) *India-Pakistan trade possibilities and non-tariff barriers (Working Paper No. 200)*, ICRIER, New Delhi.

Taneja, N. (2013) 'Enhancing India-Pakistan trade', *New America Foundation*. Available at: https://www.indiapakistantrade.org/resources/Taneja_IndiaPakTrade_NAF_0. pdf [Accessed 16 June 2023].

Taneja, N. & Bimal, S. (2016) *India's informal trade with Pakistan (Working Paper No. 327)*, ICRIER, New Delhi.

Taneja, N., Dayal, I. & Bimal, S. (2016) *Facilitating India-Pakistan trade through the land route (Working Paper No. 318)*, ICRIER, New Delhi.

Taneja, N., Ray, R., Dayal, I. & Bimal, S. (2017) 'Emerging issues in India–Pakistan trade: An introduction', in N. Taneja & I. Dayal (eds.), *India-Pakistan trade normalisation*. Springer. Available at: https://doi.org/10.1007/978-981-10- 2215-9_1.

UNCOMTRADE (2023) *World Integrated Trade Solutions*. Available at: https://wits.worldbank.org/WITS/WITS [Accessed 24 May 2024].

World Bank (2007) *The challenges and potential of Pakistan-India trade*. Available at: https://documents1.worldbank.org/curated/en/990861468074627673/pdf/4027 30P07493901India1Trade01PUBLIC1.pdf [Accessed 22 October 2023].

Zaidi, S.A., Aslam, S. & Ghaffar, F. (2017) 'Misperceptions about India-Pakistan trade: Beyond politics', *Peacework Report*. Available at: https://www.usip.org/sites/default/files/2017-06/pw128-misperceptions-about-india-pakistan-trade.pdf [Accessed 26 September 2023].Dynamicsof Bilateral Merchandise Trade between India and Pakistan: A Comprehensive Analysis (2001-till date)

Journal of International Economics
ISSN 0976-0792 Volume 16 No 1, January-June 2025 pp: 66-76

Analysing the Effect of Union Budget on Nifty Sectoral Indices

Suraj E.S[1]
Anil Kumar M[2]
Dhansri[3]

Abstract

The Union Budget is a critical annual event in India that outlines the government's fiscal policies and financial strategies for the upcoming year. Its announcement often has significant implications for the financial markets, including the Nifty sectoral indices. This study aims to analyze the effect of Union Budget announcements on the performance of Nifty sectoral indices, providing insights into the market's reaction and the budget's influence on specific sectors. By employing event study methodology, this research examines abnormal returns (ARs) and cumulative abnormal returns (CARs) around the budget announcement date across key sectors such as banking, pharmaceuticals, energy, and IT. Historical data on sectoral indices and benchmark indices are used to estimate normal returns, while statistical tests are conducted to determine the significance of observed deviations. The findings are expected to reveal varying levels of sensitivity among sectors, highlighting the differential impact of fiscal policies on market performance. This study contributes to the growing body of literature on the intersection of fiscal policy and financial markets, offering valuable insights for policymakers, investors, and researchers.

Keywords: Indices, Nifty, Returns, Sectors, Union Budget

Introduction

Background

The research aims to contribute to the existing literature on market responses to economic policies by offering a focused analysis of Nifty sectoral indices in the context of Union Budget announcements. This study seeks to

1 Associate Professor, KCT Business School, Coimbatore

2 Research Scholar, KUFOS, Assistant Professor, GHRU, Amravati

3 Student, MBA, KCT Business School and can be reached at Coimbatoreanilscholar1965@gmail.com

bridge this knowledge gap by systematically analyzing the effect of Union Budget announcements on Nifty sectoral indices. The research adopts an event study methodology, a robust statistical approach commonly used to measure market reactions to significant events. The study combines empirical rigor with practical relevance, providing valuable insights into the interplay between fiscal policy and financial markets in India.

Statement of the Problem

The Union Budget in India is a significant annual event that shapes the economic direction of the country. While the long-term implications of the budget are widely discussed, the immediate impact on specific sectors remains less explored. This research seeks to address this gap by investigating how the short-term market reactions to budget announcements differ across various sectors.

Research Questions

- How does the budget effect on sector performance of Nifty sectoral indices.
- Which Nifty sector indices have experienced the most significant increases in stock prices and market capitalization following the budget announcement?
- How can policymakers effectively communicate budget policies to investors and the public to mitigate market volatility and uncertainty?

Objectives

- To assess the short-term and long-term impact of the Union Budget on Nifty sector indices performance.
- To identify the sectoral volatility to specific budget announcements.

Review of Literature

Jain and Mahapatra Jain et al. (2024) tested market competence by analyzing sectoral reactions to the union budget declaration. Goyal conducted an event study on the defence sector's response to the interim union budget announcement for 2024 in Goyal (2024). Gakhar et al (2015) observed the impact of budget on returns and volatility of Nifty considering the periods prior to and subsequent to the budget day. Singhvi (2014),examined the effect of union budgets of index NIFTY of NSE in terms of returns and impact of announcements of union budget on the pre-budget period and post-budget period and have unearthed that budget day returns are more than the returns through the previous 30, 15, and 3 trading days. S. Babu and Dr. M. Venkateswara (2013) evaluated the impact of Union Budgets on Indian stock prices. The period for the study was from 1991 to 2009 and conclusions say that budgets seem to have consequence

only up to fifteen trading days from the budget day as far as return is concerned. So, investor must be very vigilant and very swift while investing just around and on the budget day. The authors also conveyed that a budget exerts the maximum impact in terms of absolute return proximately on and around the budget day which progressively gets reduced as one moves further away from the budget day. Kutchu (2012) analyses semi-strong efficiency of Indian stock market. The study states the effect of union budget on six selected sectoral indices. The results of the study showed that there is a chance to make abnormal returns by the investor. In light of the results, it seems to be inconclusive evidence about overall impact of budget either on the stock market or on a particular sector, but the results seem to point in the direction that the effect of the Budget may be company-specific. Rahman, H. U., & Mohsin, H. M. (2011) The paper investigates the impact of monetary policy announcements on stock returns in Pakistan, specifically focusing on the Karachi Stock Exchange (KSE). It examines both expected and unexpected interest rate changes. The study reveals that these announcements significantly affect KSE returns, with a cumulative abnormal return (CAR) of 30%, indicating actual returns exceed estimates. Out of 33 events analyzed, 31 showed a notable impact on stock returns, especially during expansionary monetary policies. The null hypothesis of zero abnormal returns was rejected, affirming the influence of monetary policy announcements on stock performance. Varadharajan and Vikkraman (2011) studied volatility of four major indices of Indian stock market and the effect of budget on the volatility of stock market from 2002-2011. They found that it is during the post budget, volatility in the stock market is higher in comparison to pre-budget. Return of the indices post-budget is negative when compared to pre-budget Dash et al. (2011) found that month-of-the-year effect in Indian stock markets is positive for November, August and December effects, and a negative March effect. Soni, A. (2010) examined the impact of budget and monetary policy announcements on the BSE Sensex. It found that these announcements have a significant short-term impact on stock returns, but the effect diminishes over time. The study also found that volatility does not generally increase over time following announcements, challenging common assumptions about market behavior. The long-term period after announcements is identified as more volatile than shorter periods, suggesting a nuanced understanding of market behavior in response to economic changes. Soni Anil (2009) studied the Reaction of the stock market to union budget and monetary policy announcements. Wongswan, J. (2009) examined how global equity indexes in 16 countries respond to U.S. monetary policy announcements by the Federal Reserve. It uses high-frequency intraday data and two measures of monetary policy surprises: target rate surprises and path surprises. The

study finds that foreign equity markets respond significantly to target rate surprises, but not path surprises. The magnitude of the response varies across countries and is more related to financial integration with the U.S. than to trade linkages or exchange rate flexibility. Chakradhara (2008) observed the nature of relationship and the direction of causality between interest rates and stock prices in India for the period from April 1996 to June 2006. He found that there is a long run relationship between interest rates and stock prices. Agrawal, G. (2007) examined the impact of monetary policy announcements on stock prices in India. It used an event study methodology to analyse abnormal returns around monetary policy announcement dates. The sample included 50 companies in the CNX Nifty index from 2006-2007. The study looked at 3 "good news" and 3 "bad news" monetary policy events. It found that monetary policy announcements do contain information that impacts stock prices. However, the Indian stock market is not efficient in the semi-strong form, as abnormal returns persist for several days after announcements. Gupta, A., & Kundu, D. (2006) examined the impact of Union Budgets on the Indian stock market, specifically the Sensex, from 1991 to 2005. It found that budget announcements have a significant short-term impact on stock prices, but the effect diminishes over time. The study analyses daily returns and used statistical tests to assess the impact of budgets on market returns. The findings suggest that investors should be cautious during budget periods due to heightened short-term volatility, but they should also be aware that the long-term impact of budgets on the stock market is limited. Gupta and Kundu (2006) analyzed the impact of Union Budgets on stock market considering the returns and volatility in Sensex. They found that budgets have maximum impact in short-term post-budget period, as compared to medium term and long-term average returns and volatility does not normally increase in a post-budget situation as the time period increases. Porwal and Gupta (2005) examine the hot issue of volatility in the Indian stock markets. The study is based on a daily prices of S&P CNX Nifty for the period of 10 years .They found 1996 was the most volatile year in the past 10 years, this is due to the political instability and absence of proper regulation. Mohanty (2004) examine the stock price reaction to announcement of various policy issues by government of India. The result show that the stocks generally react to public news quite quickly, but the first adjustment is not always the correct one. Kaur, H. (2004) analysed the behaviour of the Indian stock market, specifically the Sensex and Nifty indices, from January 1993 to March 2003. It found that the stock market is characterized by volatility clustering, asymmetry in response to news, and a day-of-the-week effect. The study used the GARCH model to capture volatility clustering and found that the TARCH and EGARCH models are

better suited for capturing asymmetry in the response to news. The study also found that there is a weak and inconsistent spillover effect between the US and Indian markets. These findings have implications for investors and policymakers in understanding and managing risk in the Indian stock market. Bomfim, A. N. (2003)analyses the impact of Federal Reserve monetary policy announcements on stock market volatility. Specifically, the paper explores how the anticipation of policy decisions, the actual content of policy announcements, and subsequent reactions affect volatility in the U.S. stock market. Bomfim investigates the role of information surprises and expectations management in shaping market reactions, using a sophisticated methodology that evaluates market responses to policy events both pre- and post-announcement. Thomas and Shah (2002) analysed the Indian stock market index from April 1979 to June 2001 covering 26 Budget dates in this period and finds that in some years, post-budget returns are positive; in other years post–budget returns are negative; on average, there is no clear pattern about movement in the Index after budget date. Thomas, S., & Shah, A. (2002) analysed the impact of the Union Budget on the Indian stock market. It found that the stock market reacts quickly and efficiently to budget announcements, with increased volatility but no consistent changes in stock prices. This suggests that investors are able to quickly incorporate new information from the budget into their decision-making, leading to efficient pricing. However, the increased volatility post-budget may present opportunities for investors who are willing to take on risk. For example, investors may be able to profit from short-selling index futures around Budget time, as they can benefit from the decline in stock prices that often occurs during this period. Sellin, P. (2001) investigated the relationship between monetary policy and stock market performance, exploring both theoretical frameworks and empirical evidence. The study aims to understand how changes in monetary policy, such as interest rate adjustments, influence stock prices and overall market behaviour. The study examines various channels through which monetary policy impacts the stock market, including investor expectations, liquidity effects, and the cost of capital.

Research Methodology

The research for the study is based on secondary data. The data is extracted from databases and journals for five years.

Research Design

The project is based on quantitative and analytical design. The project contains all analysis, interpretation, bar diagrams, tabulation and other various management tools that are applied 5 here. Therefore, to analyze the historical data during pre and post budget period, the data were presented.

Period of Study

The study covers a period of five years from Union Budget 2020 to Union Budget 2024, covering 5 union budgets where the duration of the study covers 15 days prior and post budget announcement date.

Method of Data Collection

The data used in this study is secondary data which were collected from different databases and journals.

Sources of Data Collection

The secondary data, figures and information are obtained from various databases, articles and journals.

Theoretical Framework

The Union Budget, the annual financial statement presented to the Indian Parliament, plays a crucial role in shaping the Indian economy. Its impact reverberates across various sectors, influencing investor sentiment and market dynamics. This research aims to analyse the effect of Union Budget on Nifty Sectoral Indices, providing insights into the budget's impact on specific sectors.

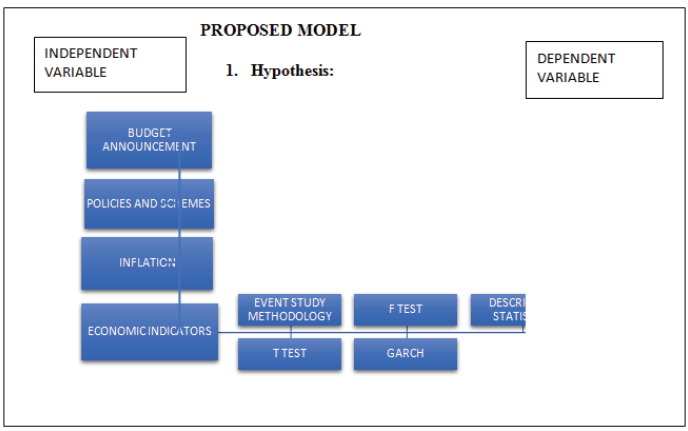
Theoretical Foundations

Theoretical frameworks utilized to underpin this research:

Event Study Methodology

- This method is commonly used to assess the market impact of specific events, such as the announcement of the Union Budget.
- By examining the abnormal returns of stocks in the days leading up to and following the budget announcement, we can gauge the market's reaction to budget proposals.
- This framework allows us to isolate the impact of the budget from other market-moving factors.

Conceptual Framework



PROPOSED MODEL

Hypothesis

Based on the objective, the present study has the following hypothesis

- H1: Union Budget announcements have a significant effect on Nifty sectoral indices.
- H0: Union Budget announcements does not have a significant effect on Nifty sectoral indices.

Tools Used for the Study

i. Statistical tools

Event study methodology

Data Analysis and Interpretation

This section of the paper illustrates the findings of the study. Table-1 illustrates the t test values and their statistical significance at 95 percent confidence level for the even window day -10 to day +10.

UNION BUDGET 2023

DAY	NIFTY PHARMA		NIFTY ENERGY		NIFTY METAL		NIFTY OIL & GAS		NIFTY BANK	
	T TEST	SIGNIFICANCE	T TEST	SIGNIFICANCE	T TEST	SIGNIFICANCE	T TEST	SIGNIFICANCE	T TEST	SIGNIFICANCE
-10	-0.104	NO	0.05	NO	-0.07	NO	0.06	NO	-0.05	NO
-9	0.789	NO	-0.01	NO	-0.56	NO	-0.004	NO	-0.16	NO
-8	-0.321	NO	-0.02	NO	0.19	NO	0.0262	NO	0.093	NO
-7	-0.841	NO	-0	NO	0.308	NO	0.0078	NO	-0.13	NO
-6	1.024	NO	0	NO	0.137	NO	0.0243	NO	-0.23	NO
-5	-1.13	NO	-0.03	NO	0.304	NO	-0.022	NO	0.062	NO
-4	-1.408	NO	-0.08	NO	0.07	NO	-0.114	NO	0.774	NO
-3	0.63	NO	-0.2	NO	1.602	NO	-0.32	NO	0.952	NO
-2	-0.222	NO	-0.12	NO	0.094	NO	-0.204	NO	-0.03	NO
-1	-1.143	NO	0.05	NO	-0.52	NO	-0.064	NO	-0.2	NO
0	-0.042	NO	-0.05	NO	1.538	NO	-0.116	NO	0.106	NO
1	-0.462	NO	-0.09	NO	1.486	NO	-0.113	NO	-0.12	NO
2	-1.14	NO	-0.04	NO	0.036	NO	-0.051	NO	-0.62	NO
3	0.08	NO	-0.03	NO	0.749	NO	-0.011	NO	0.092	NO
4	-0.016	NO	-0.02	NO	0.089	NO	-0.015	NO	-0.09	NO
5	1.569	NO	0.03	NO	-1.29	NO	0.0359	NO	-0.03	NO
6	-0.511	NO	-0.01	NO	0.54	NO	-0.018	NO	-0.01	NO
7	0.23	NO	-0.03	NO	0.622	NO	-0.032	NO	-0	NO
8	-0.551	NO	-0.01	NO	0.407	NO	-0.025	NO	0.203	NO
9	-0.181	NO	0	NO	-0.35	NO	0.0269	NO	-0.27	NO
10	-0.11	NO	0.01	NO	-0.16	NO	0.0182	NO	-0.06	NO

The event study analysis of the Union Budget 2023 reveals that none of the Nifty sectoral indices exhibited statistically significant abnormal

returns, suggesting that the market had largely anticipated the budget's impact. Nifty Pharma showed no notable reaction before, on, or after the event, indicating that investors did not perceive any major policy changes affecting the sector. Nifty Energy also remained stable, with minor fluctuations, suggesting that the budget did not introduce substantial reforms or incentives for the sector. Nifty Metal was the only sector to show a mild positive reaction on the event day (t = 1.54) and the following day (t = 1.48), possibly due to infrastructure spending announcements; however, a negative shift on Day 5 (-1.29) hints at concerns over policy execution or global influences. Nifty Oil & Gas remained neutral throughout the event window, indicating that budget measures related to taxation, subsidies, or regulations had minimal impact on investor sentiment. Similarly, Nifty Bank experienced a slight positive movement on Day 0 (t = 0.10) but showed mild negative fluctuations in the following days, reflecting a lack of strong policy-driven sentiment in the banking sector. Overall, the findings suggest that the budget announcements did not trigger significant sectoral volatility, likely due to market expectations being well-aligned with policy measures.

UNION BUDGET 2024

	NIFTY PHARMA		NIFTY ENERGY		NIFTY METAL		NIFTY OIL & GAS		NIFTY BANK	
DAY	T TEST	SIGNIFI-CANCE	T TEST	SIGNIFI-CANCE	T TEST	SIGNIFI-CANCE	T TEST	SIGNIFI-CANCE	T TEST	SIGNIFI-CANCE
-10	-0.821	N0	-0.18	NO	0.735	NO	-0.4019	NO	0.0863	NO
-9	1.7895	N0	0.052	NO	-0.036	NO	0.08	NO	-0.053	NO
-8	0.7994	N0	-0.1	NO	1.267	NO	-0.0222	NO	0.1399	NO
-7	-0.772	N0	-0.12	NO	-0.004	NO	-0.5043	NO	-0.03	NO
-6	-0.42	N0	-0.13	NO	0.122	NO	-0.2721	NO	-0.003	NO
-5	1.2697	N0	-0.66	NO	-0.173	NO	-0.9146	NO	-0.066	NO
-4	-0.571	N0	0.141	NO	0.061	NO	0.0741	NO	0.0218	NO
-3	-0.47	N0	-0.05	NO	0.688	NO	-0.0137	NO	-0.083	NO
-2	-1.491	N0	1.675	NO	3.108	YES	1.2778	NO	0.1308	NO
-1	1.4587	N0	0.172	NO	-0.802	NO	0.2837	NO	-0.005	NO
0	0.8094	N0	0.332	NO	0.736	NO	0.5505	NO	0.1861	NO
1	1.1492	N0	-0.76	NO	-0.034	NO	-0.7746	NO	0.1727	NO
2	1.2679	N0	-0.78	NO	1.012	NO	-1.0182	NO	0.1617	NO
3	1.9991	YES	-0.68	NO	-2.369	YES	-0.2011	NO	-0.155	NO
4	0.4375	N0	-0.29	NO	-0.225	NO	-0.4772	NO	-0.042	NO
5	-0.875	N0	-0.67	NO	-0.15	NO	-0.2624	NO	-0.035	NO
6	1.2121	N0	-0.25	NO	-0.956	NO	0.0187	NO	-0.02	NO
7	-0.073	N0	-1.21	NO	0.084	NO	-0.163	NO	-0.004	NO
8	1.4348	N0	0.851	NO	2.126	YES	0.5676	NO	0.0804	NO
9	-0.219	N0	2.356	YES	3.819	YES	1.705	NO	0.4748	NO
10	0.042	N0	0.24	NO	-0.235	NO	0.2219	NO	0.133	NO

The event study analysis for the Union Budget 2024 shows that most Nifty sectoral indices did not exhibit significant abnormal returns, except for Nifty Metal, which displayed notable fluctuations. Nifty Pharma remained largely stable with no significant reactions before or after the event, apart from a mild increase on Day 3 (t = 1.99), suggesting a possible delayed positive sentiment. Nifty Energy showed some volatility, particularly on Day -2 (t = 1.67) and Day 9 (t = 2.35), indicating a possible reaction to budget-related policy measures, though overall, the sector remained neutral. Nifty Metal was the most reactive, with a significant increase on Day -2 (t = 3.10) and Day 9 (t = 3.81), indicating strong investor optimism, potentially due to infrastructure or manufacturing incentives, but it also saw a sharp decline on Day 3 (t = -2.36), suggesting concerns over policy execution or external factors. Nifty Oil & Gas experienced slight positive movements on Days 0 and 8, but none were statistically significant, implying that the budget had minimal impact on the sector. Meanwhile, Nifty Bank remained mostly unaffected, with minor fluctuations but no clear pattern of investor sentiment shifts. Overall, the findings suggest that while Nifty Metal and Nifty Energy reacted to budget announcements, most other sectors remained relatively stable, indicating that the market had largely anticipated the policy measures.

UNION BUDGET 2025

	NIFTY PHARMA		NIFTY ENERGY		NIFTY METAL		NIFTY OIL & GAS		NIFTY BANK	
DAY	T TEST	SIGNIFI-CANCE	T TEST	SIGNIFI-CANCE	T TEST	SIGNIFI-CANCE	T TEST	SIGNIFI-CANCE	T TEST	SIGNIFI-CANCE
-10	0.1032	NO	-0.42	NO	0.741	NO	0.2983	NO	-3.272	YES
-9	-0.255	NO	0.98	NO	-0.65	NO	-0.554	NO	3.0978	YES
-8	0.131	NO	0.759	NO	-0.5	NO	-0.3507	NO	-0.62	NO
-7	0.2639	NO	-0.09	NO	0.369	NO	-0.2513	NO	0.5447	NO
-6	-0.397	NO	0.922	NO	-0.621	NO	-1.0538	NO	0.8924	NO
-5	-0.5	NO	1.316	NO	-2.034	YES	-1.1009	NO	1.2286	NO
-4	-0.439	NO	0.721	NO	-0.272	NO	-0.3123	NO	-3.272	YES
-3	0.3331	NO	-1.04	NO	1.278	NO	0.3001	NO	-1.2	NO
-2	0.2279	NO	-0.66	NO	-0.074	NO	0.7597	NO	-0.582	NO
-1	0.0167	NO	-1.36	NO	0.83	NO	0.9215	NO	-1.094	NO
0	-0.091	NO	1.104	NO	-0.831	NO	-0.6959	NO	0.3172	NO
1	0.0237	NO	1.553	NO	-1.191	NO	-1.0923	NO	1.1736	NO
2	0.3287	NO	-1.16	NO	1.237	NO	1.3263	NO	-3.774	YES
3	0.1168	NO	-0.71	NO	1.043	NO	0.7184	NO	-0.723	NO
4	0.1212	NO	0.443	NO	-0.519	NO	-0.1858	NO	-0.152	NO
5	0.0582	NO	0.38	NO	1.831	NO	-0.444	NO	0.8686	NO
6	-0.351	NO	1.116	NO	-1.819	NO	-0.8518	NO	0.6951	NO
7	-0.362	NO	1.085	NO	-1.202	NO	-0.9493	NO	2.2653	YES
8	-0.095	NO	0.197	NO	0.46	NO	-0.3955	NO	-0.302	NO
9	0.2543	NO	0.05	NO	0.567	NO	-0.1915	NO	0.4738	NO
10	-0.542	NO	1.182	NO	-1.231	NO	-0.7132	NO	1.0341	NO

The event study analysis for the Union Budget 2025 suggests that most Nifty sectoral indices experienced limited significant reactions, with Nifty Bank showing the most notable movements. Nifty Pharma remained relatively stable throughout the event window, with no significant changes, indicating that budget announcements had minimal impact on investor sentiment in this sector. Nifty Energy exhibited slight fluctuations, particularly with an increase on Day 1 (t = 1.55) and Day 10 (t = 1.18), but these were not statistically significant, suggesting that budgetary measures may not have strongly influenced energy stocks. Nifty Metal showed one significant decline on Day -5 (t = -2.03), possibly reflecting concerns over sector-specific policies, but no sustained trend was observed. Nifty Oil & Gas remained mostly neutral, with only minor variations that were not statistically significant. Nifty Bank, however, displayed notable movements on Days -10, -9, -4, 2, and 7, with significant negative reactions before the budget announcement (t = -3.27 on Day -10 and t = -3.27 on Day -4), possibly indicating pre-budget apprehensions. A post-budget negative reaction on Day 2 (t = -3.77) suggests that the market may have been disappointed with banking-related policies, though a positive reaction on Day -9 (t = 3.09) and Day 7 (t = 2.26) hints at some recovery or optimism. Overall, the findings indicate that while Nifty Bank exhibited volatility around the budget event, other sectors, including Pharma, Energy, Metal, and Oil & Gas, largely remained stable, suggesting that investors either anticipated the budget's impact or found its provisions to be neutral.

As per the analysis,null hypothesis H0: Union Budget announcements does not have a significant effect on Nifty sectoral indices would be applicable for the study. The Null Hypothesis can be accepted as there is no significant effect between the variables.

Limitations of the Study

- Reactions may be influenced by unrelated global or domestic events during the event window.
- Companies appearing in multiple indices may dilute sector-specific analysis.

Conclusion

One of the most significant components is the government's Union budget announcement, which pertains to the nation's financial and economic well-being and includes all the sectors. The current study focused at how the union budget affected stock market volatility between 2023 and 2025. The study looks at Nifty Sectoral indices for five different industries. According to the study, the pharma, energy, metal, oil and natural gas and bank sectors are not significantly impacted by the yearly budget announcements.

References

Agrawal, G. (2007). Monetary Policy Announcements and Stock Price Behavior: Empirical Evidence from CNX Nifty. *Decision (0304-0941)*, *34*(2).

Bomfim, A. N. (2003). Pre-announcement effects, news effects, and volatility: Monetary policy and the stock market. *Journal of Banking & Finance*, *27*(1), 133-151.

Gupta, A., & Kundu, D. (2006). A study on the impact of union budgets on stock prices in India. *The ICFAI Journal of Applied Finance*, *12*(10), 65-76.

Kaur, H. (2004). Time varying volatility in the Indian stock market. *Vikalpa*, *29*(4), 25-42.

Rahman, H. U., & Mohsin, H. M. (2011). Monetary policy announcements and stock returns: Evidence from the Pakistani market. *Transition Studies Review*, *18*, 342-360.

Sellin, P. (2001). Monetary policy and the stock market: theory and empirical evidence. *Journal of economic surveys*, *15*(4), 491-541.

Soni, A. (2010). Reaction of the stock market to union budget and monetary policy announcements. *Asia Pacific Journal of Research in Business Management*, *1*(2), 155-175.

Thomas, S., & Shah, A. (2002). Stock market response to Union Budget. *Economic and Political weekly*, 455-458.

Varadharajan, P., & Vikkraman, P. (2011). Impact of Pre and Post Budget on stock market volatility between 2001 to 2011. *Journal of Contemporary Research in Management*, *6*(4), 49-64.

Wongswan, J. (2009). The response of global equity indexes to US monetary policy announcements. *Journal of International Money and Finance*, *28*(2), 344-365.

Journal of International Economics
ISSN 0976-0792 Volume 16 No 1, January-June 2025 pp: 77-87

Essential Strategies for Employee Engagement to Retain Talent in India's Banking Sector

Pooja Rani[1]
Shaifali Mathur[2]

In the modern business scenario, where banks and other organisations must face challenges to stand solid amid the tough competition, employee turnover or attrition seems to be a serious threat to most of them. Since performance of any organisation is dependent on the hard work, dedication and expertise of its employees, to deliver the best performance and compete in the market, it has to engage and retain its best talented and consistent employees for a longer period. Considering the significance of employee engagement and retention, banks need to practice various engagement strategies. The present paper aims to discuss the significance and relevance of these strategic practices and to examine the impact of these practices on the actual retention level of employees in Indian banking sectors.

Keywords: Attrition, Retention Level, Employee's Engagement, Employee's Retention

Introduction

The advancement has not only expanded the world's economies but also has enhanced employment opportunities for all segments of our society. With this expansion, the matter of employee engagement has also become more relevant and significant in the modern business era. Any organisation needs the expertise and dedication of its employees during the threatening business conditions in this cut- throat competitive market which may be more disastrous due to unexpected attrition. In this dynamic business environment, the issue of attrition (an unanticipated fall in the employee number) is so extreme that it adversely affects human power and

1 Scholar

2 Sr. Assistant professor Department of Financial studies University- IIS (deemed to be) University, Jaipur

performance at all levels with severe job insecurity and leads to voluntary resignation for moving over or an employee's defection. Filling the vacant key positions is so important in to keep the growth momentum of ongoing projects in the organisation as it may affect the functional and production capabilities of the department, which subsequently affect the company's position in the market. The HR team faces many challenges to curb the higher attrition rate and retain the best talent pool of the enterprise. It can be achieved by treating manpower expertise as an asset, recognising the qualities and capabilities of the workers and getting them engaged through strategized practises in a fecund and capable working atmosphere.

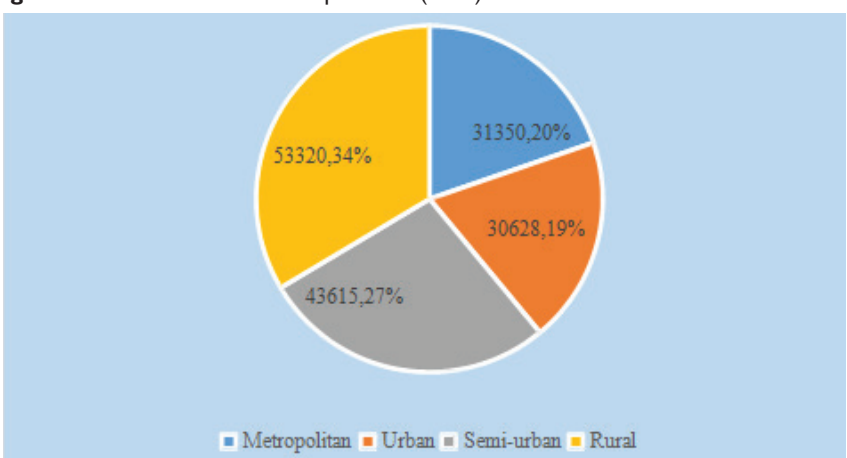
Many critical factors have been identified as accountable for this and the HR management should be cautious about them and examine the cause of the attrition under the shadow of such factors. These factors may differ from organisation to organisation as per the dynamics of the particular industry. The higher attrition factors should be addressed in accordance with the employee level and their assignments. However, the most common factor is job dissatisfaction raised due to dishonourable working atmosphere, office politics, career and salary growth prospects or immoral business activities. Despite the various known and common reasons, it is a challenging job for the management to estimate the specific reason, as an employee living usually does not disclose the real purpose and mostly, place some of the common reasons such as better opportunity or family/personal issues and also, the mind-set of the employer is mostly different from the employee's point of view. A reasonable amount of financial investment and operational effort is compulsorily required for the recruitment and proper training of new employees. The company's performance is the outcome of a reliable, sincere and experienced set of employees, so augmented progress can be achieved with the help of them only. The retention of the best talent pool is possible by recognising the latent causes of dissatisfaction and enhancing the level of employee engagement and contribution. Sometimes money alone is not the issue and the management should think beyond it, many other factors that affect the degree of an employee's engagement in terms of dedication and willingness to perform. Kahn (1990) defined worker's engagement as "*the synchronous business and enunciation of a person's 'favoured self' in assignment, that hoist relationship with work and to other individuals and dynamic job exhibitions*". Gallup Organization (2006) described employee engagement as "*The involvement with and enthusiasm for work*". Rothbard (2001) also defined it on the same lines and stated, "*it involves two critical components: attention and absorption. Attention refers to cognitive availability and the amount of time one spends thinking about a role, while absorption means being engrossed in a role and refers to the intensity of one's focus on a role*." Employee retention is defined as

a practice that inspires the existing employees to remain associated with the organization and not think of switching over to other job. According to Padron (2004), "*to retain employees, employers need to believe that the best possible investment is in their employees*".

Human Resource and Need of Employee's Engagement in Banking System in India

After witnessing many ups and downs with some extraordinary events in the last three decades, India's banking system is going through a paradigm shift in the shadow of innovation, technology enhancement and digitalisation. The costumer-centric marketing strategies, government initiatives, amendments in regulation and other improving efforts have made the banking system more accessible to all segments. It has resulted in accomplishing the realistic annual growth of aggregate deposits and bank credits. With this fast-paced changing techno-scenario, the HRM in banks has also gone through several variations in order to address the massive competition in the financial sector. It is a challenge for the HR people to search and capture the best existing talent in the market and, simultaneously, to retain the best talent pool for a longer period of time. The banking industry, related to the service sector, need to deal with all kinds of consumers. It is highly sensitive regarding the role of the human factor as its success is dependent upon customer satisfaction. As per the RBI data, a network of 158913 functioning offices of commercial banks is widely spread all over the country where a huge number (1562521 employees) of employees are working. 34% of the functioning offices of commercial banks are situated in villages and 27% are in semi-urban areas and 39% of the total banking branch are situated in urban and metropolitan areas.

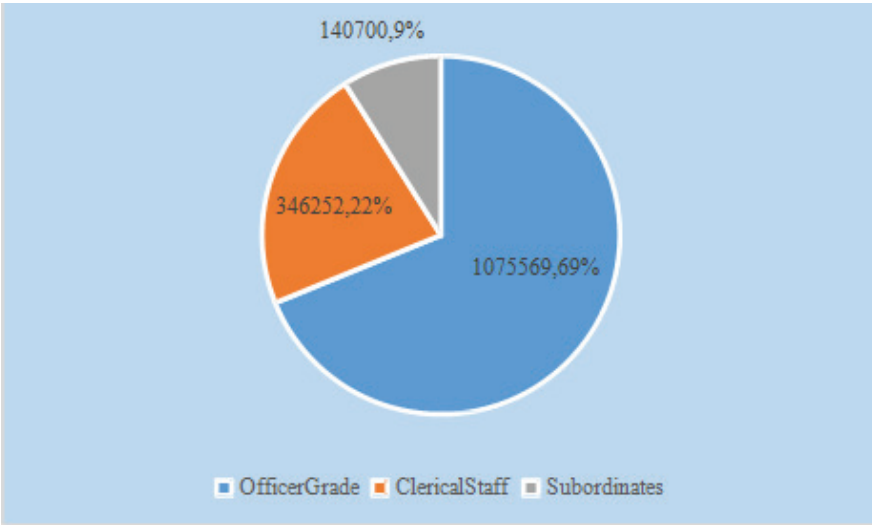
Figure-1: Commercial Banks Setup in India (2022)



Source: Reserve Bank of India (www.rbi.org.in)

There are a total of 90170 offices of commercial public sector banks with 770800 employees and 38774 offices of private banks with 572586 employees, operative in India. The Indian banking sector provides a huge amount of employment in the country. The status of employees, deployed at different levels of officer, clerical and subordinate grades in Indian SCBs has been illustrated in the following graph.

Figure-2: HR Status in Indian Banks (2021)



Source: Reserve Bank of India (www.rbi.org.in)

As per the AON India's 26th Survey report 2021-22, the overall annualised attrition rate in 2021 was recorded at 20%, which is highest since 2011 and, the voluntary attrition rate at 15.4% is at its highest in last few years. The macro-economic consequences of the pandemic affected business growth cycles that are usually associated with the rate of attrition level. The banking industry is among the top 5 sectors by attrition, carrying an attrition rate of 19.4%. Due to the recent huge mergers in the banking and financial industry, the scope of skills and expertise in the digital space has gone up. This shift has probably resulted in high attrition in the IT and digital banking fields.

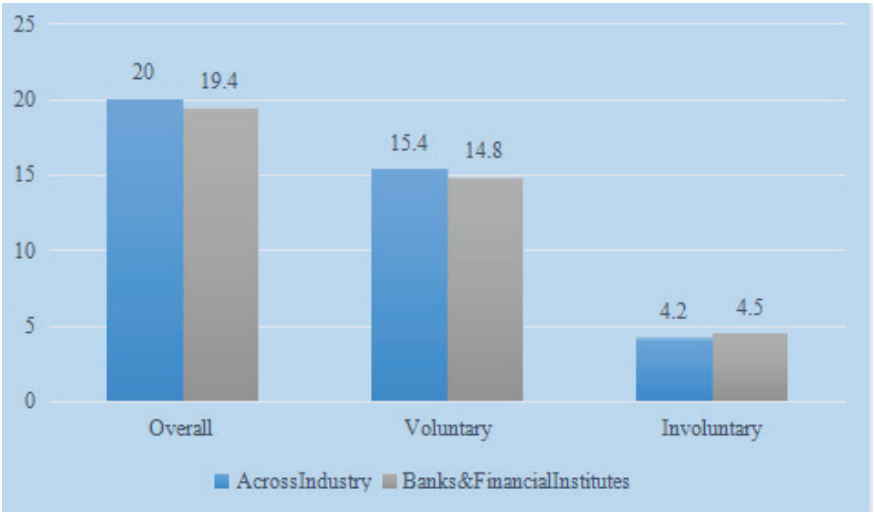
By applying multiple strategized engagement and retention practices, banks are putting their best efforts to control the attrition rate and hold the talented and performing employees for a longer period.

Review of Literature

Aleem, M., & Bowra, Z. A. (2020) worked upon the observation of HR practices such as recruitment, training, remuneration etc. in employee

engagement and their relation with the organisational culture in premium Pakistani banks.

Figure-3: Annualised Attrition Rate in India



Source: AON India's 26th Survey report 2021-22

The outcomes suggests that these HR practices are crucial in retaining their employees with the organisational assignment. The organisational culture was not found significant for the employee engagement and retention. Chidinma V., M. et al. (2017), examined the association between employee retention and organizational culture in commercial banks and found a significant correlation between the two variables. Khadka, S. (2013) studied the employee satisfaction and HR practices in the Nepalese banks and revealed that a reasonable number of bank staff was found satisfied with the bank's HR policies and the satisfactory index was positive in Nepalese banking sector. Khan, H., Asim, M. & Manzoor, S. (2021), studied on the effects of various factors that manage employee's engagements in banks. The authors studied the association between the key factors such as compensation, growth opportunities, feasible working environment etc. and level of banking staff retention. Mathimaran, K. B. & Kumar, A.A (2017) discussed the challenges that arose out of appearance of technology- driven banking system and allied industries. The research suggests underlining components related to the employee's recognition and job security under the lights of immense competition in the market due to the higher involvement of technology and advancement. Mishra, S. & Singh, S. (2021) tried to point out the major influencing factor of bank employees' engagement and concluded that the nature of work assignments, level of

management to the employees and the role of an effective communication strategy creates a distrust between the management and work staff. Rupavathi, B. & Sreeramulu, D. (2020), attempted a comparative study on the retention strategies in the banking and insurance sector. The outcome concludes that these strategies are important to save functional costs and enhance the working quality and competence of banking and insurance employees. Salman, A., Ahmad, N. & Matin , F. (2014) emphasised demotivated and unengaged employees in Pakistani banks due to a shortage of skilled workers. Singh, R & Vaishya, R. (2020), arranged to classify the driving elements of employee's engagement and retention in Indian banks. The authors identified the critical elements such as employee's financial benefits, job summary, working culture etc. Suwanti, S. (2019), discussed some important EE factors in light of inherent stimuli to share their knowledge, acquaintance and creativity. Zala,Y & Chinatan,R. (2021) identified and discussed on several employee retention approaches such as working suppleness, career reassurance and fiscal assistances.

Research Methodology

To investigate the selected employees' engagement practices and their impact on employees' retention level in banks. The survey method using a questionnaire, comprising various statements related to employee engagement practices, was distributed to the employees of selected banks to collect the primary data for analysis. A sample of 100 bank employees (net) of ICICI Bank and HDFC Bank in different branches of Jaipur were randomly taken for the study. In the first part of the questionnaire, an instrument, comprised of 21 different statements with Likert Type rating scale (scored 1 to 5), related to the employee's prevailing engagement practices in banks were given to the employees' respondents. The following factors have been taken for the analysis and related statements have been presented in the instrument to find out their feedback regarding various engagement practices in their respective banks.

- **Effective Hiring:** The recruitment process is designed in such a way that it gives the first adequate impression to the fresher or new employee so that he starts his journey with a long-stay mind-set.
- **Communication Platform:** The banks follow an efficient communication model that provides each employee with an equal platform to put his prospects on any issue in a rational and sensible manner. Interaction with their seniors and management gives everyone equal growth prospects.
- **Performance Based Appraisal:** The banks practice a performance-based transparent appraisal system that provides all employees an

equal opportunity to grow. It does not support partiality, favouritism or nepotism in office. A justified and organised assessment system offers the best salary package and monetary incentives to the employees.

- **Productive Working Environment:** The banking working culture with excessive work pressure and a timeless perplexed working environment affects his productivity and willingness to work. The banks provide recreation and leave policy to spend quality time with family.
- **Recognition through rewards:** The banks offer recognition by their participation in operational decisions, performance rewards, words of applause and monetary incentives etc. to the performing employees to boost them up.
- **Safe and Secure Working Condition:** One of the main factors of employee attrition is the unsafe and insecure working conditions. The banks provide their staff with healthy and comfortable working conditions that includes cleanliness, hygiene and comfortable conditions at the workplace.
- **Growth Opportunity:** Banks are offering skill development and career advancement courses to employees so that they get the opportunity to grow personally and professionally. Regular career prospects in an inspirational and learning working environment encourage them to grow at their banks.

In the second part, 10 different statements related to their willingness to stay in the respective banks were given to record the retention level. The mean scores of all the statements in both parts were calculated for analysis. To analyse the relationship between the employee's engagement practices and their level of retention, the following null hypothesis was conceptualized.

Ho1 - There is no positive and significant correlation between the employee's engagement practices in the banks and the level of retention of bank employees.

The hypothesis was tested with the help of Bivariate Pearson's Correlation test.

Analysis & Discussion

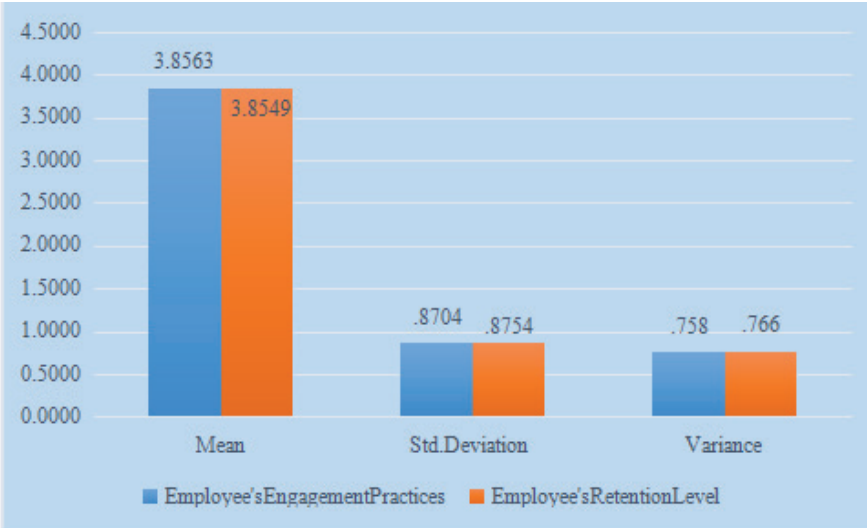
The mean, SD and variance of employee's engagement practices and employee's retention level in banks have been given in the following Descriptive Statistics table and graph.

Table-1: Descriptive Statistics (Engagement Practices & Retention Level)

Descriptive Statistics			
	Mean	**Std. Deviation**	**Variance**
Employee's Engagement Practices	3.8563	0.87038	0.758
Employee's Retention Level	3.8549	0.87539	0.766

Source: Data Analysis

Figure-4: Engagement Practices & Retention Level



Source: Data Analysis

As per the descriptive table, the employee's engagement practices mean score is more than 3.8 with SD=0.8703 and employee's retention level mean score is also more than 3.8 with SD=0.8753, which is high enough to advocate that the employee's engagement practices are employed significantly and the banks are successfully having the retention level at a fair position.

In order to check the correlation between employee's engagement practices and employee's retention level and study the impact of employee's engagement practices on the retention level, Bivariate Pearson's Correlation Analysis was applied, the result summary of correlation analysis has been tabulated as given below.

As per the correlation analysis table, the p value (0.000) of the significance 2-tailed based on 100 non missing observations (N=100) is less than the standard value of $p<0.05$. Pearson Correlation Coefficient r* between Employee's Engagement Practices and Employee's Retention Level is

0.887, positive (0.50 < | r | <=1), a positive relationship has been found between Employee's Engagement Practices and Employee's Retention Level, thus the hypothesis Ho1 has been rejected, it indicates that that there is significance correlation which is positive and the relationship is found to be strong.

Table-2: Correlation b/w Employee's Engagement Practices & Retention Level

Correlation b/w Employee's Engagement Practices & Employee's Retention Level	
Pearson Correlation	0.887**
Sig. (2-tailed)	0.000
Significance	Yes
Hypothesis	Rejected
Relationship	Strong Positive

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

Source: Data Analysis

It may be Employee's Engagement Practices followed in the banks are inclined towards the retention level and are effective to retain the employees with the bank and reduce the attrition rate.

Conclusion

High employee turnover has appeared to be one of the most serious problems for most of the private banks and other financial institutes and needs cautious attention. In order to stand up among the competitors in the modern business scenario, banks and financial institutes have to retain their best talented and performing employees. Employee engagement and retention are closely associated and go arm-in-arm. Both need a prolific and contented working atmosphere where employees can demonstrate their talent and give the best output for the bank. Considering the significance of this issue, banks have implemented some of the following engagement practices as per their requirements. Some of the significant employee engagement practices are related to providing the working staff with a productive working atmosphere, a sense of self-esteem, fair and equal prospects to grow within the bank, better facilities and the best salary packages in the market. These practices have been successful in keeping their employees engaged with the bank's objectives and also to retain them to a greater extent. There is a strong association found between the employee's engagement practices and the employee's retention level. The best performing employees can be retained by strategic engagement practices and problems of attrition can be minimised.

References

Adhikari, A. (2009). Factors affecting employee attrition: a multiple regression approach. *IUP Journal of Management Research*, 8(5), 38.

Aleem, M., & Bowra, Z. A. (2020). HR Practices and Employee Retention in the Banking Sector of Pakistan. *Journal of Accounting and Finance in Emerging Economies*, 6(3), 787-798.

Aon Hewitt (2013). Trends in global employee engagement. Retrieved from http://www.aon.com/attachments/human-capital

AON India's 26th Survey report 2021-22

Bakker, A.B. & Demerouti, E (2006). The Job Demand Resource Model. State of the Art. Journal of Managerial Psychology, 22, 309-328

Bennett, N., Blum, T. C., Long, R. G., & Roman, P. M. (1993). A firm-level analysis of employee attrition. Group & Organization Management, 18(4), 482-499.

Chidinma Vivian Madueke, Ikechukwu Chimezie Emerole (2017). Organizational Culture and Employee Retention of Selected Commercial Banks in Anambra State. *Saudi Journal of Business and Management Studies*, 2(3B), 244-252.

Cook, S. (2008). The essential guide to employee engagement: better business performance through staff satisfaction. Kogan Page Publishers.

Gallup. (2006). Gallup study: engaged employees inspire company innovation: national survey finds that passionate workers are most likely to drive organisations forward. *The Gallup Management Journal*, accessed at http://gmj.gallup.com/content/24880/Gallup-Study-Engaged-EmployeesInspire-Company.aspx.

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692-724.

Khadka, S. (2013). Satisfaction with Human Resource Practices: Evidence from Banking Industry of Nepal. *Tribhuvan University Journal*. 28, pp. 301-310. 10.3126/tuj.v28i1-2.26259.

Khan, H, Asim, M & Manzoor, S. (2021). Factors Affecting Employer Branding and its Impact on Retention and Attraction of Employees - A Case of Pakistani Banking Sector. *International Journal of Management (IJM)*, 12(2), 780-790

Mathimaran, K. B. & Kumar, A.A (2017). Employee Retention Strategies – An Empirical Research. *Global Journal of Management and Business Research: E Marketing*, 17(1).

Mishra, S. & Singh , S. (2021). Determinants of Employee Engagement in the Banking Industry: A study in Bhubaneswar, Odisha. *Turkish Online Journal of Qualitative Inquiry (TOJQI),* 12(8), 74-82.

Padron (2004). Outsourcing and its impact on operational objectives and

performance: a study of hotels in the Canary Islands. *International Journal of Hospitality Management*, 23 (3), 287-306.

Reserve Bank of India/ www.rbi.org.in

Rothbard, N.P. (2001). Enriching or depleting? The dynamics of engagement in work and family roles. Administrative Science Quarterly, 46, 655-684.

Rupavathi, B. & Sreeramulu, D. (2020). A Comparative Study on Employee Retention Strategies in Banking and Insurance Sectors. *Journal of Critical Reviews*, 7(4), pp. 4434-4440.

Salman, A., Ahmad, N. & Matin, F. (2014). Factors Affecting on Employees Retention in Banking Sector: An Investigation from Karachi. European *Journal of Business and Management*, 6(37), Available at SSRN: https://ssrn.com/abstract=2545848

Singh, R & Vaishya, R. (2020). An Analysis of the employee engagement practices in State Bank of India, Raipur Region, Chhattisgarh. Advances and Applications in Mathematical Sciences, 20, (1), 67-99.

Suwanti, S (2019). Intrinsic Motivation, Knowledge Sharing, and Employee Creativity: A Self-Determination Perspective. *International Journal of Scientific & Technology Research*, 8(07), 623-628

Zala,Y & Chinatan,R. (2021). A Study on retention practices in banking industry, Elementary Education Online, 20(5), 2990-2999.

Journal of International Economics
ISSN 0976-0792 Volume 16 No 1, January-June 2025 pp: 88-97

CASE STUDY

Competition to Monopoly: A Case of Indian Telecom Sector

Muzamil Ahmad Baba[1]
Zia Ul Haq[2]

Abstract

The case mainly focuses on the turmoil in the Indian telecom sector prompted by Reliance Jio, a telecom brand of Reliance Industries owned by billionaire Mukesh Ambani. Although hyper-competitive, India's telecom sector was stable before the Reliance Jio on September 5, 2016, launched its services. In India, the telecom industry was oligopolistic, firms profitable, sales stable, market-share equitable, and demand constant. Reliance Jio staged an industrial coup, by taking telecom industry in India off the guard, through its launch of free 4G services with a downloading speed of 50mbps without any data usage limits. The registration process for receiving a new connection was hassle-free and activated instantly. Earlier, the customer was required to deposit self-attested copies of identity and residence proof to get an active SIM. Jio needed the customer to put the thumb on a biometric fingerprint scanner to instantly authenticate his/her credentials. The users' biometric identity was digitally established by matching it with the existing Unique Identification Number (UID) database maintained by India's Unique Identification Authority. An instant kit was issued containing a pre-activated sim card and the customer enjoyed free services (calling and data).

Reliance Jio continues to disrupt the market with its free services. Initially launched for six months, Jio's free services were extended to two years followed by predatory pricing and lucrative offers in 2018, prompting a few hasty realignments in the form of mergers and acquisitions in the telecom sector. Jio's focus on the bottom of the pyramid (BoP) helped it add more than 50 million subscribers in the first 83 days of its launch and subsequently

1 Assistant Professor, Institute of Public Enterprise and can be reached at muzamilbaba@gmail.com

2 Associate Professor Department of Management Studies Central University of Kashmir and can be reached at zia@cukashmir.ac.in

cross 100 million in the first six months. In just six months of its entry into the industry, Jio scaled to the fourth sector, consisting of eleven operators. As on December 2017, out of a total of 1.18 billion wireless subscribers in India, Jio has managed to add a whopping subscription base of more than 136 million, putting it at parity with the big-three, Airtel, Vodafone and Idea Cellular of the Industry.

Introduction

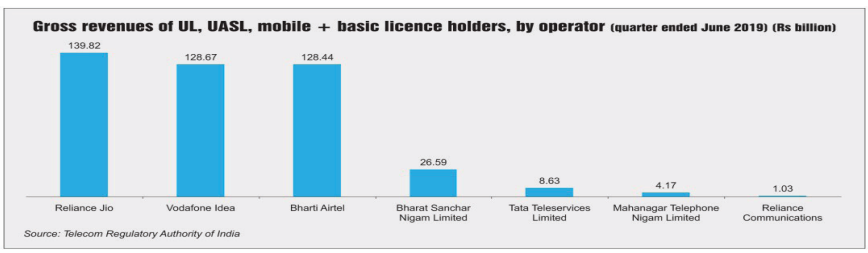
Recently, Reliance took telecom industry in India by surprise after managing to raise about $20 billion for Jio from investors like Facebook and Google. The raising of money during lockdown from marquee investors came as a surprise to India's existing telecom operators. The investment from digital giants could signal global ambitions for Jio and more challenging times for its rivals. On the other hand, ranking amongst the top four mobile service providers globally and most extensive in India in terms of subscription base, Bharti Airtel is a top telecommunications provider, serving customers across 20 countries in Asia and Africa. Its main office is located in New Delhi, India. In India, Bharti Airtel continues to be the largest telecom company with a subscription base of more than 282 million, followed by Vodafone India and Idea Cellular with 207.44 million and 190.15 million subscribers.

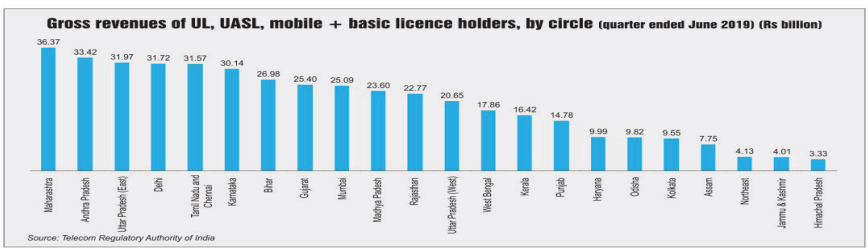
The Indian telecom industry has faced significant challenges due to the ongoing aggressive pricing by Reliance Jio. This predatory pricing has caused a sharp decline in revenue, squeezed profit margins, and severely affected the sector's financial stability. Airtel's net profit dropped by 54% to Rs 5030.7 million in the October-December 2016 quarter, compared to Rs 11,080.1 million the previous year. This downward trend continued, with net profit falling to Rs 3670 million in the quarter ending June 30, 2017, down from Rs 14,620 million a year earlier. In response, Airtel demanded higher call termination charges from Reliance Jio, accusing the new entrant of predatory pricing that was driving the industry into financial losses. "The quarter has seen turbulence due to the continued predatory pricing by a new operator," said Gopal Vittal, the Bharti Airtel CEO. Mukesh Ambani was quick to hit back at Bharti's Sunil Mittal for blaming his telecom venture Jio for the industry's losses, saying businesses must stop looking at regulators and governments to guarantee their profits.

India's telecom industry is grappling with serious challenges, as highlighted by Communications Minister Manoj Sinha at the recent India Mobile Congress. The government recognizes the strain within the sector, with Sinha stating, "We've intervened before, and if necessary, we will do so again." Earlier in April, the Reserve Bank of India (RBI) also warned commercial banks about the risks associated with loans to telecom companies.

Bharti Airtel, which is facing a substantial strategic challenge by Jio, has responded significantly by stepped-up capital expenditure (CapEx) in the June 2017 quarter to Rs 50,720.9 million, primarily to enhance its data capabilities to fight competition. This CapEx investment and a decline in operating profit have resulted in a cash-burn of Rs 6448 million for the quarter compared to a positive cash flow of Rs 32,160.5 million in the corresponding quarter last year. Additionally, to counter Reliance Jio's disruptive offers, Bharti Airtel has also come up with Rs 144 recharge plan for its prepaid customers. Under the new plan, Airtel is offering 2 GB high-speed 4G data and unlimited free voice call for 28 days besides providing unlimited local and STD calls plus 28 GB data (1GB/day) for 28 days under its Rs. 349 recharge plan. These offers can be Airtel's desperate effort to restrict its customers from switching to Jio. As consumers have become the ultimate beneficiaries of this pricing war in the telecom industry, analysts argue that this competitive environment is likely to persist in the future too. Customer is taking benefit of the Government's MNP (Mobile Number Portability) Scheme, making them retain their mobile numbers and switch between the operators freely. Capitalizing on the scheme, Jio is likely to maintain aggressive pricing to gain market share by porting-in as many subscribers from rivals. The competition for adding more subscribers will make rationalization and consolidation difficult in near future and rivalry may continue for longer than expected. Some analysts believe that present turmoil will be an existential threat for many small telecom players and end up with just a few survivors.

Figure-1: Finance (September 2019), Telecom Revenues: Performance of various service segments during April-June 2019, https://tele.net.in/telecom-revenues-performance-of-various-service-segments-during-april-june-2019/accessed-on-1-January-2020





The price disruption of Reliance Jio that challenged the brand loyalty narrative provides an opportunity to structure the issues in the form of a case that would be of a great learning experience in Strategic Management. Jio's revenues also grew substantially by first quarter end of the financial year 2019.

Indian Telecommunication sector

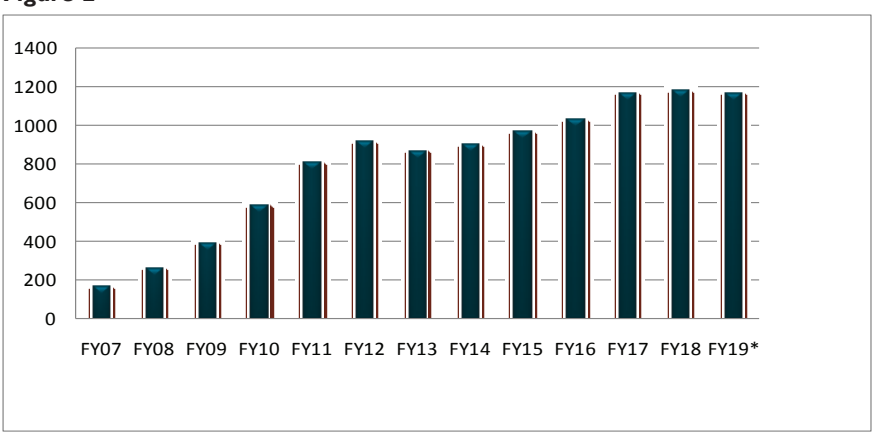
India is the second-largest telecommunications market in the world in terms of voice and internet subscriptions. It is a propitious market for telecommunication services because of robust demand, increasing ratings; attractive opportunities like the introduction of Digital India programme and policy support (IBEF Report, 2019).

The Indian telecom market can be divided into three sections:

- Mobile or wireless: "It consists of the establishments that perform and maintain the swapping and transmission of facilities to provide direct communication through airwaves" (IBEF Report, 2019).
- Fixed-line or wire-line: "It comprises of institutions that operate and maintain the switching and transmission of facilities to administer communications through landlines, microwave or amalgamation of landlines and satellite links" (IBEF Report, 2019).
- Internet services: "It includes ISPs (Internet Service Providers) that offer broadband internet connections via consumer and corporate mediums" (IBEF Report, 2019).

The Indian telecommunication sector has witnessed robust growth over the years. According to the IBEF (Indian Brand Equity Foundation) report of 2019, "At the end of October 2018, wireless subscriptions stood at 1,170.02 million while wireless teledensity reached 89.48 per cent".

Figure-2



Source: Telecom Regulatory of India (as cited in IBEF 2019 report)

The seven players in the industry as on December 31, 2018, are: Vodafone Idea, Bharti Airtel, Reliance Jio, BSNL, Tata, MTNL, Reliance Communication (TRAI, 2019).

Table-1

S. No.	Service Provider	Market Share
1.	Vodafone Idea	35.61%
2.	Bharti Airtel	28.83%
3.	Reliance Jio	23.82%
4.	BSNL	9.73%
5.	Tata	1.62%
6.	MTNL	0.30%
7.	Reliance	0.002%

Sources: Telecom Regulatory Authority of India, 2019, Market share of top seven mobile operators in India

According to the Telecom Regulatory Authority of India report of 2019, Reliance Jio has added a maximum number of subscribers to its existing market share followed by BSNL.

Reliance Jio Infocomm

Reliance Jio Infocomm (RJio) commercially launched its services in September 2016. The company attempted to provide voice and data services using 4G telecommunication technology ("Reliance Jio 4G Launch", 2016). According to (Khanna and Pathak 2016), "Reliance Jio is said to be the biggest start-up in the world. With an investment of 15,00,000 million, the new entrant comes with substantial financial clout". As of October 2018, Reliance Jio crossed a mark of 252.3 million subscribers ("Reliance Jio has over", 2018). Mukesh Ambani, the founder of Reliance Jio, stated that Reliance Jio would end the voice calling tariffs and provide data for Rs 50 per GB of data with the advent of digital revolution wave across the world (Guha and Sriram, 2016). Reliance Jio entered the market with its disruptive pricing strategy to gain its customer base. It entered the market with its Welcome Offer' offering unlimited voice calls to all its subscribers and reduced data tariffs. Following the 'Welcome Offer', many provide various other offers that the company provided and kept adding customers to its subscriber base. Within a month of Reliance Jio's launch, the competitors started reacting strongly by reducing their tariffs to match its pricing strategy. The price war between telecom operators forced smaller operators to exit and even big ones to take the merger route to survive (Bhatia and Palepo, 2016)

Table-2

Particulars	Amount/per cent
Total revenue	Rs 92400 million
Quarter on quarter growth in Q2 fiscal 2018-2019	13.9 per cent
Net profit	6810 million
Total number of subscribers as on September 30 2018	252.3 million
Gross addition of subscribers	41.7 million
The net addition of subscribers during Q2	37 million
Churn	4.7 million
Churn rate	0.66 per cent per month
ARPU	INR 131.7
Total wireless data traffic during the quarter	7710 million GB
Average data consumption per user per month	11GB
Total voice traffic during the quarter	533790million minutes
Average voice consumption per user per month	761 minutes
Video consumption	4100 million hours per month
Average video consumption per subscriber per month	17.5 hours

Source: www.telecomlead.com (October 17, 2018), illustration of key parameters of Reliance Jio in the second quarter fiscal 2018-2019

Case Dilemma

The boom or decline of a company is affected by customer perception conspicuously. The customer's perceptions get shaped by an array of factors such as price, quality, promotion, and reputation of the service provider. Due to the growing competition in the telecommunication industry, customers have become more demanding and challenging as customers value their money. Therefore, understanding customer perception is a decisive factor for the corporate-success as it helps companies know where they stand and how to improve their services. India is presently the second-largest telecommunications market in the world. The flexible policies by the Indian Government have been conducive, in conjunction with strong consumer demand. An impartial and ardent regulatory framework has provided telecom services at affordable prices to the consumers. The non-interference of Foreign Direct Investment regulations has made the telecommunication sector one of India's leading employment-generating sectors. Since the launch of Reliance Jio, competition is taking its toll on the industry. The industrial revenue is declining drastically, and analysts attribute the drastic decline in Reliance Jio's aggressive pricing strategies.

Reliance Jio has affected the telecommunication industry's equilibrium by adopting a disruptive pricing strategy and expanding its customer base

at other telecom operators' cost. Because of the disruption, Jio caused in the telecommunication sector, the researchers have started showing interest in understanding its effects on the industry. After Reliance, Jio started hiking its tariffs; it saw a marginal fall in its average revenue per user. Due to its price action, Reliance Jio is no longer in the safe-zone from the competition. On the other hand, competitors are reacting strongly to the disruptive marketing strategy of Jio by slashing their prices and forging mergers and acquisition. Since the switching costs in mobile telephony are meager, it becomes essential for the company to centre its attention on the factors that could help retain its customers. The existing competitors try to match Reliance Jio's pricing strategy tariff by tariff (Navadha Pandey**,** 2018). Therefore, to survive, the company needs to know the difference in customer perception related to various factors from pre to post-offer period and centre its attention on the factors that are negatively perceived. From Airtel's point of view in formulating strategies that could minimize the adverse impact of Jio's, is the key to survival and success.

Discussion points

- Using Porter's five forces model, analyze the Indian telecommunications industry.
- Discuss the way ahead for Airtel to stay relevant in the industry.
- How would scenario planning help Airtel in wading of the future threats from competitors?

References

Bhatia, J. and Palepu, A.R. (2016). Reliance Jio, Economic & Political Weekly, 51 (41), 33.

IBEF Report, (2019), https://www.ibef.org/uploads/IBEF_Annual_Report_2019-20.pdf, accessed-on-15-12-2020

Khanna, Sundeep and Pathak Kalpana (2016): "Reliance Jio Sends a Message to Rivals: It's War," September 2, LiveMint

Navadha Pandey (2018), Telecom firms free to match Reliance Jio's cheap tariffs, rules TRAI, https://www.livemint.com/Industry/O00tAdsmeBgcObcQSE42uO/Telecom-firms-free-to-match-Reliance-Jios-cheap-tariffs-ru.html- accessed-on-15-12-2020

Romit Guha and R Sriram (2016), I see sustainability for at least 4-5 operators in this market, https://economictimes.indiatimes.com/opinion/interviews/i-see-sustainability-for-at-least-4-5-operators-in-this-market-mukesh-ambani/articleshow/54159803.cms-accessed-on-17-04-2020

TRAI (2019), https://www.trai.gov.in/sites/default/files/PR_No.45of2019_0.pdf-accessed-on-05-11-2020

Teaching Note

Competition to Monopoly: A case of Indian telecom sector

Case Synopsis

India is one of the largest markets in the world with over 140 billion population. The telecommunication industry has always been the centre of attraction for mighty corporates. This case attempts to acquaint the students with a real-life experience of how strategies deliver and flop in the corporate world. This case would also put students in the shoes of Airtel and allow them to come up with an approach supported by rationality and data, for coping with the challenges posed by Jio.

The discussion questions invite students to consider some strategic challenges often faced by CEOs. Students are encouraged to demonstrate their practical and theoretical knowledge by addressing genuine challenges across a typically broad strategic management spectrum, including pricing, branding, value and sustainability.

This case was written following extensive literature review. The authors also had thorough interactions with the customers. The case is targeted at postgraduate and undergraduate management students taking a strategic management or marketing management course.

Learning Objectives

- Understanding the challenges faced by an established company in safeguarding its market share and leadership position in the face of growing competition.
- Understanding predatory pricing models and challenges and opportunities for companies in adopting these business models
- Understanding the challenges and complexities of aggressive strategies
- Enable discussions on the potential opportunity that the bottom of the pyramid (BOP) offers in the telecom sector and strategies to exploit those opportunities
- Understanding the complexities of related and unrelated diversification as a source of survival in hyper-competitive market conditions.

Teaching Plan

Suggested readings before the case discussion:

1. Chapter 4: Product and Price Planning, Ken Kaiser (2012) Advertising and Sales Promotion, South-Western Cengage Learning
2. Chapter 8: Strategic Options, Philip Sadler (2003), Strategic Management, Kogan Page

3. Aaker, David A. and Shansby, J. Gary (1982), Positioning Your Product, Business Horizons, May/June, 25 (3), 56- 62.

A class of 60-90 minutes could be structured as follows:

10-15 minutes case introduction (telecom industry background, sources of competitive advantage in telecommunications, pricing the telecom services, and Mobile Number Portability).

Discuss the Dilemma. Reveal the product line, pricing designs later in the discussion.

5 minutes plenary questions and discussion

Five minutes for identifying groups and assigning a question to each group. Each group to select a presenter as the first action (strictly <5 minutes presenting)

20-30 minutes facilitated group discussion – broken up into five groups (one per question)

20-30 minutes of group presentations and invite more exhaustive group comments and ideas. The instructor must facilitate and steer the case towards a logical discussion while capitalizing on key arguments that would come up during the debate, with minimal interference.

Each argument should be weighed on its originality, relevance, background information support and scope for implementation. Any vague suggestions can be developed into concrete and meaningful ones by supplying the student with additional inputs and information. The instructor's role here would be to increase the discussion's benchmark by striking a balance among the groups without being partisan.

Discussion Points

Using Porter's five forces model, analyze the Indian telecommunications industry

Discuss the way ahead for Airtel to stay relevant in the industry

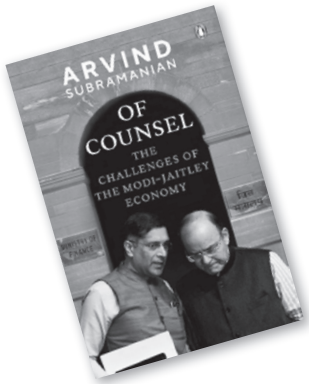
Customers' perception of Reliance Jio may change over time as the company has moved from predatory pricing to pricing for profits. Airtel needs to hold its cards tight towards its chest and make very calculated moves to regain its market share. It is said that 'No Strategy is the Best Strategy' in times of uncertainty. Airtel can improve and incorporate the factors that matter to the customers, such as speed, robust connectivity, and customer support.

Perception of customers regarding service cost from pre to the post-offer period in Jio may not be the same. In the case of the free offer period, *service cost* may have played an essential role as a factor that influenced the customers' decision to purchase a Reliance Jio connection because the services were free. The competitors offered the same services at much higher prices. As Jio started hiking its prices in the post-free offer period, the competitors began slashing down their tariffs to match Reliance Jio's pricing strategy. The lower importance of service cost as a factor influences customers' decision to purchase a Jio connection.

Another essential component that Airtel needs to carefully watch-out could be, plunging data plans and almost free voice services at the time of its launch. Reliance Jio allied with handset-makers to get more consumers to use smartphones and data. It opened a new front in the subscription battle by offering cash-backs and discounts through tie-ups with digital wallets. Over time, the competitors started offering similar plans like launching online portals for sale of handsets, cash-backs through post-paid plans, etc. The phase of uncertainty is now slowly transferring into the stage of consolidation.

The critical factor of Reliance Jio's surprising success was its pricing strategy. Because the switching cost is low in mobile telephony, customers found it effortless to purchase a Jio connection and avail its free offers. After the company started hiking its tariffs and due to the competitors' activity, customers' perception has changed over some time. Jio's hiking tariffs could be an opportunity for Airtel to try some aggressive pricing strategies to port-in the lost customers.

Journal of International Economics
ISSN 0976-0792 Volume 16 No 1, January-June 2025 pp: 98-100



BOOK REVIEW

Of Counsel: The Challenges of the Modi-Jaitley Economy

Arvind Subramanian

ISBN978-981-32-9060-0 Published 2019
Springer Nature Singapore Pvt
Number of Pages 328 Rs:7,358.

Book Reviewed by
Sri Lalit Rani
PGDM, II year,
Institute of Public Enterprise
lalitrani116@gmail.com.

Arvind Subramanian's "Of Counsel: The Challenges of the Modi-Jaitley Economy" is a compelling examination of India's economic landscape during a transformative period from 2014 to 2018. As the Chief Economic Adviser (CEA) to the Government of India, Subramanian offers insights into significant policy decisions and their implications, making this book a blend of memoir and analytical discourse. Throughout the book, Subramanian balances his role as an insider with his analytical perspective as an economist, providing insights into the complexities of economic policymaking in the world's fastest-growing major economy. This book is structured around eight key themes, addressing critical issues.

Regarding his role as Chief Economic Adviser, Subramanian notes:

"The Chief Economic Adviser has no clear job description."

This observation highlights the ambiguity and complexity of his position, which required him to navigate various economic and political challenges, emphasizing the ambiguity and complexity of his role amid shifting political priorities.

Demonetization: Subramanian discusses the controversial decision to demonetize high-value currency notes, which he views as a "massive, draconian economic shock." He reflects on the political motivations behind it and its lasting impact on the economy, suggesting that while it was popular among some sectors, its economic repercussions were profound

and far-reaching. Subramanian recounts his experience during the dramatic announcement of demonetization on November 8, 2016. He describes watching the Prime Minister's speech from his office in North Block, where he was struck by the suddenness and magnitude of the decision to invalidate ₹500 and ₹1,000 notes. He reflects on the unprecedented nature of this move, stating:

"Demonetization was a massive, draconian, monetary shock."

"It was an unprecedented move that no country in recent history had made in normal times."

This moment encapsulates the tension between bold policy initiatives and their unpredictable consequences, highlighting the immediate chaos that had arisen in the economy.

Goods and Services Tax (GST): He provides a detailed account of the GST's implementation, emphasizing its significance as a milestone in cooperative federalism despite its imperfections. Subramanian argues that the GST has the potential to reshape India's economy positively, although it requires further refinement. Subramanian shares anecdotes about the bureaucratic hurdles he faced while advocating for significant reforms, such as the Goods and Services Tax (GST). He emphasizes the need for continuous stakeholder engagement and communication to ensure successful implementation. He quotes:

"Policies often need to be reformulated and fine-tuned in response to evolving economic conditions."

This illustrates the challenges of balancing rigorous economic analysis with political feasibility in a complex governance structure.

Twin Balance Sheet Problem: The author delves into the challenges posed by stressed assets in banks and corporations, articulating the need for systemic reforms to address these issues effectively. While the book does not include verbatim policy documents, it contextualizes this challenge through Subramanian's frontline experiences and retrospective analysis. Below are key examples illustrating his treatment of the TBS issue. Subramanian traces the TBS problem to the **mid-2000s credit boom**, when public sector banks (PSBs) aggressively lent to infrastructure companies during India's high-growth phase. However, delays in project clearances and rising financing costs left corporations over-leveraged and banks saddled with non-performing assets (NPAs). As he notes in his **Economic Survey** (cited in the book):

"The economy was caught in a vicious cycle: stressed companies couldn't invest, and stressed banks couldn't lend, leading to a prolonged growth slowdown."

The book explains how the TBS problem "clogged" India's economy by stifling credit flow. Overleveraged infrastructure firms became unable to service debt, freezing new investments. For example, companies like

Jaypee Infratech and Lanco Infratech defaulted on loans worth thousands of crores, exacerbating bank NPAs.

Subramanian critiques the slow resolution of the TBS problem and advocates forRecapitalization by Infusing ₹2.11 lakh crore into PSBs (2017) to restore lending capacity.Insolvency and Bankruptcy Code (IBC) for streamlining debt resolution but acknowledging implementation delays. Asset Quality Review for Identifying hidden NPAs to prevent systemic risks.

"The TBS challenge demanded bold, coordinated action. Half-measures only prolonged the pain."

Of Counsel frames the TBS problem as a cautionary tale of India's credit-driven growth model, underscoring the need for proactive regulatory oversight and institutional accountability. Subramanian's analysis remains pivotal to understanding India's economic slowdown and recovery strategies.

Agricultural Policy: Subramanian critiques existing agricultural policies that prioritize cereals over other crops. He proposes innovative solutions to enhance productivity and sustainability in agriculture, linking these changes to broader environmental goals.

Climate Change and Energy Policy: The book also addresses climate change, advocating for a balanced approach to development that considers environmental sustainability alongside economic growth. Subramanian argues for strategic energy policies that align with India's developmental needs.

The book also addresses the issue of the Reserve Bank of India's (RBI) balance sheet, a topic that sparked considerable debate. Subramanian presents a hypothetical scenario to illustrate the tensions between the RBI and the government:

"I have a dream. Perhaps it is a nightmare. There is a public event and on one side of the stage are lined up Messrs Bimal Jalan, C. Rangarajan, Y.V. Reddy, D. Subbarao, Rakesh Mohan, Raghuram Rajan, Urjit Patel and Viral Acharya. I am alone on the other side."

This vivid description captures the intense discussions and disagreements surrounding economic policy decisions during his tenure.

Subramanian's book is not just a memoir but also an analytical work that examines India's economic potential and challenges. The book helps the readers to have a deep dive into the Indian economy and the process of policymaking and the challenges faced therein. It is a must-read for anyone who wants to dive deep into the policy-making process, and this book grips the readers from beginning to end, making readers wish the book had never ended for its sheer number of insights that can be derived from it.

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The publication of Journal of International Economics is supported by the grant received from Indian Council of Social Science Research (ICSSR), Ministry of Education, Government of India, New Delhi.

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