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University of Murcia, Spain.

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ABOUT THE EDITOR



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She is an Associate Professor at the University of Murcia, Spain. She participates as a member of the European Accounting Association, the Comparative International Governmental Accounting Research Network and the Spanish Association of University Professors of Accounting. Her research interests focused on transparency and public sector accounting and management. She has published papers in journals such as *Government Information Quarterly*, *Cities*, *Local Government Studies*, *Regional Studies*, *Public Management Review*, *International Review of Administrative Sciences and Accounting*, *Auditing & Accountability Journals*.

PREFACE

This book covers key areas of business, management and economics. The contributions by the authors include banking channel, ISM methodology, hierarchical inter-relationships, banking service optimization, loan management, exchange traded funds, bank loan optimization, portfolio optimization, Archimedean goal programming, broad-based black economic empowerment, preferential procurement policy framework act, fundamental human right, social justice, exchange rate volatility, garch models, volatility clustering, domestic economy, currency behaviour, customer repeated purchase, consumer satisfaction, word-of-mouth, agriculture credit, regional rural banks, small-scale operators, lockdown, public relations, entrepreneurship, corporate social responsibility, covid-19 control, green HRM practices, organizational citizenship behavior towards environment, green recruitment, green training, generation z, changing workplace landscape, flexible work schedules, collaborative leadership, work-life balance, inflation, GDP deflator, high value agriculture product, price trend analysis, barriers faced by tea and coffee industry, trade restrictions, political factors, interpretive structural modeling, green finance, credit risk, debt capital markets, sustainable finance. This book contains various materials suitable for students, researchers, and academicians in the field business, management and economics.

Assessment of Exchange Rate Volatility Using Garch Models: A Case Study from Indian Markets

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Vara Lakshmi Thavva ^{a++} and Nunna Suresh ^{a#}

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ABSTRACT

The present study focuses on the time series behaviour of select currencies using GARCH Models. Exchange rate volatility is a useful measure of uncertainty about the economic environment of a country. Various forms of statistical models have been evolved to capture the volatility effect. These models are often applied to estimate the degree of exchange rate instability. Monthly returns of currency prices exhibit aggressiveness and a high degree of interdependence. In particular, generalized autoregressive conditional heteroscedastic GARCH (1, 1) processes fit to data very satisfactorily. A number of statistically compared out-of-sample estimates of monthly return variances are produced. It is discovered that GARCH model-based forecasts are preferable. This model is predicated on the basic assumptions of linearity and dependency. This paper aims to model the volatility of INR exchange rates against USD for the period from January 2000 to 5 January 2023 using the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) models. Both symmetric and asymmetric models have been applied to measure factors that are related to the exchange rate returns such as leverage effect and volatility clustering. Based on the results, the static forecast of GJR-GARCH (1, 1) is the best model for predicting the future pattern for both INR and USD. The sustainability and relative value of a currency fluctuate due to several factors such as changes in demand & supply of goods & services, changes in the cost of the economy, rise & cut of interest rates, fiscal policy, govt.'s anti-inflationary measures, and inflation.

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Keywords: Exchange rates; aggressiveness; interdependency; linearity, leverage effect; volatility clustering.

1. INTRODUCTION

Exchange rate volatility is a critical determinant of economic stability and growth, influencing various stakeholders such as policymakers, investors, businesses, and the general public. Understanding exchange rate volatility in Indian markets is crucial due to its implications for economic stability, trade competitiveness, and investment decisions. This knowledge assists policymakers in formulating effective monetary and fiscal policies that foster economic growth while mitigating risks associated with currency fluctuations. Moreover, in today's interconnected global economy, fluctuations in exchange rates in India can have far-reaching effects across international markets. Researchers and policymakers worldwide are keen on comprehending the drivers of exchange rate volatility in emerging economies like India, as these factors can impact global trade flows, financial market stability, and cross-border investment decisions [1,2]. For the last few days, we have been heeding that the Indian Rupee (INR) is depreciating heavily hitting an all-time low of 82 to the US dollar. The depreciating rupee influences the domestic economy as well as the stock market. For a common man, the domestic currency is a standard medium of money to exchange goods & services, but the exact definition is indefinable due to the fluctuation in the value of the currency [3-7,7a].

Investors need accurate forecasts about future values of exchange rates. For this, exchange rate volatility is a useful measure of uncertainty about the economic environment of a country. This study analyses univariate, nonlinear time series to the daily (INR/USD) exchange rate data from January 1, 2000, to January 5, 2023, to examine the behavior of exchange rate in India. ARCH and GARCH models are used to detect the symmetry effect in exchange rate data [7a,8-11]. Also, the paper employs the exponential GARCH (EGARCH) model to capture the asymmetry in volatility clustering and to identify the leverage effect in exchange rates. The study discloses that the exchange rate series exhibits empirical regularities such as clustering volatility, non-stationarity, non-normality and serial correlation that justify the application of the ARCH methodology [7a,12-16]. This paper reveals the results of the exchange rate behaviour influenced by previous historical exchange rates [17,18]. This also implies that the previous day's volatility in the exchange rate can affect the current volatility of the exchange rate. In addition, the estimate for asymmetric volatility suggests that positive shocks imply a higher next-period conditional variance than negative shocks of the same sign [7a]. The main purpose of the study is to create awareness about how exchange rate volatility may have an impact on transaction costs and international trade. It reveals how exchange rate volatility (exchange-rate risk) may increase transaction costs and reduce the gains to international trade, exchange rate volatility estimation and forecasting are important for asset pricing and risk management [7a].

1.1 Purpose

US Dollars is considered the benchmark for global transactions and therefore it has a direct impact on the strength of the Indian Rupee. India being the US' ninth largest goods trading partner, the two countries enjoy strong collaborations in

precious metals and stone, mineral fuels and pharmaceuticals which makes the USD/INR pair an exciting one for traders looking to earn profit for long term and also for short term opportunities [7a]. To capture the symmetry/asymmetry effect in exchange rate data, the paper applies both ARCH and GARCH models. Prediction of exchange rate behaviour done by past historical exchange rates. Various forms of statistical models have been evolved to capture the volatility effect. These models are often applied to estimate the degree of exchange rate instability [7a].

1.2 Objectives

1. To examine the interdependency and linearity of select currency exchange rates
2. To assess the trend patterns of time series of select currency behaviour
3. To measure the characteristics of exchange volatility
4. To identify the reasons for INR depreciation

2. METHODOLOGY

The present study is based on empirical shreds of evidence of select currencies. This study aims to determine the US Dollar against the IND Rupee exchange rate behaviour pattern using GARCH models and to make a comparison between them. USD and INR have been chosen as the two currencies, which are widely used, and trusted currencies in the business world and both are among the world's currencies that are accepted for most international transactions [7a]. For that purpose, the paper applies to part of the GARCH family models using daily observations quoted from EXINUS from January 2000 until January 2023. So, the research hypothesis is that USD versus INR exchange rate volatilities can be determined using GARCH models. The volatility models applied are ARCH, GARCH, Weighted ARCH LM Tests, Weighted Ljung-Box Test, Sign Bias Test and PGARCH. In the end, the paper tests the best model for future forecasting of time series volatility [7a].

3. REVIEW OF LITERATURE

According to the latest reviews, many factors influence stock market volatility. The unprecedented economic impact of the current pandemic and the high speed with which the crisis is evolving introduce uncertainty into models that assess the disastrous effects of the virus spread (Baker et al. 2020c).

Caggiano et al. (2020) have predicted a huge decrease in the world output due to the Covid-induced uncertainty shock. Baker et al. (2020b) are the first to quantify this Covid-induced economic uncertainty by combining three sources: stock market volatility, newspaper-based and business expectations survey-based uncertainties. Baker et al. (2020a) have investigated the disease's detrimental impact on stock markets and demonstrate that the Covid-19 stock market effects have been by far more powerful than those of previous diseases (e.g. Spanish flu) due to the current pandemic's severity, the more rapid diffusion of pandemic news, and the tighter macro-financial cross-border interconnectedness in the current

globalization era. Turning to the pandemic shock on stock market volatility, Wang et al. (2020) have applied the HAR-RV (Heterogeneous Autoregressive-Realized Variance) model to predict daily stock market volatility during the Covid outbreak period. They extended the HAR equation with two alternative daily US uncertainty proxies: (i) the VIX index, which is the implied volatility metric of the S&P500 used as a financial uncertainty source, and (ii) the US Economic Policy Uncertainty. Their forecasting exercise for nineteen equity indices indicates which uncertainty proxy produces more accurate forecasts for each market during the current crisis. Wang et al. (2020) investigated the US uncertainty spillovers on financial volatility across the different markets globally while the present paper focuses on the US uncertainty spillover effect alongside other US and global macro-factors on emerging stock market volatilities applying the sophisticated HEAVY framework for both returns and realized dispersion measures. Our macro-augmented specification with daily macro-proxies driving the volatility pattern during the last two decades with the 2008 turmoil and the pandemic period included, also advances the volatility modeling research which does not consider significant macro-determinants of the volatility process in the high-frequency domain.

The current pandemic has already ignited a new and probably deeper global socio-economic crisis with massive fiscal and monetary stimulus provided by governments, far larger than the response to the 2008 crisis (Snower 2020). Market turbulence is already observed through markedly increased volatilities close to the peak reached during the 2008 global crisis. Markets are seriously affected by the generalized fear of controversial economic policies to support societies and the financial system, especially in the case of the heavily criticized US government’s delayed and deficient response. Given an unprecedented and challenging threat, namely the rapidly contagious virus across the whole universe, economic agents feel uncertainty about future government policy choices, their implementation, and their potential impact, as well. Even if governments reassure them that the harmful effects of COVID-19 are manageable, skepticism, criticism, and loss of confidence are still there and captured by soaring uncertainty index levels.

4. RESULT ANALYSIS

```

* ----- *
*   SGARCH Model Fit   *
* ----- *

```

Conditional Variance Dynamics

GARCH Model : sGARCH(1,1)
Mean Model : ARFIMA(1,0,0) Distribution : std

Optimal Parameters

Estimate	Std. Error	t value	Pr(> t)	mu	0.000105	0.000933	0.11234
0.910551	ar1	0.298889	0.060222				
4.96312	0.000001	omega	0.000004	0.000007	0.50607		
0.612809	alpha1	0.133723	0.046708	2.86294	0.004197		
beta1	0.865277	0.055027	15.72457	0.000000	shape		
4.030127	0.899651	4.47966	0.000007				

Log Likelihood: 809.1403 Information Criteria

Akaike	-5.7367
Bayes	-5.6588
Shibata	-5.7376
Hannan-Quinn	-5.7055

Weighted Ljung-Box Test on Standardized Residuals

statistic	p-value	Lag[1]	0.05707	0.8112
Lag[2*(p+q)+(p+q)-1][2]	0.12462	0.9998		
Lag[4*(p+q)+(p+q)-1][5]	0.81975	0.9701	d.o.f=1	

H0 : No serial correlation

Weighted Ljung-Box Test on Standardized Squared Residuals

statistic	p-value	Lag[1]	0.6597	0.4167
Lag[2*(p+q)+(p+q)-1][5]	2.8499	0.4351		
Lag[4*(p+q)+(p+q)-1][9]	4.3203	0.5354		

d.o.f=2

Weighted ARCH LM Tests

Statistic	Shape	Scale	P-Value	
ARCH Lag[3]	1.682	0.500	2.000	0.1947
ARCH Lag[5]	2.898	1.440	1.667	0.3049
ARCH Lag[7]	3.203	2.315	1.543	0.4760

Nyblom stability test

Joint Statistic: 4.4558 Individual Statistics:

mu	0.3534	ar1	0.6063
omega	0.7169	alpha1	0.1626
beta1	0.2775	shape	0.8328

Asymptotic Critical Values (10% 5% 1%)

Joint Statistic: 1.49 1.68 2.12
 Individual Statistic: 0.35 0.47 0.75

Sign Bias Test

----- t-value
 prob sig

Sign Bias 0.07721 0.9385
 Negative Sign Bias 0.33749 0.7360
 Positive Sign Bias 0.27938 0.7802
 Joint Effect 0.51279 0.9161

Adjusted Pearson Goodness-of-Fit Test: -----
 -----group statistic p-

value(g-1)	1	20	16.14	0.6477
2	30	32.86	0.2835	
3	40	40.00	0.4256	
4	50	45.71	0.6071	

Elapsed time: 1.07667

 * EGARCH Model Fit *

Conditional Variance Dynamics

 GARCH Model : eGARCH(1,1)
 Mean Model : ARFIMA(1,0,0) Distribution : std

Weighted Ljung-Box Test on Standardized Squared Residuals

 statistic p-value Lag[1] 0.6597 0.4167
 Lag[2*(p+q)+(p+q)-1][5] 2.8499 0.4351
 Lag[4*(p+q)+(p+q)-1][9] 4.3203 0.5354
 d.o.f=2

Weighted ARCH LM Tests

 Statistic Shape Scale P-Value
 ARCH Lag[3] 1.682 0.500 2.000 0.1947
 ARCH Lag[5] 2.898 1.440 1.667 0.3049
 ARCH Lag[7] 3.203 2.315 1.543 0.4760

Nyblom stability test

 Joint Statistic: 4.4558 Individual Statistics:

mu 0.3534 ar1 0.6063
 omega 0.7169 alpha1 0.1626
 beta1 0.2775 shape 0.8328

Asymptotic Critical Values (10% 5% 1%)
 Joint Statistic: 1.49 1.68 2.12
 Individual Statistic: 0.35 0.47 0.75

Sign Bias Test
 ----- t-value
 prob sig

Sign Bias 0.07721 0.9385
 Negative Sign Bias 0.33749 0.7360
 Positive Sign Bias 0.27938 0.7802
 Joint Effect 0.51279 0.9161

Adjusted Pearson Goodness-of-Fit Test: -----

group	statistic	p-
value(g-1)	1 20	16.14 0.6477
2	30	32.86 0.2835
3	40	40.00 0.4256
4	50	45.71 0.6071

Elapsed time: 1.07667

* ----- *
 * EGARCH Model Fit *
 * ----- *

Conditional Variance Dynamics

 GARCH Model : eGARCH(1,1)
 Mean Model : ARFIMA(1,0,0) Distribution : std
 Optimal Parameters

Estimate Std. Error t

value Pr(>|t|) mu -0.000463 0.000981 -0.47167
 0.637161 ar1 0.320482 0.057222 5.60073 0.000000
 omega 0.017630 0.006893 2.55783 0.010533 alpha1 -
 0.109573 0.070517 -1.55384 0.120222 beta1 1.000000
 0.001277 783.18049 0.000000 gamma1 0.265883
 0.059568 4.46353 0.000008 shape 2.932058 0.839907
 3.49093 0.000481

Robust Standard Errors:

```

Estimate Std. Error t value Pr(>|t|) mu      -0.000463 0.002001 -0.23137
0.817026 ar1      0.320482    0.078843
4.06483 0.000048 omega 0.017630    0.019883 0.88669
0.375244 alpha 1 -0.109573    0.117235 -0.93464 0.349973
beta1 1.000000    0.001761 567.91980 0.000000 gamma1
0.265883    0.081818 3.24970 0.001155 shape 2.932058
1.249533 2.34652 0.018950
LogLikelihood : 811.7415 Information Criteria

```

```

-----
Akaike      -5.7482
Bayes      -5.6573
Shibata    -5.7494
Hannan-Quinn -5.7117

```

```

Weighted Ljung-Box Test on Standardized Residuals -----
-----statistic p-value Lag[1] 0.08744 0.7675
Lag[2*(p+q)+(p+q)-1][2] 0.25162 0.9971
Lag[4*(p+q)+(p+q)-1][5] 0.89711 0.9610 d.o.f=1
H0 : No serial correlation

```

Weighted Ljung-Box Test on Standardized Squared Residuals

```

-----
statistic p-value Lag[1]      3.903 0.04819
Lag[2*(p+q)+(p+q)-1][5]    5.915 0.09416
Lag[4*(p+q)+(p+q)-1][9]    7.775 0.14249 d.o.f=2

```

Weighted ARCH LM Tests

```

-----
Statistic Shape Scale P-Value
ARCH Lag[3]    2.236 0.500 2.000    0.1349
ARCH Lag[5]    3.371 1.440 1.667    0.2404
ARCH Lag[7]    3.871 2.315 1.543    0.3656

```

Nyblom stability test

```

-----
Joint Statistic: 2.7808 Individual Statistics: mu      0.3750 ar1
0.4591 omega
0.1080 alpha1
0.6863 beta1 0.1274
gamma1 0.1453
shape 0.3505

```

```

Asymptotic Critical Values (10% 5% 1%) Joint
Statistic: 1.69 1.9 2.35 Individual Statistic: 0.35

```

0.47 0.75

Sign Bias Test

```
-----
prob sig Sign Bias  0.09653 0.9232
Negative Sign Bias 0.14077 0.8882
Positive Sign Bias 0.14498 0.8848
Joint Effect      0.06069 0.9961
t- value
```

```
Adjusted Pearson Goodness-of-Fit Test: -----
-----group statistic  p-
value(g-1)  1   20   20.86   0.3447
2    30   32.21   0.3105
3    40   31.43   0.8004
4    50   47.86   0.5195
Elapsed time: 1.34223
```

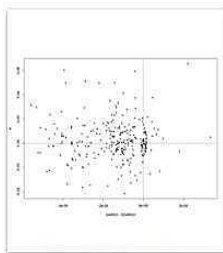
Interpretation [7a]:

1. The table of the estimated optimal parameters shows the significance of the estimated parameters. It shows that the constant parameter ω_1 (parameter w_1 in the model setting tends to be non-significant, meaning that the constant parameter seems to be not useful in this model setting.
2. The information criteria display the Akaike (AIC), Bayes (BIC), Hannan-Quinn and Shi bata criteria for the model estimation. The lower these values, the better the model is in terms of fitting.
3. The next table presents the Ljung-Box test for testing the serial correlation of the error terms. The null hypothesis is that there is no serial correlation of the error terms. The decision rule is simple. Basically, if the p-value is lower than 5%, the null hypothesis is rejected. As we can see that the p-value is higher than 5%, meaning that there is not enough evidence to reject the null hypothesis. Then there is no serial correlation of the error term.
4. Adjusted Pearson Goodness of Fit, concerning the goodness of fit of the error. Indeed, it is useful to check if the error term follows the normal distribution. The null hypothesis is that the conditional error term follows a normal distribution. If the p-value is lower than 5%, the null hypothesis is rejected. As we can see, the normal distribution is by far rejected (as the p-value is close to zero).
5. The Weighted ARCH LM test shows that the ARCH model is globally significant as its global p-value is close to zero.
6. For the goodness of fit of the residual to the considered skewed student distribution, we can see that the p-value is greater than 5%, meaning that there is not enough evidence to reject the fact that the residuals fit well that distribution.
7. This setting displays a non-significant drift for the volatility and a non-significant gamma for the GJR-GARCH.

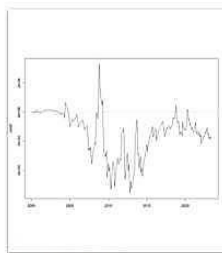
8. The recent INR depreciation has surprised the market leading to 10% depreciation in a year, which is double than the normal rate of 4 to 5 percent annually, raising questions about the strength of the Indian economy.

Inferences [7a]: The analysis of the exchange rate volatility in Indian markets using SGARCH and EGARCH models reveals the following key findings:

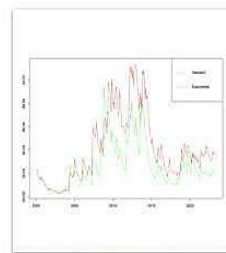
- Both models, SGARCH and EGARCH, provide satisfactory fits to the data, indicating their ability to capture the volatility dynamics of the Indian Rupee (INR) exchange rates against the US Dollar (USD).
- The estimated parameters of the models shed light on the mean, autoregressive terms, omega, alpha1, beta1, gamma1, and shape, which play a crucial role in modeling the volatility.
- Both models show no significant serial correlation in the standardized residuals, suggesting that the models effectively capture the temporal dependence in the volatility patterns.
- While the weighted ARCH LM tests do not indicate significant autoregressive conditional heteroscedasticity, evidence of serial correlation is found in the squared residuals of the EGARCH model at certain lag orders.
- The Nyblom stability tests demonstrate parameter stability in both models, indicating that the estimated parameters remain consistent over time.
- The sign bias tests reveal no systematic bias in the residuals of either model, indicating that the models adequately capture the directional movement of the exchange rates.
- The adjusted Pearson goodness-of-fit tests indicate a reasonably good fit between the models and the data, further supporting the models' effectiveness in modeling the exchange rate volatility.
- Financial linkages in emerging economies also explore the significant effect of two crisis events on equity markets, one financial and one health crisis: the 2008 Global Financial Crisis (GFC) and the COVID-19 pandemic period (COVID).



Plot OF GARCH AND EGARCH



Plot OF VOLDEF



Plot OF COMPARISSION

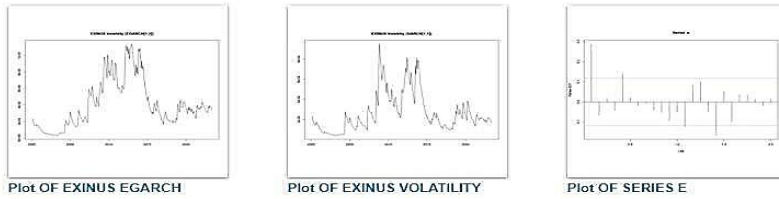


Fig. 1. Graphical representation of volatility

The results of the other plots show the performance of the model similar to the one presented in the table results. The graphs show that the residuals are not that perfectly aligned with the straight line, meaning that the residuals do not follow the normal distribution. This result can also be confirmed by the plot of the residual kernel and the normal distribution [7a].

Table 1. US Dollar Performance

	Current	1 Month	6 Month	1 Year	3 Year	5 Year
USD/INR	81	2	7	10	5	5
USD/JPY	145	4	18	29	10	5
USD/CNY	7	3	12	10	0	1
USD/EUR	1	3	13	19	4	4
USD/GBP	1	6	19	21	4	4

This also means that INR has actually appreciated to other currencies like 10% to Pound, 8% to the Euro, 15% to Yen and 0.4% to Yuan, at the same time. As a result, we should not be concerned about the current volatility because it is due to global economic & geopolitical uncertainties [7a].

Table 2. India Rupee Performance

	Current	1-Month	6 Months	1 year	3 year	5 year
JPY/INR	0.56	-2.00	-10.00	-15.00	-5.00	-1.00
CNY/INR	11.50	0.00	-4.00	-0.40	5.00	3.00
EUR/INR	79.50	0.00	-5.00	-8.00	1.00	1.00
GBP/INR	90.00	-3.00	-10.00	-10.00	1.00	1.00

India is in a safe position and its currency will rebound firmly as this patch of volatility is dispersed.

The ongoing volatility is expected to persist in the short term as the global economy slows in 2022-2023. The same will continue to affect the currency market due to plausible shifts of cross currencies to USD [7a].

Today, the USD is appreciating against the rest of the world currencies despite fundamental weakness in its own domestic economy. This is due to the fact that the US economy consistently remains the biggest and most powerful economy, with

the benefit of serving as the reserve currency for global commerce & investment. Thus, USD is held to be the world's haven currency. A reversal will be triggered when the hazardous factors are well factored into the equity market [7a].

This can happen as early as the end of 2022 or delayed to 2023, depending on the firm improvement in geo-political risk, hyperinflation, and global economic growth.

Why Is USD Becoming Stronger Than INR?

The reasons included [7a]:

1. Global tantrums and domestic factors such as rising inflation.
2. The dollar strengthened amid the Russia-Ukraine conflict, global inflation concerns led to a surge in US Bond Yields, and the result is an appreciating Dollar.
3. Supply chain disruptions and food inflation have added to the above reasons. The Russia-Ukraine war seems to have no solution and there is a slowdown in the world's three largest economies i.e. US, China and Europe. Though the Indian currency looks weaker, there is an expectation that the Indian economy will perform much better in the near future in the second half of the year 2022.
4. In the past few weeks, Corporate Dollar Demand, foreign fund outflows, risk-averse sentiments and broad-based strength in the dollar are the major factors that contributed to pushing the rupee toward the lower side.
5. Also rise in inflation has put high pressure on the Reserve Bank of India to hike interest rates. But in the near future, the spot USD/INR seems to be bullish momentum oscillators and indicators.

5. CONCLUSION

The ongoing global uncertainties have led to a risk-off policy by global investors. This leads to selling by foreign investors, which inherently increases demand for USD and the supply of other currencies, leading to depreciation. The sustainability and relative value of a currency fluctuate due to several factors such as changes in demand and supply of goods-and-services, changes in the cost of the economy, rise-and-cut of interest rates, fiscal policy, govt.'s anti-inflationary measures, and inflation [7a].

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Post-COVID-19 Recovery: Public Relations in Nigerian Tertiary Institutions

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ABSTRACT

The outbreak of the COVID-19 pandemic and the prolonged economic lockdown to limit the spread of the virus have affected all sectors of the economy. The educational sector in particular was badly affected by the pandemic as schools were closed and educational activities seized to move on. It is estimated that at the peak of the pandemic in 2020, about 1.6 billion students in 180 countries (including Nigeria) had been affected by school closures worldwide. In Africa, school closures were implemented as early as February 2020 affecting more than 250 million students, adding to about 100 million out-of-school children before the pandemic. However, the decision to reopen the schools for academic activities to move on has placed a heavy burden on the management process among various school administrators. How Public Relations which is part of the management of every organisation is useful in achieving the desired objective of the process remains very crucial. Anchored on the Stakeholders Theory and Excellence Theory of Public Relations, the data was sourced through relevant existing conceptual, theoretical and empirical secondary data and were analysed using themes and synthesis analytical techniques. The chapter revealed that apart from community relations, media relations, counselling, employee relations, and students' relations among others, the use of Public Relations can go a long way to engage communities in reopening plans; help in targeting resources to where they are most needed; getting children back to school; making school environments safe; and recovering learning loss and building back better, which is a deliberate policy for school reopening and recovery from the COVID-19. It concluded that Public Relations in the recovery process of tertiary institutions from the COVID-19 lockdown is very necessary. However, inadequate involvement of the Public Relations Unit in the decision-making process on school recovery, excessive management influence on the operations of the unit,

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lack of funds, lack of professionals to handle the unit among others can limit the success in the application of public relations in the recovery process among Nigerian tertiary institutions. While involvement of public relations in the strategic management decision; synergy or collaboration between Public Relations Units, management teams, and other stakeholders; designated office for public relations; integration of Public relations function; use of professionals as PR officers; and equipping of public relations units with modern tools were recommended as key in achieving desired success in public relations practice in school reopening and recovery

Keywords: Post covid-19 recovery; public relations; tertiary institutions.

1. INTRODUCTION

Public Relations is one of the areas that attract tremendous attention of scholars across disciplines due to its perceived relevance in the coordination and management of institutions and organisations. It is believed that in this interdependent world, it has really become important for almost every kind of institution to keep long-term and trustworthy relations with the community or public groups in order to handle upcoming challenges and also to maintain its survival and success [1,2,3]. Similarly, society is increasingly becoming complex with emerging issues and challenges that require creative and imaginative solutions from those involved. With the current globalization, access to information through the ever-dynamic communication technologies is exposing individuals to new realities that promote new tastes, expectations and demands on product and service producers in a place like Nigeria. as a result, Public Relations (PR) has been widely recognized as an essential tool in the creation of goodwill and understanding among customers, employees and the general public [4,5,6,7,3,8]. Understood as a planned management function through which public and private organisations seek to win and retain the understanding, sympathy, and support of their potential and active customers, public relations activities help to provide a coordinated effort to communicate a positive image of the organisation and promote the availability resources, programmes and services [9].

It has been recognized that an increasing demand for effective communication among stakeholders in educations institutions has led to an increase in attention and utilization of public relations in schools around the world. As it is stated, "nowadays, public relations in ...educational institution become an integral part of the management team" (p. 1) [5]; and Universities around the world have public relations offices that are created to propagate their missions, vision and objectives in which they are founded. It is important to remind here that the goals of tertiary education shall be to: (i) contribute to national development through high-level manpower training; (ii) provide accessible and affordable quality learning opportunities in formal and informal education in response to the needs and interest of Nigerians; (iii) provide high-quality career counselling and lifelong learning opportunity that prepare students with knowledge and skills for self-reliance; (iv) reduce skills shortages through the production of relevant skilled

workers; (v) promote and encourage scholarship, entrepreneurship and community service (vi) forge and cement national unity; and (vii) promote national and international understanding and interaction [10]. Therefore, quite often, the public relations office is charged with the responsibility of advancing the objectives of the tertiary institution to enhance its corporate image [7,3].

It (public relations) ensures better communicate with students, alumni, donors, neighboring communities, and other relevant publics [11,12,13]. They (tertiary institutions) look up to public relations units to manage crises, boost rankings, increase donations, and carry out a variety of other tasks [14,15,2,16,3,17]. A study by Okafor & Nwatu [2] affirmed that reputation management, customer relations, media relations, social media and corporate social responsibility in achieving educational institution objectives were positively significant respectively, implying that public relations plays different roles in school administration and management.

Therefore, if public relations has some role to play in organisations and institutions, studying the kind of strategies that are useful in the management of schools, particularly the tertiary ones after the Covid-19 lockdown remains very important. This is because, since its outbreak in the Wuhan City of China, the Coronavirus has come to dominate and change man's life so momentarily with obnoxious burden and consequential effects which is overwhelming while cutting across all facets of man's life and institutions. It has induced newer culture and fine-tuned social group networking attitudes and behaviour as well as gradually changed the working and interdependence of institutions in phases [18,19].

Consequently, schools and tertiary institutions, in particular, are among organisations that were badly affected by the Covid-19 outbreak due to measures initiated to contain the spread, including schools closure [20,21,22,23, 24,25,26]. The pandemic (COVID-19) has drowned the world into uncertainty and has threatened the continuity of traditional classroom learning that is the backbone and, in many cases, the main method of learning in most countries [10, 27,28]. It has presented a global challenge of developing appropriate interventions to quickly respond to the fast-spreading novel virus [20,22,26]. Initial global recommendations for COVID-19 control were based on restrictions on travel and mass gatherings. Consequently, some governments implemented national-wide school closures to reduce social interaction and interrupt COVID-19 transmission. At the peak of the pandemic in 2020, about 1.6 billion students in 180 countries had been affected by school closures worldwide. In Africa, school closures were implemented as early as February 2020 affecting more than 250 million students, adding to about 100 million out-of-school children before the pandemic [22].... children from deprived backgrounds were at increased risk of hunger from missing free school meals, domestic violence, and the poverty that ensues from parents being unable to work because of daytime caring responsibilities. These consequences are felt most by the most vulnerable members of society. The longer lockdowns continue, the greater the risks to the well-being of young people [29].

“Most specifically, school closures led to: (i) Desirable and anticipated consequences: enhanced adoption of online platforms and mass media for learning and increased involvement of parents in their children’s education. (ii) Desirable and unanticipated consequences: improvement in information, communication, and technology (ICT) infrastructure in schools, development and improvement of computer skills, and created an opportunity to take leave from hectic schedules. (iii) Undesirable anticipated consequences: inadequate education continuity among students, an adjustment in academic schedules and programmes, and disrupted student progress and grades. (iv) Undesirable unanticipated: increase in sexual violence including engaging in transactional sex, a rise in teenage pregnancy, and school dropouts, demotivation of teachers due to reduced incomes, and reduced school revenues. (v) Neutral consequences: engagement in revenue-generating activities, increased access to phones and computers among learners, and promoted less structured learning” [22].

With a heavy impact on school administration and management, reopening of schools requires aggressive strategies to manage the post-COVID-19 lockdown and tools for the management of organisations, becomes imperative to review public relations available and can assist in the management of the tertiary institutions in the post lockdown period.

1.1 Objectives of the Study

The main concern of this paper is to educate stakeholders on the public relations strategies appropriate in the management of tertiary institutions post-COVID-19 in Nigeria. Specifically, this paper is focused on achieving the following:

- i. To review the impact of COVID-19 on Tertiary Institutions in Nigeria.
- ii. To review the role of public relations in organisations.
- iii. To review the role of public relations in tertiary institutions
- iv. To suggest the role of public relations in the management of tertiary institutions in the post COVID-19 Lockdown Era.
- v. To discuss the likely challenges against the application of public relations in the management of tertiary institutions in the post COVID-19 lockdown era.

2. RESEARCH METHODOLOGY

This study adopted a secondary research method to review public relations strategies appropriate in the management of tertiary institutions in the post COVID-19 lockdown regime or era in Nigeria. The secondary research method was used due to its numerous advantages in a study like this as explained by Kumara [30] thus:

“High-quality research can also be conducted using secondary data, collected by someone other than the user. ...There are advantages to using secondary data for researching. First, any researcher using secondary data can enjoy much

information that has been collected in the past, and relevant policy variables can easily be generated by using them. Second, the researcher does not have to wait for a longer time to collect data, and thereby, the research can be conducted in a timely manner. Accordingly, the researcher may be able to skip the stage of 'data collection' which allows him/her to proceed directly to the stage of 'data analysis'. Third, generally, the secondary data are available for a larger sample size. ... (pp. 1-2)

Consequently, sources from which data were harvested to address the concern of this Chapter included Google search, Google Scholar, ResearchGate and journals, books, periodicals, etc. out of more than 46,800,000 search results, more than 80 were purposively sampled and used in this study. Selection of the materials was based on those that were most relevant and related to the current work. Key words like public relations, Covid-19 19, Covid-19 Lockdown; tertiary institutions, and public relations strategies were used to search and get the results. Data collected were analysed using themes, and synthesis analytical techniques.

2.1 Analysis and Discussion

2.1.1 Public relations (PR)

"Public relations have been defined in many ways. Rex Harlow, a Stanford professor and founder of the organisation that became the Public Relations Society of America, once compiled more than 500 definitions from almost as many sources. The definitions ranged from the simple, "Doing good and getting credit for it," to more verbose definitions. PR consists of all forms of planned communication, outwards and inwards, between an organisation and its publics for the purpose of achieving specific objectives concerning mutual understanding" [31]. "The literature presents public relations as a management function, which uses the attributes of management (e.g., planning, collaborative decision-making, and research) to foster the organisation's ability to build mutually beneficial relationships on which the corporate vision and mission depend" [32]. "The second stream in the literature presents public relations as communication management, which focuses on the flow of communication between an organisation and its public to achieve effective relationships" [32]. The third stream of literature presents public relations as relationship management so that communication is a property of those relationships rather than the conduit between organisations and the public [33].

While a lot of people seem to have a good idea about public relations, few seem to agree on one definition American historian Robert Heilbroner as cited in Cutlip & Center [34], describe the field as "a brotherhood of some 100,000 whose common bond is its profession and whose common woe is that no two of them can ever quite agree on what the profession is". Basically, Heilbroner is right, although there have been serious efforts to come up with a suitable definition. One of the most ambitious searches for a universal definition was commissioned

in 1975 by the foundation of public relations research and education. Sixty public relations leaders participated in the study, which analyzed 472 different definitions and offered the following definition. Public relations are a distinctive management function that helps to establish and maintain mutual lines of communication, understanding, acceptance and cooperation between the organisation and its public. Involves the management of problems or issues, and helps management to keep Informed on and responsive to public opinion. The British Institute of public relations “public relations is a deliberate, planned, and sustained effort to establish and maintain mutual understanding between an organisation and its publics” [3,35]. Broom & Trucker [33] defined public relations as the management process whose goal is to attain and maintain accord and positive behaviours among social groupings on which an organisation depends to achieve its mission. Its fundamental responsibility is to build and maintain a hospitable environment for an organisation. James [3,36] defines public relations as the management of communication between an organisation and its public.

The key words in the definition of public relations include:

- i. Deliberate. Public relations activity is intentional. It is designed to influence, gain understanding, provide information, and obtain feedback from those affected by the activity.
- ii. Planned. Public relations activity is organized. Solutions to problems are discovered and logistics are thought out, with the activity taking place over a period of time. It is systematic, requiring research and analysis.
- iii. Performance. Effective public relations is based on actual policies and performance. No number of public relations will generate goodwill and support if the organisation has poor policies and is unresponsive to public concerns.
- iv. Public interest. Public relations activity should be mutually beneficial to the organisation and the public; it is the alignment of the organisation’s self-interests with the public’s concerns and interests.
- v. Two-way communication. Public relations is not just disseminating information but also the art of listening and engaging in a conversation with various publics.
- vi. Management function. Public relations is most effective when it is a strategic and integral part of decision-making by top management. Public relations involves counseling, problem-solving, and the management of competition and conflict.

In the context of the educational system, Public relations is defined as a planned and systematic management function to help improve the programmes and services of the educational system [37]. In the same vein, Greg [38] described school public relations as a management function that establishes and maintains two-way mutual relationships and communication between the school and the community [3]. A careful look at the above definitions shows that school public relations rely on a comprehensive two-way communication process involving both the internal public (students and staff) and external public (parents, government and general public) with a common goal of stimulating a better

understanding of the roles, objectives, accomplishments and needs of the school [3]. The purpose of a school public relations programme according to Gorton, as cited by Ibeneme & Okwelle [39], includes (a) Selling the educational programme to the people of the community so that they will take pride in and support the schools; (b) Interpreting to the people of the community the educational programme that is in operation so that the people will have a better understanding of what the school are doing and will support the school programme; (c) Encourage the community interest and participation in the school programme.

2.2 Coronavirus (Covid-19) Pandemic

Coronavirus disease 2019 is an infectious disease that is popularly known as Covid-19 [40,41,42]. The disease is caused by severe acute respiratory syndrome coronavirus 2; otherwise known as SARS-CoV-2 [43,44,41,42,45,3]. Its symptoms include fever, cough, shortness of breath, sore throat, runny nose, and sneezing, among others [3,44,41,42,46]. It is a highly communicable disease [43] and its mode of transmission is from person-to-person [42,46]. Transmission occurs among close contacts mostly through respiratory droplets released when the infected person sneezes or coughs [3,44,42]. Measures such as lockdown, social distancing, self-isolation or self-quarantine and observation of simple hygiene habits such as regular washing of hands, wearing of facemasks and covering the mouth with a handkerchief when coughing or sneezing have been recommended to contain the spread of the disease among people [41,42] it is important to note that there is no any known cure or vaccine for the Covid-19 pandemic presently [3,43,42].

2.3 Impacts of COVID-19 on Tertiary Education in Nigeria

The outbreak of COVID-19 impacted all sectors of the economy, including education. For instance, it has been reported that the Coronavirus deadly disease has resulted in the total shutting of schools in about 215 countries all over the world with 91.4% of the total number of enrolled learners in these countries momentarily mandatory out-of-school [47]. It is accounted that over 1.6 billion students transversely the world were obliged to stay out of schools as social distancing was enforced locally and regionally around the world in order to enclose the extend of coronavirus disease [3,48].

It can be noted that Africa was one of the continents in which educational systems have been typically affected by the deadly disease as more than 98% of teaching and learning cannot be performed suitable to country-wide lockdown in this continent. In the shutting of schools across Sub Sahara Africa, including Nigeria of which over 91 percent are primary and secondary school [3,48]. The closure of schools and learning facilities during the pandemic also resulted in further deterioration in facilities and capacities for the delivery of quality education. It is expected that the longer schools are closed, the more the learning loss, the greater the severity of inequality in the education sector and the greater the risk of exploitation for the most vulnerable children [28].

“In a short time, COVID-19 has disrupted the landscape of learning in Sub Sahara Africa by limiting how students can access learning across the country. However, apart from the pharmaceutical interventions and other preventive measures like using of facemask, washing of hands, social distancing has been the most effective way of minimizing the spread of COVID-19” [3]. The effective implementation of social distancing demands that schools be closed for as long as each government from different countries is certain that the pandemic has been curtailed enough for the safety of learners and teachers before recommencing back to class [3,48]. Ngogi & Mahaye [49] observed that long periods of learning would be lost for as long as the closures lasted. Ngogi & Mahaye [49] further reported that schools losing long periods of learning because of the disease outbreak can be upshot to both chronological and stable smash up on the educational system. The temporal damage includes disruption of the curriculum which could take a long time to be recovered while the undeviating spoil includes the actuality that some students may never come again to school even when the infection outbreak ended Because of the doubts contiguous to the inhibition of COVID-19 in Sub Sahara Africa. It is envisioned that social distancing could still be implemented further than the time expected. The department of education has postulated a steady reopening of schools which it has described as a “Phasing in Approach” in South Africa.

It has been realized that “apart from Burundi, all countries in sub-Saharan Africa (SSA) closed their schools with only about a third of the countries partially reopening them within a hundred days of initial closure. With successive COVID-19 waves across the continent, school closures lasted more than 20 weeks with periodic and stringent measures in several countries. By 2021, Uganda recorded the longest duration of school closures of 83 weeks worldwide. The closure of schools had several effects, some of which had not been foreseen. The unprecedented and abrupt interruption of learning risked reversing earlier gains made in increasing school attendance and quality of education in Africa. Recent evidence predicted that short- term COVID-19-related learning losses were up to one year in sub-Saharan Africa and that the learning loss could accumulate to 2.8 years. Beyond the academic losses, school closures led to a setback in students’ emotional well-being due to limited social interaction; increased exposure and vulnerability to domestic abuse; irregular or unhealthy diets; unintended pregnancies and high rates of socioeconomic and gender disparities” [22].

Otache [42] studied “the effects of the Covid-19 pandemic on Nigeria’s economy and possible coping strategies” and found that job losses, a sharp drop in income of the informal workers and the poor, food insecurity, business and school closures, a steep decline in oil revenues and economic uncertainties were some of the effects of the Covid-19 pandemic in Nigeria. The eruption of the COVID-19 pandemic, as Olaitan et al. [48] observed, has affected every sphere of life and may forever change how we have always lived and conducted our businesses, and no one can resist the wind of change that is blowing. Of all the sectors of governance, the educational sector, particularly at the tertiary level, appears to

have been most greatly affected and therefore requires a more pragmatic approach to resolution. The impact of COVID-19, according to Nwafor, Omoevah & Umuze [23], has made all schools in Anambra State, both public and private, were asked to abandon the buildings, including tertiary institutions, since this was the only choice left to protect the lives of the state's future generation [3].

Similarly, the outbreak of the COVID-19 epidemic has had an impact on the global economy as well as the Nigerian school system. It caused significant gaps in the academic calendars of many academic institutions at all levels [3,21]. The pandemic's impacts on children's access and quality of education are most severely felt through the tracking closure of schools without adequate alternative education services accessible by all children, nation-wide. These measures are likely to exacerbate existing inequities in education in the short and long terms and worsen existing barriers to access. Nationwide school closures began on March 16, affecting approximately 9,253,063 learners between pre-primary and secondary education levels [24].

A study conducted by Ndejjo et al [22] revealed that the consequences of school closures for COVID-19 control were largely negative with the potential for both short-term and far-reaching longer-term consequences. In future pandemics, careful consideration of the type and duration of education closure measures and examination of their potential consequences in the short and long term according to Ndejjo et al [22], is important before deploying them.

Furthermore, the COVID-19 pandemic had an impact, not only on people's health but also on how they learn, work and live [50,28]. This has prompted governments around the world to take a variety of steps to manage the outbreak, including stoppage of face-to-face teaching, and closure of higher institutions there by forcing students to stay at home which might have resulted in a great deal of stress and uncertainty in their lives. More than 1.5 billion children and young people globally have been affected by school and university closures. This is what led to the development of some coping strategies during the pandemic. Some of the coping strategies adopted across the globe, especially around the education sector as follows [51,28]: increasing readiness while keeping schools open; closure of schools across the nation; selective closing of schools; and learning loss mitigation through remote learning and educational resources.

2.4 The Importance and Functions of Public Relations in Organisations

Generally, there are a number of functions that public relations managers in organisations perform in the achievement of the set goals and objectives. Some of the activities carried out by the public relations experts include Counseling; Research; Media relations; Publicity; Employee/member relations; Community relations; Public affairs; Government affairs; Issues management; Financial relations; Industry relations; Development/fund-raising; Multicultural relations/workplace diversity; Special events; Marketing communications. According to Roger [52], public relations helps to build and maintain public

confidence in the organisation's marketing activities. To him, some of the functions of public relations are:

- i. Improving awareness.
- ii. Projecting credibility.
- iii. Combating competition.
- iv. Evaluating new market.
- v. Reinforcing the effectiveness of sales promotion and advertisement.
- vi. Introducing new products or services.
- vii. Building brand loyalty, and
- viii. Dealing with customer issue.

From the forgoing, Musa [9] noted that there are ways in which public relations contributes to the fulfillment of marketing of services, these, according to him include:

- i. Developing new prospects for new markets, such as people who inquire after seeing or hearing a product release in the news media.
- ii. Helping to sale minor products that do not have a large advertising budget.
- iii. Establishing the corporation as an authoritative source of information on a given product.
- iv. Generating sales leads, usually through articles in the trade press about new products and services.
- v. Providing inexpensive sales literature, because articles about the company and its services can be reprinted as informative pieces for prospective customers.
- vi. Providing third-party endorsement via newspapers, magazines, the radio and television, through news releases about a company's product or services, community involvement, inventions and new plans.

Cutlip, Cente & Broom [53], present the following as the major functions of public relations:

- i. To serve as the central source of information about the organisation, and as the official channel of communication between the organisation and the public;
- ii. To bring to public attention through appropriate media, significant facts, opinions, and interpretations which will serve to keep the public aware of the organisation's policies and actions;
- iii. To coordinate activities which affect the organisation's relationship with the general public, or with special public or groups;
- iv. To collect and analyze information on the changing attitudes of key public groups towards the organisation, and
- v. To plan and administer informational programs designed to fulfill most effectively, the responsibilities and functions outlined above.

Omolola (2016), in a study, revealed that although the Nigerian Public Relations Department (NPPRD)'s activities are beginning to penetrate into the minds of the

publics, its current media relations practice must be addressed. According to the study, concerted efforts must still be made to completely erase the police negative image. Such an effort will achieve unprecedented success when backed by adequate funding by necessary authorities. The study recommended that henceforth, police personnel that will be appointed to Man the NPPRD must be certified public relations persons. Also, the discriminatory media relations practice of the PPRO, Lagos command must be urgently addressed. More importantly, the study recommended that adequate funding must be provided to enhance the operations of the police.

A study by Ude-Akpeh, Ginikachukwu, & Dung [8] revealed that the NTA Television College made use of PR strategies in relating with its various publics, and applied in reputation management which has impacted positively the productivity of the College. As revealed in another study by Awosemusi, & Awofadeju [6], Public Relations has impacted the performance of Micmacking Nigeria Limited as it projects the goals, ensures harmonious relationship among the public and brand promotion. Adeyemi, & Atukum [4], in their study, found that PR in Deposit Money Banks was an active and effective strategy that guarantees competitiveness and customer satisfaction, also customers were sensitive to workers' attitudes when they visited the Bank. They conclude in that study that public relations play a vital role in promoting and improving the quality of services rendered by Deposit Money Banks.

2.5 Public Relations in Tertiary Institutions

Educational institutions in the society are saddled with the task of introducing members of the society into the knowledge, skills and values of the society from one generation to another. This preposition suggests that educational institutions are vehicles used by societies to keep their past and present alive while also ensuring that, the future is positively predicted, through the works done today [3]. They are therefore agents of socialization for individual and societal development [54]. This implies that educational institutions are an important segment of the society and are crucial in the growth and development of the society in general. It goes to mean therefore that concerted effort must be made at all times to ensure the effective development of the sector. Such efforts must also include the use of effective communication [3].

Consequently, previous empirical and theoretical literature has shown a correlation between public relations practice and the performance of educational institutions in general and tertiary institutions in particular [3]. For instance, Wilson & Rahila [55] conducted a study on "*Community Relations: An Impetus for Educational Growth and Development in Nigeria*" and found that as fracas between institutions of learning and their host communities has become a reoccurring trend in Nigeria, it is imperative to adopt community. The conclusion of their study is that if properly harnessed, community relations would certainly enhance the performance of institutions in Nigeria [3]. Adelakun [54], studied on the "*School-Community Relationship and Sustainable Development in Nigeria: Challenges and Way Forward*" and concluded that no school can exist in

isolation of the community and its agencies. In fact, the development of the school to a large extent is determined by the relationship that co-exists between the school and the host community [3]. The study recommended that (1) School administrators and managers should not be involved in local politics in order to win the approval of the masses from the community; (2) the Government should provide portable businesses as a means of livelihood for the citizens who are below the line of development in order to reduce the level of poverty; (3) School should collaborate with the National Commission for Mass Literacy, Adult and Nonformal Education and all its locally based agencies in the country should intensify their efforts in fighting increasing rate of illiteracy in the country; (4) Government should make rigorous effort to reduce the rate of unemployment in the country; (5) While planning the educational policy formulation, and execution of educational projects, local communities should be fully involved and carried along. The introduction of School Based Management Committee (S.B.M.C.) to replace the then Parent Teachers Association should encourage and provide a wider scope for community participation in educational development; (6) Government should sensitize the schools and the communities on the benefits attached to allowing good relationships to coexist between the school and the community members; (7) School leaders should ensure that community leaders and relevant stakeholder are carried along in needed activities of the school to ensure smooth interaction [3].

Okohi & Nath [56], in their study on the "*Staff Personnel and School-Community Relations Management Practices of Educational Administrators for Secondary School Environmental Safety in Rivers State of Nigeria*" found that the personnel and school-community relations management practices of educational administrators for secondary school environmental safety include, ensuring that efficient welfare services are put in place to keep school members motivated and the use of social networks for encouraging interpersonal relationship among stakeholders to ensure environmental safety in schools. Okwelle & Agwi [39], studied the "*Strategies for Improving Female Students' Enrolment in Technical and Vocational Education Programmes through Public Relations Activities in Nigeria*" and found that effective supervision of students on industrial training and teaching practice, introducing public relations activities into the school curriculum and sponsoring and participating in students organisations and programmes were some of the strategies for improving female students involvement in public relations. Consequently, it was recommended that (1) Schools with TVET programmes should as a matter of urgency have in place a well-coordinated public relations unit with the responsibilities of female students well defined; (2) School public relations officers should ensure that they carry students' along during public relations activities/programmes of the school; (3) Effective supervision of students on industrial training and teaching practice should be encouraged; (4) School public relations activities should be included in the school curriculum; (5) Recognizing/rewarding outstanding students' achievement through awards and commendation should be given urgent attention by TVE institutions.

Musa [9], studied the “*Public Relations Strategies for Information Service Provision in Federal University Libraries in North Western States of Nigeria*” and concluded that public relations has indeed improved relationships and has led to mutual collaboration among University libraries and their various publics. Okafor & Nwatu [2], in their study on “*Public Relations as a Tool for Attaining Educational Institution Objectives in Enugu State*” found that reputation management, customer relations, media relations, social media and corporate social responsibility in achieving educational institution objectives was positively significant respectively. Aikins & Adu-Oppong [14] underscore that the role usually played by Public relations in educational institutions is to manage the flow of both internal and external communication. Public Relations Practice is based on two-way communications facilitated through a multimedia approach and is founded on research. The traditional role of the education public Relations specialist has been that of a scribe and paper mover, whose purpose typically was to inform but often to publicize. For the most part, the duties of the educational public relations specialist or practitioner were the recording and publishing of minutes of board meetings, the development of brochures for financial campaigns and even the supervision of the school newspaper when the position was half rather than full time [3,14].

Historically, the practice of public relations within Universities has been one-way, asymmetrical [57]. In the past, practitioners have engaged in public relations practice that placed a great deal of emphasis on media relations. In recent years, however, scholars have advocated a strategic approach to University public relations that moves beyond media relations and embraces strategic management, two-way symmetrical communication, and various other Excellence principles. This strategic perspective is evident in recent studies of public relations in the University setting. Samsup, Brunner & Hon [58], for example, examined how practitioners can measure relationships in a university setting. DeSanto & Garner [59] recommended that university public relations practitioners set synchronized goals, identify stakeholders, and conduct evaluations. Grillis [11] argued that it is critical for public relations practitioners to have access to the top leaders within a university. Henderson (2001) proposed a four-step process for managing communication in universities: research, planning, communication, and evaluation. This emphasis on strategic public relations management is clearly evident in research done by scholars studying the practice of public relations at universities in the former Soviet-bloc countries [60,61,62]. “Universities in former Soviet-bloc are facing complex environments. The introduction of capitalism has meant that old state-owned universities, which never had to compete, now find themselves losing students to new private universities that offer attractive packages to students” [63]. “This competition has prompted both state-owned and private Universities to seek to utilize public relations as a means of getting an edge. In the past, public relations practice at these Universities was a mixture of marketing, advertising, and lobbying” [63].

Other studies, however, have advocated a move away from one-way asymmetrical methods and toward practices that resemble the characteristics conceptualized in the Excellence study. Pirozek & Heskova [57], for example,

examined the public relations practice of a university in the Czech Republic. They showed how the two-way symmetrical tactics of research and feedback systems helped the University gain a better understanding of the attitudes of its key public. Kaverina's [64] study of a state University in Russia showed how two-way symmetrical efforts to initiate dialogue (e.g. radio call-in shows, open house functions) helped strengthen the relationship between the University and its key publics. Popular publications aimed at university public relations practitioners have also advocated practices that are similar to the Excellence characteristics. Schoenfeld, Wiemer & Lang [65] encouraged practitioners to embrace strategic planning and outcome evaluation. Jarrell [66] encouraged universities to involve public relations in decision-making because practitioners can lessen risk by forging good relations with the publics and can scan for emerging issues. Simpson [67] advised university communicators to build strong community relationships, take local concerns seriously, and attend to internal and external constituencies. Ross [68] suggested that practitioners clearly define their goals and measure output, outgrowth, and outcomes. Ross [68] urged practitioners to utilize external research resources (e.g., consulting firms) to enhance their practice.

Ross [68] listed publicizing, advertising, marketing (of existing and new products and services), editing and knowing basic graphic design, conducting budget and building referenda campaigns, public relations in service for administrators and staff, relating effectively to adults and youth in community problem-solving situations, dealing with oral and written complains and organizing and administering communications plans for schools crisis, keeping accurate district public relations records, determining alternative futures and serving not only as the district peacemaker and public conscience but also as one of the superintendents key advisors, which includes speaking for him or her on occasions as some of the roles of public relations practitioners in schools.

2.6 Role of Public Relations in the Management of tertiary Institutions in the post COVID-19 Lockdown Era

The impact of the COVID-19 pandemic has led to the closedown of institutions, including schools across the globe including Nigeria. However, due to the reduction in the number of infection cases of the pandemic, measures adopted by government and organisations to reduce the chances of contracting the virus, and economic and social impacts of the long economic lockdown, among others, Nigeria is one among the countries that call for the reopening of the economic activities, including school [3]. Now that the schools have reopened, a deliberate measure for quick recovery and revival remains very crucial and since public relations is part of the management in every organisation, its role in this regard is equally very crucial and should be acknowledged [3]. Carvalho, Rossiter, Angrist, Hares & Silverman [69] acknowledged that most governments around the world have temporarily closed schools in an attempt to contain the spread of the COVID-19 pandemic. Many have launched distance learning programmes and are beginning to plan for recovery, a phase that involves much more than reopening the gates and readmitting students [3]. Carvalho, Rossiter, Angrist,

Hares & Silverman [69] added that in this context, education policymaking is particularly difficult but will be strongest when it is: (1) informed by existing rigorous evidence; (2) approached with a long-term perspective that prioritizes flexibility, communication, and trust; and (3) able to be adapted based on new data and information gained from community engagement and monitoring [3]. They maintained that the short and accessible briefs collected here draw on rigorous evidence relevant to the COVID-19 emergency to formulate recommendations for policymakers on five critical dimensions of school reopening and recovery:

- i. Engaging communities in reopening plans;
- ii. Targeting resources to where they are most needed;
- iii. Getting children back to school;
- iv. Making school environments safe; and
- v. Recovering learning loss and building back better.

Since tertiary institutions deal with a lot of public, it becomes imperative that to make the goal of school reopening, revival and recovery realizable, both segments of the public must be carried along and the role of Public Relations to achieve that success remains necessary. Grunig [70] affirms that “autonomy [...] is an idealized goal that no organisation ever achieves completely” (p. 11). Public Relations practitioners, like the organisations they represent, are never completely autonomous from forces within and beyond the walls of the organisation. For this reason, both practitioners and organisations must contend with and maintain interdependent relationships with numerous publics [71,70]. Public Relations practitioners help organisations to “establish and maintain mutually dependent relationships between an organisation and the publics with which it interacts” (p. 71) [71].

Therefore, as a tool in the management of organisations, the role of public relations in the revival and recovery of the tertiary institutions in Nigeria is revolved around the COVID-19 reopening school policy thus:

Engaging communities in reopening plans: It is a known fact that the outbreak of the COVID-19 pandemic and the subsequent economic lockdown including schools has grounded the activities of tertiary institutions across the country and reopening requires a high level of community involvement. Public relations’ role in community relations and involvement therefore remains very crucial. According to Carvalho et al [69], to productively engage communities and build the trust needed to design and implement effective reopening plans, Public Relations officers should:

- i. Prioritize community engagement early to build trust, shape perceptions of risk, and improve responses to government policy.
- ii. Share clear, credible, and consistent messaging through multiple channels to reach all groups and to match local resources and norms.

Trust, risk, and community participation a robust body of evidence suggests that establishing public trust, managing fear and perceptions of risk, and leveraging community engagement are key to effective crisis response. Governments need to decide how to engage community members in reopening plans and implementation; what, when, and how often information should be shared with affected communities; and with whom and through which channels to communicate. The evidence on building trust with communities affected by emergencies shows that: (i) Leveraging community involvement to build trust will play a vital role in facilitating the reopening process and in shaping public perceptions of the state over the long term; (ii) Effectively responding to health crises requires localized efforts to work with communities affected by the crisis. For the education sector, engaging teachers and teachers' unions, school-based management committees and other parent organisations throughout can increase the relevance of plans and compliance with government interventions as schools reopen [69].

For community relations, the best communication channels for reaching households will vary considerably across contexts but, wherever possible, multiple channels should be used to reach all groups. The evidence on effective communication strategies following an emergency indicates that:

- i. Moving quickly to establish regular communication channels and messages focused on facts and key messages can help manage fear during response as well as facilitate school reopening;
- ii. Information is best shared using sources judged credible by communities. In the wake of COVID-19, we have seen numerous ministries of education combat misinformation campaigns. Communities are much more likely to follow guidance from sources that are nationally well known and which they consider credible, although it is important to be aware that source credibility varies among groups and even within countries;
- iii. Communication channels should be selected based on their potential reach and local norms. Several methods have been proposed as channels for communicating response procedures and reopening plans. Household surveys and local norms about information acquisition can be used to determine each method's potential [69].

Many governments have already strengthened radio, television, and mobile communications during the crisis; these same channels could be used to deliver reopening messages among tertiary institutions by Public Relations practitioners. For instance, SMS allows for direct communication to community members at speed, and mass messaging might provide a low-cost method for providing information, encouraging compliance, and monitoring outcomes of school reopening. Several ministries of education are also using social media to communicate with parents about COVID-19, but this approach will not be suitable everywhere. Word-of-mouth via parent groups and locally nominated individuals remains an important communication channel, particularly where literacy and connectivity rates are low. Research suggests that combining multiple methods of communication could increase uptake and influence public behaviour as

schools reopen. For example, television and SMS messaging can complement one another to strengthen a single strategy. Broadcasting the same information in multiple formats can make messaging more coherent. But be aware: information that is inaccurate or conflicts across modalities may lead to confusion and noncompliance with reopening plans [69].

Targeting Resources where they are most needed: A strong and equitable reopening and recovery requires the careful use of resources, which relies on broad coordination, effective targeting, and continual use of data to adjust and improve approaches. Policymakers will want access to evidence supporting their planning and decision-making, and to draw on relevant experiences from elsewhere.

To help ensure that resources are targeted in a manner that supports a strong and equitable reopening of schools, Public Relations as part of management should: (i) Coordinate actions and resources. Under these exceptional circumstances, managing competing priorities requires coordination and exchange across organisations, which can provide incentives that strengthen the implementation of reopening plans and improve efficiency; (ii) Use existing administrative and survey data to identify risk factors and guide the design of social transfer mechanisms. Community inclusion and data privacy should be prioritized at all stages; (iii) Gather high-frequency data early and continuously throughout the reopening process to support implementation, adaptation, and learning.

Getting Children Back to School: Students, teachers/lecturers, and households are facing new pressures on their time and resources that will make re-enrollment challenging for some families as schools reopen. Public relations as part of the management should implement Universal campaigns to encourage enrolment and consider additional measures to support the transition back to school, including cash transfers and school meals targeted to the most vulnerable. Policymakers will want to access evidence to support their planning and decision-making and to draw on relevant experience from elsewhere.

To encourage and support the reenrolment of all students, public relations practitioners should: Combine community participation and large-scale direct communication campaigns to parents, and consider increasing attendance options to accommodate all children, including those with the highest risk of dropping out. Provide financial or in-kind support, such as school feeding, to help families overcome the increased costs of attending school.

Making School Environments Safe: Maintaining the health and safety of people and environments will be more important than ever before in the aftermath of the COVID-19 school closures. To make school environments safe, additional health and hygiene measures should be implemented and school-based psychosocial and nutritional support should be extended to students to strengthen their overall health and well-being in the wake of the pandemic. Policymakers will want to access evidence to support their planning and decision-making and to draw on relevant experience from elsewhere.

To provide safe school environments following a pandemic, policymakers should: (i) Pair school-based hygiene promotion with the distribution of waterless hand sanitizer and/or soap (where handwashing stations are already available); (ii) Consider school-based screening for fever and cough, which may reduce risk and improve confidence, but which does not by itself offer a reliable solution; (iii) Train and support teachers and other school staff to offer school-based psychosocial support to returning students; (iii) Prepare for a spike in the number of students with malnutrition and other unmet basic needs.

Recovering Learning Loss: To address learning loss, policymakers should consider targeted programmes for accelerated recovery and use low-cost coaching and communication methods to support teachers and engage parents. Policymakers will want to access evidence to support their planning and decision-making and to draw on relevant experience from elsewhere. To recover learning loss following a pandemic, policymakers should: (i) Engage students in accelerated learning interventions to reverse crisis-related learning loss and strengthen future learning trends; (ii) Engage teachers in training and coaching so they can help students catch up, and ensure that school environments are safe and protected; (iii) Engage parents by capitalizing on their current involvement in remote learning to improve future outcomes.

Nwafor, Omoevah & Umuze [23] found in a study that the Anambra State Government, Nigeria used public relations strategies like press releases, press conferences, announcements, town hall meetings with critical stakeholders like the market unions, transport unions, town unions, etc [3]. in disseminating appropriate information and behavior that helped in managing the various COVID-19 related crises in Anambra State. For Umut, Anil & Ülfet [72], effective usage of digital communication contributes to the sustainability of universities during the COVID-19 crisis. The posts (text/image/poster) and videos the universities share were more concentrated on either press agency or the public information model.

In a paper presented, Musabayana [73] underscores that PR professionals have a very critical role in the COVID-19 era. Working with other communicators, they have the task of helping organisations to retain their legitimacy, not just for today, but even into the post COVID-19 era. Legitimacy has great significance to the survival of institutions, as it influences consumer and citizen behaviour. PR professionals adopt diversified corporate social responsibility programmes that engage communities on the new realities, and also contribute to societal well-being; in the process, help retain confidence in their organisations, which in this case, schools.

2.7 Challenges against the Application of Public Relations in the Management of Tertiary Institutions in the Post-COVID-19 Lockdown Era

The use of public relations in achieving success in organisations is without hitches. Certain challenges militate against the successful application and use of public relations in achieving the organisations' success. Previous empirical and theoretical studies have shown that there are challenges in the practice of public

relations in tertiary institutions. For instance, Aikins and Adu-Oppong [14], in their study on the topic “*Using Public Relations as a Management Tool in Tertiary Institutions*” revealed that the University’s public relations department is poorly resourced to perform its functions. Among the challenges as revealed in the study were scarce telecommunication equipment, lack of official means of transportation and lack of trained personnel. Furthermore, the study revealed that the public relations position is neither accorded the same status as other senior management positions nor involved adequately in decision-making. Grunig suggests that one of the assumptions to be challenged is the notion that the practice of public relations focuses on a variety of key publics – shareholders, employees, suppliers, activists, the media and consumers. In many developing nations, it is the government officials rather than the general public who are most important to public relations practitioners. If the government is the most important public for organisations in developing nations, then this relationship will influence the practice of public relations [14].

A study by Poku [7] has revealed that the University’s public relations department is poorly resourced to perform its functions. Among the challenges militating against its operations are scarce telecommunication equipment, lack of official means of transportation and lack of trained personnel. Furthermore, the study revealed that the public relations position is neither accorded the same status as other senior management positions nor involved adequately in decision-making. Based on the findings of the study it was recommended that the public relations unit of the University be adequately resourced and the practitioners adequately empowered. A study by Anggreni [5] revealed that not all public relations officers at Mahendradatta University do their role as real public relations officers. They also do not have the same understanding of the role of a public relations officer and will just place public relations in the same position as marketing.

A study of staff perception of the Public Relations outfit of the University of Education (Winneba Campus), D’Almeida [74] found that the highest functions of a Public Relations Officer among others, receiving visitors and seeing to their wellbeing, seeing people and welcoming them at the Airport and seeing to funeral matters. The staff of UEW however did not know that the Public Relations Officer is the mouthpiece of the University. The researcher recommended that the Public Relations Officer should be involved more in decision-making and he should occupy the proper position of a Deputy Registrar in the organisational structure and must report directly to the Vice Chancellor [3]. Again, as part of decision-making, the Public Relations Officer must have the capacity to interpret the University’s policies and programmes as well as coordinate students’ activities and be responsible for alumni matters among others. Public relations executives above the position of head of a department level had no problems getting access to management and also being consulted frequently by management on corporate policies [3]. Only a few public executives of the status of heads of department and below enjoy that privilege. This was a finding in a study on the attitude of management towards public relations practice in ten organisations in Accra [74]. Cutlip [75] stresses the great need for improving communication channels in the University. Adam observed in Cutlip [75] that

"University administrators have been compelled no more from talking about the need for communication to actually communicate with their publics." Cutlip et al put more emphasis on the need for public relations to solve other equally important problems like those of freedom, funds and freshmen. They add that the university needs private support more than ever because there is an increased demand for government resources [3].

D'Almeida [74] states that the University Relations Offices (URO) is confronted with a number of problems that hinder the effective performance of its functions. The most important of which was cash flow. Messages must be timely so they have to be sent with dispatch. However, it takes money to send kinds of messages to the relevant public at the right time especially media and messages and advertisements for time-bound events. More often than not, funds for these messages are made available to the office much later than they should be to make such messages meaningful and effective. They lack adequate resources to ensure the effective running of the office. They have no research staff, or efficient phone system and depend on other offices for fax and e-mail facilities [14].

In tertiary institutions, most decisions are made at the committee level which includes academics. Administrators serve as secretaries or implementers of the decisions. Since public relations practitioners who are also administrators are not privileged to be part of the decision-making process, they are hardly able to comprehend the decisions made by the academics and this impedes their ability to advocate and propagate the decisions. An evaluation of the Public Relations office of some institutions found that there was a need to increase public relations activities in the section. It was explained that this could be achieved only when the Public Relations section is accorded the same status as the other departments by appointing a head with similar status [6]. Awosemusi, & Awofadeju [6], in their study, found that management interference was the major challenge facing the activities of public relations towards ensuring effective organisation performance.

3. THEORETICAL FRAMEWORK

3.1 Stakeholders Management Theory

Stakeholders Management Theory is very relevant to this paper because the theory advocates the use of engagement through communication to create and foster meaningful relationships that are mutually beneficial between organisations and their stakeholders [3,76]. According to the theory, business has become more accountable to society as many nations move to democratic models of government and conduct operations embedded in a macro-environment, which typically involves functioning in a pluralistic society that disperses power among many groups and people [3,76]. This has led to the evolution of organisations (and government) being accountable to multiple publics, systems and stakeholders, as opposed to businesses seeing their primary concern as just looking after shareholders [76]. Today's businesses seek to obtain a social license to operate in their community, in contrast to the pre-

classical management theories that focused on the business maximizing its output from within the environment it existed [3,77].

Many theorists and writers suggest that stakeholder management is a strategic function of public relations [78,79,80]. But other theorists would also strongly argue that broad management responsibility plays a key role in ensuring stakeholders are engaged, informed and have a sense of importance to an organisation [81,77]. On deeper investigation, both positions are based on the same objective relating to keeping stakeholders in a positive relationship with the organisation in an effort to advance outcomes and achieve the organisation's goals [3,81].

Relationship management skills are an interdisciplinary function and form the basis for knowledge transfer between management and staff, with traditional communication responsibilities managed through public relations, either through consultancy or in-house capacity [3,79,81,80]. Many of these stakeholder management roles have evolved into sub-roles for public relations practitioners, and typically include employee engagement, community engagement, government relations, investor relations, and media relations [79,78,80].

Application of the principles of this theory will help tertiary institutions to achieve the desired success in their implementation of the school reopening and recovery programme(s) using public relations [3].

3.2 Excellence Theory

Excellence Theory of public relations is another theory that is relevant to this study because of its power to explain the value of public relations to organisations and society based on the social responsibility of managerial decisions and the quality of relationships with stakeholder publics [3]. According to the theory, for an organisation to be effective, according to the theory, it must behave in ways that solve the problems and satisfy the goals of stakeholders as well as of management (→ Stakeholder Theory). If it does not, stakeholders will either pressure the organisation to change or oppose it in ways that add cost and risk to organisational policies and decisions [3]. To behave in socially acceptable ways, organisations must scan their environment to identify the publics who are affected by potential organisational decisions or who want organisations to make decisions to solve problems that are important to them [3]. Then, organisations must communicate symmetrically with publics (taking the interests of both the organisation and the publics into account) to cultivate high-quality, long-term relationships with them [3,70]. According to Schmitz (2014), the Excellence Theory offers 10 normative principles for achieving excellent public relations in a campaign, such as school reopening and recovery from the COVID-19 pandemic:

1. Involvement of public relations in strategic management.
2. Empowerment of public relations in the dominant coalition or a direct reporting relationship to senior management.

3. Integrated public relations function.
4. Public relations as a management function, separate from other functions.
5. Public relations unit headed by a manager rather than a technician.
6. Two-way symmetrical model of public relations in practice.
7. A symmetrical system of internal communication.
8. Knowledge needed to practice the managerial role and symmetrical public relations.
9. Diversity embodied in all roles.
10. Organisational context for excellence.

4. CONCLUSION

The prolonged lockdown occasioned by the outbreak of the COVID-19 pandemic around the globe has caused unprecedented setbacks across sectors. In Nigeria, the impact of the lockdown across sectors is unimaginable or better still indescribable [3]. In the educational sector in general and the tertiary system of education in particular, the lockdown has disrupted the teaching, learning and administrative activities, even though there were cases of online academic and administrative activities among tertiary institutions in the country, such cases were very few compared to those that were not privileged to join the online learning process. For instance, a report released by UNESCO indicates that as of 4 September 2020, approximately 1.277 billion learners were affected due to school closures in response to the pandemic, impacting about 72.9 percent of the world's student population [3].

Pragmatic steps are needed to be taken to revive the sector which is badly affected by the prolonged COVID-19 lockdown, in which Public Relations which is an effective communication tool in organisations comes in handy [3]. The role of public relations in modern organisations in Nigeria and around the world has been acknowledged as a powerful tool in the management of the relationship between organisations and their various publics. Its (Public Relations) growing recognition and role in educational institutions has also been established in this Chapter of the book. Educational institutions are now leveraging the relevance of public relations to establish and maintain mutually beneficial relationships among their stakeholders or the public. Most specifically, public relations in the context of educational institutions is practiced through effective community relations and engagement, internal and external communication, media relations, employee relations, conflict management, social media management, and counselling, writing among others.

Subsequently, Public Relations is also used as part of the management to engage communities in reopening plans; advise the management in targeting resources to where they are most needed; getting children back to school; make school environments safe; and recover learning loss and building back better, which is a deliberate policy for school reopening and recovery from the COVID-19 [3].

Furthermore, the application of Public Relations in the recovery process of tertiary institutions from the COVID-19 lockdown is very necessary. However, inadequate involvement of the Public Relations Unit in the decision-making process on school recovery, excessive management influence on the operations of the Unit, lack of funds for the operations of the Unit, and lack of professionals to handle the Unit among others can limit the success in the application of public relations in the recovery process among Nigerian tertiary institutions [3].

5. RECOMMENDATIONS

From the conclusion of this study, the following recommendations are made for enhanced policy on the practice of public relations in the management of post-lockdown schools in Nigeria:

- i. Involvement of public relations in strategic management decisions in the Post Covid-19 Era of School Reopening among institutions is very important as it will help public relations managers/officers to be more familiar with the decision process of the school for more effective communication of such decisions to relevant stakeholders.
- ii. There should be a strong synergy or collaboration between Public Relations Units, management teams, and other stakeholders in developing and implementing effective reopening and recovery plans with high transparency and truthfulness.
- iii. There should be a designated office for public relations in schools as that can enhance independence and encourage more productivity.
- iv. Public relations function in the context of Post-Covid-19 school reopening should not be done in isolation of other functions but be integrated so that the achievement of one would mean the realization of the other.
- v. Public relations should be allowed to operate without management interference to encourage more expressions and results.
- vi. Public relations unit should not be allowed to be managed by a quack but by a highly professional manager who understands better all the intricacies of the profession.
- vii. Public relations units in schools should be equipped with the necessary tools to be able to effectively carryout the assignment.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Broad-Based Black Economic Empowerment & the Preferential Procurement Policy Framework Act in Selected Small and Medium Enterprises in Cape Town, South Africa

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ABSTRACT

The Broad-Based Black Economic Empowerment (BBBEE) legislation, introduced in South Africa post-1994, aims to redress economic disparities and ensure inclusive participation in the economy. Despite its noble intentions, its implementation has faced challenges, particularly for Small and Medium Enterprises (SMEs). This study explores the perceptions of SME owners and managers in Cape Town, South Africa regarding the impact of BBBEE legislation on their businesses. The findings reveal that the legislation has been more of a hindrance than a facilitator, with issues such as limited access to public sector opportunities, 'fronting' by connected elites, and prevalent fraud and corruption. The Preferential Procurement Policy Framework Act (PPPFA), enacted to regulate public sector procurement processes, plays a crucial role in supporting BBBEE objectives. By promoting equity, transparency, and competitiveness in government procurement, the PPPFA aims to level the playing field for historically disadvantaged individuals and businesses. This study suggests that while the PPPFA has the potential to bolster BBBEE, its effectiveness is contingent on overcoming the existing challenges in the implementation of BBBEE legislation. The recommendations call for an overhaul of the legislation to ensure it effectively delivers economic empowerment to previously disadvantaged individuals and communities in South Africa.

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1. INTRODUCTION

In democratic nations, the engagement of citizens in the economic activities of the state is considered a fundamental human right [1]. Inequalities among citizens in different countries often arise from discrimination based on gender, race, religious beliefs, sexual orientation, and ethnicity [2,3]. Redressing these inequalities and injustices remains a work in progress in many countries [4]. Post-1994 democratic South Africa has faced the challenge of addressing the discriminatory legacy of Apartheid across various socio-economic spheres [5,5a]. To this end, several Acts of Parliament have been promulgated to repeal Apartheid-era laws in areas such as education, health, job opportunities, housing, and social care [6]. These legislative measures aimed to proactively empower the majority Black population and previously disadvantaged minorities to fully participate in national economic activities [7]. Recognising the role of Small and Medium Enterprises (SMEs) in employment creation and economic development [5a,8], the post-1994 democratic South African government promulgated the Black Economic Empowerment (BEE) Act 53 of 2003, which was later amended to the Broad-Based Black Economic Empowerment (BBBEE) Act 46 of 2013. The primary focus of this legislation is to redress the injustices of the Apartheid era by prioritising direct access to business opportunities within the South African public sector for marginalised and previously disadvantaged individuals (PDIs) [5a].

The BBBEE legislation categorises owner-managed SMEs into three groups: (i) Exempt Micro Enterprises (EMEs) with an annual turnover of ten million Rands or less, (ii) Qualifying Small Enterprises (QSEs) with an annual turnover ranging between ten million Rands and fifty million Rands, and (iii) Generic Enterprises (GEs) with an annual turnover of more than fifty million Rands [9]. Each category qualifies for different levels of business opportunities within the South African public sector as part of the empowerment and transformation agenda [5a].

To support the objectives of the BBBEE legislation, the Preferential Procurement Policy Framework Act (PPPFA) plays a crucial role. Enacted to regulate the procurement processes within public sector organisations, the PPPFA aims to promote equity, transparency, and competitiveness in government procurement, ensuring that public funds are utilised effectively and efficiently. It also seeks to address historical inequalities and promote economic empowerment among previously disadvantaged groups, including women, youth, and people with disabilities. The PPPFA is underpinned by the principles of the South African Constitution, particularly Section 217, which mandates that all procurement of goods and services by the state must be fair, equitable, transparent, competitive, and cost-effective [10]. The Act aligns with the BBBEE Act of 2003, providing a framework for the promotion of economic transformation and the empowerment of black South Africans.

Key provisions of the PPPFA include the establishment of a preferential procurement policy, which allows for the allocation of a certain percentage of points in the bidding process to bidders who meet specific criteria related to empowerment and socio-economic development. This approach is designed to level the playing field for historically disadvantaged individuals and businesses, thereby supporting the objectives of the BBBEE legislation. South African scholars and legal experts have analysed the impact and effectiveness of the PPPFA in promoting social and economic development. Bolton [11] discusses the challenges and opportunities associated with implementing the PPPFA, in the context of promoting small, medium, and micro-enterprises (SMMEs), since its introduction six years earlier, in 2000. The PPPFA has been aligned with the BBBEE since its overhaul in 2011 with respect to the envisaged public procurement transformation in South Africa [12]. They highlight that public procurement spending accounted for 15% of GDP in 21/22, emphasising its significance for EMEs and QSEs in the country [12]. By leveraging government procurement, the PPPFA aims to promote broad-based economic empowerment and development, ensuring the objectives of economic transformation and empowerment are realised in the public procurement process.

2. LITERATURE REVIEW

2.1 Definition of SMEs

The definitions of SMEs vary across different countries [13]. In general definitions of SMEs alluded to the characteristics that include entities that employ less than fifty (50) employees with a threshold of two hundred and fifty (250) employees [14], independent and self-funded entities, registered and unregistered, operating within wider eco-system of firms, account for the creation of most new jobs [5a,15]. The variations in categorisations invariably capture the nature of SMEs such as the number of employees, sales, assets, and annual turnover [16]. Relatedly, definitions often emphasise the job creation capacity of SMEs within an economy and economic growth, employment creation, and revenue generation respective from economic sub-sectors [17]. Equally, some definitions of SMEs propagate their inherent characteristics such as flexibility, creativity, innovation, and intentional ability to adapt to unstable environments on limited resources and budget [5a,18]. Inevitably, the role of SMEs in generating economic growth, wealth and job creation and social and economic upliftment [19] has prompted policymakers and government institutions to focus on creating and enabling business environments that support the growth and expansion of the SME sector [20,14]. Notwithstanding the different definitions of SMEs, research evidence indicates that they support the development of economies [5a,21,19,22,23].

Despite the significance of SMEs towards job creation and economic empowerment they face challenges in terms of limited resources, business management skills, finances, access to markets, limited government support, complex legislation, fraud, and corruption in the public procurement sector [21] and low institutional credit that negatively impact productivity [5a,8]. Internal organisational challenges include compliance with occupational health issues

(OHS), human resources (HR), leadership style, workplace communication, resource allocation, tender corruption, fraud, delays in projects completion and shortages of professional skills [5a,24]. Further, the negative effects of organisational cultures are averse to innovativeness, proactiveness and risk-taking [22]. Thus, the view is that the success of SMEs depends on their ability to imitate and adopt sustainable private-sector business practices in responding to dynamic environmental, economic, and social factors [5a,25].

2.2 The Broad-Based Black Economic Empowerment (BBBEE) Legislation

The term Broad-Based Black Empowerment (BBBEE) refers to the South African government's legislative framework that seeks to ensure economic equity through the active participation of previously disadvantaged individuals. The BBBEE definition of Black people is generic to South African citizens through birth, descent, or naturalisation of African, Coloured, or Indian prior to 27 April 1994 stated as follows [5a]:

“...the viable economic empowerment of all Black people, in particular women, workers, youth, people with disabilities and people living in rural areas, through diverse but integrated socio-economic strategies...” [2].

The primary focus is to engender transformation in the South African economy through the active participation of previously disadvantaged individuals in the ownership, management control, skills development, (ESD) enterprise and supplier development as well as (SD) socio-economic development [26]. Thus, the amended Broad-Based Black Economic Empowerment (BBBEE) Act is legislation borne out of the need to redress social injustice by opening up equal access to economic opportunities in the new South Africa [5,5a]. Addressing social justice and equity through legislation is not unique to SA [4] as the BBBEE legislation seeks to address the inequalities of the apartheid era in response to the decline in the gross domestic product (GDP), unemployment rate increasing from 17% in 1994 to more than 41% in the 4th quarter of 2023, according to the expanded definition [27]. The terms BEE and BBBEE are used interchangeably in highlighting the legislation-driven mandate to increase the inclusion and participation of Black people through owning, controlling, and managing businesses in the South African economy. The B-BBEE Commission [5a,28] defines BBBEE as a government initiative with the intention of empowering companies owned by previously disadvantaged individuals (PDIs) to participate in business opportunities within the South African public sector through the BBBEE verification and compliance process. The professionals responsible for the BBBEE verification process are accredited by a designated BBBEE verification professional regulator [5a].

The BBBEE legislation seeks to proactively redress social injustice suffered by the previously disadvantaged individuals and racial groups under the Apartheid regime by opening up access to economic opportunities in the public sector [5,5a]. Despite the proactive government BBBEE strategies critical for the achievement of social justice through active participation in the economy by entities owned by previously

disadvantaged individuals, the negative economic growth rate negatively impacts the expansion of Small and Medium Enterprises (thereafter SMEs) [29]. The decline in the Gross Domestic Product (GDP) diminishes the growth of the economy and the public sector [30] thereby collectively constraining the attainment of the intended BBBEE outcomes [5a].

2.3 BBBEE and Small Medium Enterprises Classification

The South African Broad-Based Black Economic Empowerment (BBBEE) legislation categorises owner-managed SMEs based on the following predetermined categories [5a]: (i) Exempt Micro Enterprises (EME) organisations with an annual turnover of ten (10) million Rands or less. (ii) Qualifying Small Enterprises (QSE) have annual turnover ranges of between ten (10) million Rands to fifty (50) million Rands annually, and (iii) Generic Enterprises (GE) organisations have an annual turnover of more than fifty (50) million Rands per annum [9]. The generic classification and lack of distinction between Micro, Small and Medium businesses create ambiguity and consequential red tape duplication to the detriment of focusing on appropriate support for the different entrepreneurial start-ups, operations, and the growth potential of the different entities [31].

2.4 Implementation of the BBBEE Legislation

The actual measurement of how and which each entity qualifies for accessing government tenders is beyond this paper. Suffice it to state that entities with 51% or more black ownership achieve higher points on the overall Generic BBBEE scorecard [5a,32]. However, the black ownership component as a percentage (%) may be offset for compliance purposes by scores in other areas of the scorecard such as skill development, enterprise development and supplier development [33]. The government imposed qualifying parameters to ensure compliance with the BBBEE legislation while the qualification matrix and the scorecards are assessed by BBBEE verification professionals accredited by the BBBEE verification professional regulator [5a]. Thus, for SMEs to qualify to access opportunities within the South African public sector they are evaluated by BBBEE verification professionals to ensure compliance with the legislation [5a,26].

The government instituted changes to the 2003 BBBEE legislation “old” codes and introduced “new” amended codes gazetted in 2014 for Qualifying Small Enterprises (QSEs) which resulted in entities registered under the old codes dropping by at least one level which negatively impacted the effectiveness of the intended transformation at both the micro and national levels [3,5a]. The “new codes” are deemed punitive and onerous and they downgraded companies by three (3) levels on the BBBEE qualification matrix compared to the “old codes”. The changes have qualification assessment and cost implications of the BBBEE amended codes for the periods 2007, and 2013 [5a,34]. The impact on the development of components which now constitute part of the supply chain framework for the enterprise, and supplier development (ESD) and supplier development (SD) criteria and upskilling staff have been overcomplicated by legislated requirements for economic active population (EAP) quotas [5a].

The practical implementation of the BBBEE legislation has generated debates from large and small business organisations. The top 100 organisations listed on the JSE highlighted the tenuous relationship between BBBEE ownership deals and the dividend pay-out ratios as the short-term benefits for the beneficiaries and the interests of policymakers discourage ownership deals which compromise future profitable projects thereby negatively impacting employment creation opportunities and economic growth [5a,35]. While BBBEE transformation vehicles that award shares through profit-share trusts to gain access to government contracts benefit recipients with higher salaries and share allocations compared to unskilled workers thereby compromising the delivery of social justice for previously disadvantaged individuals [36]. In the Mining sector, there are apparent contradictions between the BBBEE legislation and the Mining Charter on the implementation of the transformation agenda as mining executives interpret the legislation in terms of culture change whereas the BBBEE legislation emphasises redressing the historical imbalances of the Apartheid legacy [5a,37]. There is a need for clarity on the definition of transformation by the regulator and the integration of policy documents in the mining sector to align the Mining Charter to the BBBEE legislation and set realistic transformation targets that mainly affect Black people to address inequality, poverty, and unemployment [5a,37].

The Preferential Procurement Policy Framework Act (PPPFA) as a supplier diversity tool of SMMEs falls short of redressing inequalities of the Apartheid system [5a,38]. Further highlighting, that the PPPFA is a preferential system that leverages the purchasing power of government to distribute wealth in favour of previously disadvantaged individuals (PDIs) using the 80/20 (80 points for price and 20 for PDIs) and 90/10 (90 points for price and 10 for PDIs) principles for awarding government tenders [5a]. These unintended consequences require regulatory agencies to prove black shareholding inadvertently adding to the administrative red tape and documentation related to share registers, certificates and agreements ultimately putting the burden on EMEs and QSEs which impacts the significance of the entire certification process, as they strive to secure their reputation as certification bodies [5a,32]. In this context, the PPPFA supplier diversity requirements impose the inclusion of suppliers from previously disadvantaged segments of the population for preferential access to government tenders. However, SMEs lack the requisite knowledge of the legislation which increases chances for non-compliance due to the limited skill levels and perceived administrative burdens as these entities must comply with provisions such as the Basic Conditions of Employment Act (BCEA) and Labour Relations Act (LRA) historically aimed at protecting employees in large enterprises [5a,23]. Thus, the imposed supplier diversity clauses foster an unhealthy dependency by some SMMEs on government support at the expense of exploring alternative business opportunities outside of the public sector [5a,23].

The design and implementation of BBBEE legislation negates the intended empowerment mantra of proactive “Broad-Based” participation of Black people in the economy through sustainable public procurement. The implementation process has been compromised by corruption, fraud, fronting and enrichment of the politically connected elite Black minority at the expense of the majority of

previously disadvantaged individuals [5a,39]. The unintended negative impact of BBBEE legislation on the SME sector includes the entry of incompetent 'compliant' companies and tender corruption which economically strain the entities rather than empower them to overcome past injustices as per the objectives of the BBBEE legislation [5a,40]. Notwithstanding the primary goal of the BBBEE legislation, the ineffective implementation, support and monitoring mechanisms by the government have created corrupt practices that have given rise to fronting by Black elites, tender corruption, and nepotism [5a,40,39].

Tourism micro-enterprises operating in South African townships highlighted minimal support for the BBBEE legislation [41]. There is an apparent bias towards export-oriented Black-owned SMEs and SMMEs at the expense of White-owned SMEs that have to devise their own strategies to benefit from the same legislation [5a,42]. In many ways, the challenges and sentiments regarding the efficacy and significance of the BBBEE legislation in South Africa, echo the resistance to the Canadian government employment equity (EE) initiatives legislated through the Employment Equity Act of 1986 to address employment equity and economic opportunity for the benefit of previously disadvantaged designated groups [4,5a]. Notwithstanding the high costs and onerous processes, limited resources, limited government support and complexities the BBBEE legislation has capacitated the growth and job creation of SMEs in South Africa [21].

3. METHODOLOGY

An exploratory qualitative case study design was adopted to explore the experiences of owner-managers of Exempt Micro Enterprises (EMEs) and Qualifying Small Enterprises (QSEs) with different levels of BBBEE status on the implementation of BBBEE legislation in Cape Town, South Africa. The qualitative approach provides answers to *why*, *what*, and *how* questions [5a,43] and obtains deeper insights into the phenomena within the context in which they occur [44]. The case study design enhances the rich understanding of the research context and the enacted processes [45] within the real-life context [44]. The study used face-to-face, video conference interviews, and self-administered questionnaires to collect data [5a]. The interview method enables the exchange of information between the person conducting the interview (interviewer) and the one being interviewed (interviewee) [46] and verbal communication between respondents and the researcher [47]. Semi-structured interviews are important in exploratory studies as they allow probing for elaboration to understand meanings and interpretations [5a,48]. Self-administered questionnaires are widely used in collecting survey information [49,43]. The questionnaire was pilot-tested to check the relevance and validity of the items. All the questions were found to be clear to all the participants [5a].

The study population comprised all Exempt Micro Enterprises (EMEs) and Qualifying Small Enterprises (QSEs) in Cape Town. The purposive sample of seventeen (17) participants comprises twelve (12) males and five (5) females) SME owners and 1 (one) employee based in Cape Town [5a]. However, the study sample [43], did not have representation from the Black African ethnic group.

Participants consented in writing to participating in the study and were informed that they were free to withdraw at any point [5a]. To ensure anonymity participants were instructed not to write their names on the questionnaire. In addition, all participants were assured that their responses would be kept confidential and used strictly for the purpose of the study [5a].

Descriptive analysis, content and thematic analysis were used to analyse the data. Frequencies and percentages were used to present the data. Data are presented in Table 1 below.

4. FINDINGS

The findings are presented below [5a]:

Table 1. Case profile (n=17)

SME (Case study)	Gender	BBBEE status level	SME Status	Business Sector	Years in Business
1	Female	1	EME	Leisure & Tourism	2
2	Male	1	EME	Manufacturing	38
3	Female	2	EME	Business Services	31
4	Male	1	EME	Engineering	9
5	Male	1	EME	Business Services	8
6	Male	4	EME	Manufacturing	2
7	Male	1	EME	Manufacturing	1
8	Female	1	EME	Media & Marketing	3
9	Male	2	EME	Retail	15
10	Male	4	EME	Retail	29
11	Female	4	EME	Laundry services	29
12	Male	1	QSE	Engineering	1
13	Male	1	QSE	Information Technology	23
14	Male	1	QSE	Business Services	11
15	Male	1	QSE	Business Services	4
16	Female	1	QSE	Manufacturing	4
17	Male	4	QSE	Manufacturing	17

Key:

(i) EME = Exempt Micro Enterprises organisations that have an annual turnover of ten (10) million Rands or less.

(ii) QSE = Qualifying Small Enterprises whose annual turnover ranges between ten (10) million Rands to fifty (50) million Rands annually

The racial and ethnic backgrounds show that 65% define themselves as Coloured, 29% as White and 6% as Indian. The business ownership status shows that 53% are owners and 41% are Partners in the business and 6% are employees [5a]. The SME status shows that 65% have EME status while 35% have QSE status. The BBBEE status shows that 65% are Level 1, 12% Level 2, 18% Level 4 and 6% Level 8. The BBBEE status as per the BBBEE legislation shows that 65% were Exempt Micro Enterprises (EMEs) generating a maximum annual turnover of ten million rand (R10m) per annum [5a]. While 35% are Qualifying Small Enterprises

(QSE) generating a turnover of more than ten million rand (R10m) and less than fifty million rand (R50m) per annum [5a].

4.1 BBBEE & PPPFA Outcomes and SMEs

The Broad-Based Black Economic Empowerment (BBBEE) and the Preferential Procurement Policy Framework Act were enacted to deliver social justice and redress the injustices of the Apartheid era through prioritising access to business opportunities within the different levels of the South African government by the marginalised and previously disadvantaged individuals (PDIs) and businesses [5a].

Most of the respondents reported that their businesses did not benefit from BBBEE legislation and that it has not lived up to expectations in terms of availing access to public sector business opportunities for their businesses [5a].

This view was summed up by Participant 1 who stated that: *“I did not gain any customers based on my BBBEE status.”* While Participant 16 retorted that: *“BBBEE has not really opened any doors for us.”*

White business owners pointed out that BBBEE legislation should provide equal opportunities for White-owned SMEs that have the requisite BBBEE status to access business opportunities in the public sector.

Respondent Participant 11 (BBBEE Level 4 status) noted the following with respect to the BBBEE status:

“It does not benefit us. It would benefit our company 100% if we were Level 1” ...It affects us negatively, instead of positively. It is difficult to grow.”

Further stating that the BBBEE legislation is cumbersome for White organisations to qualify for the requisite BBBEE status. Most of the respondents irrespective of ethnicity reported that the BBBEE legislation has not created significant benefits for their business organisations in terms of accessing opportunities in the South African government sector [5a]. The BBBEE legislation has not opened business opportunities for most BBBEE-compliant businesses [50,40]. The White minority groups highlighted that the BBBEE legislation which by design excludes them from accessing public sector business opportunities is tantamount to “reverse Apartheid” and “reverse discrimination” [5a,51].

4.2 Facilitator or Hindrance for SMEs?

Most of the White respondents (80%) were of the view that the BBBEE legislation was a hindrance given the exclusory provisions which discourage, penalise, and curtail the growth prospects of White-owned family companies. While 33% of the Coloured and Indian respondents cited the negative effects of fraud and corruption in the BBBEE eco-system and 16% specifically cited the high cost of the BBBEE certification process [5a]. Most of the respondents were of the view that the BBBEE

legislation has failed to promote equality and empowerment for the majority of previously disadvantaged individuals. Further stating that the built-in hindrances defeat the implementation process and susceptibility to corruption and fraud negates the basic tenets of restoring social justice and equality enshrined in the BBBEE legislation to redress the inequalities of the Apartheid era [5a].

Most of the respondents cited the flaws in the BBBEE that allow the Black elites with connections to government officials to benefit at the expense of the majority. The 'fronting and window-dressing' practices, corruption, and fraud [39] and the enrichment of the politically connected elite Black minority groups inherent in the BBBEE implementation process defeat the tenets of the implied transformation agenda [5a,40].

4.3 BBBEE and Wealth Distribution

Wealth distribution through shareholding by the previously disadvantaged individuals in the majority white-owned companies qualifies an entity for the Level 1 BBBEE status. Most of the White respondents pointed out that the shareholding provision was unfair since it compels them to transfer 51% ownership of their companies to a few mainly politically connected Black individuals [5a]. Further stating that this shareholding provision would not equate to wealth distribution to the majority of previously disempowered individuals but rather empower a handful of politically connected Black elites. The implications of the company shareholding provision were expressed by one of the White respondents as follows [5a]:

"To me there is a requirement of 45% [related to the scorecard] to do with management and shareholding. To become Level 1 BBBEE company, you need to bring on board people in your company that will give you that 51% of shareholding where we don't currently have that. Why do I need to do that? The company is running perfectly well but all of a sudden now we got to change our shareholding and directorate structure to accommodate BBBEE. BBBEE is not structured to suit business. BBBEE can be classified as compulsory. You have to abide by it. You don't have a choice."

There are challenges in reconciling the ambiguous BBBEE legislation and the need for transparent implementation in the spirit of the transformation agenda [37]. The folly of awarding shares as a BBBEE status qualification heightens resentment and erodes trust among the White South African population group [5a,36].

4.4 BBBEE Implementation Challenges

Most of the respondents cited the main challenges as the cumbersome and costly application process of filling forms that adds to the administrative burden exacerbated by poor monitoring of compliance with the BBBEE legislative framework by the government. From their point of view, the bureaucratic 'red tape' processes are prone to corruption and exploitation by politically connected Black elites [5a].

Participant 16 expressed the challenges as follows [5a]:

“Some kind of judicial oversight of procurement [is required]. National Treasury has failed. Misuse of legislation and systems have developed that focus on criminality and procurement corruption in BBBEE implementation. Zondo [Commission] is failing. Declaration of Interest (SDB4 Forms) be firmed up where families and connections of families of politicians and officials are denied the right to do business with any level of government or SOE’s. That lying in any declaration is criminalised. Politicians and officials’ lifestyles audited while in office and up to 5 years after they leave office. Proper advancement paths be created for small and emerging companies to grow; Closer scrutiny is given to anti-competitive behaviours.

In addition to the corruption, fraud and fronting by politically connected Black elites, some of the main challenges cited by respondents are (i) the cumbersome implementation processes and the default to an apparent tick box exercise when scoring the highest BBBEE points on the back of the lowest amount of money spent to achieve those points which raises significant challenges with the justification for the BBBEE legislation [51] and (ii) the negative effect of the punitive and onerous BBBEE codes [5a,34].

5. DISCUSSION

All the respondents were BBBEE qualified and conversant with the primary focus of the BBBEE legislation towards redressing the injustices of the Apartheid era [42]. Despite the BBBEE status, the respondents failed to access the public sector business opportunities [41,50,23]. In particular, the exclusionary nature of the BBBEE legislation was cited by White respondents as akin to “reverse Apartheid” and tantamount to “reverse discrimination” [5a,51,34,40]. Similarly, the BBBEE provision for White-owned businesses to qualify through ceding majority shareholding to Blacks [42] was deemed untenable and considered as modern-day robbery. Relatedly, the ambiguity of the legislation on the dispossession of shareholding to deliver the transformation agenda was contested by the respondents [5a,37,36,35]. The corruption and fraud favouring the Black elites with connections to government networks through *fronting and window dressing practices*, and the manipulation of BBBEE qualifying scorecard evaluations [38]; [52,53,39] major hindrance in the implementation of the BBBEE legislation. The cumbersome, bureaucratic, and costly red-tape certification processes and scorecard evaluations [51], the punitive and onerous BBBEE codes [34] discourage SMES from applying for BBBEE status [5a].

6. CONCLUSIONS

The study's main conclusions are that the BBBEE legislation has real and perceived challenges in delivering the envisaged social justice and equality for the previously disadvantaged individuals. Key indications point to the systemic failures in the implementation of the BBBEE towards enabling the qualifying designated groups to access business opportunities in the different levels of the South African

public sector [5a]. Some of the key challenges include cumbersome certification process which is mired in red tape and the monitoring complexity by the accredited BBBEE verification processes and the unintended outcomes such as corruption and fraud have collectively undermined the implementation process [5a]. There is a need for policymakers, key stakeholders, and representatives of the diverse designated groups to review and take stock of the impact of the BBBEE legislation against its intended focus to redress social injustices since its promulgation at the dawn of democracy post-1994 [5a]. The review should re-calibrate the BBBEE legislation and its fitness for the purpose towards wealth creation and the uplifting of previously disadvantaged amid the growing levels of unemployment and rising levels of poverty and inequality. Further studies should consider and examine the efficacy, competence, and fitness for the purpose of the public sector to implement the procurement policy at the core of the BBBEE Act [5a].

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Evaluating the Effectiveness of the Kisan Credit Card Scheme: A Data-Driven Analysis from Karnataka, India

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ABSTRACT

The study detailing the performance of the Kisan Credit Card (KCC) scheme in Karnataka is notably important for the scientific community, especially those focused on agricultural finance, policy-making, and rural development. By examining the scheme's implementation, growth, and outcomes, the study contributes to understanding how financial initiatives can enhance agricultural productivity, financial inclusion, and economic resilience among farmers. The study examined the performance of the KCC scheme by considering the number of operative cards and the amount outstanding from the financial year 2017 to 2022. The study is descriptive as well as inferential in nature. It is found that the number of operative KCCs and the amount outstanding have grown by 2.98 percent and 31.26 percent on an annual basis respectively over a period of five years. Co-operative banks were found to be ranked first having 66 percent of operative KCCs and 82 percent of the amount outstanding during the year 2021-22 due to the initiation of the Government of Karnataka under the KCC saturation drive. The KCC scheme is one of the agriculture credit delivery instruments that offers several benefits, helps in uplifting the standards of living of farmers, encourages them to shift from subsistence farming to commercial farming by providing timely credit, and also brings them under the purview of financial inclusion. The study suggested that outreach of the KCC scheme should be improved in terms of card issuance as the CAGR was only 2.98 percent during the study period. A comparison study of the growth of the KCC scheme between various states can be done to address the regional growth of the scheme.

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Keywords: Kisan credit card; agriculture credit; performance; period wise; agency wise.

1. INTRODUCTION

Agriculture is said to be the backbone of the Indian economy, where more than 60 percent of the population depends either directly or indirectly on agriculture and its allied activities for their livelihood. Agriculture is a way of life, a tradition, which for centuries, thus runs the opening sentence of the agriculture policy. Agriculture will continue to be central to all the strategies for socio-economic development of the country [1]. The Kisan Credit Card scheme is an ideal trump card for the delivery of agriculture credit in India, which was introduced in the year 1998 based on the recommendations of the one-man high-level committee of Shri. R.V. Gupta. The KCC scheme has evolved over time to include a variety of new features in addition to crop production financing, including consumption expenditure, farm asset maintenance, term loans for agriculture and allied sectors, the facilities of debit cards, a one-time paperwork facility, built-in budget overruns, and unlimited withdrawals [1a]. The scheme is an innovative credit delivery mechanism to all farmers, especially concentrating on marginal and small farmers to offer adequate credit in a trouble-free manner with the intention of channelizing them institutional credit for both productions as well as investment motives, which has been offered by multi-agencies viz., Commercial banks, Regional Rural banks, and Co-operative banks under the guidance and regulation of NABARD and the Government of India [1b].

The primary goal of the program was to give farmers access to timely credit support from the banking industry through a single point of contact with flexible and streamlined procedures for their total credit needs, including crop cultivation, post-harvest costs, produce marketing, asset maintenance, activities related to agriculture, household costs, and other supplementary running costs [1b]. The scheme also provides long-term credit for investment activities depending on the cropping pattern and scale of finance effective from 2004. Farmers have the option to use loans for a variety of reasons thanks to KCC's self-regulatory mechanism and revolve cash credit facility, which allows for any number of withdrawals and repayments within the approved credit limit [1b].

As the Kisan Credit Card scheme offers a basket of benefits like collateral-free loans, an extension of repayment, and crop insurance coverage as well as the Personal Accident Insurance Scheme (PAIS), Prompt Repayment Initiative (PRI), Modified Interest Subvention Scheme (MISS), making it more comfortable and feasible to access by marginal and small farmers who account for 80.41 percent [1c] of total farmers in Karnataka. Hence, the purpose has been served through the scheme by bringing them under the surveillance of formal credit, which helps them not only to escape from non-institutional sources but also brings them under the purview of financial inclusion to get other benefits of the banking sector [1b].

There is an extension of the facility of providing separate Kisan Credit cards to the farmers undertaking Animal husbandry, Dairy farming, and Fishery from the financial year 2018-19. The Department of Agriculture and Farmers' Welfare and Ministry for Fisheries, Animal Husbandry, and Dairying under the guidance of GOI, RBI, and NABARD have been taking various KCC saturation drives and campaigns to increase awareness and enhance the outreach of the Scheme [1b]. As a result, Co-operative banks, RRBs, and Commercial banks have initiated several KCC saturation drives in the state and maintained separate counters in respective branches to create awareness and to handle the KCC related issues like the fresh issue of cards, renewal of existing cards, enhancement of limit, activation of inoperative cards, etc within the minimum amount of time. During the financial year 2021-22, there are 47.37 lakh operating kisan cards, of which 1.75 lakh crore amount has been outstanding in Karnataka [1b].

2. REVIEW OF THE LITERATURE

2.1 Conceptual Postulations

Various studies have discussed the structure of the agriculture credit system in India and its delivery mechanism, the promulgation of the Kisan Credit Card scheme, and its operational procedure as well.

Gadgil [2] analyzed the major changes in agriculture credit since 1951 and also studied the performance of formal agricultural credit with respect to its contribution towards agricultural growth and equity [1b]. The historical overview, reforms of agricultural credit, and the progress of formal credit to agriculture by describing the proportionate sharing of multi-agencies have been studied by Mohan [3] and observed that non-institutional credit was the major source and Co-operatives were playing a vital role before nationalization of banks. Ramkumar & Chavan [4] commented that the growing portion of indirect finance, which has expanded its purview to include a variety of new types of farm lending, was largely responsible for the rise in credit [1b].

Selvam & Karpagam [5] aimed to understand the conceptual framework of the KCC Scheme by considering its salient features, objectives, and associated benefits and opined that KCC within a short span of time has been recognized as a fairly popular short-term credit mechanism among the farming community and also appreciated and accepted by bankers as well [1b]. Godara et al. [6] found that the rate of agricultural credit disbursement is slowing, the proportion of small farmers is declining, and repayment of old loans was the main reason to misutilize the loan amount by examining the concerns and issues in agricultural credit in India [1b].

Marichami & Aananthi [7] opined that KCC has emerged as an innovative and indispensable delivery mechanism for farmers to access credit and felt that there is a wide disparity in the performance of Cooperative banks, Commercial banks, and Regional Rural banks. Dar [8] analyzed the trend and growth of the flow of credit to agriculture after 1991 in India including both institutional and non-

institutional sources and concluded that the provision of extending formal credit to agriculture in a convenient manner should be the main concern of policymakers, planners, and development economists. Another study by Kalirajan & Selvam [9] described the notion of KCC, Benefits, Eligibility criteria, composite credit limit, and also a comparison of Kisan Credit Cards offered by Different banks [1b].

2.2 Empirical Analysis of the Progress of the KCC Scheme

Samanatra (2010) critically examined the KCC scheme's progress by surveying 14 states and 178 bank branches and revealed that there were operational issues such as eligibility criteria, levy of charges, non-coverage of crop insurance for specific crops, interest rates, etc. Kumar et al., [10] identified the socio-economic determinants of households to avail credit by assessing the agency-wise progress of the KCC scheme and concluded that the coverage of different categories of farmers under KCC is not well done [1b].

Meena & Reddy [11] found that the income of KCC holders was 25 to 30 percent more as compared to non-KCC holders and also suggested that the scheme should not only be a vehicle of short-term credit to agriculture but also progressively as a source of investment and consumption needs of the farming community.

Jainuddin et al., [12] analyzed the efficiency of the KCC scheme in the Bellary district of Karnataka among the designated financial institutions through a comparative study between Commercial banks and Cooperative banks in terms of the cost of credit approach and the number of KCCs renewed, found that overall interest cost and credit disbursement were higher in the former compared to latter one. Kaur & Dhaliwal [13] observed that commercial banks were ahead of cooperative banks and regional rural banks in terms of cards issued and amounts sanctioned under the KCC scheme during the study period from 1998-99 to 2012-13. Jainuddin et al., [12] exhibited that while credit disbursement was rising generally at the national level, there was a mismatch between demand and supply of credit at the grassroots level [1b].

Mohan & Naidu [3] identified the various initiatives taken by the Government like farm credit packages, interest subvention, collateral-free loans, relief at the time of natural calamities, Agriculture debt waiver, and debt relief schemes to enhance the flow of agriculture credit. Nagaveni et al., (2019) revealed that Compared to non-KCC beneficiaries, the overall cost of cultivating crops by KCC holders was higher, but their net returns from cultivation were higher associated with a lesser average credit gap. Chanda [14] Critically examined the factors of KCC lending across Indian states, researchers discovered that states with initially better access to agricultural financing have higher levels of KCC lending later on. state-wise and zone-wise progress of the KCC scheme for the period 2001-02 to 2012-13 has been examined by Kaur [13] and revealed that the number of cards issued per hectare of the cropped area was the highest in the North-eastern region. Since the majority of Indian farmers are small-scale operators, it was

determined that the banking industry should effectively promote the KCC plan and improve the hassle-free credit delivery mechanisms to the agricultural sector [15].

Vilas et al., (2021) observed that there was a sharp decline in the number of cards but a multi-fold increase in the amount sanctioned on the KCC scheme from 2017 to 2021 and concluded the initiation of the KCC Scheme was a watershed moment in Indian agricultural credit history. Sannathi et al., [16] analyzed the evolution of the KCC scheme and compared the growth of the number of functioning Kisan cards and the amount outstanding in India. Mishra & Chaudhary [17] opined that significant differences have been found in the case of the number of cards issued among different states during 2020, shown through a systematic assessment of the KCC scheme. Singh & Prakash [18] revealed a noteworthy improvement in the farmers' preferred source of credit following the implementation of the KCC Scheme, with a moderate impact, as they transitioned from non-institutional to institutional sources. Bodakhe et al., [19] suggested that organizing training on improved farming methods and expanding educational opportunities could help farmers feel more confident about implementing the KCC program.

2.3 Research Gap and Significance of the Present Study

The review of previous literature showed that the channelization of institutional credit to the farming community especially by addressing the issues of marginal and small farmers has been done through the effective implantation of the KCC scheme [20-24,1b]. The emphasis of those studies is on the progress of the scheme which is assessed in terms of the number of operative Kisan cards and the amounts outstanding by multi-agencies in various states of the country over a different period of time. In an effort to review past literature, it is observed that no significant study has been contributed to assessing the growth of the KCC scheme in Karnataka for the period from 2017-18 to 2021-22 [1b]. Furthermore, this paper also addresses the differences in the growth of the number of operative cards and the amount outstanding by Commercial banks, RRBs, and Co-operative banks in Karnataka [25-28].

2.4 Objectives of the Study

- To assess the period-wise and agency-wise progress of the KCC scheme in Karnataka
- To analyze the relative share of Co-operative, Regional Rural, and Commercial Banks in terms of the number of operative KCCs and outstanding amounts in Karnataka.

2.5 Hypotheses of the Study

H0: There is no significant difference in the growth of the number of operative cards and the amount outstanding on the Kisan Credit Card sanctioned in Karnataka.

H0: There is no significant difference in the growth of the number of operative cards and outstanding of amounts sanctioned by Co-operative Banks, Regional Rural Banks, and Commercial Banks in Karnataka.

3. METHODOLOGY

The period-wise and agency-wise progress of the KCC scheme in Karnataka has been analyzed by taking into consideration five-year data from the financial year 2017-18 to 2021-22 for the purpose of the study. The data has been gathered from the Trend and Progress of Banking in India report of annual publications, RBI. Tables are used to display the progress, which was determined using the Mean, Standard variation, Compounded Annual Growth Rate, Chi-square, and Correlation [1b].

4. RESULTS AND DISCUSSION

4.1 Period-Wise Progress of the KCC Scheme

The KCC scheme has been viewed as a boon to the farming community especially for marginal and large farmers since its inception as it provides credit for both production as well as investment activities. The Government of Karnataka under the guidance of the Government of India and NABARD has been taking various initiatives to increase the outreach of the KCC scheme. The data for the years 2017–18 to 2022–22 have been reviewed and analyzed period by period about the number of active KCCs and outstanding amounts and presented the same in Table 1 [1b].

Table 1 shows the progress of the Kisan Credit Card scheme in Karnataka through the number of operative Kisan Credit Cards and the amount outstanding from the financial year 2017-18 to 2021-22.

Table 1. Period-wise Progress of the KCC scheme in Karnataka (Number in '000 & Amount in Crores)

Year	No. of operative KCCs	Amount Outstanding
2017-18	4091	44969
2018-19	3992	43978
2019-20	4109	47530
2020-21	4823	46090
2021-22	4737	175226

(Source: Trends & Progress of Banking in India, Publications, RBI)

The above data has been analyzed below.

Descriptive statistics:

Table 2. Number of Operative Kisan Credit Cards (in ‘000)

Sl. No	Particulars	No. of Operative KCC
1	N	5
2	Minimum	3992
3	Maximum	4823
4	Mean	4350.4
5	Std. Deviation	354.0687
6	CAGR	2.98

(Source: Compiled from a secondary source)

Table 2 describes that the mean value of the number of operative Kisan Credit Cards in Karnataka state between 2017-2022 was 4350.4 (in ‘000), where the number of operative cards was minimum during 2018-19, standing at 39.92 lakhs KCCs and which shot up to 48.23 lakhs in the year 2021-22. However, the number of operative cards fell to 47.37 lakhs during 2021-22 which showed a decline in the growth rate by 1.78 percent. The growth of the number of operative Kisan Credit Cards showed a CAGR of 2.98 which says that the number of operative KCCs grew by an average of 2.98 percent annually over a period of 5 years. The standard deviation shows more variability in the number of operative KCCs [1b].

Table 3 explains that the mean value of the amount outstanding on operative Kisan Credit Cards in Karnataka state between 2017-2022 was 71,558.6 (in crores). The amount outstanding was minimum during 2018-19 and maximum during 2021-22 of Rs. 43,978 crores and 1,75,226 crores respectively. However, compared to the financial year 2020-21 the amount outstanding has tremendously increased to 1.75 lakh crores from 46,090 crores which shows that more amount of loans have been disbursed to farmers under the scheme [1b]. The growth in the outstanding amount of Kisan Credit Cards showed a CAGR of 31.26 percent which states that the amount outstanding has grown by an average of 31.26 percent annually over 5 years. The standard deviation shows more variability in the outstanding amount of KCCs which may be due to the extreme values in the financial year 2021-22 as a result of various saturation drives of the KCC scheme from the Department of Farmers Welfare and the Government of Karnataka [1b].

Table 4 shows the Chi-Square value at 4 degrees of freedom, which explains that the result is statistically significant as the p-value is less than 0.00001. Therefore, the above-stated alternative Hypothesis, “There is a significant difference in the growth of the number of Operative cards and the amount outstanding on the KCC scheme” is accepted [1b].

Table 3. Amount Outstanding of Kisan Credit Card Scheme (in crores)

Sl. No	Particulars	No. of Operative KCC
1	N	5
2	Minimum	43978
3	Maximum	175226
4	Mean	71558.6
5	Std. Deviation	51847.1780
5	CAGR	31.26

(Source: Compiled from a secondary source)

Table 4. Chi-Square Value Regarding No. of Operative KCC and Amount Outstanding

Sl. No	Particulars	No. of Operative KCCs	Amount Outstanding
1	Chi-Square	0.0000	0.0000
2	Degree of Freedom	4	4
3	Sig.	1.0	1.0

(Source: Compiled from a secondary source)

4.2 Agency-Wise Progress of the KCC Scheme

The below table describes the relationship between the growth of the number of operative Kisan Credit Cards and the amount outstanding by Co-operative banks, RRBs, and Commercial banks. The correlation between the growth of the number of operative Kisan Credit Cards and the amount outstanding is High positive for Co-operative banks, Low Negative for RRBs, and High Negative in the case of Commercial banks [1b]. The p-value is not significant and fails to reject the null hypothesis. Hence, the null hypothesis "There is no significant difference in the growth of the number of operative cards and outstanding amounts sanctioned by Co-operative Banks, Regional Rural Banks, and Commercial Banks in Karnataka is accepted [1b].

Table 7 describes the relative share of disbursement of agriculture credit under the KCC scheme by Commercial banks, Regional Rural banks, and Co-operative banks in terms of the number of operative Kisan Credit Cards and the amount outstanding in percent from the financial year 2017-18 to 2021-22 in Karnataka. It is observed that Co-operative banks have the highest share in the percentage of the number of operative Kisan Credit Cards during the study period [1b]. Commercial banks have been in first place concerning the percentage of amount outstanding from 2017-18 to 2020-21 but fell drastically to 11 percent from 42 percent during 2021-22. However, the share of Co-operative banks has shot up and got the highest place in both the number as well as amount outstanding in the year 2021-22, whereas RRBs have been consistently in the third place compared to Co-operative banks and Commercial banks [1b].

Table 5. Agency-wise Progress of Kisan Credit Card Scheme in India Karnataka (Number in '000 & Amount in crore)

Sl. No.	Agency / Year	Co-operative		Regional Rural		Commercial		TOTAL	
		Banks		Banks		Banks			
		Number	Amount	Number	Amount	Number	Amount	Number	Amount
1	2017-18	2447	11,664	719	9,135	925	24,171	4091	44969
2	2018-19	2509	11,516	631	9,130	852	23,333	3992	43978
3	2019-20	2742	13,593	536	11,146	831	22,791	4109	47530
4	2020-21	2925	17,173	606	9,777	1292	19,140	4823	46090
5	2021-22	3125	1,44,511	668	11,701	944	19,013	4737	1,75,226

(Source: Trends & Progress of Banking in India, Publications, RBI) (Note 1: Number represents the number of operative Kisan Credit Cards and amount represents the total amount outstanding on the KCC scheme in Karnataka)

Table 6. Paired samples correlations: Related to the operative Number of KCCs and amount outstanding on KCC

Particulars	N	Correlation	Correlation Interpretation	Sig.	Results
Pair 1: Co- operative Banks No. & Amt of KCC	5	0.7651	High positive Correlation	0.2349	Not significant (Fails to Reject Ho)
Pair 2: RRBs No. & Amt of KCC	5	-0.3620	Low Negative Correlation	0.6380	Not significant (Fails to Reject Ho)
Pair 3: Commercial Banks No. & Amt of KCC	5	-0.6647	High Negative Correlation	0.3353	Not significant (Fails to Reject Ho)

(Source: Trends & Progress of Banking in India, Publications, RBI) (Compiled from a secondary source); (Note No. represents the number of operative Kisan Credit Cards and Amt represents the total amount outstanding on the KCC scheme in Karnataka)

Table 7. The Relative Share of Multi-agencies in terms of the Number of Operative KCCs & Amount Outstanding in Karnataka (in percent)

Year	Co-operative Banks		Regional Banks Rural		Commercial Banks		Total
	Number	Amount	Number	Amount	Number	Amount	
2017-18	60	26	17	20	23	54	100
2018-19	63	26	16	21	21	53	100
2019-20	67	29	13	23	20	48	100
2020-21	61	37	12	21	27	42	100
2021-22	66	82	14	7	20	11	100

(Source: Trends & Progress of Banking in India, Publications, RBI) (Compiled from a secondary source)

Table 8. Progress of KCC in the Selected States of India during 2022-23 (Numbers in '000 and amounts in crores)

Sl. No.	Agency / States	Co-operative Banks		Regional Rural Banks		Commercial Banks		Total	
		Number	Amount	Number	Amount	Number	Amount	Number	Amount
1	Karnataka	3125	1,44,511	668	11,701	944	19,013	4737	1,75,226
2	Uttar Pradesh	2682	7375	3517	44986	4272	70673	10471	123034
3	Rajasthan	3050	15752	780	18843	2387	59992	6216	94587
4	Madhya Pradesh	3851	20798	425	5978	1794	41837	6070	68613
5	Maharashtra	3539	21112	674	5910	2696	35069	6910	62091
6	Gujarat	965	13098	414	7392	1500	36450	2879	56941
7	Andhra Pradesh	1535	12136	946	11569	2096	32420	4577	56125
8	Punjab	976	7496	157	5779	1036	42505	2169	55780
9	Haryana	1169	12059	287	8271	796	27719	2253	48049
10	Telangana	928	4969	1465	12696	1880	22947	4273	40611

(Source: Trends & Progress of Banking in India, Publications, RBI) (Compiled from a secondary source)

Table 8 depicts the progress of the KCC scheme of the top 10 selected states in terms of the number of operative Kisan Credit Cards and the amount outstanding during the financial year 2022-23. The table has been organized in such a way that shows the descending order of selected states considering the amounts outstanding [1b]. It has been noted that Karnataka state ranks first in terms of the amount outstanding and fifth in terms of the number of operative Kisan Credit Cards, which has 47.37 lakhs active cards and 1.75 lakh crore outstanding amount followed by Uttar Pradesh having 104.71 lakhs operative cards along with 1.23 lakh crore outstanding amount and Rajasthan having 62.16 lakhs operative cards along with 94587 lakhs outstanding amount. Compared to Maharashtra, Madhya Pradesh ranks fourth though it has a smaller number of operative KCCs however, has more amount of outstanding. The circumstance where Karnataka stands first place in the amount outstanding may be the result of the effort of Co-operative banks which enhanced the disbursement of credit during 2021-22 which is referred to in Table 5 [1b].

5. CONCLUSION

The KCC scheme is one of the agriculture credit delivery instruments that offers several benefits, helps in uplifting the standards of living of farmers, encourages them to shift from subsistence farming to commercial farming by providing timely credit, and also brings them under the purview of financial inclusion [1b]. The study shows the fluctuations in the growth of the number of operative KCCs and the amount outstanding in Karnataka. During the study period from 2017-18 to 2021-22, Co-operative banks were ahead in terms of the number of operative KCCs and Commercial banks ranked first in the amount outstanding. However, Co-operative banks surpassed the Commercial banks both in number and amount of KCC during 2021-22 [1b]. Karnataka state ranks first in terms of the amount outstanding and fifth in terms of the number of operative KCCs followed by Uttar Pradesh. Further studies can be conducted on state-wise comparison of the growth of the scheme. The following suggestions are made based on the study.

6. SUGGESTIONS

- Regional Rural Banks should be strengthened to lend money efficiently like Co-operative and Commercial banks as the correlation between the growth of the number of operative Kisan Credit Cards and the amount outstanding is low negative for RRBs.
- Commercial banks have to maintain consistency in the issuance of cards and credit disbursement progress has reduced drastically in the financial year 2020-21 and 2021-22. They should expand the outreach of the program through priority sector lending as they are backed by vast financial resources.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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On Exploration of Hierarchical Inter-Relationships amongst the Various Factors Affecting Banking Channel Optimization Strategies and its Effect on Consumers' Satisfaction

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ABSTRACT

The present research work explores various factors affecting banking channel/ services optimization and how it affects its clients/ customers' perceptions and response behavior in India. It further explores the hierarchical inter-relationships amongst them using ISM methodology.

Keywords: Banking channel optimization; banking industry; ISM methodology.

1. INTRODUCTION

To deliver the best possible services to consumers, the banking sector is shifting toward a customer-centric environment to ensure customer satisfaction and loyalty amidst fierce competition [1]. Also, with constant innovations and increasing competition in the banking sector, renowned companies are facing the need to optimize their channel management strategies to manage their channels effectively. With the aid of channel optimization, leading companies in the banking sector can exploit the use of channels like mobile and social media to reach out to customers in an agile and seamless manner. Leveraging channel optimization also helps companies in the banking sector gain relevant information in terms of channel usage, customer usage of the particular channel, and customer behavior. Banks' sales of financial products have become a new economic profit growth point for major banks. Based on consumers'

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1. Conversion optimization <https://neilpatel.com/what-is-conversion-optimization/>
2. Available: <https://www.crazyegg.com/blog/conversion-rate-optimization/>
3. Available: <https://www.bankbound.com/blog/conversion-rate-optimization-for-banks/>

psychological perception, the influencing factors of consumers' behavior in purchasing bank financial products are studied.

2. FACTORS AFFECTING BANKING SERVICE OPTIMIZATION AND ITS INFLUENCE ON CLIENTS AND /OR CUSTOMERS

2.1 Fierce Competition [FC]

The financial needs of individuals and families are increasingly higher with the rapid economic growth and the increase of national income year by year [2]. Therefore, whether financial products can meet customers' needs and whether the quality of financial products can satisfy customers will greatly impact the development of banks [3].

2.2 Financial Self-Control [FSC]

The psychological account is an important aspect of people's self-control. The example of financial self-control can be easily seen by observing some daily behaviors. For example, people often use separate budget accounts for decision-making. Part of the income is prepared for the decoration of the house. Some are used as funds for children's education.

2.3 Overall Service Satisfaction [OSS]

The overall service satisfaction as described by [4] is a function of all service quality. Satisfaction was believed by [5] to be the overall attitude of customers towards the products or services used. Satisfaction is a personal subjective feeling expressed by measuring the perceived utility of products or services and consumers' expectations as described by [6].

2.4 Consumer's Perception and Relative Satisfaction [CP&S]

Customer satisfaction was proposed by [6] to be positively and negatively affected, but the positive impact was generally the main impact. [7] proposed that there is an interaction between customer perceived value and customer satisfaction at different levels. Similarly, [8] discussed benefit perception analysis, risk perception, hedonic motivation, and psychological factors. Similarly, [9] discussed the moderating effect between value perceptions and consumer purchase intentions.

2.5 Consumer Behavior [CB]

In the consumer behavior study, it is necessary to analyze the psychology and behavior of different consumers and the factors affecting consumer behavior [10]. Consumer's psychological perception is divided into consumers' feelings and perceptions. The process of consumers' processing of external information is

also the process of consumers' understanding and cognition of consumption objects [11].

2.6 Better Consumers' Understanding of Consumer Products [UCP]

With the deepening of participation, consumers have a stronger motivation to contact, pay attention to and understand consumer products [12]. For consumers with high participation, their decision-making process goes through stages of demand awareness, information search, evaluation scheme, purchase decision, and post-purchase measurement, which belongs to extensive decision-making [13].

2.7 Risk of Buying Financial Products [RBFP]

Before purchasing financial products, consumers will first consider the comparison value of the return and risk of financial products [14]. Further, low risk of financial products would positively impact consumers' purchase of bank financial products [15].

2.8 High Quality Service of Bank Personnel [HQS]

High-quality service of bank service personnel and active communication with consumers were found by [16] to positively impact consumers' final purchase of financial products. Consumers' willingness to buy bank financial products has a significant positive impact on the behavior of buying bank financial products [17].

2.9 Consumer Characteristics [CC]

It is embodied in that the individual's personality, intelligence, age, and gender will indirectly affect the behavioral intention and behavior [18]. Moreover, in the technology acceptance model, it is also pointed out that perceived convenience will also be affected by individual characteristics [19].

2.10 Improving Banking Services [IBS]

In the fiercely competitive environment, the key factor of bank development is to change the service concept [20]. Only by letting consumers perceive the value of services, can they make purchase decisions [21].

3. ISM METHODOLOGY

Interpretive Structural Modeling (ISM) [22] is an interactive learning process in which a set of unique, interrelated variables are structured into a comprehensive model presented as a hierarchy graph. The method is interpretive in that the group's judgment decides whether and how items are related. The various steps involved in ISM are the *Identification of elements* that are relevant to the decision-maker's problems and issues. Thereafter, *establishing the contextual*

relationship between elements with respect to which pairs of elements will be examined. This is followed by developing a self-interaction matrix (SSIM). This matrix is based on establishing the pairwise relationship between two variables i.e. *i* and *j* which makes use of the four symbols viz. V, A, X and O for the type of relation that exists between two sub-variables under consideration. This is followed by the formation of a reachability matrix after which the transitivity rule is checked. From the reachability matrix, the reachability set and antecedent set for each criterion are found. Then, the intersection of these sets is derived for all elements. The element for which the reachability and intersection sets are the same is the top-level element. The whole process of partitioning is based on establishing the precedence relationships and arranging the elements in a topological order. Thereafter, factors are classified into various categories like autonomous, dependent, driver and linkage. Finally, the development of digraph from the canonical matrix form.

4. CASE EXAMPLE

10 challenges faced while doing banking channel optimization, particularly in countries like India viz. Fierce competition [FC]; Financial self-control [FSC]; Overall service satisfaction [OSS]; Consumer's perception and relative satisfaction [CP&S]; Better consumer behavior [BCB]; Better consumers' understanding of consumer products [UCP]; Risk of buying financial products [RBFP]; High-quality service of bank personnel [HQS]; Consumer characteristics [CC]; Improving banking services [IBS] are further studied for possible hierarchical interrelationships amongst them.

4.1 Structural Self – Interaction Matrix [SSIM]

Table 1. SSIM matrix for pair wise relationship amongst the factors affecting the banking service optimization

S. No.	Benefits	1	2	3	4	5	6	7	8	9	10
		FC	FSC	OSS	CP&S	CB	UCP	RBFP	HQS	CC	IBS
1	FC		V	V	V	V	V	V	V	V	V
2	FSC			A	A	A	A	A	A	A	A
3	OSS				A	A	A	A	A	A	A
4	CP&S					V	V	V	V	V	V
5	BCB						X	X	X	V	V
6	UCP							V	V	V	V
7	RBFP								A	A	V
8	HQS									A	V
9	CC										V
10	IBS										

4.2 Construction of initial reachability matrix [IRM] and final reachability matrix [FRM]

Table 2. IRM for pair wise relationship amongst the factors affecting the banking service optimization

S. No.	Benefits	1	2	3	4	5	6	7	8	9	10
		FC	FSC	OSS	CP&S	CB	UCP	RBFP	HQS	CC	IBS
1	FC	1	1	1	1	1	1	1	1	1	1
2	FSC	0	1	0	0	0	0	0	0	0	0
3	OSS	0	1	1	0	0	0	0	00	0	0
4	CP&S	0	1	1	1	1	1	1	1	1	1
5	BCB	0	1	1	0	1	1	1	1	1	1
6	UCP		1	1	0	1	1	1	1	1	1
7	RBFP	0	1	1	0	1	0	1	0	0	1
8	HQS	0	1	1	0	1	0	1	1	0	1
9	CC	0	1	1	0	1	0	1	1	1	1
10	IBS	0	1	1	0	1	0	0	0	0	1

Table 3. FRM for pair wise relationship amongst the factors affecting the banking service optimization

S. No.	Benefits	1	2	3	4	5	6	7	8	9	10	D.P
		FC	FSC	OSS	CP&S	CB	UCP	RBFP	HQS	CC	IBS	
1	FC	1	1	1	1	1	1	1	1	1	1	10
2	FSC	0	1	0	0	0	0	0	0	0	0	1
3	OSS	0	1	1	0	0	0	0	00	0	0	2
4	CP&S	0	1	1	1	1	1	1	1	1	1	9
5	BCB	0	1	1	0	1	1	1	1	1	1	8
6	UCP	0	1	1	0	1	1	1	1	1	1	8
7	RBFP	0	1	1	0	1	0	1	0	0	1	5
8	HQS	0	1	1	0	1	0	1	1	0	1	6
9	CC	0	1	1	0	1	0	1	1	1	1	7
10	IBS	0	1	1	0	1	0	0	0	0	1	4
	De.P	1	10	9	2	8	4	7	6	5	8	

Table 4. Level partition matrices

Reachability set	Antecedent set	Intersection set	Iteration	Factor/s selected at the iteration
2	1,2,3,4,5,6,,7,8,9,10	2	I	2
2,3	1,3,4,5,6,7,8,9,10	3	II	3
2,3,5,10	1,4,5,6,7,8,9,10	5,10	III	5,10
2,3,5,7,10	1,4,,6,7,8,9	7	IV	7
2,3,5,7,8,10	1,4,6,8,9	8	V	8
2,3,5,7,8,9,10	1,4,6,9	9	VI	9
2,3,5,6,7,8,9,10	1,4,6	6	VII	6
2,3,4,5,6,7,8,9,10	1,4	4	VIII	4
1,2,3,4,5,6,7,8,9,10	1	1	IX	1

4.3 Driving Power and Dominance Diagram

Table 5. Driving power & dominance diagram (Micmac analysis)

Driving power→	10	FC												
	9		CP&S											
	8		Drivers		UCP					BCB		Linkage		
	7					CC								
	6						HQS							
	5							RBFP						
	4		Autonomous							IBS		Dependent		
	3													
	2											OSS		
	1	1	2	3	4	5	6	7	8	9			FSC	10
		Dependence power -→												

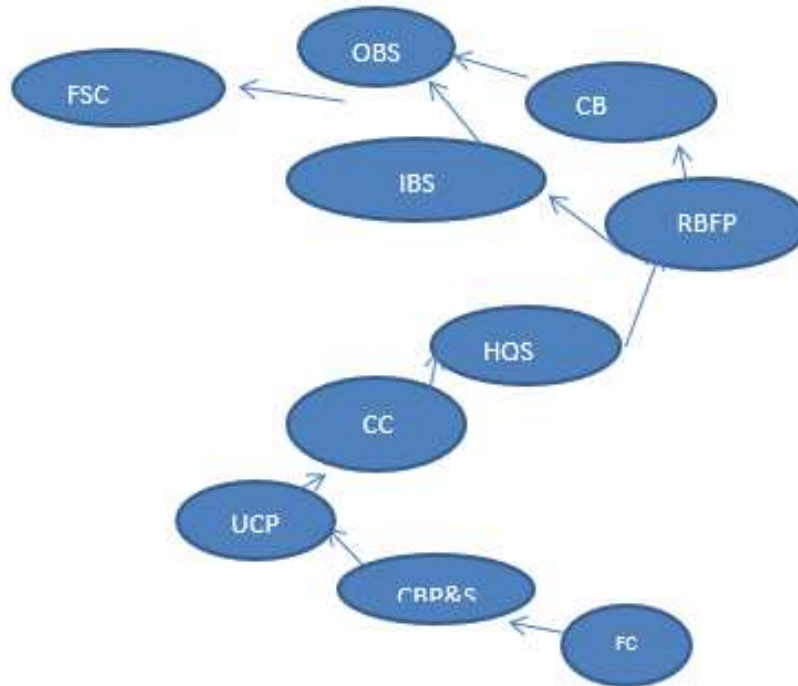


Fig. 1. ISM Diagram

5. CONCLUSION

The following research work discusses the major factors affecting banking service optimization and how it impacts banks' customers' perceptions and satisfaction with banks' services. It further explores the hierarchical interrelationships amongst them using ISM methodology.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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On Optimization Model for a Bank Loan Portfolio for a Local City Bank in India

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ABSTRACT

The following chapter is research on bank loan optimization and tries to optimize its portfolio using a standard mathematical programming approach. The main objective of this research is to devise a method that optimizes the funding of the bank division's Loan portfolio.

Keywords: Bank loan optimization; loan management; weighted goal programming; archimedean goal programming.

1. INTRODUCTION

A portfolio in finance is a collection of financial investments such as stocks, bonds, commodities, cash, and cash equivalents, including closed-end funds and exchange-traded funds (ETFs). In general, stocks, bonds, and cash are thought to be the foundation of a portfolio, though this is not always the case. A portfolio may include a diverse range of assets, such as real estate, art, and private investments. An investor must critically examine the future performance of trading securities before committing capital because investing in assets in Nigeria can be frustrating if funds allocation and future returns are not properly considered. These facts are still relevant to every investor, but they are insufficient to predict investment volatility. This is why smart investors choose multiple firms in the market, keeping in mind the levels and nature of the risks evolving within the market environment, as well as the availability of risk-mitigation mechanisms, in order to fully optimize profit in the market.

Portfolio optimization is critical in asset management because it allows investors to manage their risk exposure. Portfolio optimization problems have been studied

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in various studies, particularly in finance and operations research, based on different risk measurements. The investment expected returns are calculated based on asset historical performance as a measure of portfolio risks and returns, and the variance is measured as the dispersion of returns. As a result, because the optimal portfolio is determined by an investor's risk-return preference, there is no single optimized portfolio that can satisfy all investors [1]. Investors, on the other hand, face two types of risk: unsystematic risk and systematic risk. The former is the inherent risk of an asset, which can be mitigated by owning a large number of assets. These risks do not provide sufficient information about the overall risk of the portfolio. While the latter is also known as portfolio risk, it is the risk associated with the market that cannot be eliminated [2]. The covariance between different asset returns indicates the portfolio's variability or risk. As a result, a well-diversified portfolio includes assets with low or negative correlations [2].

The primary goal is to allocate a limited amount of capital among various investment opportunities in order to maximize the expected return from the sale of acquired assets. Other investment objectives include high dividend yields, low risk, and rapid growth. Individual investors may prioritize various goals based on their financial situation, risk tolerance, and investment time horizons.

2. LITERATURE REVIEW

Several mathematical programming models and techniques have been presented in the literature in order to efficiently solve the portfolio problem. In Puerto *et al.* [3], the authors endow the assets network with a metric based on correlation coefficients between assets' returns and show how classical location problems on networks can be used for clustering assets. For example, in my perception, it could be location-wise problems relating between and within locations i.e. within rural areas banks and within urban areas banks. Similarly between rural areas banks and between rural and urban areas. We can also merge or Appendix this with a third criterion of time i.e. time period 1 and time period 2. Similarly, it could be a multi-location, multi-assets, multi-period single criteria, bi-criteria or multi-criteria problem. Lozza *et al.* [2013] theoretically and empirically investigate the connection between portfolio theory and ordering theory. In particular, we examine three different portfolio problems and the respective orderings used to rank investors' choices: (1) risk orderings, (2) variability orderings, and (3) tracking-error orderings. Finally, for each problem, an empirical application of several admissible portfolio optimization problems is proposed using the stock market data modified as per requirements.

Finding the optimal risk-return balance is central to the portfolio selection problem because high return is correlated with high risk [4,5]; (Hesham & Mohammed, 2021). As a result, the cost prices of shares and their returns are random in nature. Thus, portfolio selection is a difficult task without proper planning and evaluation of alternatives [6]. The mean-variance model's main idea is to treat individual asset returns as random variables and to use the value of expected return and variance to quantify return and investment risk, respectively [7]. However, various methods for modeling portfolio optimization problems have been proposed, including multi-objective models that are either linear or

nonlinear in nature [8-15]. V. Pareto, a French-Italian economist, later developed the multi-objective model as an alternative to the one proposed by Markowitz.

3. LOAN PORTFOLIO DESCRIPTION IN CONTEXT OF PROBLEM

The Loan portfolio consists mainly of loan and lease contracts issued to customers. With lease financing, the Division owns the equipment. Since most of the equipment produced by the Corporation is expected to have little or no financial value beyond five years, this effectively limits the length of the customer contracts. Most loans and leases have maturities between three and five years. Fixed-rate financing is the most popular alternative but there are also contracts with floating-rate interest. Loan amortization schedules vary; some loans fully amortize over the life of the loan while others require a lump sum payment of the remaining principal balance (a "balloon" payment) at the loan's maturity [16-21].

3.1 Funding Portfolio Problem --Description

According to the Division's management, the Division enjoys a full range of funding alternatives from the Corporation, including fixed and floating-rate instruments. Maturities can range from overnight to several years. Interest rate swaps will be the only kind of derivative that will be included in our analysis. In the absence of new transactions, there will thus be an accumulation of cash. Excess cash can be used to pay down existing debt. The Division can also invest excess cash although the investment alternatives are very limited. The only two alternatives available are to keep the excess as cash in a bank account or to make a 30-day deposit with the Corporation.

3.2 Model Formulation

Notations:

- I – denotes the j^{th} class of the loan portfolio (where $I=1$ implies long-term loan, $I = 2$ is medium term loan and $I = 3$ is short term loan)
- J – denotes the j^{th} investment type in each loan portfolio class [where $j=1$: mortgage finance and $j=2$ lease finance when i = long term loan]
- M – represents the number of loan portfolio classes
- N_i – represents the number of investment types in the i^{th} loan portfolio Class
- CB_t – Cooperate Banking Contribution to loan in year t .
- B_t – Branches Contribution to loan in year t .
- L_t – Bad debt in year 't'
- D_t – Deposit in year 't'
- NP_t – Non-performing loan in year 't'

Decision Variables:

- X_{ijt} – denotes the amount [in rupees] to be allocated to investment type j within the loan Class i in year t .

For example,

X_{11t} — The amount [in rupees] to be allocated to Mortgage finance within loan class 1 i.e. long-term loan [i.e. $j=1$ i.e. mortgage]

X_{12t} — The amount [in rupees] to be allocated to Lease finance within loan class 1 i.e. long term loan [when $j=2$ it is lease finance]

X_{21t} — The amount [in rupees] to be allocated to higher purchase within loan class 1 i.e. medium-term loan [i.e. $j=1$ i.e. higher purchase]

X_{22t} — The amount [in rupees] to be allocated to SME finance within loan class 1 i.e. medium-term loan [when $j=2$ it is SME finance]

Types of decision variables:

Loan class	Class specification	Investment types	Decision variables
1	Long term loan	--Mortgage finance	X_{11t}
		--Lease finance	X_{12t}
2	Medium term loan	--Higher purchase	X_{21t}
		--SME finance	X_{22t}
3	Short term loan	--LPO finance	X_{31t}
		--Contract finance	X_{32t}
		--Building finance	X_{33t}
		--Warehouse warrant	X_{34t}
		--Import finance	X_{35t}
		--Export finance	X_{36t}
		--Overdraft finance	X_{37t}
		--Rediscount finance facility	X_{38t}

Sources	Long term loan	Medium term loan	Short term loan
Commercial bank	5%	35%	60%
Individuals with high worth	30%	30%	40%
Co-operative	10%	50%	40%
Debenture loans	40%	30%	30%
Family and friends	30%	30%	40%

Fig. 1. Sources of loan and proportion of each source that is used to finance each category of loan

Table 1. Proportion of loan contribution

Sources of fund	Total deposit [in INR]	Total loan [in INR]	Non-performing loan [in INR]	Year
Commercial bank	62364.856	13766.80	167.95	1
Individuals with high worth	68305.3	17044.98	146.87	2
Cooperative	20000	5726.98	5.61	1
Debenture	22000.95	6214.85	-16.4	2
Family	30112.06	8235.85	17.62	1
	33642	9007.16	-8.44	2
	--	5260.60	64.55	1
	--	5855.22	66.39	2
	466535.77	2858	8.68	1
	467517	3168	2.91	2

→1 in super script means it is commercial bank.

→Similarly, 2 in superscript means it is an individual with high worth. For example,

X_{111}^1 : implies that commercial bank has given a total loan of 12766.80 INR [through mortgage finance –long term loan] in year 1.

X_{111}^2 : Individuals with high worth have been given a total loan of 5726.98 INR [through mortgage finance- long-term loan]

4. THE MODEL

[Problem – 4.1]: The Division wants to reduce the number of transactions with the Corporation in relation to the number of customer transactions.

Aim: To optimize the funding of the Division’s Loan portfolio.

Objective function: Mean rate of return of the portfolio must be maximized whereas a given risk measure must be minimized. [1]

Subject to

Goal Constraints

$$\sum \sum X_{ijt} - d_{+1t} + d_{it} = 0.5 C_{Bt} \quad \dots[2]$$

$$\sum \sum X_{ijt} - d_{+2t} + d_{2t} = 0.5B_t \quad \dots [3]$$

$$1.5 \sum \sum X_{ijt} - d_{+3t} + d_{3t} = N_{Pt} \quad \dots[4]$$

$$\sum \sum X_{ijt} - d_{+4t} + d_{4t} = 0.3D_t \quad \dots[5]$$

$$0.35 \sum \sum X_{ijt} - d_{+5t} + d_{5t} = 0 \quad \dots [6]$$

Loan Standing --Structural Constraints: (For Year One)

When we talk about sources of funds, putting super script i.e. X^1 is helpful.

$$X_{11t} + X_{12t} < 5\% \text{ of } 15756.8 = 787.84 \quad \dots [7]$$

$$X_{21t} + X_{22t} < 35\% \text{ of } 15756.8 = 5514.88 \quad \dots [8]$$

$$X_{31t} + X_{32t} + X_{33t} + X_{34t} + X_{35t} + X_{36t} + X_{37t} + X_{38t} < 35\% \text{ of } 5726.98 = 1718.094 \quad [t = 1] \quad \dots[9]$$

$$X_{21t} + X_{22t} < 30\% \text{ of } 5726.98 = 1718.094 \quad \dots[10]$$

$$X_{21t} + X_{22t} < 35\% \text{ of } 15756.8 = 5514.8 \quad \dots[11]$$

$$X_{31t} + X_{32t} + X_{33t} + X_{34t} + X_{35t} + X_{36t} + X_{37t} + X_{38t} < 10\% \text{ of } 8235.85 = 823.585 \quad \dots [12]$$

$$X_{11t} + X_{12t} < 10\% \text{ of } 823.585 = 82.3585 \quad \dots [13]$$

$$X_{21t} + X_{22t} < 50\% \text{ of } 8235.85 = 4117.925 \quad \dots [14]$$

$$X_{31t} + X_{32t} + X_{33t} + X_{34t} + X_{35t} + X_{36t} + X_{37t} + X_{38t} < 50\% \text{ of } 8235.85 = 3294.34 \quad [t = 1] \quad \dots [15]$$

$$X_{21t} + X_{22t} < 30\% \text{ of } 2868.42 = 860.526 \quad \dots [16]$$

$$X_{31t} + X_{32t} + X_{33t} + X_{34t} + X_{35t} + X_{36t} + X_{37t} + X_{38t} < 40\% \text{ of } 2868.42 = 1147.368 \quad \dots [17]$$

$$X_{11t} + X_{12t} < 40\% \text{ of } 5260 = 2104.24 \quad \dots [18]$$

$$X_{21t} + X_{22t} < 30\% \text{ of } 5260.602 = 1578.18 \quad \dots [19]$$

$$X_{31t} + X_{32t} + X_{33t} + X_{34t} + X_{35t} + X_{36t} + X_{37t} + X_{38t} < 30\% \text{ of } 2868.42 = 860.526 \quad \dots [20]$$

$$X_{11t} + X_{12t} < 5\% \text{ of } 157.98 = 7.899 \quad \dots [21]$$

$$X_{21t} + X_{22t} < 35\% \text{ of } 157.98 = 55.293 \quad \dots [22]$$

$$X_{31t} + X_{32t} + X_{33t} + X_{34t} + X_{35t} + X_{36t} + X_{37t} + X_{38t} < 60\% \text{ of } 2157.98 = 94.788 \quad \dots [23]$$

$$X_{21t} + X_{22t} < 30\% \text{ of } 5.61 = 1.683 \quad \dots [24]$$

$$X_{31t} + X_{32t} + X_{33t} + X_{34t} + X_{35t} + X_{36t} + X_{37t} + X_{38t} < 40\% \text{ of } 5.61 = 2.244 \dots [25]$$

$$X_{11t} + X_{12t} < 10\% \text{ of } 17.62 = 1.762 \quad [26]$$

$$X_{21t} + X_{22t} < 30\% \text{ of } 5.61 = 1.683 \quad \dots [27]$$

$$X_{31t} + X_{32t} + X_{33t} + X_{34t} + X_{35t} + X_{36t} + X_{37t} + X_{38t} < 40\% \text{ of } 17.62 = 7.048 \quad \dots (28)$$

This problem can be solved using standard mathematical programming problems. In case an infeasible solution is obtained, a Non pre-emptive goal programming approach can be used which is described in the Appendix.

5. CONCLUSION

The following paper researches bank loan optimization and tries to optimize its portfolio using Standard mathematical programming problem. The main objective

of this research is to devise a method that optimizes the funding of the bank division's Loan portfolio. Non pre-emptive goal programming or Archimedean Goal programming could be used in case there is an infeasible solution due to restrictions that are unbounded or may be variables exceeding the capacity as per solution procedures provided by standard mathematical programming approaches using LINGO 10.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX

Solution Methodology: Non pre-emptive Goal programming

Goals and priority level with weights:

The assignment of weights is based on the expert's judgment of the criteria. Presently equal weights to the below-mentioned four goals.

S.No.	Goal specification	Priority level/ weights (Ij's)
1	To achieve a loan portfolio mix of 50 % each for cooperate banking and branches respectively.	P1 [0.25]
2	To achieve a maximum of 1.5% ratio of non-performing loans as a proportion of total loan	P2 [0.25]
3	To achieve a loan deposit ratio of 30:70	P3 [0.25]
4	To maintain a yield of not less than 35 % on all loans	P4 [0.25]

$d+kt \rightarrow$ denotes the over achievement target set for goal 'k' in year 't'
 $d-kt \rightarrow$ denotes the under achievement of the target set for goal 'k' in year 't'

In a simpler version of goal programming, management sets goals and relative importance (weights) for different objectives. Then an optimal solution is defined as one that minimizes both positive and negative deviations from set goals simultaneously or minimizes the amount by which each goal can be violated. First, we solve the problem using rigid constraints only and then the goals of objectives are incorporated depending upon whether priorities or relative importance of different objectives are well defined or not.

The problem (P3.1) can be solved in two stages as follows:

Initial Stage of GP problem:

Minimize

$$g_0(a,b,X) = b + \sum_i \sum_j \sum_t a_{ijt} + \sum_i \sum_j \sum_t b'_{ijt}$$

Where a_{ijt} and b_{ijt} are the over and under-achievement (positive & negative deviational) variables of the goals for their respective objective/constraint function of lower bound constraints and a'_{ijt} , b'_{ijt} are the over and under-achievement (negative and positive deviational) variables of the goals for their respective objective/constraint function of upper bound constraints. $g_0(a,b,X)$ is the goal objective function corresponding to rigid constraints. The choice of deviational

variable in the goal objective functions which has to be minimized depends upon the following rule:

Let $f(X)$ & g be the function and its goal respectively and a_i, b_i be the over- and under-achievement (negative and positive deviational) variables.

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Impact of Perceived Service Quality on Customers Repeated Purchase Intentions: Case of the Hospitality Sector in Cameroon

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ABSTRACT

The study investigates the influence of perceived service quality on customers' repeated purchases in restaurants in Yaoundé, Cameroon, providing insights into the factors that drive customer loyalty in the restaurant industry. In a dynamic business environment marked by increased technological advancement that exposes consumers to a multitude of service providers, the need for continuous improvement of service quality to satisfy current consumers and create a positive brand image to attract new customers and render existing ones loyal, cannot be overstated. Data was drawn through a self-administered questionnaire distributed to a sample of 71 restaurant customers in the city of Yaoundé drawn through simple random sampling. The research methodology employed multiple linear regression analysis, providing a quantitative approach to examine the relationship between service quality and customer repeated purchases. The results of the study indicate that both Tangible and Intangible perceived service quality dimensions have a positive and significant influence on customers' repeated purchases in restaurants in the city of Yaoundé. The findings reveal that tangibles and intangibles perceived service quality have a positive and significant influence on customers' repeated purchases, highlighting the importance of physical evidence, employee appearance, reliability, responsiveness, trustworthiness, and assurance in enhancing customer loyalty. By implication, restaurant operators to ensure increased customer loyalty should capitalize on, physical evidence, employee appearance, reliability, responsiveness, trustworthiness, and assurance of client. The study suggests the inclusion of price as a dimension of service quality in future research,

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indicating the need for a comprehensive understanding of the factors that influence customer behavior in the restaurant context. Nevertheless, given that clients often compare the quality of services with the price, it will be necessary to add price as a new dimension of service quality in future research. Also, researchers should attempt to test this model in new fields and with a larger sample size.

Keywords: Customer repeated purchase; perceived service quality; consumer behavior; hospitality sector; restaurants.

1. INTRODUCTION

Consumer satisfaction can predict repeat patronage leading to brand loyalty and new consumers. Consumers determine which restaurants meet their quality standards and ignoring this leads to consumers moving toward competing restaurants. Expectations are important; unfulfilled expectations create consumers who may spread negative word-of-mouth. So, achieving consumer satisfaction is realized through the delivery of exceptional value [1]. The service industry is steadily growing and is today contributing more to overall growth in Cameroon than the manufacturing industry. The need for restaurant consumption may be driven by various factors, such as having quick meals, celebrating special occasions, entertaining business clients, etc. Customers will search for relevant information about restaurants, compare restaurant options, and make the final purchase decision of which restaurant to dine at [2]. Addressing Customer satisfaction and expectations is a critical component of any organization's long-term viability. These two strategic variables are the most significant aspects that build client loyalty and desire for repeat purchases. The hospitality industry, particularly the restaurant sector, is a very competitive sector. In this light, attracting customers with dedicated service and high-quality food along with satisfying them and rendering them loyal is critical for the success of the business [3,4]. This is because a loyal customer of a particular brand tends to make repeat purchases from that business and also recommend the brand to their acquaintances [5]. The importance of providing quality services in restaurants has sparked a lot of interest among scholars and professionals. Quality service is typically considered to be a vital aspect of delighting consumers, generating revenue, and expanding market share [6]. Expanding long-term relationships with consumers is crucial and necessary for producers' success and survival in the current business environment [7]. Previous research has shown that delivering excellent service and food quality in a restaurant can boost customer satisfaction and loyalty.

As observed by Liao et al. [8], quality and service are similar and difficult to measure with precision. Feeling good varies from person to person. Indeed, previous studies found that providing high service and food quality in a restaurant can enhance customer satisfaction and repeated purchase behavior directly even in an extremely bad dining experience [9,10]. Customers judge and rate service based on the performance of the restaurant during service delivery [9]. The comparisons between the expected service to be encountered and that

effectively experienced by clients determine their perceptions of the service quality. In this arena, perceived service quality has a vital role in the buyer's perception of the supplier's offerings, value-added, and relationship development. Hence, mastering customers' service impressions is a precondition for providing the best service possible [4].

Bearing in mind that, when customers perceive good service and are satisfied, they typically relate their satisfaction about the brand to 9 to 10 people (informal, "word-of-mouth") [11]; when they receive an inappropriate service, they usually express their discontent with the range of 15 to 20 percent each year and about 91% of the customers will not return to the store [12,4], it becomes indispensable for business especially in the service sector to ensure high service quality as a basis to guarantee customer satisfaction. This is very important given that an improvement in customer repeated purchases by even a few percentages brings about an increase in profits by 25 percent or more [12], while customers' dissatisfaction can lead to a loss of customers which will lead to a drop in profit since the cost of gaining a new customer is 10 times greater than the cost of keeping a satisfied customer [11]. This implies the quality of services delivered plays a pivotal role in shaping customers' perceptions and their subsequent loyalty toward a particular brand or establishment (Al Ruqaiishi & Rais, 2023). This caught the attention of diverse researchers on the link between customer-perceived service quality and repurchase intentions [4].

Although there have been several studies conducted on the impact of perceived service quality, and customer satisfaction or repurchase intentions [13-17], very little attention has been given to this issue in restaurants and the majority of these studies focused on just one or a few specific aspects of service quality. For example, Barber et al. [18], looked at how tangible aspects affect service quality, whereas Ha & Jang [9] looked into how service quality influences customer satisfaction based on a few variables such as assurance, reliability, and responsiveness [4]. Observing the restaurant sector in Cameroon, it is observed that customer is characterized by increased disloyalty as they keep on switching from one restaurant to another. At times, customers living in a hotel that has a restaurant may decide to go and buy food from a different restaurant; this, therefore, makes us examine the relationship between perceived service quality and customers' repeated purchases in restaurants. With this gap observed, it will therefore be of an added advantage to literature, to examine the combined effects of perceived tangible and intangible service quality components on customer repeated purchase intentions within a new context in Cameroon and specifically in the restaurant sectors which has been minimally approached by past studies [4].

This brings us to the question: To what extent does the perceived service quality influence customer's repeated purchase intention in Cameroon restaurants? More specifically, what is the influence of tangible and intangible perceived service quality on customers' repeated purchases in Cameroon restaurants? [4]. The paper's main objective is therefore to establish the link that exists between two main dimensions of perceived service quality tangible and intangible aspects

and custom repeated purchases in the restaurant sector of the hospitality industry in the town of Yaoundé Cameroon. The rest of this study is structured as follows, in the first section, we present the literature review, in the second the methodology of research, in the third, data analysis and presentation of results, and in the last section discussion of results, general conclusion, and recommendation.

2. LITERATURE REVIEW

This subsection aims to discuss the conceptual, theoretical, and empirical literature patterning to the concept of service quality and customer repurchase intentions.

2.1 Conceptual and Theoretical Review

2.1.1 The concept of service quality

In the 1980s, the first endeavor to define service quality was made, and they were based on cognitive psychology research and opined service characteristics [19,20]. The concept of service quality has been difficult to define for researchers (Parasuraman et al., 1985). These difficulties are mainly due to the way the services are produced, consumed, and evaluated [21]. Grönroos [22,4], argues that service quality is more complicated than product quality. This is due to the intangibility, transferability, perishability, heterogeneity, and non-storability nature of service that renders it difficult which makes it difficult to measure or demonstrate its quality before time to the client. This nature of service renders their marketing and sales more difficult as compared to a product whose quality can easily be measured and proven based on its tangible features such as style, color, texture, and packaging [23,4]. This difficulty has led to a different conceptualization of perceived service quality. Perceived service quality, according to Grönroos [22], is “the result of an assessment process in which clients assess their aspirations with the service they have experienced. It has also been considered as a type of attitude linked but not identical to the pleasure that arises from a comparison of expectations with perceptions and performance [24]. From diverse conceptualization, perceived service quality can be viewed as the image a consumer has of a firm’s services based on rational analysis or evaluation of the firm’s service attributes that turn to generate a positive or negative response toward this service over time [4].

Dimension of perceived service quality: Service quality is made up of several dimensions. Parasuraman et al., [24], identified five main dimensions of service quality: tangibles, reliability, responsiveness, assurance, and empathy. Ahmet et al regrouped the determinants of perceived service quality into two main dimensions namely: The tangible dimension and the intangible dimension [4].

Tangible Dimension: It represents [physical infrastructures, personnel, technology and communication material, equipment, and service environment that serves as proof of service quality to the potential consumer of the firm’s

service. They are used by firms to transmit image and quality of service because they serve as the first impression to clients. In a restaurant setting, the cleanliness of the employees, the dining rooms, seat comfort, air conditioning, and relaxation points are determinant tangible service quality that influences its perception [4].

Intangible Dimension: This regroups all the service components that cannot be touched nor seen but that have an impact on consumer perception when present or absent. This dimension consists of five sub-dimensions; assurance, responsiveness, reliability, courtesy, and empathy.

Reliability: Reliability depends on handling customer service issues, performing the services right the first time; offering services on time, and maintaining a record of error-free. It is defined as the “capacity to supply the proclaimed service consistently and accurately” [24]. It also consists of the right order fulfillment; accuracy than commissions in service delivery and the fulfillment and maintenance of the promise of service over time. It is the most crucial component in conventional services like restaurants (Yang et al., 2004); [4].

Responsiveness: it is “the willingness to assist clients and give timely service” [24]. In addition, Johnston [25] defines responsiveness as the speed and timeliness with which services are delivered. It also includes a thorough awareness of the customer’s demands and expectations, a short response time, individual attention from the employees, attention to the problem, and the customers’ safety in their transactions [26]. The waiting time a customer experiences to be attended to or for his command to be served in a restaurant will influence his perception of the service quality [4].

Assurance: it concerns the company’s employee’s ability to deploy their knowledge, skills, and capability to build customer trust and confidence in the firm’s service. This requires an employee’s disposition of adaptable competence, courtesy, and security [23].

Empathy: Empathy, according to Parasuraman et al. [27], is “a caring and individual concern that the provider delivers to his clients to make them feel welcome from the moment they contact the personnel.” During business hours, it entails delivering particular attention to personnel who understand the demands of their clients and customer facilities. Furthermore, according to Anthonisamy et al. [28], it consists of providing individual attention easy operation time, and understanding the specific needs of customers. Empathy contains interactivity, affection, and an endeavor to comprehend customer needs [29,4].

Security: it entails providing safety and security of customer transactions transaction including a privacy policy. Dabholkar, [30] recommended adding the security dimension to future service quality research. When customers feel safe and secure dealing with a given firm, it is easy to get a repeated purchase from such a customer.

Another dimension of service quality according to the Grönroos model [31], includes technical quality: which describes what the consumers receive as a result of interaction with a service organization. Functional quality is concerned with how consumers receive services. Technical and functional quality are antecedents of the corporate image – the third dimension of the model [4].

2.1.2 Concept of Repeated Purchase

Meaning and nature of the repeated purchase:

Usually, after consumers try a product, they will end up in a situation where either their needs have been met or have failed to be met. In any case, consumers do not evaluate the product or conduct a new search and re-evaluate the alternative. Hellier et al. [32], defined repeated purchase intention as “defined repeated purchase intention as “a person’s evaluation concerning the purchase of a designated service again from the same enterprise, in consideration of his or her present state and likely circumstances” [4]. This research defines repeated purchase intention as tourists’ willingness to purchase a given restaurant brand, products, or services over and over again. It must not be confused with purchase intention, which represents a consumer’s decision to purchase a certain good or service in the future based on his cognitive and affective judgment of the offer compared to other alternatives. A key important indicator to evaluate customer repeated purchase behavior is customer repurchase intention [33,4].

Two forms of repeated purchase intention are identified: firstly, customers intend to re-purchase products and services; and secondly, customers intend to recommend it to their friends, colleagues, or family members via positive word of mouth [34]. Implementing marketing strategies to seek new consumers is more costly than keeping existing consumers [4]. That is, the cost of retaining a customer is lower than that of obtaining a new one [35]. Customer retention is becoming an increasingly critical challenge for companies seeking to gain a long-term competitive advantage [36]. This is in the sense that, an increase in consumers’ repeated purchase intention rate leads to the company’s profit, growth, reduction in marketing costs, and the consumer’s willingness to pay higher premiums [36,37,38,4].

Determinants of repeated purchase:

According to Harriet et al. [38], customers frequently look for value in the entirety of the service. As such, the effectiveness of customer service levels enhances customer retention, reduces customer switching between service providers, and provides a competitive advantage over other competitors. Several researchers examined determinants of repurchase behavior including brand loyalty, word-of-mouth communication, complaining behaviors, and satisfaction or dissatisfaction [39,32,4]. Several drivers affecting repurchase intentions were identified. They include past experiences, mood, affect, value, conveniences, service quality, customer familiarity, service failure, and recovery [40]. In the specific case of

restaurants four main elements are said to affect consumers' repeated purchase intentions namely: [4]

Health Consciousness: It refers to consumers' awareness and concern about their well-being and their motivation to improve, and maintain a healthy life by adopting healthy behaviors and remaining connected to health issues [41]. Moreover, almost every person pays attention to issues related to nutrition and physical fitness (Kraft & Goodell, 1993). Consumer's perception and evaluation as to whether a given food is healthy or not are some of the primary determinants of their attitude, intention, and actual decision to purchase food [42].

Perceived Value: The difference between the perceived benefits and costs by a consumer is known as value [43,44]. The perceived value of a product is determined by the difference between the utility a consumer obtains from the product compared to the sacrifice made to obtain the product. In addition, four common uses of the term value have been identified namely; the low-price customer gets, whatever the customer wants in a product or service, the quality customer gets for the price they pay, and what customers obtain for what they sacrifice [24,4].

Food Safety: it refers to the set of processes put in place to maintain the food quality by limiting its contamination and related illnesses. Food can be infected in diverse manners including; the existence of bacteria and parasites in food products, and the spread of germs during the preservation or bottling process due to improper handling of the food products. Further food contamination causes include inappropriate preparation or preservation. Therefore, an individual's perception, personal experiences, attitudes towards food poisoning, perceived control over the risk of food poisoning, and his character represent major determinants of his intention to buy or repeatedly buy food from a given supplier [45,4]

Price: According to Nagle & Holden [46]. Price is a monetary value, that a consumer ascribes to a given product or service. It is what a consumer is ready to give up to obtain a given product. Consumers habitually associate a higher price with higher quality and conversely a lower price with low quality [47]. Consumers can judge a price as convenient and be ready to purchase more if the price fits the product or service's quality. Once the utility obtained from the utilization of the product matches or exceeds the price paid, the consumer will be willing to repeat his purchase. Conversely, if the product fails to meet expectations, the client may feel that it is expensive for nothing and hence switch to alternative brands [4].

Benefits of Repeated Purchase: As observed by Harriet et al. [38], companies that continually acquire new customers without retaining them are unlikely to achieve positive outcomes. Repeated purchase intention is based on satisfaction and loyalty in post-purchase actions. It has diverse advantages for a firm. Firstly, it permits the reduction of the cost of acquisition of new customers, secondly, it

brings about increased revenue to the firms, thirdly it gives room for price premiums, and above all, it serves a competitive advantage to the firm [4].

2.1.3 Theoretical basis of perceived service quality and customer repeated purchase

Measuring service quality is difficult due to its unique characteristics: Intangibility, heterogeneity, inseparability, and perishability [48]. In this light, Diverse theories have been developed to establish the relationship between service quality and customer pre-and post-purchase behavior. The first of this theory emerged in 1980 from the Nordic [22] and American (Parasuraman et al, 1985), [24] schools of thought [4]. The Nordic perspective suggested two service quality dimensions – functional quality and technical quality (explained above). This gave birth to the SERVQUAL developed by Parasuraman et al. (1985), [24] from the gap model, and was further modified to SERVPERF which is a performance-only measure of service quality that excludes consumer expectations by (Cronin & Taylor, 1994), which tested and proved in four industries that, in general, this model better capture and measures the deviation in service quality than the predecessor model. The SERVPERF model comprises five main service quality dimensions namely “tangibility”, “reliability”, “responsiveness”, “assurance”, and “empathy”. In this study, we adopt the SERVPERF model to examine consumers’ repeated purchase intention in restaurants within Cameroon [4].

2.2 Empirical Evidence

Diverse findings on the link between “perceived service quality” and consumers’ repeated purchases have been established across the globe. Anastasia [49], carried out a quantitative study on the expected and perceived service quality in Taiwan restaurants. According to the findings of this study, “perceived service quality” has a determinant effect on user satisfaction and intention to visit. Also, Ramseook-Munhurrin [50] investigated the effect of service attributes on customers’ satisfaction and behavioral intentions in a Mauritius restaurant. The findings back up the connections between service quality attributes, experience, and behavioral intentions [4]. Dehnavia et al. [51], conducted a Quantitative study on the effects of “service quality” on post-purchase intention in Kerman, Iran, using structural equation modeling the study has determined that service quality, as well as perceived quality, has a positive influence on customer satisfaction and post-purchase intention.

Within the context of Cameroon, Nchende [52], investigated how service quality influences customer loyalty in the Mobile Telecommunication industry in Cameroon. Within the same industry in Cameroon, Ngambi & Abamukong [23], findings establish through a quantitative study that, high service quality has a significant positive effect on customer satisfaction. In the same light, the study of Salem & Kiss, [7] revealed a statistically significant positive relationship between service quality and customer repurchase intention based on a survey of 405 customers of internet service providers in Jordan [4]. This empirical review is indicative that the majority of the studies are more concerned with customer

satisfaction mostly in developed economies. Within the context of Cameroon, those realized are within the Mobile telephony sector with virtually nothing said about the “perceived service quality” and repeated purchases in the case of restaurants [4]. This gap is worth feeling given the observed increase in entrepreneurial attention in this sector in Cameroon with families increasingly interested in relaxation at fast food joints or restaurants. We thus attempt to fill this gap in this study.

The Proposed Conceptual Model and Hypothesis Development: The SERVPERF model [13] is adopted as a theoretical model to examine consumers’ repeated purchase intention in restaurants within Cameroon. This is justified by the fact that diverse empirical evidence has demonstrated the superiority of the model over SERVQUAL. Moreover, it fits the specific case of restaurant service evaluation as consumers are more concerned with service performance than expectations [4]. Based on this the following conceptual model is put in place:

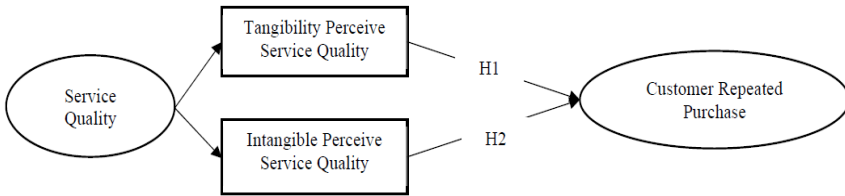


Fig. 1. The conceptual model
Source: Author

Hypothesis development:

Tangibility and customers’ repeated purchases: As earlier stated, tangibility refers to physical facilities, personnel, technology, communication material, equipment, and service environment that serve as proof of service quality to the potential consumer of the firm’s service [24]. Al-Azzam [53], in a study of service quality dimensions on customer satisfaction in the Arab bank, found that tangible perceived service quality influences customer satisfaction [4]. This finding was further supported by the studies of [23,54,50]. Liao et al. [8] also found a positive significant influence of perceived service quality on consumer purchase intentions. Based on this we hypothesize in this study that:

H1: Tangible perceived service has a positive significant effect on consumer repeated purchase intention

Intangible perceived service quality and customers’ repeated purchase: Intangible perceived service regroups the set of invisible non-sortable aspects of the service system such as assurance, responsiveness, reliability, courtesy, and empathy. Dehnavia et al. [51], findings indicated a positive significant relationship between the intangible perceived service attributes and consumers’ post-purchase intention. In the same light, Yang et al. (2004), findings indicated that

the intangible dimensions of service are the most significant determinants of consumer repurchase intention. Based on this empirical evidence, this study hypothesizes that [4]:

H2: Intangible perceived service quality has a positive and significant effect on consumers' purchase intention

3. MATERIALS AND METHODS

3.1 Model Specification

This study uses multiple regression analysis techniques to establish the link between service quality and customers' repeated purchases. The econometric model is specified as follows [4]:

$$Y = \beta_1 X_{1i} + \beta_2 X_{2i} + \epsilon_i$$

Y_i = the explained variable "customers' repeated purchase". X_{1i} = "tangible perceived service quality" X_{2i} = "intangible perceived service quality" ϵ_i = the residue.

3.2 Research Design and Approaches

This study is quantitative and follows a hypothetico-deductive approach since hypotheses were generally formulated from a theoretical and empirical review of the literature. It is therefore situated in the positivist epistemology paradigm. A simple cross-sectional survey strategy is adopted to collect primary data used to test the study hypothesis [4].

Operationalization of Variable and Data Collection Process: The independent variable service quality was captured based on two main variables tangible perceived service quality (TPSQ) and intangible perceived service quality (IPSQ). The TPSQ is measured in terms of physical facilities, materials, and equipment to which two-item questions each were posed (11-item questions). The IPSQ on its part is measured in terms of Reliability, Responsiveness, Empathy, and Security, captured using two-item questions each (14 item questions) [4]. The independent variable repeated purchase is captured using 6 item questions that capture customers terms of customers' satisfaction with restaurant service, intention to continuously buy the service, refer other customers to the restaurant, and positive word of mouth. A 5-point Likert scale that ranges from 1= strongly disagree to 5 strongly agree, was used in assessing consumers' agreement or disagreement with each of the item questions posed. A self-administered structural questionnaire was addressed to a sample of 80 customers selected via simple random sampling in restaurants within the town of Yaoundé [4]. This sampling technique was used to give each individual within the restaurants an equal chance of being selected. The town of Yaoundé was selected as a study area because of its cosmopolitan nature resulting from its political status as the nation's capital which attracts individuals

all over the country with diverse cultural backgrounds, which could help us have a representative sample and hence generalizable results. 71 questionnaires were properly filled and returned to the researcher which gave a valid sample of 71 respondents [4].

4. DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Validity and Reliability of the Measurement Scale

To verify whether our scale is sufficiently reliable to be used in a questionnaire, we analyzed the psychometric qualities of this measurement instrument based on validity and reliability tests. Validity was examined using “exploratory factor analysis (EFA)” and Average variance extracted (AVE) based on the Fornell-Larcker criteria. Only constructs with eigenvalues ≥ 1 and items with factor loadings ≥ 0.5 were retained. Reliability on its part is assessed using Cronbach Alpha (Price & Mueller, 1986). Only factors with Cronbach alpha ≥ 0.7 were considered reliable. This analysis is presented in the table below [4]:

Table 1. Demographic analysis of respondents

Gender	Frequency	Percentage	Cumulative Percent
Male	36	50.7	50,7
Female	35	49.3	100,0
Total	71	100	100

Respondent's level of education			
Level of Edu	Frequency	Percentage	Cumulative Percent
Primary	2	2.8	2.8
Secondary	11	15.5	18.3
University	58	81.7	100
Total	71	100	-

Source: Author from Field Data 2021

It is observed that the sample gender-wise is evenly distributed as 50.7 constitute males and 49.3% female. The respondent is all relatively literates with the majority (81.7%) respondents at the university level.

4.2 Factorial Analysis

Table 2. Analysis of the reliability test of the variables

Reliability statistics		
	Cronbach's alpha	Number of items
Tangible perceived service quality	0.749	11
Intangible perceived service quality	0.738	14
Customers' repeated purchase	0.746	09

Source: Author based on survey data

Table 3. The summary table for tangible perceived service quality

Study Model		Coefficients	Standard deviation	Statistics of Student test (t)	Pearson correlation I	R2	P-value (sig)
TANGIBLE PERCEIVED SERVICE QUALITY	β_1	0.925	0.036	25.542	0.950	0.903	0.000
INTANGIBLE PERCEIVED SERVICE QUALITY	β	0.961	0.037	26.076	0.952	0.907	0.000

Source: Author SPSS Field Data output 2021

Table 4. The analysis of regression model coefficients

Dimension		Variables Extracted	Parameters	Coefficients	Standard deviation	Statistics of the student (t)	Student statistic (sig)
TANGIBLE PERCEIVED SERVICE QUALITY		The staff in the restaurant are well dressed and well-groomed.	<i>B</i>	+0.238	0.168	1.418	0.161
		The restaurant has up-to-date equipment	<i>B</i>	+0.081	0.195	0.415	0.679
		The physical facilities of my restaurant are visually appealing	<i>B</i>	+0.161	0.146	1.102	0.275
INTANGIBLE PERCEIVED SERVICE QUALITY		The staff in this restaurant are always available to help me and answer my requests.	<i>B</i>	+0.342	0.159	2.150	0.035
		The staff in this restaurant give me special attention	<i>B</i>	-0.094	0.163	-0.579	0.565
		The staff in this restaurant is trustworthy	<i>B</i>	0.057	0.174	0.326	0.745
		The staff are very quick in responding to every issue I face.	<i>B</i>	-0.025	0.194	-0.127	0.899
		The restaurant staff are always willing to help customers	<i>B</i>	+0.243	0.151	1.611	0.112

Source: Author SPSS Field Data output 2021

Table 2 indicates that the dimensions used in the study were all reliable. However, not all the item questions posed were returned. The poorly loading or cross-loading items were eliminated. Just 8 item questions were valid and reliable for the test of the study hypothesis.

4.3 Test of Hypothesis and Discussion of Finding

Table 3, indicates that in a general manner, there is a positive significant relationship between perceived service quality and customers' repeated purchases [4]. More specifically, it indicates that both the intangible and tangible service dimension respectively has a positive significant influence on consumers' repeated purchases in restaurants within the town of Yaoundé Cameroon. This confirms our research hypotheses 1 and 2. There is therefore a strong relationship between service quality and repeated purchase. This is seen by the high correlation coefficient value [4]. For more clarity, and to ease managerial decision-making, we subjected all the items that respected the retainment threshold of > 0.5 for validity and 0.7 for reliability based on Cronbach's alpha to regression analysis to give a greater opportunity for decision-makers to know what specific element of tangibility and intangibility they could capitalize to improve repeated purchase as presented in Table 4 [4]:

We see from the above table that the most important dimension of perceived service quality that influences client repeated purchases in restaurants in Yaoundé is the personnel component (dressing code and welcoming), followed by the equipment, and lastly by the physical environment. Regarding intangible service quality, the most important aspect is the employee's courtesy and assistance. Nevertheless, giving personalized service and rapidity in provision remains a major area of concern for managers to further improve client satisfaction and repeated purchases [4]. This particular finding confirms that of Al-Azzam, [53]; Ngambi et al [23], and Santos, [54].

5. CONCLUSION

The main aim of this study was to assess the influence of perceived service quality on customers' repeated purchase intentions in the hospitality sector in Cameroon. The study specifically sought to examine the link between tangible and intangible perceived service quality and customers' repeated purchases in restaurants as a base for strategic recommendations to managers to enable them to ensure the loyalty of the currently increasing disloyal clients [4]. This was very necessary as diverse studies in the domain have been realized but limited to other sectors like the telecommunication sector with very limited attention given to the restaurant services, especially in the context of Cameroon which is on the increase. Again, most studies have examined just a single dimension or mixed up the dimension in their analysis, hence limiting specification for the managerial decision. The finding of this study indicated that both tangibility and intangibility have a positive effect on repeated purchases. The intangible dimension is said to be more important in determining the client's repeated purchase. The specific

dimensions of each perceived service quality and the magnitude of its effect on repeated purchases are well presented in the table [4].

It will be judicious for managers of restaurants to capitalize on the intangible dimension of serviceability to improve their client satisfaction and repeat purchases. Here they must rebuild the dimension of employees' rapidity to service and develop a personalized means of attending to clients as a means to improve their satisfaction. Insisting on the physical environment (layout designs of the restaurant, aesthetics, and comfort of sittings, restrooms, and air conditions) of the service provider, and the employees' appearance in terms of dressing codes will serve as a good base for building a good brand image to provoke not only repeated purchases but also positive word of mouth [4].

Despite the contributed value of this study as one of the very rare studies to capture both tangible and intangible aspects of service connected to repeated purchase intentions in a rarely examined area and context of Cameroon, this study was limited just to the town of Yaoundé and made use of a limited number of respondents. Hence the finding is not perfectly generalizable. Moreover, elements such as price which has a role to play in service perception were not taken into account. Employing a study that integrates more dimensions like Price, image, and economy, and with a much larger sample size using more robust analysis techniques like Structural equation modeling could be of added value to the firm. gender and age could also be employed as mediators [4]. Researchers should also try to apply this study model in another context to verify its reliability.

COMPETING INTERESTS

The author has declared that no competing interests exist.

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Insight into Gen Z: Navigating the Changing Workplace Landscape

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ABSTRACT

The aim of this paper is to fill the gap about the characteristics and workplace preferences of Generation Z on what to expect of them since they are now adults joining the workforce. It is crucial to be prepared with their expectation of the workplace as an organisation needs to have a group of loyal workers to sustain its competitiveness and survival in this overarching competitive business world. With such insight it is hoped that employers are ready with information on the necessary training, working environment, preferred communication and management style expected by future employees, thus, ensuring the appropriate preparation to embrace the new workforce into the existing playing field as well as maintaining the existing Millennial generation as employees in organizations be it private or public sector. A document analysis has been done on reports released by responsible parties in an effort to further explore the insight of Gen Z preferences. Since Malaysia does not have much literature on Gen Z, therefore, this paper has to take the literature on Gen Z statistics from other studies around the world in describing and explaining the sphere of the discussion. It was found that Gen Z tends to redefine the conventional work environment in order to suit their needs and preferences to stay loyal and productive.

Keywords: Millennial; Gen Z; characteristic; preference; future workforce and human resource management.

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1. INTRODUCTION

Believe it or not, the Millennials (Gen Y) are older now. They were in the middle of their career to strive for the highest level position in the organization. Generation (Gen) Z has started to join the workforce and is starting to fill middle management positions as this generation was born in 1997 and the oldest of this generation is 27 years old this year. This is the age where they start to scale up the promotion ladder into middle management positions where the average age for middle management positions is 32 to 37 years with a minimum of 7 to 10 years of experience [1]. This generation has a broad new evolution of characteristics and preferences as employees from what the employer experienced with Gen Y and the generation before this as they are of different breeds who are highly connected, living in an era of high-tech communication, technology-driven lifestyles and prolific use of social media [2]. Gen-Z expressed very different attitudes about their careers than their Millennial, or even Gen-X counterparts [3].

With Gen Y occupying the senior level of the workforce and surpassing the baby boomers Gen Z born in 1997 and after, is larger in total numbers than any other generation in the United States (in 2019) and at their age now they are starting to mature and directing the workforce landscape definitely although they have yet to dominate the industry as Gen Y do today [4,5-7].

“With such an ecosystem the organization has been focused on considering how to attract and develop the Gen Y workforce and failed to notice an important new development for the future workforce” [8-11]. “The next generation of workers has officially entered the workplace. As Gen Z cohorts are developing and maturing, therefore, it is important for organizations to understand and become familiar with the differences of characteristics and preference of Gen Y and Z, to better assist them with career development needs and to bring out the best in this maintaining and emerging between current and future workforce” [12,13-16]. Fig. 1 shows the timeline for each generation according to Pew Research Center (2019).

1.1 Characteristics of Millennial (Gen Y) and Gen Z

Gen Y is also known as “the Millennial” because they started entering college or the adult workforce at the turn of the millennium. As the children of Baby Boomers, their number is expected to exceed even that of the large Baby Boomer generation [17]. The Pew Research Centre estimated, from 2016 U.S. Census Bureau projections that Gen Y will overtake the aging Baby Boomers in numbers by 2019 and now we are already in 2024. This clearly shows that Baby Boomers are serving their retirement year. This forced the employer to maintain the Gen Y employee as this generation is controlling the industry for now and there is a need to attract Gen Z to enter the workforce as they want jobs that either provide personal fulfilment or give them time to seek it outside of work and if those things are not provided there are big possibilities that they are not going to remain (www.weforum.org/agenda/2023/, 2023).

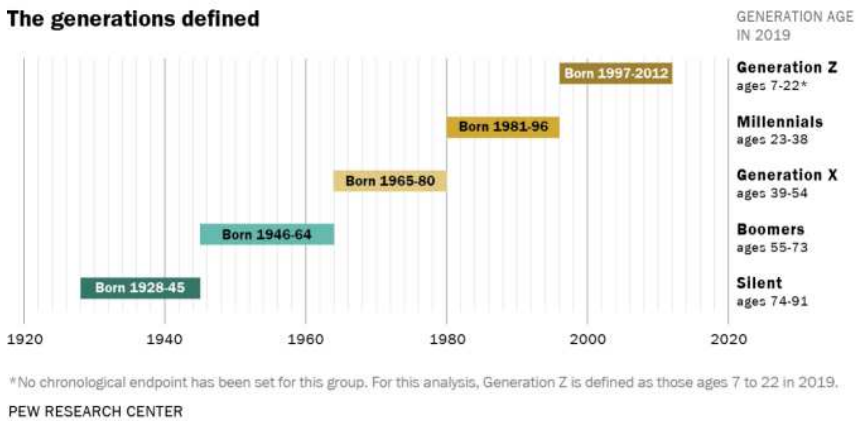


Fig. 1. The generations defined
Source from Pew Research Center (2019)

There are a bit differences between youngsters and oldest Gen Y. The oldest Gen Y entered the job market during the multiyear recession beginning in 2008, while the young are still obtaining their education [17]. Gen Y has responded to the recession in different ways, such as engaging in social disputes, moving back in with their parents, delaying buying first homes, and starting their own businesses.

Meanwhile, previous researchers have shown that Gen Z is different from Gen Y as reported by Ernst & Young [18] in a survey of 3,200 Gen Z in Brazil, China, Germany, India, Japan, Mexico, the UK and the US. It has been identified that Gen Z values “Employers who provide equal pay and promotion possibilities, possibilities for professional learning and advancement.

Besides that, they claim that Gen Z prefers employers who treat individuals with regard, ethical behaviour, fair compensation and promotion, open and transparent communication and wise company decision-making. Being independent, self-confident and autonomous are also some of the key characteristics of Generation Z.

They are a Do-It-Yourself (DIY) generation. In the study conducted by Dan Schawbel [19], Generation Z tends to be more entrepreneurial, trustworthy, tolerant and less motivated by money than Gen Y. They are more realistic about their work expectation and optimistic about the future. Amanda Slavin [20] finds that Generation Z wants to be heard irrespective of their young age. Technology is a part of their identity and they are tech-savvy but lack problem-solving skills and have not demonstrated the ability to look at a situation, put it in context, analyse it and make a decision [21,12]. They also appear to be less inclined toward voting and participating in their communities than earlier generations [22].

Please be reminded we are talking about two entirely different generations here. Sometimes people tend to lump Gen Y and Gen Z together because both generations are technology-driven, it would be a mistake to think they are the same. Gen Y and Gen Z grew up with two vastly different parenting styles, which affect how they approach problems and both personal and work-related. So in Table 1 below are the differences between Gen Y and Gen Z according to Lalorga [23] and Rika Swanzen [24].

Table 1. Differences between Gen Y and Gen Z [23,24]

Gen Y	Gen Z
Tech savvy: 2 screens	Tech innate: 5 screens
Think in 3D	Think in 4D
Collaborative	Pragmatic & cautious
Radical transparency: share all	Judiciously share
Slacktivists	Active volunteers
Multicultural	Blended (race & gender)
Tolerance	Togetherness
Immature	Mature
Communicate with text	Communicate with images
Share Stuff	Make Stuff
Have low confidence	Have humility
Now focused	Future focused
Team orientation	Collective conscience

Based on the above characteristics the organization may plan for their manpower planning and forecast, which generation is suitable to perform which job task and level that the employee will suit (e.g. Executive, Manager, Senior Manager and etc.). Generation Z is raised by the social web, they are digital centric and technology is their identity. They are also referred to as Generation I, Gen Tech, Digital Natives, Gen Wii, etc. They are born and raised in the digital world and what distinguishes them from other generations is that their existence is more connected to electronics and the digital world. For example, for a marketing position, they may need Gen Z to fulfil that position as the internet and social media have been influenced by this generation rather than Gen Y.

“By understanding the characteristics and the preferences of Gen Y and Z, recruiters will be able to attract and connect them in order to be able to groom them to become the future leaders of the company. Without this proper understanding, companies will find difficulties in recruiting and retaining the best-talented candidates of the Gen Y and Z and will also fail to motivate and inspire them which in turn will impact the organizational performances” [12].

1.2 Preference of Millennials (Gen Y) and Gen Z

From the characteristics of both generations we can assume that their preferences for communication and work environment are different from each other, it is important to understand the preferences of the Gen Y and Z so that the channel of

communication is acknowledged and good working environment is created in the organization. It is also significant to understand what motivates them for the organizational output. The preferences of Gen Y and Z based on the available works of literature are as follows:

1.3 Communication

Gen Y often needs detailed directions and desires open communication (Ferri-Reed [25]. Ferri-Reed [25] recommended that Gen Y respond best when communication is honest, direct, and transparent. The employer needs to note that the fastest way to lose the loyalty of Gen Y is to withhold information or restrict it to a select few individuals” (p.16). Behrens [26] highlighted the fact that due to technology, Gen Y is well-connected and aware of many job opportunities that exist. So they were easy to apply for another job when they felt insecure. As such, he noted that “The employer who fails to challenge the new Gen Y employee and provide day-to-day mentoring and encouragement may find the Gen Y among the dearly departed” (p.20). Furthermore, it is important that managers are aware of the type of communication Gen Y prefers and responsive to these needs as a way to stifle turnover due to a lack of communication when communicating with Gen Y, as now this generation has conquered the industry if the manager knows how to communicate with this generation so they may able to sustain their talent in the organization. The manager should also provide positive feedback that is both sincere and direct. It is important to recognize the accomplishments of these younger employees, and doing so could have an impact on their level of loyalty to the company.

Dan Schawbel [19] stated that “Gen Z prefer in-person or face-to-face communication and take seriously their opinion. They desire the managers to listen to their ideas, value their opinions and acknowledge them. This shows that the working environment should be less about age and more about ideas and contributions. Besides that, they value working for an honest leader and want them to be open and not hide information from them because of their young age. They were also open to raising their opinion on social media and sharing with others. Social media have trained them to be open-minded and be more transparent in the voice out their argument”. Max Mihelich [27] stated that “Gen Z need to have adequate freedom to ascertain themselves and get immediate acknowledgment. Also, as this generation has never lived in a world without a smartphone or an iPad, they expect to have all these appliances when going to the office and not to forget the internet too”.

1.4 Working Environment

“The tendencies and preferences of Gen Y create a number of problems for organizations, with one major issue being low levels of organizational commitment” [28]. “In order to obtain affective organizational commitment from this generation, Gen Y values the flexibility, and quality of their work environment and desires work-life balance” [29]. “Gen Y seeks flexible work schedules in order to accommodate their other life and goals and ambitions” [30]. “Salary and the perceived prestige of

a job matter less to this generation than to those in the past, and they give more weight to whether a job will give them the flexibility they need to pursue goals in other areas of their life” [31]. “Organizations also need to form a more personal relationship with this group, eliminating barriers to communication caused by hierarchical structures” [28]. Gen Y has more personal attached to the organization in order to retain this generation in the organization, the employer needs to make them feel secure and acknowledge their achievement.

“Gen Z prefer a work environment that cultivates mentoring, learning and professional development opportunities as they believe their education has not given them the required skills to deal with real-life problems” (Teresa Bridges, 2015). “This generation also called “digital natives” and strive for values such as learning, passion, security, balance and willingness to work at their workplace” [32,33] (Steinmetz, 2015). “A work environment that encourages their entrepreneurial skills, is friendly and allows for flexible schedules are the attributes that Gen Z looks for in a job. Technology is an important part of their life and prefer organizations that are at the forefront of the work environment that support and allow them to communicate, edit documents and advance work regardless of geographies or time zone barriers [12].

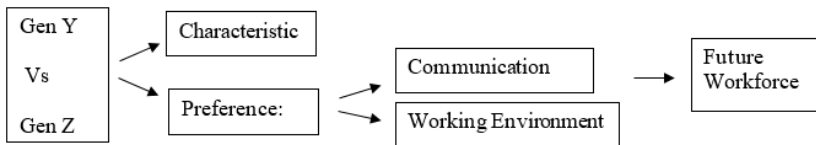


Fig. 2. Diagrams the shifted Characteristic & Preference of Gen Y & Gen Z toward future workforce

1.5 Expectation

Gen Y and Z seem to have different characteristics and preferences between them. This generation will blend their own unique needs into the working environment as they enter the organizations. By understanding them, companies can determine what can impact their recruitment and retention success by paying attention to what this generation ticks in the workplace. The employer should allow the workplace to s It is important for the organization to discover what’s important to Gen Y and Z for now and future workforce in order to boost the attractiveness within and outside the industry. With this, the organization can establish a corporate culture and workplace to gain a distinctive advantage in the hunt for top talent employees from Gen Z which in turn will sustain the organizational growth and remain a winning organization throughout. This paper examines the characteristics and preferences of Gen Z from the existing literature so that organizations can foresee and build a workplace suitable for them which in turn will impact organizational performance.

Based on the discussion and comparison made between Gen Y and Gen Z's preferences it can be summed up that Gen Z is bringing to the office a different set of values, behaviours, and expectations than prior generations, according to research by Katz [34]. Among others are

1.5.1 Gen Z expects change

Gen Z world has evolved by technological changes taking place rapidly that have changed and reshaped social experiences where disruption and impermanence have always been part of them and this has been a norm rather than an exception. Therefore they expect constant change [23]. Due to constant change at a rapid speed, this has nurtured Gen Z into growing up amid uncertainty and thus created a unique set of characteristics, including being flexible and resilient. Such circumstances have led them into new ways of thinking about how things should be done and may at times contradict the conventional of working, Hence employers must be very effective in managing these expectations from them.

1.5.2 Gen Z is pragmatic

Gen Z has a strong sense of self-agency [34]. With IT technology being at its most sophisticated level to date, Gen Z has always been one search engine result away. If they want to know more about something, they readily seek the answer out for themselves. They question everything and everyone – from their peers, parents, or people at work. Therefore employers must be ready with an answer that will adequately fill that gap of uncertainty Gen Z are seeking. Failure to do so will result in a loss of respect as they don't necessarily see elders as experts [34]. That is why they are pragmatic. They want to understand why something has to be done in a certain way rather than following instructions about what to do. As such they are not afraid to challenge why things are done the way they are.

1.5.3 Gen Z wants to make a difference

Due to modernisation and the current trends of demand and supply which lead to many environmental problems, Gen Z is the group of people who grow up with complex problems such as climate change inequality to racial injustice, to name a few. With technology transcending through borders and communication becoming borderless the generation shares the same sentiment of saving the earth and a sense of equality regardless of race and nationality they want to see changes made and action taken. They want to work for a place that they believe is doing good in the world. not only expect change – they demand it [34].

Some Gen Zers will hold their employers accountable for the causes and issues that matter to them and this will pose a challenging situation and if not untenable may lead to bigger and more serious organisational problems.

1.5.4 Gen Z values collaboration and teamwork

With borderless and seamless connectivity for some Gen Z, the digital world helped shape their identity: Through social media and online groups, they found

subcultures to connect and interact with. Their networking spreads not only communally but globally. With wikis where websites are developed and edited collaboratively, this led to enthusiastic and energetic communities centered around a shared, common interest. This phenomenon can be witnessed by K-pop sensation BTS as its Army, Beyonce her Beyhive, and Taylor Swift her Swifties. If we were to take into consideration the number of followers of these names it is definitely going to be big and these people share the same characteristics [35]. This proves how they value togetherness and collaboration hence employers have to be wary of such collectivity of these new workforce when they band together for a cause.

1.5.5 Gen Z wants leaders who guide by consensus

When they share the same values and aspirations, Gen Z is less hierarchical than previous generations where it is an open playing that prioritises expertise not experience and task-specific.

In a survey, Gen Z responded the following to the question of what would they do if they were the CEO (TalentLMS, 2022)

Give voice to everyone:

"If I were CEO I would make sure everyone had a voice."

Equal opportunities for all:

"If I was a CEO, I would remove the barriers of the social ranking at work. So we can all equally work and thrive together."

Healthy work environment:

"I would dismantle the ways of the traditional workplace and create a more healthy fulfilling environment."

"I would make sure everybody respect and care for others."

The vibe:

"The vibe, I think the vibe is extremely important, probably top 3 in the workplace."

Stop discrimination:

"I would make sure that there are consequences for discrimination."

Kill the caste system:

"I'd change the feeling of a caste system between the highly certified professionals at the job and the not so skilled workers."

Environment-friendly business practices:

"I would find ways to make the company more sustainable and environmentally friendly."

Prioritize mental health:

"I would allow employees to take breaks as needed and have mental health days separate from vacation and sick days."

"Allow employees more time with family on holidays and events, offer mental health days and no dress code."

Eliminate the pay gap:

"Smaller gap between my pay and that of the employees below me/more balance."

"The pay gap between men and women."

Fun and enjoyable workplace:

"I would make the place more fun and enjoyable as much as I possibly could so my employees would enjoy coming to work."

Allow flexibility:

"Let employees choose whether they want to work remotely or at the workplace."

Allow authenticity:

"I'd change the fact that they judge the way someone works based on their piercings or tattoos."

I'd change it to it not mattering."

Relationships at work:

"More sense of community at the office, have teams be based in the same location so they can meet in person."

"If I were a CEO in my workplace, I would have more team-bonding days, where the whole team and the supervisor go on trips to bond and have a closer connection outside of the workplace."

Appreciate employees:

"I would make the environment more friendly and welcoming. I would give positive feedback to people and let them know they are appreciated. I would also raise salaries."

"I would show my employees appreciation. Employees don't leave companies, they leave management."

The above encapsulates the concept of leadership that this generation would look for. This could mean they prefer rotational responsibility to be empowered to the right person with the right expertise without the hierarchy as the main element of appointment. As such terms such as "rotating leadership", "service leadership" and "collaborative leadership," may just be the leadership styles of the future.

To them, decision-making and problem-solving are the responsibility of all the members across the organization and not just the selected few. Gen Z values transparency and consensus.

1.5.6 Gen Z cares about mental health and work-life balance

Growing up with the rapid development of technological advances has put a lot of pressure on Gen Z to keep up with the challenges. The recent pandemic has seen the integration of mixed working conditions of the blurring of the 9-to-5 work schedule and the rise of flexible work models, Gen Z has a very strong mental state as they need to balance up the two harmoniously and if they fail they could be working all the time [34]. Gen Z is sensitive to this requirement as the world has or is witnessing a higher number of mental health and depression recorded than before.

Therefore having a work-life balance and maintaining mental and physical health is important to Gen Z so that they can keep being a part of the community.

1.5.7 Gen Z looks for trust and authenticity and loyalty

Gen Z also values authenticity with leaders who are empathic and honest. Leaders have to be transparent, supportive and willing to listen to them. Authenticity is about trusting one another which Gen Z values highly where words and action need to work simultaneously and cohesively.

Leaders have to walk the talk in order to gain respect and create loyalty.

Another view shared by Stahl [3]; a career advisor lists the following perspective:

Gen-Z's expectations in the workplace are values-driven and aligned with their personal morals: For Gen-Z, the desire to evaluate companies based on a set of moral standards seems to extend beyond preferences in the workplace and impact the consumer choices of Gen-Z as well. A survey found that 51% of Gen-Z consumers would ensure that a brand was aligned with their own values before making a purchase.

Diversity, equity and inclusion are highly valued by Gen-Z workers: Generation-Z represents the most racially and ethnically diverse generation in history worldwide. Due to sophistication in communication technology and

accessibility beyond geographical boundaries, the existence of all races and ethnicities can be found anywhere and everywhere. This no doubt contributes to the expectation among members of Gen-Z that their workplaces reflect not only their values but also the diversity among their peers.

Gen-Z values economic security, communication and transparency: Even though labelled as a generation being glued to their phone screens, in fact, Gen-Z workers seem to highly value relationships and in-person communication in the workplace. A study found that in fact, 90% of Gen-Z workers desire and value a human connection when it comes to their at-work communication.

A survey conducted by the Workplace Institute found that among others;

Gen Zers say they're the hardest-working generation — but demand flexibility: Gen Z tend to be would be loyal and more hard-working for a company with flexible schedules. Gen Zers are searching for employers that give them a say over their work schedule and actively help them achieve a healthy work-life balance

Gen Zers are largely optimistic about their future — but anxious about their abilities to be successful workers: Gen Z workforce is hopeful about the future. They are very optimistic about their future yet at the same time this optimism is met with climbing anxiety about work expectations and achieving success. This has led to the perception of a lack of motivation and self-esteem and anxiety that hinders their progress to a certain extent.

Gen Zers seek money first and foremost: Monetary is an important aspect of human lives and so does it to Gen Z. Apart from an enjoyable working environment, supportive managers, and recognition for a job well done, appropriate and practical monetary reward is important for these people in meeting their day to day living expenses to ensure peace of mind in performing the task and function at the workplace.

2. CONCLUSION

GenZ are highly aware individuals with intertwined traits of doers and dreamers: having sensibilities on social and environmental issues, they are the doers and will never shy away from buckling down and taking action. In summary, they are ambitious and have high career expectations, but they prioritize well-being and are not willing to give up their work-life balance to enter the rat race.

As the future of the workforce they are finding their footing in the workplace and at the same time enriching it with fresh perspectives and energy.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Price Trend Analysis: A Case Study from Amravati District, India

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ABSTRACT

This study tried to understand the price movements of selected commodities in urban and rural areas of the Amravati district. The price that can be commended for the new products and the volumes of the products that are sold determine, in large measure, the returns that will be made on the initial investment. It is observed that the average prices of commodities undergo fluctuations over the years where price movement of all commodities varies from each other depending upon the nature of the commodity and its market. It is also observed that rural prices are higher than urban prices. The analysis is simply based on the graphical presentation and inflation rate. The inflation rate has derived from the percentage increase in the price over the years. The prices of commodities are the aggregate of quarterly prices of selected commodities. It questions the belief of low cost of living in rural areas excluding housing and other social infrastructure. It is stated that inflation is driven by many socio-economic micro and macroeconomic variables.

Keywords: Inflation rate; urban areas; rural areas.

1. INTRODUCTION

Inflation is a macroeconomic phenomenon that considers the aggregate prices of selected commodities in the country. It is measured in the consumer price index, wholesale price index and GDP deflator. Inflation can also distort purchasing power over time for recipients and payers of fixed interest rates. Pressures on the supply or demand side of the economy can also be inflationary. Supply shocks that disrupt production, such as natural disasters, or raise production costs, such as high oil prices, can reduce overall supply and lead to “cost-push” inflation, in which the impetus for price increases comes from a disruption to

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supply [1]. From 2009-10 the combined consumer price index has been calculated which takes into account the urban and rural prices of the commodity basket. This new index gives one insight into the inflation rate where urban and rural prices are compared [2]. This paper is a case study of the Amravati district where the prices of urban and rural areas of the district are examined.

2. METHODOLOGY

The secondary data is collected from the official website of the Directorate of Economics and Statistics, Mumbai [3]. The commodities are selected on the basis of their utility in day-to-day life. There are twelve commodities. Both urban and rural prices of these commodities are tabulated from 2009-10 to 2013-14 [2]. The analysis is simply based on the graphical presentation and inflation rate. The inflation rate has derived from the percentage increase in the price over the years. The prices of commodities are the aggregate of quarterly prices of selected commodities [2].

The objective of the study is to examine the price movements of the selected commodities over the years in urban and rural areas of the Amravati district. It also tries to compare the price movements in urban and rural areas [2]. The uniqueness of the paper is that it emphasizes the prices of selected commodities in urban and rural areas of Amravati district which are used as one of the information while calculating the national aggregate of inflation rate. On the other way, it is a micro observation of price rise at the micro level [2].

3. REVIEW OF LITERATURE

K. R. Gupta [4]- This book reveals various facets of inflation. It deals with basic theories of inflation followed by the causes and effects of inflation. The global scenario of inflation is also discussed where it is observed that oil shocks, and high commodity prices of international goods like meat, sugar, dairy products, cereals, etc attracted inflation. The major reasons found behind the boom in commodity prices are the business cycle, weather and so-called super cycle of commodities. Rajkumar Waingade [5] – paper discusses the trend of inflation rate in India since 1935 with the help of three indicators viz. WPI, CPI and GDP deflator. Charan Singh [6] - this paper deals with issues of inflation targeting. Taking the example of selected countries, a few important features of inflation targeting were noticed i.e. the duration for inflation targeting was medium term. Most of the countries followed CPI as the index for inflation targeting. It proved successful in countries like Australia, South Korea, New Zealand, South Africa etc. Thangzason sonna, Dr. Himanshu Joshi, Alice Sebastain & Upasana Sharma [7] – this paper checks the liability of reasons causing food inflation. Mukta S. Adi [8]- The paper discusses the causes and policy control of food inflation. Author depicts that food inflation is the result of the mismatch between demand and supply of agricultural products. B. Karan Singh [9]– this paper estimates an open economy Phillips curve with the help of three variables; inflation, output gap and real effective exchange rate. It also establishes relationship between inflation and output gap. Composite consumer price index is

the best measurement to estimate the inflation rate. Sthanu R. Nair and Leena Mary Eapen [10] - discuss the causes of food inflation in India in the period of 2008-2010 with respect to a few commodities viz. rice, pulses, fruits, vegetables, milk, spices, tea and coffee and sugar. The authors point out many factors responsible for the price hike of the above commodities. C. P. Chandrashekhar [11] – paper discusses the contemporary scenario of inflation. Failure of government policies, working of PDS and international influence of oil prices kept inflation rate high. Especially food prices have risen sharply even when the general price index is low. R. Sthanumoorthy [12]– the current inflation scenario shows that it is food products and not primary food articles that are mainly responsible for the surge in inflation. Primary food products like food grains have no contribution to the price rise. The three main items contributing to inflation are oil, edible oils and dairy products which have experienced continuous price rise. Neha Batura [13] – the article aims at providing a comprehensive analysis of trends in inflation with reference to WPI for the year 2006-07 and 2007-08. It is noticed that the factors responsible for inflation in both years are different. In 2006-07 the major factor was liquidity generated through capital inflows. On the other hand in 2007-08 there was upward movement of global commodity prices. Ashok Gulati and Shweta Saini [14] – this paper focuses on lowering food inflation especially in high-value agriculture (HVA) products. As income increases people increase their demand for HVA products, fruits and vegetables, EFM and milk and milk products. These products are perishable so short-term policies should be adopted to lower the prices.

Thus, it is stated that inflation is driven by many socio-economic micro and macroeconomic variables. Amravati district is a part of the Vidarbha Administrative Region of the state Maharashtra of Bharat. The discussion related to price movements of the selected commodities is based on graphical presentations.

Graphical representation of price movement:

1. Rice: the price of rice undergoes fluctuations throughout the years. It was `32.25/kg in 2009-10 which increased to `45.48/kg in 2013-14 in urban areas. Meanwhile, it decreased by 7.5 per cent in 2010-11 and then sharply increased by 28.71 per cent in 2012-13 in urban areas [2]. It decreased further by 18.37 per cent in 2013-14 in urban areas. If we compare the price of rice in urban areas with rural areas, we can observe that it has continuously increased in rural areas from `22.06/kg to `46.92/kg with a rate of 0.18 per cent, 15.29 per cent, 63.22 per cent and 12.88 per cent in the year 2010-11 to 2013-14 respectively [2]. The rate of inflation is higher in rural areas in the year 2012-13 as compared to urban areas.
2. Wheat: the price of wheat also underwent ups and downs. Excluding the exception of the year 2011-12 where the price level decreased by 8.25 per cent in urban areas and 5.91 per cent in rural areas, all years observed continuous increases in the price of wheat. The rate of inflation is higher in rural areas than in urban areas [2].

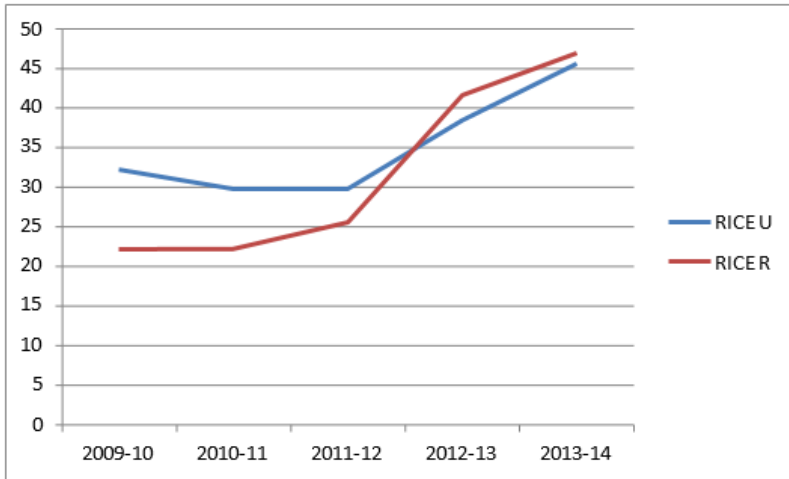


Diagram 1. Comparison of prices of rice in urban and rural areas from 2009-10 to 2013-14 [2]

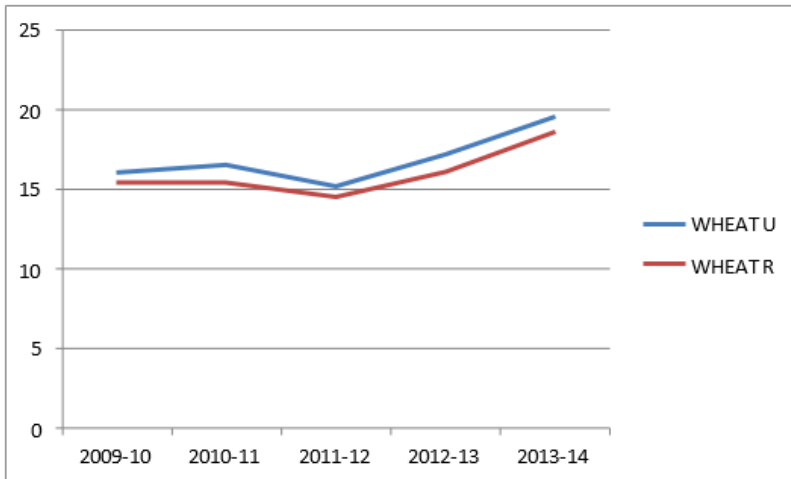


Diagram 2. Comparison of prices of wheat in urban and rural areas from 2009-10 to 2013-14 [2]

3. Tur: The price of tur remained higher in rural areas than in urban areas except in the year 2013-14. However, the price of tur has decreased over the years in both urban and rural areas. The sharp decline is observed in the year 2010-11. It declined by 8.84 per cent in urban areas and 11.01 per cent in rural areas [2].

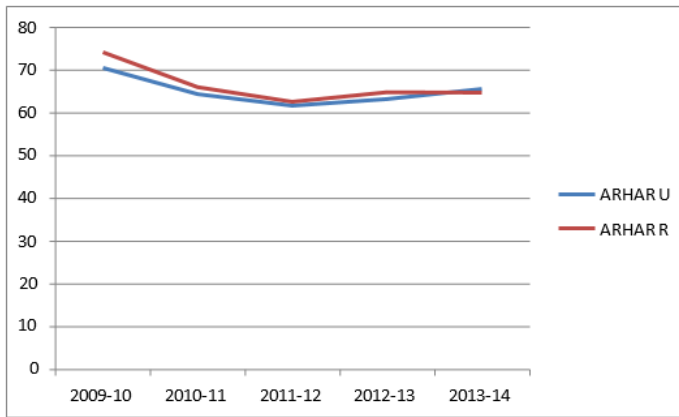


Diagram 3. Comparison of prices of Tur dal in urban and rural areas from 2009-10 to 2013-14 [14]

- Potato: The rate of inflation for potatoes remained high in 2012-13 in both urban and rural areas i.e. 66.17 per cent and 62.66 per cent respectively. The prices declined in two consecutive years; 2010-11 and 2011-12. Otherwise, it has increased in 2012-13 and 2013-14. Here also the prices in rural areas are more than the prices in urban areas [2].

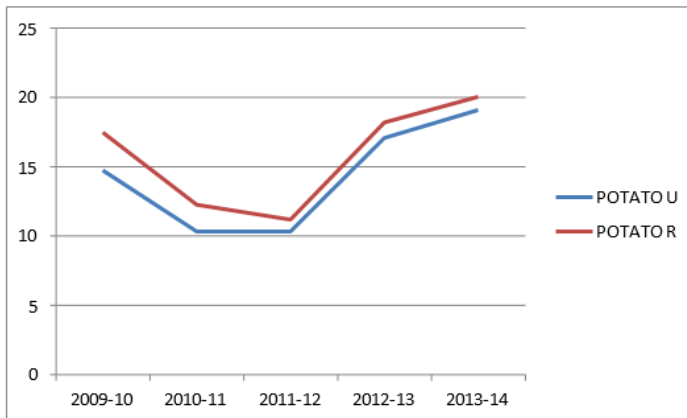


Diagram 4. Comparison of prices of potato in urban and rural areas from 2009-10 to 2013-14 [14]

- Onion: the prices of onion inflated significantly in 2013-14 in both urban and rural areas. It increased by 119.71 per cent in urban areas and 138.32 per cent in rural areas. Excluding the year 2012-13 the price of onion in urban areas increased continuously whereas the rural areas price was low

in 2011-12 and 2012-13. This commodity only observed higher prices in urban areas than in rural areas [2].

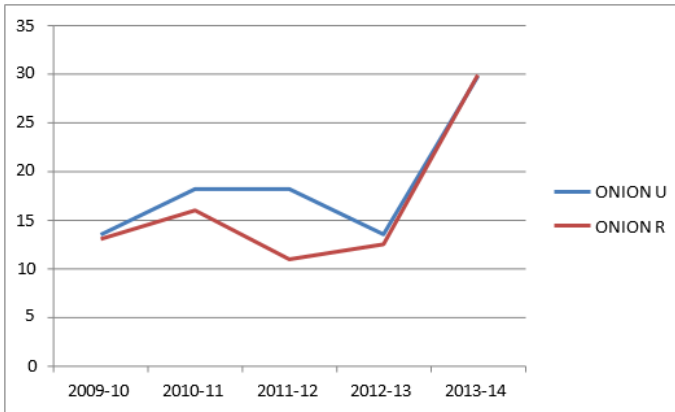


Diagram 5. Comparison of prices of onion in urban and rural areas from 2009-10 to 2013-14 [2]

6. Edible Oil: edible oil prices increased continuously till the year 2012-13. It decreased afterward by 12.11 per cent in urban areas and 3.99 per cent in rural areas. Though the rate of inflation is higher in urban areas the actual prices are high in rural areas [2].

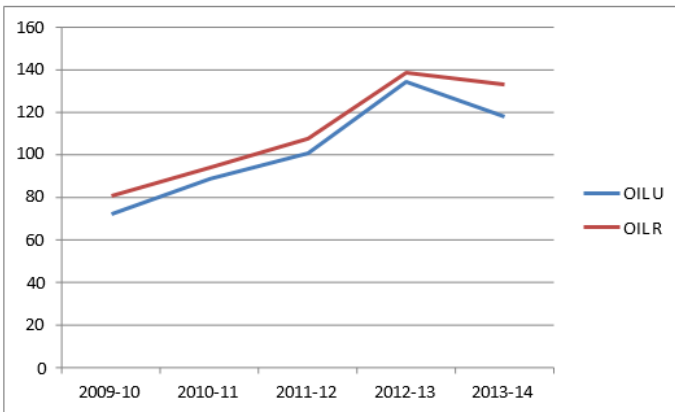


Diagram 6. Comparison of prices of edible oil in urban and rural area from 2009-10 to 2013-14 [2]

7. Sugar: sugar is a secondary product. The prices of sugar are influenced by the production of sugarcane. These commodity prices also underwent ups and downs. It has increased by 13.97 per cent in 2012-13 in urban

areas and 12 per cent in rural areas. However, the prices of sugar are higher in rural areas than in urban areas [2].

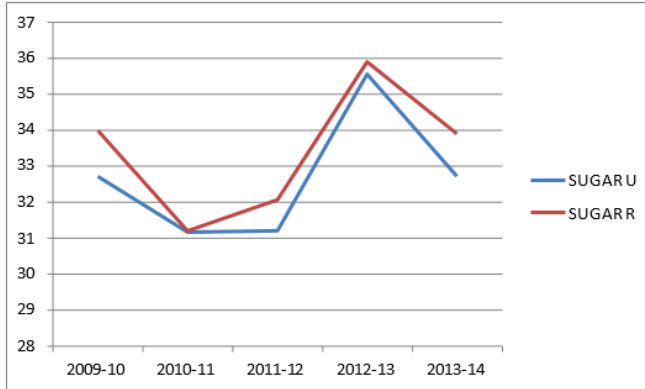


Diagram 7. Comparison of prices of sugar in urban and rural areas from 2009-10 to 2013-14 [2]

8. Milk: the price of milk increased in 2011-12 by 18.32 per cent in urban areas whereas by 33.32 per cent in 2010-11 in rural areas. The price rise starts earlier in rural areas than in rural areas. At a glance, it can easily be observed that the price of milk is higher in rural areas than in urban areas [2].

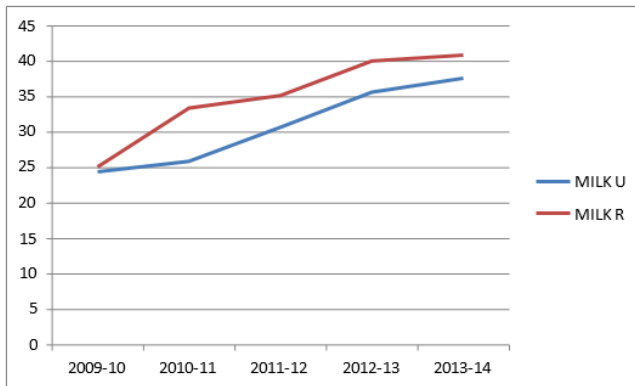


Diagram 8. Comparison of prices of milk in urban and rural areas from 2009-10 to 2013-14 [2]

9. Eggs: the price of eggs was observed to suddenly increase in rural areas. It increased by 21.80 per cent in 2012-13 in urban areas and 92.55 per

cent in rural areas. Urban areas underwent a slow change from `34.11 /dozen in 2009-10 to `48.9/dozen in 2013-14. The diversion between the curves shows that rural prices swelled faster than urban prices [2].

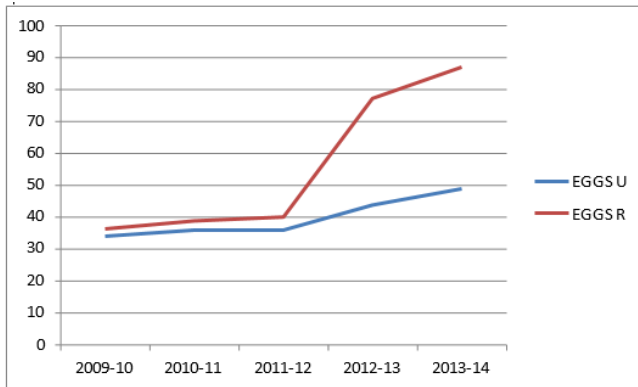


Diagram 9. Comparison of prices of eggs in urban and rural areas from 2009-10 to 2013-14 [2]

10. Chicken: the price of chicken observed fluctuations in urban areas. On the other hand, it rose continuously in rural areas. It increased by 32.30 per cent in rural areas in 2010-11 from `83.33/kg to `110.25/kg. In urban areas it decreased by 37.40 per cent in 2010-11 and increased by 35 per cent in 2012-13 [2].

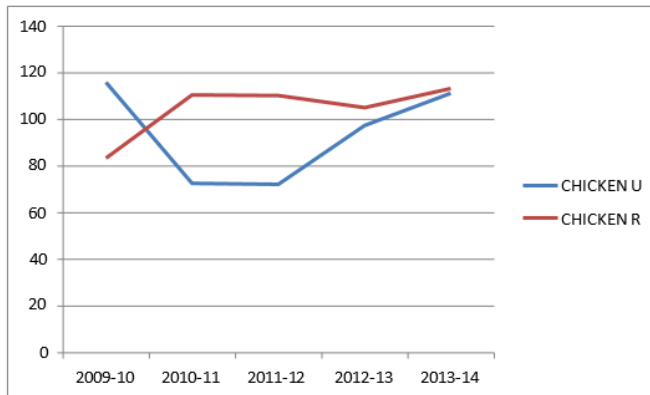


Diagram 10. Comparison of prices of chicken in urban and rural areas from 2009-10 to 2013-14 [2]

11. Petrol: the prices of petrol in rural areas are not available. In urban areas, it increased continuously, excluding the year 2011-12, from `50.27/lit to

₹78.92/lit. The sharp rise in price was observed in 2012-13 by 29.46 per cent [2].

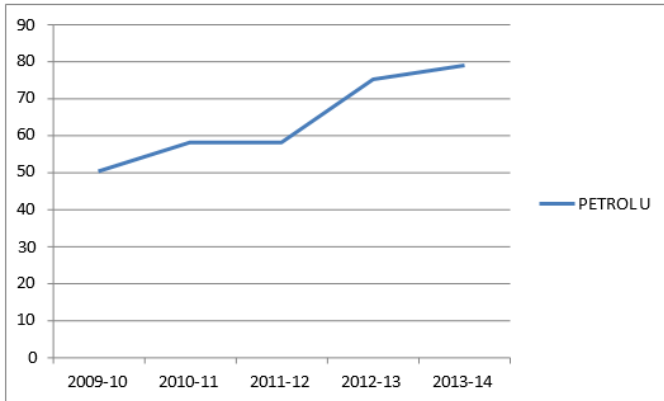


Diagram 11. Comparison of prices of petrol in urban and rural areas from 2009-10 to 2013-14 [2]

12. Gas: the price of LPG gas also increased excluding the year 2011-12. It increased from 328 per cylinder to ₹466.18 per cylinder over the given period. Again the sharp increase is observed in 2012-13 by 23.07 per cent. The prices of gas in rural areas are not available [2].

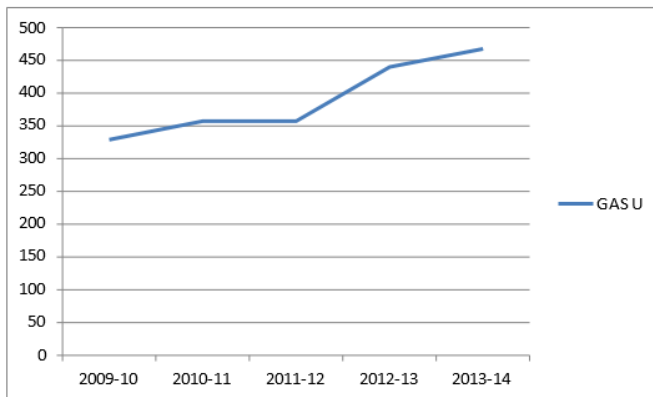


Diagram 12. Comparison of prices of gas in urban areas from 2009-10 to 2013-14 [2]

4. OBSERVATIONS

1. The following table shows the commodities with the highest inflation rate and lowest inflation rate.

Table 1. Highest and lowest inflation rate in urban and rural area from 2010-11 to 2013-14 [2]

	Highest Inflation Rate				Lowest Inflation Rate			
	2010-11	2011-12	2012-13	2013-14	2010-11	2011-12	2012-13	2013-14
Urban	Onion (34.7%)	Milk (18.3%)	Potato (66.1%)	Onion (119.7%)	Chicken (37.4%)	Wheat (8.35%)	Onion (25.6%)	Oil (12.1%)
Rural	Milk (33.3%)	Rice (15.2%)	Eggs (92.3%)	Onion (138.3%)	Potato (29.8%)	Onion (31.2%)	Chicken (4.6%)	Sugar (7.3%)

It can be observed that onion remained the most sensitive commodity in both urban and rural areas. The prices of onions are affected by supply-side factors including hoarding [2].

2. The most important observation is that the prices of rural areas remained continuously higher than urban areas except for wheat and onion.
3. The rate of inflation was high in urban areas for potatoes, oil, sugar and milk whereas rice, chicken and eggs observed a high inflation rate in rural areas. Wheat, tur and chicken showed mixed behavior [2].
4. Two international commodities; petrol and gas are kept away from the calculation of rural prices. It may be a misleading factor as these commodities are widely used in rural areas. The negligence of these commodities in rural areas must have a significant impact on the national aggregate [2].
5. The high protein commodities viz. milk, eggs and chicken observed higher inflation rates compared to other commodities especially in rural areas [2].
6. Three commodities provided by PDS viz. rice, wheat and tur show different behavior. Prices of rice showed mixed trends high in urban areas till 2012-13 and high in rural areas from 2012-13. Wheat enjoys high prices in urban areas and tur enjoys high prices in rural areas [2].

5. CONCLUSION

It is generally considered that prices of commodities are always high in urban areas. This case study breaks this consideration as it is observed that the most of selected commodities are costly in rural areas. So, it can be stated that the cost of food in rural areas is higher than in urban areas [2]. Of course, it cannot be denied that the cost of housing and other social infrastructure is high in urban areas as compared to rural areas.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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APPENDIX

Table 1. Prices of the selected commodities in Amravati district (2009-14)

Commodities	Years	2009-10	2010-11	2011-12	2012-13	2013-14
Rice	U	32.25	29.83	29.85	38.42	45.48
	R	22.06	22.1	25.48	41.59	46.92
Wheat	U	16	16.48	15.12	17.15	19.54
	R	15.4	15.39	14.48	16.08	18.63
Tur	U	70.52	64.28	61.57	63.12	65.51
	R	74.23	66.05	62.65	64.91	64.78
Potato	U	14.7	10.26	10.26	17.05	19.07
	R	17.44	12.24	11.17	18.17	20.01
Onion	U	13.51	18.2	18.2	13.54	29.75
	R	13.08	16.01	11	12.55	29.91
Oil	U	72.2	88.65	100.58	133.93	117.71
	R	80.42	93.73	107.42	138.5	132.97
Sugar	U	32.7	31.15	31.19	35.55	32.71
	R	33.99	31.19	32.06	35.91	33.9
Milk	U	24.46	25.92	30.67	35.55	37.5
	R	25	33.33	35.1	40	40.83
Eggs	U	34.11	36.01	36	43.85	48.9
	R	36.33	38.82	40	77.02	86.75
Chicken	U	115.83	72.5	72.05	97.29	111.17
	R	83.33	110.25	110	104.86	113.01
Petrol	U	50.27	58.06	58.06	75.17	78.92
	R	N.A.	N.A.	N.A.	N.A.	N.A.
Gas	U	328	356.25	356.25	438.45	466.18
	R	N.A.	N.A.	N.A.	N.A.	N.A.

Source- Socio-economic reviews of Amravati district from 2009-14

Table 2. Inflation rate of selected commodities (derived from above table)

	Years	2010-11	2011-12	2012-13	2013-14
Rice	U	-7.50388	0.067047	28.71022	18.37585
	R	0.181324	15.29412	63.22606	12.81558
Wheat	U	3	-8.25243	13.42593	13.93586
	R	-0.06494	-5.91293	11.04972	15.85821
Tur	U	-8.84855	-4.21593	2.51746	3.786439
	R	-11.0198	-5.14762	3.607342	-0.20028
Potato	U	-30.2041	0	66.17934	11.84751
	R	-29.8165	-8.74183	62.66786	10.12658
Onion	U	34.71503	0	-25.6044	119.7194
	R	22.40061	-31.2929	14.09091	138.3267
OIL	U	22.78393	13.45742	33.15769	-12.1108
	R	16.55061	14.60578	28.93316	-3.99278
Sugar	U	-4.74006	0.128411	13.97884	-7.98875
	R	-8.23772	2.789356	12.00873	-5.59733
Milk	U	5.968929	18.32562	15.91131	5.485232
	R	33.32	5.310531	13.96011	2.075
Eggs	U	5.570214	-0.02777	21.80556	11.51653
	R	6.85384	3.03967	92.55	12.63308
Chicken	U	-37.4083	-0.62069	35.03123	14.26663
	R	32.30529	-0.22676	-4.67273	7.772268
Petrol	U	15.49632	0	29.46951	4.988692
	R	N.A.	N.A.	N.A.	N.A.
Gas	U	8.612805	0	23.07368	6.324552
	R	N.A.	N.A.	N.A.	N.A.

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Green HRM Practices and Organizational Citizenship Behavior to Environment (OCBE): Analysis of Banking Sector in Bahrain

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ABSTRACT

The aim of the present study was to examine the relationship between green HRM and Organizational citizenship behavior for the environment (OCBE). Organizations that have managed to work effectively in this regard have managed to reap many benefits including enhancing their citizenship outlook in the society. The study tested the impact of green recruitment, green training and green rewards on OCBE in the banking sector of Bahrain. Organizational citizenship behaviors popularly known as OCB are one of the salient management concepts these days and have received much empirical attention over the recent past across the organizational behavior domain. The bootstrapping results on the hypothesized relationship confirmed a significant relationship between green recruitment and OCBE. Four major banks in Bahrain were selected for the present study. The banks were chosen based on initial information obtained pertaining to their implementation of Green HR practices (green recruitment, training and rewards) in the company over the past three years. Accordingly, the study also found support for green training and OCBE followed by empirical significance for green rewards and OCBE relationship simultaneously. The research findings provide clear evidence of the importance of green HRM practices in improving environmental citizenship within organizations. Notable findings from the study have implications for further research.

Keywords: Green HRM; green recruitment; green training; green rewards; OCBE.

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1. INTRODUCTION

Green behavior among employees can contribute to the green performance of organizations. Regardless of the salience of human resource (HR) practices in translating organizational strategy into employee behaviors, the role of green HR practices in shaping employee green behavior has been under-explored [1]. With growing environmental concerns, businesses are pushed to opt for greener practices. Therein, international entities have been established to cater to this element that are following up with the organizations to ensure they are keeping up with the environmental concerns [2]. Organizational Citizenship Behavior towards Environment (OCBE) is a construct that is increasingly being studied to explain voluntary green behaviors by employees. The performance of OCBEs by employees has been associated with positive outcomes such as improved environmental sustainability of organizations [3]. A variety of regulations have also been in place these days pertaining to various organizational activities to push them to comply with the requirements. Perez, Amichai-Hamburger & Shterental, [4]. Notably, organizations that have managed to work effectively in this regard have managed to reap many benefits including enhancing their citizenship outlook in the society (Gorman & Chavez Reyes, [5], Ogalo et al., [2]).

However, the issue is still grave and to what length it could be effectively controlled is still not clear. Businesses to the best of their capability and capacity may work on elements yet still, many areas are yet to be taken into consideration in this regard [2]. Parallel to other organizational functions, human resource management department activities are also been advised to follow the same path [6]. To some scholars, the human resource department can serve as an initiating force on all such matters by establishing effective policies and codes of conduct that encourage green practices (Mayrhofer, Gooderham & Brewster, [7], Ogalo et al., [2]). However, they ought to start the process by transforming their practices into green in the first place.

Keeping this idea beforehand, the current paper has attempted to investigate how green practices of HR could be of viability and how it can help them to further their citizenship behavior towards a larger environment for more promising efforts in this direction [2].

2. LITERATURE REVIEW

2.1 Organizational Citizenship Behavior

Organizational citizenship behaviors popularly known as OCB are one of the salient management concepts these days and have received much empirical attention over the recent past across the organizational behavior domain (Chan & Lai, [8], Ogalo et al., [2]). The concept has received much prominence particularly due to the fact that businesses these days require their employees to put in greater efforts with a more personalized concern for the company. OCB is a behavior that goes beyond the agreed job duties and/or job specification (Podsakoff, McKenzie & Podsakoff, [9], Ogalo et al., [2]). Such a behavior is

generally not rewarded and not assigned formally but outlines a greater deal of individual focus, belongingness and concern towards the business [10]. Individuals showcasing citizenship behavior express civic virtue, courtesy towards others and company matters, sportsmanship, conscientiousness and altruism (Organ, [11], Ogalo et al., [2]).

2.2 Organizational Citizenship Behavior Environmental

Organizational citizenship behavior environmental caters to matters pertaining to looking at behaviors that cultivate eco-friendly behaviors by making a healthier impact on the environment [1]. Organizations that express citizenship behavior can strive to express more enriched behavior in this regard that goes beyond organizational boundaries (Chang, Chen, Luan & Chen, [12], Ogalo et al., [2]).

Organizations expressing OCBE produce more objective work that strives for increasing eco-friendly initiatives in society, express eco-engagement and take eco-helping efforts. These pro-environmental behaviors help businesses to enhance their impact on the societal prospects that are vital for the place of operation thus, boosting environmental citizenship behavior [2]. In addition, OCBE energizes individuals to feel passion for unrewarded work outside the workplace and/or put efforts toward an entity that will have a more positive impact on the environment [13]. Research studies have worked on several antecedents of OCBE, with particularized influence from green practices including green HRM (Human Resource Management) (Dutta, [14], Ogalo et al., [2]).

2.3 Green HRM

HRM has been long underlined as a notable resource prospect from businesses for enhancing individual (Ahmed, Kura, Umrani & Pahi, [15]) and organizational outcomes (Wood, [16], Ogalo et al., [2]).

Scholars have provided various explanations for the concept of green HRM. In the views of Renwick et al. (2008) the incorporation of environmental management concerns in human resource management is known as green HRM. Accordingly, Nagendra and Kansal (2014) asserted that green HRM refers to transforming personnel practices to suit the ecological preferences of society [2]. The concept of green HRM gives a completely new outlook to the existing business practices related to employees as the way how things are perceived and performed changes dramatically. Henceforth, green HRM can said to be different from conventional HRM (Ahmed, AlZgool & Shah, [15], Ogalo et al., [2]).

2.4 Green Recruitment

Green Recruitment is one of the most crucial elements for a business to showcase its green focus and emphasis. Green practices in recruitment caters to looking into deploying green practices and approaches in attracting employees and secondly, opting for candidates who are enthusiastic about green practices. Organizations today hire and attract talented individuals through projecting green

practices and green aspects of HR (Guerci, Montanari, Scapolan & Epifanio, [17], Ogalo et al., [2]). Therein, firms with such a mindset prefer to hire employees who have an environment-friendly approach to doing things at work and appreciate organizations' efforts towards harnessing green elements in the business. Typically, such firms also prefer to hire employees who showcase a green mindset and environment-friendly approach towards work and other job prospects [2]. Notably, there has been much evidence suggesting the promising role of green recruitment for instance, a recent study by Ahmed, AlZgool & Shah [15] indicated the positive impact of green recruitment on employees' behaviors and outcomes (engagement) thus resulting in boosting environment-wide positive impact. Accordingly, Silvester, Sarip & Hassan [18] confirmed a significant relationship between green recruitment and organizational citizenship behavior from the environmental prospect. Thus, these evidences encouraged to test the following hypothesis:

H1: There will be a significant positive relationship between green recruitment and OCBE.

2.5 Green Training

Training and employee development is one of the most promising features for businesses to ensure they elevate employee skills and competencies to the level whereby, they could facilitate in achieving organizational goals (Mozammel, [19], Ogalo et al., [2]). Here, green HR policies would look into establishing training programs that follow green prospects and advocate green practices amongst employees. HR departments with a green focus have been noticed developing green training programs to enhance the skills of their employees in dealing with issues and challenges arising from green prospects (Pinzone, Guerci, Lettieri & Huisingh, [20], Ogalo et al., [2]). Green training activities energize individuals to learn to do things the green way. This on the notable side also showcases a good image of the organization in the society thus outlining it as a socially responsible entity. Silvester, Sarip & Hassan [18]. Scholars have also outlined that green training boosts pro-environmental behaviors across the organization and portrays a better socially responsible image in the operating environment. Hence, it was asserted that green training will positively enhance OCBE [2].

H2: There will be a significant positive relationship between green training and OCBE.

2.6 Green Rewards

There is a great deal of scholarly understanding of the factors (recruitment and training) discussed above. However, to what length, businesses will be able to enhance through other HR activities is less known. For example, some organizations offer recognition to their employee for practicing green [21]. Accordingly, some offer tangible rewards to employees for going green (Dumont, Shen & Deng, [22], Ogalo et al., [2]). When organizations offer rewards to employees practicing green behaviors, it elevates the green culture across the

business and results significantly in enhancing the social image in Society [5]. In addition, it also encourages employees to showcase a promising image in society whilst spreading apposite word of mouth [23]. Conclusively, these assertions suggest that businesses can make a considerable impact on harnessing their citizenship behaviors by offering rewards to employees against showcasing green behaviors and achievements [2].

H3: There will be a significant positive relationship between green rewards and OCBE.

2.7 Sampling

Four major banks in Bahrain were selected for the present study. The banks were chosen based on initial information obtained pertaining to their implementation of Green HR practices (green recruitment, training and rewards) in the company over the past three years [2]. Therein, all the employees hired in the past years were taken into consideration for the present study. A total of 112 candidates were finalized out of which 105 responded. Conclusively, 101 were taken further for final assessment of the relationships [2].

3. METHODOLOGY

Structural equation modelling using Smart PLS 2.0 has been deployed to assess the hypothesized relationships [24]. Therein, the paper followed the two-stage process whereby, the first stage caters to the measurement of the model through testing reliability, and validity of the model to confirm its suitability for assessment. Once the assessment was obtained, the study moved to stage two whereby, the significance of the hypothesized relationships was examined [2].

3.1 Assessment of Measurement Model

The measurement model assessment works to check the ensure the individual item reliability, convergent validity and reliability and discriminant validity. Table 1 below shows that individual item loadings were assessed for each construct whereby, the study reported all loading achieving the required threshold of 0.50 as per the recommendations of Hulland [25]. In parallel, the study also examined the AVE scores which also turned out to be meeting the minimum threshold requirement of 0.50 as per Fornell and Larcker [26]. The Cronbach alpha coefficients were also examined and were found to meet the considerable mark of 0.70 as per Bagozzi and Yi (1988). Thus, the model expressed a significant level of reliability and validity [2].

Table 1. Loadings, AVE and Alpha coefficients [2]

Construct	Loadings	Ave	Cronbach alpha	R2
GTRAINING		0.599210	0.832427	
GT1	0.781888			
GT2	0.730626			
GT3	0.792077			
GT4	0.806243			
GT5	0.757280			
GRECRUITMENT		0.676128	0.903696	
GR1	0.767175			
GR2	0.818713			
GR3	0.862668			
GR4	0.840387			
GR5	0.851875			
GR6	0.788531			
OCBE		0.792153	0.912317	0.579394
OC1	0.902214			
OC2	0.908812			
OC3	0.894422			
OC4	0.853633			
GREWARD		0.642678	0.888013	
GRE1	0.778619			
GRE2	0.833297			
GRE3	0.850760			
GRE4	0.836186			
GRE5	0.794944			
GRE7	0.707463			

Table 2. Discriminant validity [2]

CONSTRUCT	GRECRT	GREWARD	GTRAIN	OCBE
GRECRT	0.82227003			
GREWARD	0.775218	0.801672		
GTRAIN	0.510057	0.544364	0.77408656	
OCBE	0.635067	0.678892	0.640129	0.89002977

Note: BOLD values are Square Root Values

Accordingly, the paper, following the recommendations of Fornell and Larcker (1981) tested the discriminant validity. Table 2 above shows that the square root of the AVE scores have resulted higher against the values in the cross table.

3.2 Structural Model

Upon the successful test of the measurement model, the present study proceeded further with structural model examination whereby, the significance of the hypothesized relationships was tested [2]. Through running a bootstrapping

approach with 5000 samples, the study found a significant relationship between green recruitment and OCBE thus confirming hypothesis [2]

1. Accordingly, the results also found a significant relationship between green training and organizational citizenship behavior environmental thus confirming the hypothesis.
2. Accordingly, the research also reported a significant relationship between green reward and OCBE henceforth, the study found a significant relationship between all predictor and outcomes variables.

Table 3. Hypothesis testing [2]

HYPOTHESIS	BETA	STD (STERR)	T VALUE
GRECRT -> OCBE	0.193084	0.06127	3.151338
GTRAIN -> OCBE	0.360344	0.043387	8.30529
GREWARD -> OCBE	-0.33305	0.063286	5.262614

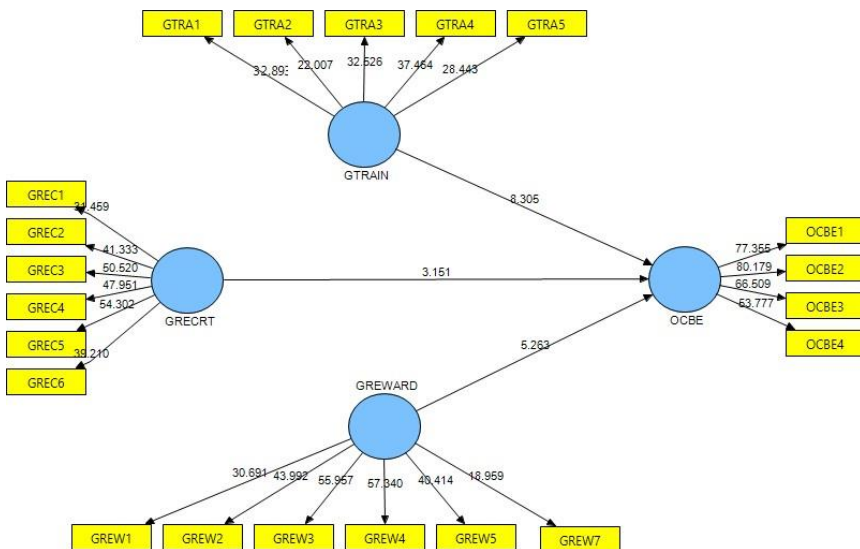


Fig. 1. Structural model
(Ogalo et al., [2])

4. DISCUSSION

The aim of the present study was to assess the relationship between green HRM practices and OCBE. The structural equation modelling results of the study reported a significant relationship between green recruitment and OCBE [2]. The results are in line with the scholarly assertions of Silvester, Sarip and Hassan

[18] suggesting that when organizations follow green practices pertaining to recruitment and attracting candidates it makes a healthy impact on the environment by minimizing the use of certain resources thus enhancing an organization's citizenship behavior towards the environment [2]. In parallel, when organizations offer green training it enhances individual as well as organizational citizenship role and contribution towards the larger society. This statement could be supported by the empirical results of Teixeira et al. [27] who confirmed the significance of green training in boosting organizations' positive influences towards the environment [2]. Generally, training resources have been termed as highly significant for businesses to enhance their behaviors and outcomes in many ways such as engagement Majid, Ahmed & Zin, [28]. Accordingly, when organizations offer green rewards whereby, they are rewarded for green practices and efforts, it showcases a positive encouragement and improves contribution in the shape of enhanced organizational citizenship behavior of employees towards the environment at large [2,29-31].

The study therefore forwards several implications for practice. The study offers insight to top management to understand the role of green practices in general and of green HR in particular on how it can enhance several noteworthy employee behaviors and outcomes [2]. Organizations therefore should strive to transform conventional HR units into green which would not only bring efficiency in terms of resource utilization but will also yield great citizenship outcomes which would have strategic benefits for businesses [2,32-34].

5. CONCLUSION

The paper hence confirmed the significance of green HRM in boosting organizational citizenship behavior toward the environment. The study therefore utilized the assertions of past scholars and reported empirical strength pertaining to the role of green recruitment, green training and green rewards towards citizenship behaviors for the greater organizational external environment [2].

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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On Exploration of Pestle Analysis on Coffee Industry and Studying the Hierarchical Inter-relationships amongst the Barriers Faced by Tea and Coffee Industry in India

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ABSTRACT

Out of the world's total tea production, 27% is being done by Indians. As India is one of the countries with largest consumer base for tea, nearly 75 percent of the

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country's total produce is consumed by the local people. Indian tea has its own taste and quality that makes it stand out in the market. Coffee is a hot beverage that is liked by Indians for more than 500 years now. Known and loved the world over, this drink represents an industry worth over \$100 billion. The present research work focuses on doing PESTLE analysis on the tea and Coffee industry and also explores the challenges faced by both the prime beverages market and tries to explore further the hierarchical inter-relationships amongst them using ISM methodology.

Keywords: ISM methodology; Hierarchical interrelationships; tea and coffee industry

1. INTRODUCTION

1.1 India Tea Industry

As India is one of the countries with the largest consumer base for tea, nearly 75 percent of the country's total produce is consumed by the local people. Indian tea has its own taste and quality that makes it stand out in the market. Major tea-growing regions in India are Assam, Darjeeling, and Nilgiris in the southern region [1-6] Recent data on Tea Industry reveals that export of Indian teas increased by 5.7 per cent in the first four months of 2017 [1-4]. The tea industry has been no exception to the ravages of the COVID pandemic over the last two years, as it grapples with low prices and high input costs, with stakeholders calling for more focus on quality and boosting exports. Production, too, has seen a decrease in the last few years since the onset of the pandemic due to restrictions on plucking -- from 1,390 million kg in 2019 to 1,050 million kg in 2022. In 2022, the average auction price of tea [as per the Tea Association of India] has been Rs 204.97 per kg with the total production currently about 6.5 million kg.

1.2 India Coffee Cafe Market Overview

This market includes diverse types of cafes, such as standalone cafes which can be local cafes and chain cafes to cater to a diverse range of consumers, including millennials, working professionals, students, and tourists [7]. In addition, these are quite popular in the south region which includes cities like Bengaluru, Chennai, and Hyderabad in India. India is the sixth-largest producer and fifth-largest exporter of coffee globally. According to a study, there was around 299,300 million tons (MT) of coffee production in 2019-2020, that reached around 342,000 million tons (MT) in 2020-21.

The Indian coffee cafe market is segmented. Based on ownership, the market is further fragmented into chained outlets and standalone outlets. Based on services, the market is segmented into in-dine and take-away. Based on product offering, the market is further segmented into coffee, tea, other beverages, snacks, and others (cookies, confectionery, pastries, cake etc.). Based on chained cafés, the market is segmented into domestic vs international brands.

Tata Starbucks Private Limited, Barista Coffee Company Limited, Costa Limited, Dunkin Donuts, McDonald's India Private Limited, Indian Coffee House (ICH) are among the major market players in the India Coffee Cafe market.

Specialty coffee cafes[SCC]; Expansion of international coffee chains [EICC]; Rising demand [RD]; Overall ambiance [OA]; Expanding urbanization [EU]; Personalization [Pe]; Digital Revolution [DR] are the chief Indian coffee market drivers.

2. PESTEL ANALYSIS OF COFFEE INDUSTRY

2.1 Political Factors that Influence the Coffee Industry –Trade Restrictions [TR]

Producers and exporters of coffee could be affected if trade barriers are imposed between coffee-producing countries and coffee-consuming countries. Brazil, Vietnam, Colombia, Indonesia, Ethiopia, Honduras, India, Uganda, Mexico, and Peru are some of the top coffee-producing countries in the world [5].

2.2 Economic Factors Affecting the Coffee Industry- Growing Incomes [GI]

As the world's many economies continue to grow, there's one common benefit i.e. consumers have growing incomes. While this can hugely impact consumer goods industries, it also impacts the food and drink industries.

2.3 Sociocultural Factors Affecting the Coffee industry-Health Consciousness [HC]

Coffee contains large amounts of caffeine. As part of the health-consciousness trend, many consumers are choosing to give up caffeinated beverages for improved mood, sleep, and more.

Fair trade [FT]: Fair trade is an international movement that seeks to better compensate the farmers behind the produce, instead of the many middlemen that have historically reaped huge profits. As consumers show greater demand for fair trade coffee products, farmers will earn more and middlemen will earn less.

2.4 Technological Factors Affecting the Coffee Industry Genetic Engineering [GE]

Genetic engineering involves modifying produce at the genetic level to improve yield, taste, shelf-life, and more.

Coffee machines [CM]: Another big change in the coffee industry is the advent of new, coffee-specific appliances. Coffee grinders, drip machines, and espresso makers are now available at every electronics store.

3. CHALLENGES FACED BY TEA INDUSTRY [1-7]

3.1 Less Production [LP]

The tea industry is facing a number of problems such as financial problems, power problems, labor issues, poor labor schemes, inadequate communication systems, increased pollution fees, fewer subsidies for transport etc.

3.2 Climatic Conditions [CC]

If climatic conditions are unfavorable for tea plantations owing to less or heavy rainfall that also poses severe problems affecting the production of tea and the lives of tea industry laborers.

3.3 PEST Problem [PP]

Bacterial black spot is a disease that spreads and spoils the tea leaves. North East Tea Estates are prone to this kind of disease spread by a bug and this is also an issue that affects the tea industry

3.4 Low Wages for Laborers [LWL]

As the price realization of tea is very low in the international market and as temporary laborers are used in the peak seasons, usually the wages paid for tea industry laborers are very low. This made some of them starve and leave the industry.

3.5 Quality Deterioration [QD]

As importance is given only to production increase and not to quality improvement, Indian tea known for its superior taste may lose its market in the international arena if quality is not taken care of.

4. CHALLENGES FACED BY COFFEE INDUSTRY [1-7]

4.1 Keeping up with Customer (and Staff) Demands [KUD]

Amidst higher competition, customer demand is higher than usual which includes comfortable seating, an easy reservation system, and polite service. On the staff side of things, keeping and retaining staff helps you create a friendly environment.

4.2 Location [Lo]

The location of your cafe is obviously a factor, but matching your menu to your market is also important. Simply put, a cafe is like any other business: your product needs to match what your customer wants. While that sounds obvious, it's not easy.

4.3 Design of Coffee a-la-carte' [DCC]

This requires talking to some of your regular customers - and asking them for feedback which helps you judge and understand their tastes and preferences. All it takes is a quick and informal chat, or you could ask for comments through your social media accounts.

4.4 Ordering and Inventory Management Headaches [OIMH]

Order management platforms simplify the ordering process and give you the power to place your orders through a smartphone or tablet app within minutes. With ordering platforms, you can update your orders easily or set your standing orders to be automated.

4.5 Building a Brand and Marketing Your Café [BAB]

To build your online presence, it is required that we make sure and ensure that your customers are finding you whether they're searching for a new cafe to try, are answering a particular craving, or simply want to know if you're open, you're going to have to up your digital marketing game.

4.6 Intense Competition [IC]

The increasingly intense competition in the coffee cafe market in India, with numerous national and international players vying for customer base, has resulted in competitive pricing, aggressive marketing methods, and issues in building consumer loyalty.

4.7 Miscellaneous Strategies [MS]

Other challenges to market expansion include operating costs, particularly excessive real estate rents in top locations in the major cities, and the challenge of creating distinct tastes and flavors for coffee.

5. ISM METHODOLOGY

Interpretive Structural Modeling (ISM) [1] is an interactive learning process in which a set of unique, interrelated variables are structured into a comprehensive model presented as a hierarchy graph. The various steps involved in ISM are:

1. Identification of elements that are relevant to the decision maker's problems and issues.
2. Establishing the contextual relationship between elements with respect to which pairs of elements will be examined.
3. Developing a self-interaction matrix (SSIM) that gives the pairwise relationship between two variables i.e. *i* and *j*. It establishes a relationship of "Lead to" between criteria. It uses the four symbols viz. V, A, X and O for the type of relation that exists between two sub-variables under consideration. Using the SSIM matrix, an initial reachability matrix [IRM] can be formed which has all values in binary form. A decision maker must check for the rule of transitivity. Thereafter final reachability matrix [FRM] is formed.

4. From FRM, the reachability set and antecedent set for each criterion are found. Then the intersection of these sets is derived for all elements. The element for which the reachability and intersection sets are the same is the top-level element. The whole process of partitioning is based on establishing the precedence relationships and arranging the elements in a topological order.
5. Variables are classified based on relative driving power and dependence power, factors are classified into various categories like autonomous, dependent, driver and linkage. Thereafter, *the Development of Diagraph/ ISM sequence from the canonical matrix form.*

6. CASE EXAMPLE

6.1 ISM for Challenges Faced by the Coffee Industry in India

Seven challenges viz. Challenge of satisfying customer (and staff) demands [CSCD]; Location [Lo], Designing coffee card [DCC]; Managing orders and inventory [MO/I]; Building a brand and marketing your café [BAB]; Intense market competition [IMC]; Miscellaneous strategies [MS] are further studied through ISM methodology for possible hierarchical inter-relationships between them.

Table 1. SSIM for factors involved in pestle analysis of the coffee industry in India

S. No	Barriers	1	2	3	4	5	6	7	8	9	10
		TR	GI	HC	FT	GE	ACM	KFS	CWL	SF	AEF
1	TR		A	A	V	V	V	A	A	A	A
2	GI			V	V	V	V	V	V	V	V
3	HC				X	X	X	X	X	X	X
4	FT					A	A	A	A	A	A
5	GE						V	V	V	V	V
6	ACM							A	V	V	V
7	KFS								V	V	V
8	CWL									V	V
9	SF										X
10	EF										

Table 2. SSIM for pairwise relationship amongst challenges faced by the coffee industry in India

S. No.	Barriers	1	2	3	4	5	6	7
		CSCD	LO	MDA	OIMH	BAB	IMC	MS
1	CSCD		A	A	A	A	A	A
2	LO			X	V	V	V	V
3	MDA				V	V	V	V
4	OIMH					A	A	A
5	BAB						V	V
6	IC							X
7	MS							

Table 3. FRM for pairwise relationship amongst challenges faced by the coffee industry in India

S. No.	Barriers	1	2	3	4	5	6	7	
		KUD	LO	MDA	OIMH	BAB	IC	MS	D.P
1	KUD	1	0	0	0	0	0	0	1
2	LO	1	1	1	1	1	1	1	7
3	MDA	1	1	1	1	1	1	1	7
4	OIMH	1	0	0	1	0	0	0	2
5	BAB	1	0	0	1	1	1	1	5
6	IC	1	0	0	1	0	1	1	4
7	MS	1	0	0	1	0	1	1	4
	De.P	7	2	2	6	3	5	5	

6.2 Levels/ Iterations

S.No.	Reachability set	Antecedent set	Intersection set	Iteration/ Levels	Elements selected at that iteration
1	1	1,2,3,4,5,6,7	1	I	1
2	1,4	2,3,4,5,6,7	4	II	4
3	1,4,6,7	2,3,5,6,7	6,7	III	6,7
4	1,4,5,6,7	2,3,5	5	IV	5
5	1,2,3,4,5,6,7	2,3	2,3	V	2,3

Driving power	7	LO, MDA						
	6	Drivers			Linkage			
	5			BAB				
	4				IC , MS			
	3	Auto nomous			Dependent			
	2					OIMH		
	1						KUD	
	1	2	3	4	5	6	7	
	Dependence power							

6.3 ISM Diagram

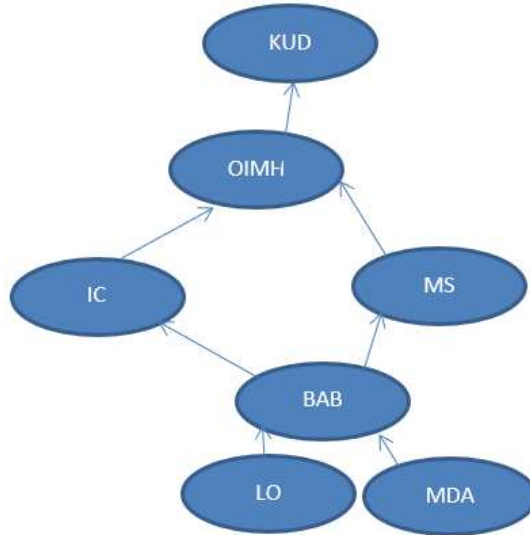


Fig. 1. ISM Diagram for challenges faced by the coffee industry in India

7. CONCLUSIONS

The present paper explores the VAXO technique [in ISM methodology] based on hierarchical inter-relationships amongst the various barriers to the implementation of

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On Exploration of Challenges Faced by Green Finance, Sustainable Finance, Health Finance and Embedded Finance and Hierarchical Inter-relationships Amongst them

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ABSTRACT

Moving to a low-carbon or green economy would need extraordinary levels of fresh capital investment, notably in the form of green financing, to support activities that cut GHG emissions and assist firms in adapting to the effects of climate change. Sustainable finance refers to financial tools that serve environmental and social goals, green finance is entirely concerned with environmental objectives. This research work therefore compares the four categories of financing i.e. green finance; sustainable finance, health finance and embedded finance and the associated challenges. It thereafter studies the hierarchical inter-relationships amongst them using VAXO based matrices of ISM methodology.

Keywords: Green finance; Sustainable finance; health finance; embedded finance; ISM methodology; Hierarchical inter-relationships.

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1. INTRODUCTION

1.1 Green Banking / Finance

Simply put, green finance is a loan or investment that promotes environmentally positive activities, such as the purchase of ecologically friendly goods and services or the construction of green infrastructure. It broadens access to environmentally friendly goods and services for individuals and enterprises, equalizing the transition to a low-carbon society. These include green mortgages; green loans; green credit cards; green finance; green banks; green bonds etc. The important consideration is the financial governance policies through which central banks, as well as other relevant financial regulatory agencies, can address environmental risk and promote sustainable finance [1]. The role of fiscal policy in increasing the rate of return for green projects and thereby elevating the private sector's share of investment in these projects is crucial [2,3]. Some of the benefits of green banking include less paperwork; free electronic bill payment services; loans on concessional rates etc.

1.1.1 Challenges of green banking

While adopting green banking practices, the banks would face the following challenges [4,5,6,7,8].

1.1.1.1 Reputational risk

If banks are involved in those projects that are damaging the environment they are prone to lose their reputation. There are few cases where environmental management systems have resulted in cost saving, increase in bond value.

1.1.1.2 Diversification problem

Green banks restrict their business transaction to those business entities who qualify screening process done by green banks. With the limited number of customers, they will have a smaller base to support them.

1.1.1.3 Start-up face

Many banks in green business are very new and are in start-up face. Generally, it takes 3 to 4 years for a bank to start making money. Thus it does not help banks during a recession.

1.1.2.4 Credit risk

Credit risk arises due to lending to those customers whose businesses are affected by the cost of pollution, changes in environmental regulation and new requirements of emission levels.

1.1.2.5 High operating cost

Green Bank requires talented and experienced staff to provide proper services to customers. Experienced loan officers are needed, they give additional experience in dealing with green businesses and customers.

1.1.2.6 Lack of government support

This is one of the major challenges while dealing with green finance. Government support is limited.

1.1.2.7 Less enthusiasm from the banks

Not only inadequate government support the challenge also is with limited scope to get finance from government banks and others.

1.1.2.8 No formal and independent authority

There is no formal and independent authority when dealing with green finance. This is a major drawback green finance faces in the Indian economy as well.

1.2 Sustainable Finance

As a percentage of global debt capital markets (DCMs) proceeds, sustainable finance bonds accounted for a record 10 percent of overall DCM activity during 2021. Nearly 1,275 deals were announced during the full year 2021. By number of deals, China accounted for 26 percent of total sustainable deal-making activity during the full year 2021, followed by the United States (13 percent), India (7 percent) and the United Kingdom (5 percent).

1.2.1 Challenges faced by sustainable finance ¹

Lack of Agreement and Availability of Actionable Data [LOA]: Perhaps the biggest challenge faced by the sustainable finance market is the lack of agreement on and availability of actionable ESG data.

The Lack of Standardization [LoS]: The paucity of disclosure regulation around the world means that corporate ESG disclosure is voluntary and, in consequence, is uneven and inconsistent. Companies choose what data to report, or whether to report at all.

Consistent and Comparable Corporate ESG Disclosure [CCCD]: It is likely to be a more iterative process than sustainable finance advocates would prefer. But, if the ISSB can lay the foundations for consistent and comparable corporate ESG disclosure, it will remove one of the biggest excuses some investors continue to use against engaging with sustainable finance.

Financing the Net-Zero Transition [NZT]: The challenge here is not funding the green technologies of the future. Identifying and investing in the next generation of zero-carbon technologies is, relatively speaking, the easy part. What is more difficult is supporting today's carbon-intensive businesses to transition their business models to a world with a fraction of today's greenhouse gas emissions.

Renovation from Carbon Intensive to Zero Carbon Business Models: Initiatives such as the Climate Action 100+ benchmarking process are seeing

investors work together to undertake forward-looking assessments of corporate climate strategy.

Better Alignment Across Jurisdictions [BAJ]: There are a range of regulatory issues where alignment would help investors and market participants. The implications for financial market participants are very significant because most organizations are global in nature and operate across boundaries.

1.3 Health Finance

Despite the government's efforts to increase funding for healthcare, India's public health expenditure remains low compared to other countries with similar levels of economic development. This low level of funding has resulted in inadequate healthcare infrastructure, a shortage of healthcare professionals, and limited access to essential medicines and treatments.

1.3.1 Challenges in health financing in India

Lack of financial protection [LFP]: Out-of-pocket expenditure accounts for over 60% of healthcare expenditure in India, which places a significant financial burden on individuals and families. This burden is particularly severe for those living below the poverty line.

Inadequate allocation of funds [IAF]: While the government has made efforts to increase funding for preventive healthcare, such as immunization programs, it remains insufficient compared to the burden of preventable diseases in the country.

Opportunities for Improvement [OFI]: Digital health solutions, such as telemedicine and mobile health applications, can help to bridge the gap in healthcare access and improve the quality of care, particularly in rural and remote areas.

Need for increased public-private partnerships [NPPP]: This is to address the challenges facing health financing in India. Additionally, there are also opportunities for improving health financing through innovative financing mechanisms such as social health insurance; health research and development.

Health care workforce shortage [HCWS]: India has a shortage of healthcare professionals, particularly in rural areas. The government can address this by increasing funding for the training and education of healthcare professionals.

Burden of non-communicable diseases [BNCD]: NCDs, such as diabetes, cardiovascular disease, and cancer, are a significant health burden in India, and they also impose a substantial economic burden on individuals and the healthcare system.

Promotion of research and development [PRD]: By investing in health research and development, India can develop innovative solutions to address the burden of disease in the country.

High out of pocket expenditure [HOPE]: HOPE results in the exclusion of many people from essential healthcare services. The high OOPEx also leads to a significant decrease in the affordability of healthcare services, leading to poor health outcomes for the population.

Inadequate public spending [IPS]: The Indian government's expenditure on healthcare is around 1.5% of GDP, which is lower than the global average of 6%. This led to a significant shortage of healthcare infrastructure and human resources, leading to poor healthcare delivery and inadequate access to healthcare services.

Inadequate focus on preventive health care [IFPHC]: India's healthcare system has limited attention given to preventive healthcare services. This has led to a significant burden of disease and healthcare costs, resulting in poor health outcomes for the population.

1.4 Embedded Finance

Embedded finance is an umbrella term for the integration of financial solutions within the services of non-financial entities. Buy Now, Pay Later (BNPL) payment providers such as Afterpay and Klarna are some of the key examples.

1.4.1 Embedded finance–related challenges ²

Data security [DS]: Integrating financial services into non-financial products through enablers such as Banking-as-a-Service (BaaS) or Application Programming Interfaces (APIs) leads businesses to gain access and customer insights. However, this enhanced accessibility increases the risk of cyber-attacks.

Customer Risk Detection [CRD]: It has been established that EmFi has revolutionized the financial industry by enabling easy access to financial services. This brings us to our second major challenge - customer risk assessment.

EmFi take Longer [LONG]: Moreover, banks and other established financial institutions looking to offer EmFi, often take longer to adopt new technologies because integrating innovations into legacy systems can be more complex and challenging to implement changes.

Overcoming stakeholder resistance [OSR]: Adopting EmFi and adding it to current systems can lead to multiple benefits, including cost reduction, improved customer experience, and increased profitability.

Build a culture of innovation [BCI]: By fostering an environment that encourages creativity, risk-taking, and continuous improvement, businesses can

become more receptive to exploring and eventually implementing new technologies and approaches to financial services.

Access to capital [ATC]: To compound matters, fin-techs invariably lack the capital reserves of traditional banks, which, when combined with higher average loan values than those offered by their non-disruptor counterparts, creates cash flow challenges.

Tackling the issues of embedded lending [IEL]: Embedded finance has shifted the consumer focus away from lending processes and onto products and services.

Challenge for traditional lenders [CTL]: The growing market share of these non-financial companies presents a challenge for traditional lenders to modernize and deliver services with heightened efficiency and ease.

2. INTERPRETIVE STRUCTURAL MODELING [ISM] METHODOLOGY

Interpretive Structural Modeling (ISM) is an interactive learning process. It involves steps such as identification of elements; and establishing the contextual relationship between elements with respect to which pairs of elements will be examined. Thereafter, developing a self-interaction matrix (SSIM) which includes establishing VAXO relationship amongst the two variables i.e. 'i' and 'j'. Thereafter, an initial reachability matrix [IRM] and thereafter a final reachability matrix [FRM] is formed. VAXO technique: based on four symbols V, A X, O. 'V' represents the lead to like relation between two factors i and j. 'O' means no relation between two factors and symbol 'X' means both lead to each other. In a matrix form, it could be like this. Now you may create an Initial reachability matrix [IRM] by placing a '1' in cell (i,j) for V and correspondingly putting '0' in cell (j,i) and do this vice versa for an 'A'. For an [O], you have to place a '0' in both cells (i,j) and (j,i). For an 'X', you place a '1' in both cells. Level partition matrices and canonical matrices are created from the final reachability matrix using the reachability set, antecedent set and the intersection set. The element for which the reachability and intersection sets are the same is the top-level element. The whole process of partitioning is based on establishing the precedence relationships and arranging the elements in a topological order. Factors are classified into autonomous, dependent, driver and linkage categories and finally development of Diagraph/ ISM from the canonical matrix form.

3. CASE EXAMPLES – HEALTH FINANCE AND EMBEDDED FINANCE

10 major challenges faced by health finance as mentioned in section 1.3.1 have been chosen further for studying possible hierarchical interrelationships based on the VAXO technique [ISM methodology] as below.

Table 1. SSIM for pair wise relationship amongst challenges faced by health finance in India

S. No.	Barriers	1	2	3	4	5	6	7	8	9	10
		LFP	IAF	OFI	NPPP	HCWS	IBCD	NPRD	HOPE	IPS	IFPHC
1	LFP		X	V	X	V	V	V	V	A	A
2	IAF			V	X	V	V	X	V	A	A
3	OFI				X	V	V	V	V	A	A
4	NPPP					V	X	X	V	A	A
5	HCWS						X	X	V	A	A
6	BNCD							V	V	A	A
7	NPRD								V	A	A
8	HOPE									A	A
9	IPS										A
10	IFPHC										

Table 2. FRM for pair wise relationship amongst challenges faced by health finance in India

S. No.	Barriers	1	2	3	4	5	6	7	8	9	10	D.P
		LFP	IAF	OFI	NPPP	HCWS	BNCD	PRD	HOPE	IPS	IFPHC	
1	LFP	1	1	1	1	1	1	1	1	0	0	8
2	IAF	1	1	1	1	1	1	1	1	0	0	8
3	OFI	1	0	1	1	1	1	1	1	0	0	7
4	NPPP	1	1	1	1	1	1	1	1	0	0	8
5	HCWS	1	0	0	0	1	1	1	1	0	0	5
6	BNCD	1	0	0	1	1	1	1	1	0	0	6
7	PRD	1	1	0	1	1	0	1	1	0	0	6
8	HOPE	1	0	0	0	0	0	0	1	0	0	2
9	IPS	1	1	1	1	1	1	1	1	1	0	9
10	IFPHC	1	1	1	1	1	1	1	1	1	1	10
	De.P	10	6	6	8	9	8	9	10	2	1	1

3.1 Structural Self–Interaction Matrix [SSIM] for Challenges Faced by Health Finance

Explanation: Opportunities for improvement sometimes are financial crunching for the person and therefore may cause a lack of financial protection. Inadequate allocation of funds, and the need for increased public-private partnerships may also cause a lack of financial protection.

3.2 Case Example: Challenges Faced by Embedded Finance

Eight challenges mentioned in section 1.4.1 are further studied based on the VAXO technique of ISM methodology for possible hierarchical inter-relationships amongst them.

3.2.1 Structural Self–Interaction Matrix [SSIM]

Table 3. SSIM for pair wise relationship amongst challenges faced while implementing embedded finance based services

S. No.	Barriers	1	2	3	4	5	6	7	8
		DS	CRD	LONG	OSR	BCI	ATC	IEL	CTL
1	DS		V	V	V	V	V	V	X
2	CRD			A	X	A	A	A	A
3	LONG				V	V	V	V	X
4	OSR					A	A	A	A
5	BCI						V	V	X
6	ATC							X	A
7	IEL								A
8	CTL								

Table 4. FRM for pair wise relationship amongst challenges faced while implementing embedded finance based services

S. No.	Barriers	1	2	3	4	5	6	7	8	D.P
		DS	CRD	LONG	OSR	BCI	ATC	IEL	CTL	
1	DS	1	1	1	1	1	1	1	1	8
2	CRD	0	1	0	1	0	0	0	0	2
3	LONG	1	1	1	1	1	1	1	1	8
4	OSR	0	1	0	1	0	0	0	0	2
5	BCI	0	1	0	1	1	1	1	1	6
6	ATC	0	1	0	1	0	1	1	0	4
7	IEL	0	1	0	1	0	1	1	0	4
8	CTL	1	1	1	1	1	1	1	1	8
	De.P	3	8	3	8	4	6	6	4	

Table 5. Compilation of Iteration

S. No.	Reachability set	Antecedent set	Intersection set	Iteration [Element]	Element at iteration
1.	2,4	1,2,3,4,5,6,7,8	2,4	I	2,4
3.	2,4,7,6	1,3,5,6,7,8	6,7	III	6
4.	2,4,7,6,5,8	1,3,5,8	5,8	IV	5,8
5.	1,2,3,4,5,6,7,8	1,3,8	1,3	V	1,3

4. CONCLUSION

This research work therefore compares the four categories of financing i.e. green finance; sustainable finance, health finance and embedded finance and the associated challenges. It thereafter studies the hierarchical inter-relationships amongst them using VAXO-based matrices of ISM methodology.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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