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## **Editorial Note**

**Dear IJAR&D Readers,**

**Greetings for a Successful 2021.**

We are glad to present fourteenth issue of IJAR&D which consists of 11 papers on various aspects namely portfolio management, impact of Covid-19, fiscal decentralisation, globalization 4.0, helicopter services, livelihood of street vendor, Indian automobile industry, social work education, women workers in hosiery industry, library resources.

The paper of Dr. Santosh Kumari and Ritabrata Majumder focuses on timing and importance of investment in Gold. The paper is an empirical analysis of Gold Market. The paper of Animesh Pareek elaborates on governance and economic Impact of Covid-19 on Indian Economy. Dr. Archana Tripathi' paper highlights on impact of pandemic in Indian agro-based economy. The paper of Pradeep Kumar Panda and Dr. V N Alok elaborates on fiscal decentralisation in Haryana and offered suggestions for the Sixth State Finance Commission. The paper of Dr. Amna Mirza and Dr. Sandeep Tripathi offers insights on Globalization 4.0 and Challenges for Global Governance. Pradeep Kumar Panda's paper provides evaluation of Helicopter Services in North Easter Region of India. The paper of Animesh Pareek elaborates about PM SVANidhi Scheme which is aims to sustainable livelihood for street vendors. The paper of Geet and Dr. Ombir Singh focuses on revisiting the simple time series methods for forecasting on the domestic sales of the Indian Automobile Industry. Dimple Mishra's paper throws light on strengths and limitations of Social Work Education in India. The paper of Dr. P. Deivakani provides survey based insights on health condition of Women worker's in Hosiery industries of Tamil Nadu. The paper of Dr. Kumkum Rajawat and Jahangir Alam provides survey based insight on user satisfaction of Library Resources, Services and Facilities in Dhubri District of Assam.

We thank all the authors for their insightful papers which will certainly enrich our readers. We take this opportunity to thank all our reviewers for their structured efforts. We express our heartfelt thanks to all our journal subscribers and readers for their relentless support which provide our team motivation to bring out journal issue in desirable shape. We commit ourself to bring out high quality issue in future.

**Wishing you all a very happy, safe and fulfilling New Year 2022!!!**

Thanking You

**Pradeep Kumar Panda**  
**Managing Editor**



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# When and Why to Invest in Gold: An Empirical Analysis of Gold Market for Portfolio Management

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## Abstract

*Gold finds common use as a store of value, medium of exchange and instrument of investment. It is widely believed that rarity, hedging and safe-haven properties of gold largely drive investor sentiments. The time series uses monthly data, dating back to 1990, accounting in aggregate for a period after the abolishment of gold standards. The paper concludes with definitive reasoning of when and why investments in gold can be made- analysing Gold's level prices and returns in relation to Stock Market Indices, Inflation Expectation and Consumer Sentiments.*

*Gold was shown as an effective hedge against stocks, however, its role as a store of value in an inflationary environment was disputed. Similarly, it was hypothesised that gold may not be popularly conceived as a safe haven to rising inflation expectations. A negative correlation was found between gold and consumer sentiments. A time scale analysis was carried out between Gold, Consumer Sentiments and inflation expectations to provide further insight. Furthermore, suggestions for future studies were pointed out and policy implications were considered.*

**Keywords:** *Stock Index, Gold Prices, Inflation Expectation, Stationarity, Wavelet Coherence, Granger non-causality test, Cointegration, Investor sentiments, Modern Portfolio Theory*

## 1. Introduction

Gold is viewed as a quintessential addition to any portfolio and remains a popular choice of investment. It is time tested and widely believed to be the definitive asset to fall back upon in times of crisis, currency failure, bleak financial outlook and inflation concerns. Unlike stocks and bonds, Gold does not provide any fundamental return in form of dividend or coupons, yet, its use cases are varied -ranging from production of jewellery, coins and electronics to management of exchange rate and volatility by Central Banks through reserving gold.

Thus, due to Gold's liquidity, fungibility and responsiveness to price changes, it is particularly

significant from the viewpoints of portfolio managers, academicians, investors and traders.

Given commodities' inherent inverse relation to currency's purchasing power, it is intuitive belief that precious metals, especially Gold, provide a natural hedge against currency impact caused by inflation. Resultantly, for the purposes of the study, the importance shifts from only discovering Gold's relationship with stock markets and traditionally risky assets to studying its responses against inflation expectations and consumer sentiments. Its relationship with Equity becomes especially important in context of Modern Portfolio Theory where the goal is of risk minimisation by reducing variance of the overall portfolio.

This position, as propounded by the Modern Portfolio Theory can be summed up through the following representation:

Let proportion of the funds ( $W$ ) be invested in Commodities i.e., Gold in our case (Expected returns from commodities being  $(R_c)$ ). The rest of the funds are invested in Equities with expected returns being  $(R_e)$ . The expected returns from the portfolio can now be computed as:

$$R_p = W * R_c + (1-W)*R_e \quad \dots(1)$$

The variance of the portfolio can now be computed as:

$$\sigma_{\text{portfolio}}^2 = W^2 * \sigma_{\text{gold}}^2 + (1-W)^2 * \sigma_{\text{equities}}^2 + 2 * W * (1-W) * \text{Correlation Coefficient} * \sigma_{\text{gold}} * \sigma_{\text{equity}} \quad \dots(2)$$

And by conjunction,

$$\text{Beta of Gold} = \text{Correlation Coefficient} * \sigma_{\text{gold}} * \sigma_{\text{equity}} \quad \dots(3)$$

Hence, variance of the portfolio is directly proportional to the correlation between both asset class. Portfolios of less than perfectly correlated assets always offer better risk-return opportunities and the lower the correlation between the assets, the greater the gain in efficiency.

At the same time, one must come to a definite conclusion regarding when the investment can be made. Due to its relatively modest returns as compared to the stock market- Gold might not always represents an attractive investment proposition. Investments in Gold maybe made keeping in mind its popularity as a safe haven against inflation and worsening financial outlook and sentiments.

Consequently, for the purposes of asset and security selection, the following questions prove to be fundamental:

- What is the dynamic relationship between Gold and Stock market prices? Do they have conjunct movement?*
- Can Gold retain its value even in an inflationary environment — Do investors flock to Gold during high inflation periods?*
- What is the relation between gold prices and Consumer sentiment?*

## 2. Review of Literature

Cointegration and causal relationships between stock markets returns and gold returns have, since long, being under study. In Smith's (2001) study, gold prices and four stock market indices were tested for Granger Causality – finding unilateral causality for US stock market returns to returns on gold price. Similar views backing the above finding was reciprocated in the Indian context (using NSE) in Tripathy and Tripathy (2016) -

the study established cointegration between Gold and Stock market prices indicating a long-run equilibrium and conjunct movement of Gold and Stock prices. The CUSUM test also confirmed that long run relationship is present in between Gold and Stock market price and exhibited the stability of co-efficient, thus concluding that stock market returns can be effectively used as a predictor for gold prices. In the Turkish context, Gurel (2020) studied the hedging ability of Gold, real estate and stock markets against inflation- finding that Gold and real estate might lose hedging abilities in short run, while stock markets exhibit no such phenomenon.

For the purposes of discovering Gold's Beta, studies have been conducted by Chua (1990) - confirming that Gold has a low beta. The same study also pronounced that gold price movements displayed no significant correlation with stock prices, highlighting its role as a portfolio diversifier. This result was later collaborated by Faff, Rober and Chan (1998)- which emphasized on the stable beta of Gold against the relatively unstable beta of Gold stocks.

Over the years, the idea of "safe haven" has been defined in a multitude of ways - while some authors have defined it as a sanctuary against volatility in financial markets, inflation expectations and value of US dollar, many have linked it to political tensions. Baur and Lucey (2010) established Gold as a safe haven and hedge against stocks (US, UK and German markets). Similarly, Sumner (2010) found no real spill over to gold prices from Stock or bond prices which highlighted the role of Gold as a significant diversifying force.

Gold's allocation in a portfolio was studied by Jaffe (1990). In isolation, Gold displayed significant volatility, yet 10% allocation to Gold in a portfolio was found to be optimal. Hillier (2006) tackled the topic in his paper- examining roles of all precious metals – Gold, silver and platinum- finding significant diversification benefits.

For the instances of finding relationship between consumer sentiments and Gold prices, studies have been conducted by Balçilar, Bonato, Demirer and Gupta (2016)- measuring the sentiment effect on Gold's volatility in short run. Results were obtained showing that extreme fear or excitement contributed to positive or negative jumps in returns. For the purposes of measuring consumer sentiment - FEAR or Financial Attitudes Revealed by Search Index developed by Da (2015) was used which employed internet searches featuring "economic keywords". Further studies have been conducted by Huang (2015). While many, even recently (Emrich and McGroarty (2013) updated Jaffe's work using 1981-2011 data), have tackled the problem of using Gold as a tool for diversification, the novelty of this paper lies in its simplicity.



Through use of cointegration and causality, this paper has arrived at a different conclusion than the ones reach before by Tripathi and Tripathi (2016). Similarly, this paper addresses a gap in research of behavioural aspects of Gold by tackling the relationship between UMCSSENT-University of Michigan Consumer Sentiments and Gold prices. It also serves to disprove the myth of Gold acting as a store of value in an inflationary environment by showing loss in purchasing over extended time span. Customer’s behavioural tendencies revealed that a mere increase in expectation of inflation did not cause them to resort to gold- disputing the notion that gold may not be commonly believed to protect against inflation.

### 3. Objectives of the Study

The paper strives to ascertain the dynamic relationship between Gold and Stock market prices, inflation expectations and consumer sentiments. Its objectives can be summed up below:

- (a) Establishing Gold’s beta through linear regression to test previous findings of Gold as a zero-beta asset
- (b) Testing whether gold prices and stock markets prices have a long run equilibrium through cointegration test. Finding evidence of cointegration can mean lock-step movement of prices, thus, diminishing hedging properties in the long run. Short run dynamics was tested through Granger Causality test between the two variables at first difference.
- (c) Inspecting CPIA (Consumer Price Index, Average of all U.S Cities) adjusted prices of Gold and stock market to test their qualities as store of value.
- (d) Scrutinizing whether a rise in inflation expectations can lead to rise in gold returns. This is based on the conjecture that rising inflation expectations can lead to investors switching over to Gold due to its perceived nature as a safe haven. This demand shock can cause a rise in gold returns. Thus, a theoretical directly proportional relationship of inflation expectations and returns forms the basis of this hypothesis. A wavelet coherence approach was followed to determine lag-lead relationship between the two variables.
- (e) The above finding is substantiated with testing the relationship between Investor sentiments and gold prices. A significant negative relationship might imply that Gold can be used for betting against fear or worsening financial outlook.

### 4. Hypotheses of the Study

This paper aspires to study the relationship among variables through use of following hypothesis

#### Hypothesis 1:

- $H_0$ : The regressor variable significantly affects target variable
- $H_1$ : The regressor variable does not significantly affects target variable

#### Hypothesis 2:

- $H_0$ : There is no short-run causal relationship or long-run cointegrating relationship between the selected variables.
- $H_1$ : There is short run causal relationship or long-run cointegrating relationship between the selected variables.

#### Hypothesis 3:

- $H_0$ : There is coherency between the variables
- $H_1$ : There is no coherency between the variables

### 5. Research Methodology

The study employs the monthly prices of Gold and S&P 500 over a period of 30+ years from 1990 to 2020.

#### 5.1. Variables

The variables used and their respective frequencies were as follows:

Variable	Frequency	Source
Gold	Monthly, daily	Federal Reserve, Bank of St. Louis
S&P 500	Daily	Federal Reserve, Bank of St. Louis
Consumer Sentiment (UMCSSENT)	Monthly	University of Michigan
5 Year Forward Inflation Expectation Rate	Daily	Federal Reserve, Bank of St. Louis

#### 5.2. Returns for a Particular Period

$$Returns = \log \frac{(Current\ Returns)}{(Previous\ Returns)}$$

For the purposes of the studies, log-transforms of returns have been taken.

#### 5.3. Unit Root Test

For the purposes of eliminating spurious results from the procedure Granger causality-which assumes covariance stationarity and linear modelling- stationarity was tested using Augmented Dickey Fuller Test and substantiated with Pips-Perron tests.

For the purposes of cointegration test, non-stationarity was proven. Given our nationality of time series, such a finding was in line with expectations.

### 5.3.1. Augmented Dickey Fuller Test-ADF

Given the large sample size of our data, ADF test proved particularly suitable for the purposes of this study. In ADF, the null and alternate hypothesis is as follows

$H_0 = \text{Unit Root Present}$

$H_1 = \text{No Unit Root Present}$

Presence of unit root is indicative of non-stationarity of data

The formulation of model is given as below:

$$\Delta y_t = \alpha + \beta_t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \dots + \delta_{p-1} \Delta y_{t-p+1} + \epsilon_t \quad \dots \dots (4)$$

Here,  $\alpha$  is a constant,  $\beta$  the coefficient on a time trend and  $p$  the lag order of the autoregressive process -  $p$  can be calculated using AIC, BIC or HQ tests.

The unit root test is carried out under a null hypothesis = 0 against an alternate hypothesis of <0. The more negative the results are, the more confidently can the null hypothesis be rejected. If the observed value is more negative than the Tau-critical value, the absence of unit root and the stationarity of data is confirmed.

### 5.3.2. Phillips Perron Test-PP

Pips-Perron test's greatest advantage over ADF lies in that its non-parametric-unlike ADF, it can be applied on heteroscedastic data since it corrects time series for autocorrelation and heteroscedastic data.

Its formulation can be written as:

$$y_t = c + \delta t + \alpha y_{t-1} + e^3_t \quad \dots (5)$$

Through application of several tests of stationarity, one can come to a robust conclusion about stationarity of the data.

### 5.4. Linear Regression

Linear regression represents the simplest of polynomial equations. In its modelling, the relation between the dependent variable Y and the explanatory variable X is established to ensure a line of best fit.

A simple linear regression can be modelled as:

$$y = mx + c$$

Further, the slope of the equation line  $m$  can further be defined as

$$b_{yx} = \frac{\sum XY - n\bar{X}\bar{Y}}{\sum X^2 - \bar{X}^2} \quad \dots (6)$$

### 5.5. Karl Pearson's Correlation Analysis

Karl Parsons's correlation analysis is indicative the extent to which two or more variables fluctuate together. It is a measure of degree of linear relationship between two variables

In its modelling, it can be described as:

$$r_{xy} = \frac{n \sum x_i y_i - \sum x_i \sum y_i}{\sqrt{n \sum x_i^2 - (\sum x_i)^2} \sqrt{n \sum y_i^2 - (\sum y_i)^2}} \quad \dots (7)$$

$N = \text{Sample Size}$   $x_i, y_i = \text{Sample Points}$

### 5.6. Johansen's Cointegration Test

Cointegration test<sup>16</sup> is used for establishment of long run linkages between time series. This is accomplished using an error term. Two cointegrated series will always have stationarity of error term, by which, one might conclude that these two variables cannot deviate from equilibrium in long term. For the purposes of the study, given the large sample size and the possibility of more than one cointegrating relationships - Johansen's Cointegration test was decided upon.

Johansen's test takes the form of two main tests - the Lambda Max or Maximum Eigenvalue Test and the Trace Test.

### 5.7. CPIA / Inflation Adjusted Price

For the purposes of adjusting for the effects of inflation, gold prices were divided by CPIA - Consumer Price Index Average of all U.S cities. This was done in order to study the changes in purchasing power of the investment. Removal of rise in price due to inflation also indicated the real return of the investments.

### 5.8. Granger Causality Test

Bivariate granger causality<sup>17</sup> is generally used in the context of linear regression and assumes stationarity of variables. It evaluates whether either of the variable's past values can be used for predicting the other variable. Its mathematical formulation (for causation of X on Y and vice versa) can be as follows:

**Restricted Regression:**

$$X_t = \beta_0 * \sum X_{t-1} + U_1 \quad \dots (8)$$

**Un-restricted Regression**

$$Y_t = \alpha_1 * \sum Y_{(t-k)} + U_3 \quad \dots (9)$$

**Restricted Regression**

$$X_t = \beta_0 * \sum X_{(t-k)} + \beta_1 * \sum Y_{(t-k)} + U_3 \quad \dots (10)$$

**Un-Restricted Regression**

$$Y_t = \alpha_0 * \sum X_{(t-k)} + \alpha_1 * \sum Y_{(t-k)} + U_2 \quad \dots (11)$$

**6. Results And Discussion**

The descriptive statistics of Gold and S & P 500 prices are provided below:

**Table-1: Descriptive Statistics and plot of variables**

Statistic	Gold prices/Troy Ounce	S & P500
Minimum	254.8	307.12
Maximum	1813.5	3278.2
Range	1558.7	2971.08
1 <sup>st</sup> Quartile	353.15	833.09
Median	427.5	1194.9
3 <sup>rd</sup> Quartile	1216.5	1480.4
Standard Deviation	470.161	678.845
Skewness	0.598	0.787
Kurtosis	-1.193	0.16

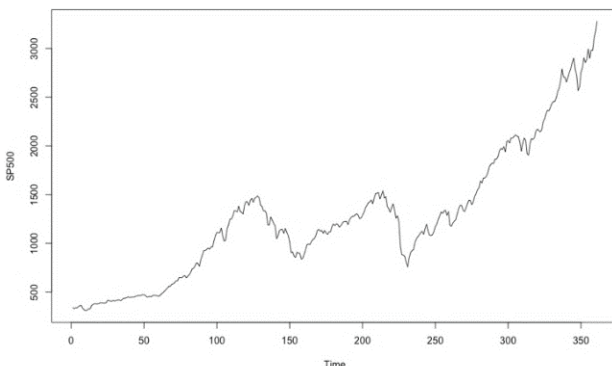
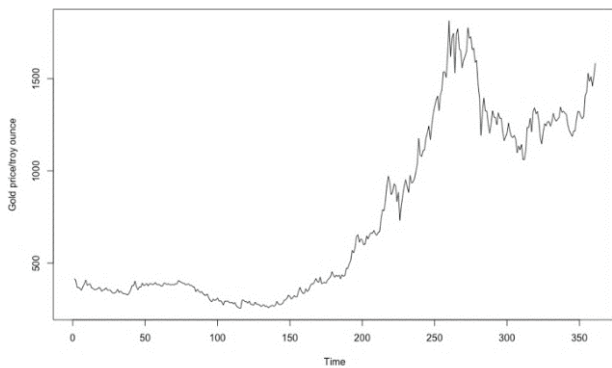
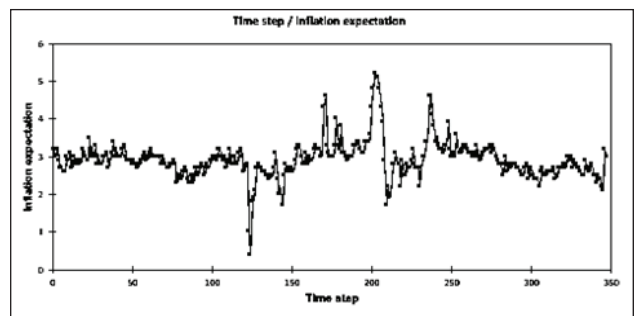
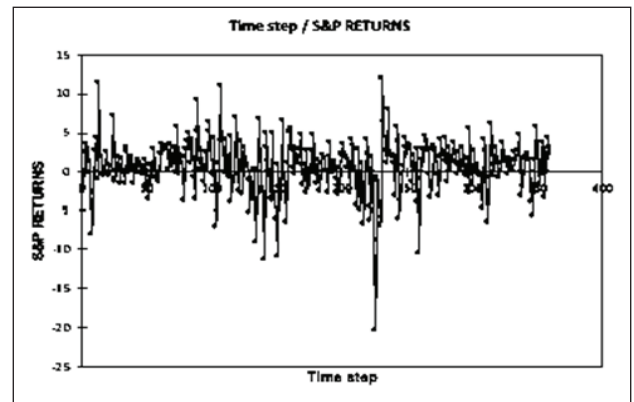
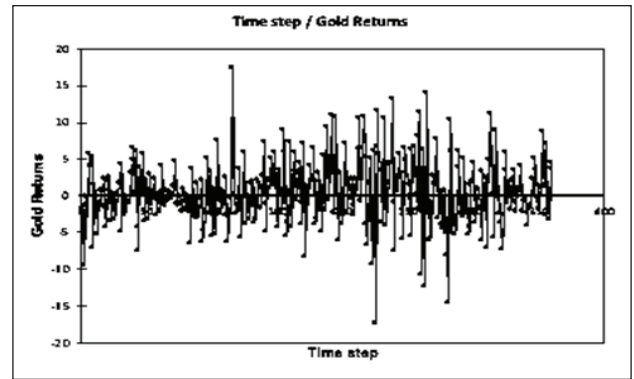


Table-2 presents standard OLS estimates for gold returns regressed on S&P 500 returns (used as a market proxy). The variable was shown to be statistically insignificant at 1, 5 and 10% confidence level. Thus, such a finding may provide prima facie evidence that S&P 500 returns may not be able to influence gold returns.

**Table-2: Linear Regression Line Between Gold Returns And S & P 500**

**Model Parameters (Gold Returns)**

Source	Pr. Value
Intercept	0.048
S&P500 Returns	0.009

$$\text{Gold Returns} = 0.47558 - 0.0061 * \text{S\&P500 Returns}$$

The paper calculates the 30-year period  $\beta$  (Beta of Gold)

in relation to the S&P 500 serving as the market proxy. The coefficient of S&P 500 was rejected by the virtue of  $P \leq 0.05$ , denoting its lack of significance in affecting gold returns.

Table-3 presents the Dickey Fuller test and PP test<sup>18</sup> for testing stationarity of time series. On observing the output, it exceeds than the critical value in 5% confidence level. Thus, null hypothesis of unit root presence cannot be rejected. One can conclude that Gold or S&P prices display characteristics of a random-walk series or a time series process. This allows us to test for a linear stationary combination of the following two non-stationary time series through the Cointegration test.

**Table-3: Stationarity Test on Gold and S&P 500 Prices**

Test	Gold Prices	S&P 500
ADF	Non-Stationary	Non-Stationary
PP	Non-Stationary	Non-Stationary

Both PP and ADF tests complement each other- reporting non stationarity in cases of gold prices and S&P 500 index. Such a result is expected from a random walk time series exhibiting Brownian motion.

Following the finding, lambda max test (max eigenvalue test) and the trace test was performed for finding cointegration. The order of Vector Auto Regression was calculated from Aikake Information criterion. The test showed that both lambda test and trace test found lack of any cointegrating vector between Gold and Stock prices. Such a finding may have an important implication that neither of the assets display same stochastic trend-or a similar long run behaviour. This lack of a long run cointegration might mean that either of the assets can be effectively used to reduce the variance of the overall portfolio.

**Table-4: Johansen’s Cointegration Test**

Test Statistic	Number of Cointegrating Relationship
Lambda Max test	0
Trace Test	0

Table-5 presents the Dickey Fuller test for testing stationarity of gold returns, S&P 500 returns and Inflation Expectation. On analysing the output, the observed value is less than the critical value in 5% confidence level. Thus, null hypothesis of unit root is rejected. One can conclude that gold, S&P returns, or inflation do not display characteristics of a random-walk series, instead, they are stationary and exhibits property of returning to mean.

**Table-5: Stationarity Test on Gold and S&P 500 Returns**

Test	Gold Prices	S&P 500
ADF	Stationary	Stationary
PP	Stationary	Stationary

The causal relationships between gold returns and S&P 500 was examined to answer a critical question- can either one of the variables cause one another? - the results revealed no causality existing between gold returns and S&P returns. This can be interpreted as a simple conjecture that S&P500 and Gold did not exhibit lockstep movement in short run. This further substantiates our previous hypothesis which posits that gold can be effectively used as a hedge against the stock market. Table 6 is representing the Granger causality test between S&P returns versus gold returns. Optimum lag length was calculated from the AIC method. In both cases, no instances of causal relationship were observed. Through lack of causal relationships, one can effectively conclude that either of the metrics cannot be used for reliably predicting the other, which strengthens our previous finding from OLS estimates.

**Table-6: Granger Causality Test**

Dependent Variable: Gold Returns	
Type of Causality	No Causal Relationships Found
Dependent Variable: S&P 500 returns	
Type of Causality	No Causal Relationships Found

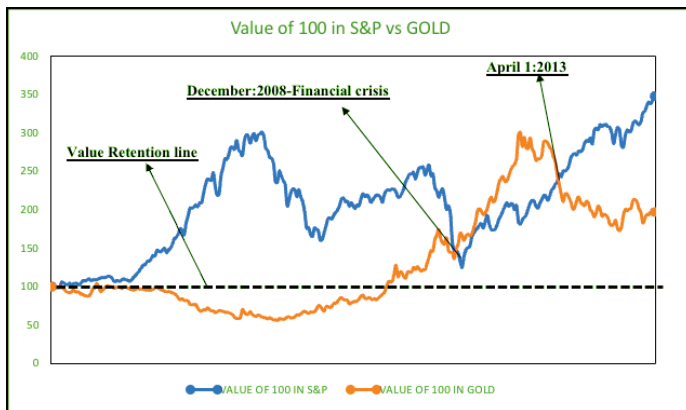
From lack of cointegration and causal relationships, one can come to a definitive conclusion regarding Gold’s hedging potential against Stock Market indices.

However, the portfolio manager must not be entrapped by the common notions that gold can act as effective safe haven against inflation too.

Historically, the inflation-adjusted prices of gold were not linear nor certain to appreciate. For extended periods of time, the real-purchasing power of the investment in It was shown that gold might not always protect the investor’s interest in an inflationary period. When adjusted for inflation, the number of months where purchasing power of gold was negative exceeded months where its purchasing power was positive. Thus, although gold served to hedge against longer time frames, the case was not always true during shorter periods. The study compares both the CPIA-inflation adjusted prices of S&P 500 and Gold to examine their efficacy as stores of value in an inflationary environment and hedges against inflation.



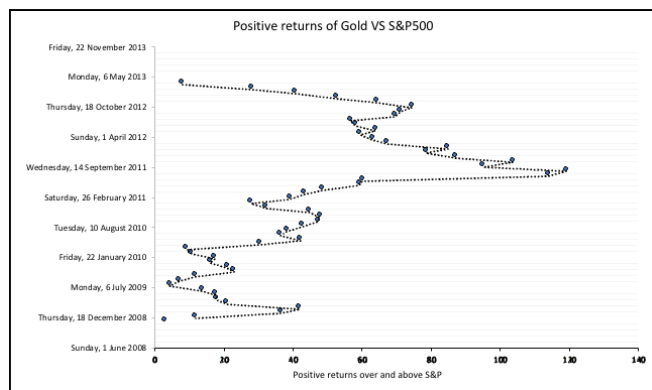
**Table-7: Purchasing Power of Gold and S&P 500 (Adjusted for CPIA)**



	Months of Negative Purchasing Power	Months of Positive Purchasing Power
Gold	163	146
S&P 500	4	305

Notably, against existing biases heralding Gold as the ultimate store of value, the S&P 500 proved to be far better at that purpose than its metal counterpart. Over 309 months- investment in S&P 500 lost purchasing power in only 4 months. Gold, counterintuitively, lost purchasing power for 163 months, thus failing to retain its real value.

However, yet again, the hedging and safe haven properties of Gold against equities was displayed by carefully examining the period where Gold’s purchasing power exceeded that of S&P 500. Out of the 56 months when such a phenomenon occurred, 54 of them related to the 2008-2013 financial crisis. This can be taken as a prima facie indication of Gold’s reliability and popularity as a safe-haven asset against stock market fluctuations.



**Figure-8: Months where Gold’s Purchasing Power Exceeded S&P 500**

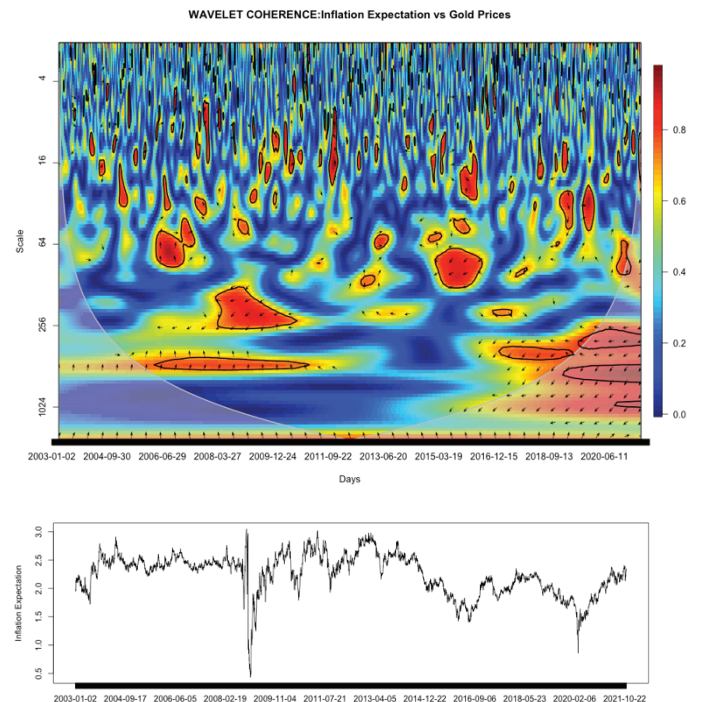
Table-9 represents granger causality test between inflation expectations and gold returns. If Gold is popularly considered as a safe-haven asset against inflations, it can be hypothesised that rise in inflation expectations will inductively lead to gold prices and gold returns rising as a result of demand shocks.

**Table-9: Granger Causality between Inflation Expectation and Granger Causality**

	F Value	P value
Test Statistic	-1.09191	0.3134
$H_0$	Gold prices is not granger caused by inflation expectation	
$H_1$	Gold prices is granger caused by inflation expectation	
As P value exceeds 5%, one cannot reject the null hypothesis		

Rise in inflation expectations was shown not to affect gold prices. Thus, through non causality of gold returns by inflation expectation, one can indicate that consumers do not resort to gold at mere expectations of worsening inflation.

This narrative was further elucidated upon by Wavelet Coherence analysis.



**Figure-9: Wavelet Coherence, Gold Returns and Forward Inflation Expectations**

To provide suitable number of observations for usable analysis, gold returns and 5 years forward inflation expectations were utilised on a daily frequency from 2003 to 2021. Difference in coherency was represented

using a gradient of colours ranging from Red (high coherency) to blue (low coherency). Unlike a time-amplitude relationship studied by general statistical methods, Wavelet Coherence studied the time-frequency relationship. Left facing arrow represented anti-phase movement or negative correlation whilst right facing arrows represented positive correlation. Periods of high coherency throughout the study period was observed in periods exceeding 128 days. During the financial crisis (2008:2011), Inflation expectations and gold returns showed negative correlation, with inflation expectation leading gold returns. This might indicate that during times of crisis, gold returns rise despite falling inflation expectations- supporting the hypothesis that Gold should be used as a hedge against fears of worsening financial outlook. Similar finding was reiterated during the Covid Crisis where Inflation expectations fell by 7.6%, yet gold returns rose. Positive correlation (positive coherence) of inflation expectations and gold returns was only observed on very long-time frames exceeding 300 days during the period of 2003 to 2011. The findings suggested that negative coherency between gold and inflation expectations might be associated with periods of decreasing inflation, signifying the importance of accounting dynamically for positive and negative changes in expected inflation.

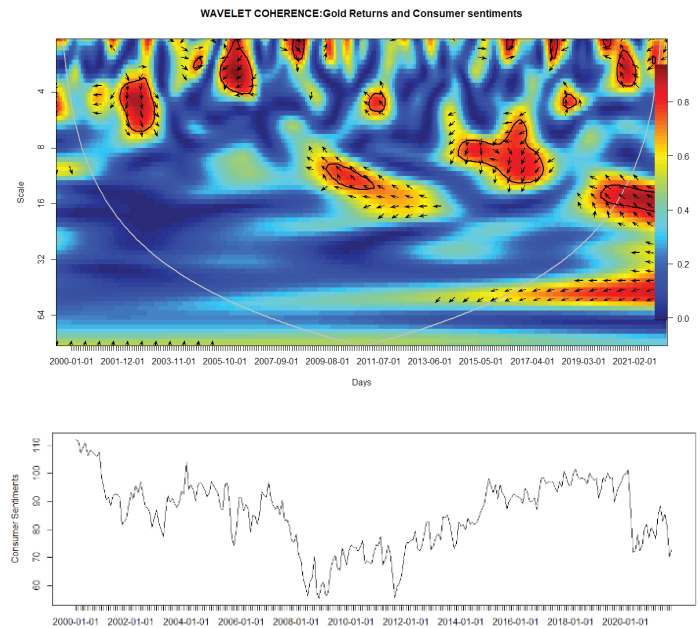
Lack of positive Coherence and causal relationship is indicative of absence of hedging potential against inflation expectations on shorter time frame.

Table-10 is representative of the relation between UMCSENT and Gold prices. For the purposes of the study, a Karl Pearson’s correlation analysis was performed. P-values indicated strong evidence towards rejections of null hypothesis at 1,5 and 10% confidence interval. Significantly, a negative correlation was exhibited. Thus, when retail investors are afraid of worsening conditions in the economy, they seek to invest in gold. It’s safe haven properties against certainty in the economy are suggested. One can make a bold claim bold claim that Gold can be used to bet on fear of the customers.

**Table-10: Relation between Consumer Sentiments and Gold Prices**

Correlation Matrix (Pearson)		
Variables	UMCSENT	Gold prices
UMCSENT	1	-0.347***
Gold prices	-0.347***	1

Again, a wavelet coherence approach is taken using monthly data



**Figure-10: Wavelet Coherence, Gold Returns and Consumer Sentiments**

Both in short and longer frequency periods, negative coherence was found. Barring the period between 2002 to 2003, all other periods of coherence were negative. In the housing crisis of 2007 to 2013, it was found at for shorter time periods between 1 to 8 months, Consumer sentiments was the leading variable and exhibited negative coherence. Gold returns was the leading variable and displayed negative coherence with Consumer sentiments in longer time frequencies. Similar behavioural patterns were found in the Covid period too. Thus, a strong and robust negative relationship was established.

### 7. Limitation of the Study

Given limited set of information, certain assumptions were made which might reduce real work applicability of the study. Further studies might expand upon the current paper through removal of these certain restrictive assumptions.

Notably, gold was compared against the entirety of the S&P500 index. An ideally diversified might consist of only 10 stocks, and at max,40 stocks. Thus, gold’s relation with these 40 stocks might differ. Similarly, its relationship with other variables of importance- Crude Oil prices, bond prices etc was not studied. Furthermore, the study period is long and contiguous, a better approach maybe dividing the study into distinct periods- after testing for structural breaks. For example, in time of despair (Wars, global unrest)- the outliers might distort the overall result obtained. The

study focuses on only the US market. While almost all developed stock markets are interconnected, a different relation might be obtained for high gold consumption countries. In such countries, India for an instance, a fall in consumer sentiments and worsening of financial outlook might cause the consumers to defer the purchase of gold. sentiments and gold prices.

### 8. Scope for Further Study

Further studies should tackle multiple countries at once. Inflation was calculated using CPIA-Consumer all prices average of US cities. This might not be indicative of inflation in the business/producer sector nor is it perfectly representing the global scenario. Further studies can obtain an average of CPI and WPI inflation from other countries in addition to US data.

Sharpe and Treynor ratios can be added to the project to identify Risk-adjusted-returns. While Cointegration and Granger Tests can symbolise statistical significance, volatility modelling can definitively prove hedging and safe-haven properties. For this purpose, a DCC- GARCH /BEKK GARCH might be better suited.

### 9. Conclusion

The paper is novel in its approach due to its emphasis on gold as a vehicle of investment and in its emphasis on the U.S stock exchange. While the short-run and long-run causal relationships have been studied previously, its implication on a theoretical investment portfolio have not been expounded upon. Through its use of Wavelet Coherence, Cointegration, Correlation and Granger Causality Tests, this study examines the long run Gold/S&P500, Gold/Inflation and Gold/Consumer Sentiment Relationship. The paper presented the following hypothesis:

Variable	Is Gold A Hedge?
Stock Market Index	Yes
Inflation	No
Consumer Expectations – Optimism/ Pessimism in Financial Outlook	Yes

Gold served as a hedge against stock indices- its efficacy was substantiated using multiple metrics. Stocks and Gold prices were shown to be independent from each other. Similarly, gold returns and stock returns displayed no causal relationships-indicating lack of linkages.

Yet, it was found that one should not blindly invest in gold and expect linear and certain returns from it in an inflationary period. Gold may not always beat inflation, in fact, it displayed greater tendencies to lose purchasing

power. Gold is shown to not act as safe haven against inflation in the shorter time frames.

For the purposes of long-term investment, S&P500 proved to be a better store of value. Rise in inflation expectations was shown not to affect gold prices and returns. Thus, through non causality of gold prices by inflation expectation, it was indicated that consumers do not resort to gold at mere expectations of worsening inflation. Through wavelet coherence approach, it was shown that positive interrelationships did not exist between gold and inflation expectations in shorter time frame. Instead, Negative coherence was found with Inflation expectations leading gold returns.

However, when sentiments of market participants were low, gold shone as a medium of investment. Thus, in times of crisis, like the housing market crash of 2008, it is suggested to move away from equity and become bullish on gold. The strategy of buy and hold might not be most optimal given pervious reasoning. Hence, an investor can invest in stocks and switch to gold only in times of downturn or worsening sentiments regarding the health of the economy. Consumer sentiments and Gold Prices displayed statistically significant negative correlation coefficient. From the wavelet coherence heat map, it was observed that Gold displayed negative coherence in all time frequencies across the study period, except in 2003 when sentiments momentarily rose. An attributable cause of this phenomenon might be the stockpiling of gold due to imminent Iraq War.

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# Governance and Economic Impact of Covid-19 on Indian Economy

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## Abstract

*In the year 2019-20, Indian economy was already on its trough and the incidence of corona-virus pandemic in 2020-21 has further deteriorated the economic condition, limiting the fiscal space of the government. As need of the hour was to take some supportive measures to handle such unusual situation, therefore, various monetary and fiscal measures were taken by the government to overcome the impact of the pandemic. This resulted in overshooting of the fiscal deficit target set under the FRBM Act and made the government to revise its fiscal deficit target of 3.5 per cent of GDP in 2020-21 (BE) 9.5 per cent in 2020-21 (RE) and further it is projected as 6.8 per cent of GDP for 2021-22 (BE). After an estimated 7.7 per cent pandemic-driven contraction in 2020-21, India's real GDP is projected to record growth of 11.0 percent in 2021-22 and nominal GDP by 15.4 per cent. The government has expected to generate 23 per cent more revenue and has budgeted to increase its spending by only 0.95 per cent in FY22 as compared to FY21 (RE). In order to deal with pandemic situation, the economists have suggested more active, counter-cyclical fiscal policy to enable growth during economic downturn. However, due to lack of revenue sources it also becomes important to strategize the path for fiscal consolidation for the ensuing years.*

**Keywords:** Covid-19, Economic Impact, Fiscal Deficit, FRBM, GDP, Governance, Indian Economy

## Introduction

The situation of coronavirus pandemic has been described as once-in-a-century crisis where the government across economies has taken numerous fiscal and monetary measures to minimize the economic impact of the pandemic. In India too, government has deployed a range of macroeconomic policy responses to the economic crisis, resulting both from supply side disruptions and reductions in aggregate demand. As an economic revival strategy, the Government of India (GoI) announced a series of Atma Nirbhar Bharat (ANB) Packages. According to the budget 2020-21 presented by Finance Minister of India, the total financial impact of all ANB packages including measures taken by Reserve Bank of India (RBI) was estimated to about Rs.27.1 lakh crore which amounts to more than 13 per cent of GDP.

The impact of pandemic resulted in weak tax and non-tax revenue inflow and an expanded expenditure. According to the Union Budget FY22, Centre's non-tax

revenues are estimated to contract by (-)35.6 per cent in FY21 (RE) over FY20 actuals. While the flow of tax-revenue from direct tax, corporate income tax (CIT), personal income tax (PIT) and indirect taxes, especially GST also contracted. Thus, such scenario compelled the government to provide essential relief to vulnerable sections of the society and required it to push the fiscal constraints of the economy.

In such scenario it becomes pertinent to take a review of the fiscal situation of the economy in pre-covid-19 period; how it is going to be in next few years given the covid-19 impact; and what strategy the government is going to adopt for the ensuing years for fiscal consolidation. Also, it is not only about the levels of deficits but also revamping the financing pattern of deficit which is relevant.

Against this backdrop, the paper is organized in six sections. Besides the introduction, section 1 reviews the Indian economy in pre-covid-19 period. Section 2

explains the outbreak of coronavirus pandemic globally and in India. Section 3 gives details of the preventive measures taken by the government to deal with the pandemic. Section 4 examines the economic impact of corona-virus pandemic during 2020-21. Section 5 deals with the Covid impact on States. Section 6 concludes by giving fiscal strategy for ensuing years as suggested by Union Government and the Fifteenth Finance Commission.

**Economy in 2019-20 – a year before Pandemic**

**Output Growth**

On an average the economy grew at 6.7 per cent in the last five years. Looking at the performance of the Indian economy in the year before the Covid-19 pandemic, which hit worldwide, one can observe that the growth was already low as compared to the preceding years. In the year 2019-20, the Indian economy registered an 11 year low of 4 per cent whereas in the year 2018-19 the economy expanded at 6.8 per cent.

According to the revised estimates released by National Statistical Office (NSO) for the year 2019-20, the growth of real GVA in 2019-20 is 4.1 per cent as against 6 per cent in 2018-19 (Table 1). This decline is mainly attributed to the contraction in manufacturing, and mining and quarrying sector, registering a negative GVA growth. Construction also exhibited a growth of only 1 per cent during 2019-20 as compared to 6 per cent in 2018-19. From demand side, all components were driven down, except Government Final Consumption Expenditure (GFCE) which provided sustained support to aggregate demand (Table 2).

**Table 1: GVA at Basic Prices by Economic Activity**

(Percentage Change over previous year)

S.N.	Industry	2018-19	2019-20 (1 <sup>st</sup> RE)	2020-21 (2 <sup>nd</sup> AE)
1	Agriculture, Forestry & Fishing	2.4	4.3	3.0
2	Mining & Quarrying	-5.8	-2.5	-9.2
3	Manufacturing	5.7	-2.4	-8.4
4	Electricity, Gas, Water Supply, & Other Utility Services	8.2	2.1	1.8
5	Construction	6.1	1.0	-10.3

6	Trade, Hotels, Transport, Communication & Services related to Broadcasting	7.35	6.4	-18.0
7	Financial, Real Estate and Professional Services	6.15	7.3	-1.4
8	Public Administration, Defence and other Services	9.35	8.3	-4.1
	GVA at Basic Prices	6.0	4.1	-6.5

Source: National Accounts Division, NSO (various years).

**Table 2: Final Expenditures and GDP**

(Percentage Change over previous year)

	Item	2018-19	2019-20 (1 <sup>st</sup> RE)	2020-21 (2 <sup>nd</sup> AE)
1	Private Final Consumption Expenditure	6.84	5.5	-8.98
2	Government Final Consumption Expenditure	6.39	7.89	2.94
3	Gross Fixed Capital Formation	10.47	5.44	-12.38
4	GDP	6.29	4.04	-7.96

Source: National Accounts Division, NSO (various years).

The total exports and imports during 2019-20 contracted by (-)2.14 per cent and (-)5.80 per cent, as compared to that of 2018-19, respectively which resulted in contraction in trade deficit during the year. Overall trade deficit in 2019-20 was US\$ 76.4 billion, which was lower than the deficit of US\$ 102.1 billion in 2018-19.

The merchandise exports during 2019-20 was US\$ 313.4 billion as against US\$ 330.1 billion during 2018-19, registering a negative growth of (-)4.78 per cent (Table 3). This is mainly due to a major fall in export of 'petroleum products', 'pearls, precious and semi-precious stones' and 'organic chemicals' registering a fall in growth of more than 10 per cent in each from the level in 2018-19 (Table 4).

**Table 3: India's Foreign Trade**

(Values in USD Billion)

	Merchandise		Services		Total		Overall Trade Deficit
	Exports	Imports	Exports	Imports	Exports	Imports	
2018-19	330.08	514.08	208	126.06	538.08	640.14	102.06
2019-20	313.36	474.71	213.19	128.27	526.55	602.98	76.43
2020-21(upto January, 2021)	228.25	300.26	168.35	98.21	396.60	398.47	1.87

Source: Annual Report, Department of Commerce, Ministry of Commerce and Industry, GoI, Pg.27

**Table 4: Exports of top ten commodities in 2019-20**

(US\$ Bn)					
Rank	Commodity	2018-19	2019-20	Growth (%)	Share (%)
1	Petroleum products	46.55	41.29	-11.31	13.18
2	Pearl, precious, semi-precious stones	25.97	20.69	-20.33	6.60
3	Drug formulations, biological	14.39	15.94	10.78	5.09
4	Gold and other precious metal jewellery	12.95	13.75	6.15	4.39
5	Iron and steel	9.74	9.28	-4.77	2.96
6	Electric machinery and equipment	8.42	8.97	6.45	2.86
7	RMG cotton incl accessories	8.69	8.64	-0.60	2.76
8	Organic chemicals	9.33	8.35	-10.47	2.66
9	Motor vehicle/ Cars	8.50	7.80	-8.26	2.49
10	Production of Iron and steel	7.26	7.01	-3.49	2.24

Source: Annual Report (2020-21), Department of Commerce, Ministry of Commerce and Industry, GoI, Pg.26

The merchandise imports during 2019-20, on the other hand, was US\$ 474.7 billion as against US\$ 514.1 billion in 2018-19, registering a negative growth of (-)9.12 per cent. Out of the top ten commodities of imports in India in 2019-20, commodities like 'Gold', 'Pearl, precious, semi-precious stones', 'Coal, Coke and Briquettes, etc.', 'telecom instruments', and 'Organic Chemicals' registered a fall in growth of more than 14 per cent as compared to that in 2018-19 (Table 5).

**Table 5: Imports of top ten commodities in 2019-20**

(US\$ Bn)					
Rank	Commodity	2018-19	2019-20	Growth (%)	Share (%)
1	Petroleum: crude	114.04	102.75	-9.90	21.64
2	Gold	32.91	28.23	-14.22	5.95
3	Petroleum Products	26.88	27.80	3.43	5.86
4	Pearl, precious, semi-precious stones	27.08	22.46	-17.05	4.73
5	Coal, Coke, and Briquettes, etc	26.18	22.46	-14.22	4.73
6	Electronic Components	15.75	16.32	3.64	3.44
7	Telecom instruments	17.92	14.22	-20.61	3.00
8	Organic chemicals	14.25	12.22	-14.23	2.57
9	Industrial machinery for dairy etc.	12.47	11.98	-3.93	2.52
10	Electric machinery and equipment	9.86	11.28	14.37	2.38

Source: Annual Report (2020-21), Department of Commerce, Ministry of Commerce and Industry, GoI, Pg.27

The Consumer Price Index (Combined) (CPI-C) inflation for 2019-20 increased to 4.8 per cent from 3.4 per cent in 2018-19. Inflation in food and beverages (having a weight of about 46 per cent in (CPI-C)) increased from 0.7 per cent in 2018-19 to 6.0 per cent in 2019-20. This was mainly due to delayed south-west monsoon combined with unseasonal rains during the kharif harvest period which became the cause for food inflation. The contribution of the fuel group to inflation decreased to 1.9 per cent in 2019-20 from 11.3 per cent in the previous year. Inflation measured in terms of Wholesale Price Index (WPI) remained subdued during 2019-20 and stood at 1.7 per cent as compared to 4.3 per cent in 2018-

19 due to deflation in prices of non-food manufactured products and fuel & power.

The fiscal deficit for 2019-20 was budgeted at 3.3 per cent of GDP. The envisaged growth for gross tax revenue was 9.5 per cent and 3.4 per cent for total expenditure over 2018-19 RE<sup>1</sup>. The gross tax revenue, however, registered a fall of 3.38 per cent over 2018-19 and total expenditure registered a growth of 16.03 per cent over 2018-19 (Table 6). With slowing economy and declining tax revenue collection, falling disinvestment, increased expenditure on subsidy etc. fiscal deficit worsened to 4.6 per cent of GDP in 2019-20 as against 3.4 per cent in 2018-19 (Table 7).

**Table 6: Central Finances at Glance**  
(Percentage Change over previous year)

Items	2018-19	2019-20	2020-21 (BE)	2020-21 (RE)*	2021-22 (BE)**
<b>Gross Tax Revenue</b>	8.41	-3.38	20.54	-21.57	16.67
<i>of which:</i>					
Corporation Tax	16.17	-16.08	22.29	-34.51	22.65
Taxes on Income	9.80	4.15	29.50	-28.06	22.22
Goods and Services Tax	31.41	2.96	15.32	-25.40	22.31
Customs	-8.69	-7.24	26.28	-18.84	21.43
Union Excise Duties	-10.58	3.72	10.97	35.21	-7.20
Service Tax		-12.67	-83.08	37.25	-28.57
<b>A. Centre's Net Tax Revenue</b>	6.01	3.01	20.56	-17.81	14.94
<b>Devolution to States</b>		-14.55	20.52	-29.87	21.02
<b>B. Non Tax Revenue</b>	22.29	38.80	17.69	-45.29	15.37
<i>of which:</i>					
Interest Receipts	-10.53	1.68	-10.58	26.83	-17.59
Dividend and Profits	24.14	64.11	-16.51	-37.87	7.24
Other Non-Tax Revenue	25.43	16.83	69.87	-54.20	27.81
<b>C. Capital Receipts (without borrowings)</b>	-2.51	-39.16	227.84	-79.33	304.33
<i>of which:</i>					
Disinvestment	-5.32	-46.90	317.46	-84.76	446.88
<b>Receipts (without borrowings) (A+B+C)</b>	7.40	5.22	28.14	-28.69	23.40
<b>Borrowings</b>	9.87	43.77	-14.71	132.14	-18.49
<b>Total Receipts (including borrowings)</b>	8.08	16.03	13.25	13.41	0.95
D. Revenue Expenditure	6.84	17.10	11.89	14.49	-2.73
E. Capital Expenditure	16.94	9.10	22.74	6.57	26.20
<b>Total Expenditure (D+E)</b>	8.08	16.03	13.25	13.41	0.95

Note: \* the percentage change is over 2020-21 (BE)

\*\* the percentage change is over 2020-21 (RE)

Source: Union Budget, GoI

**Table 7: Deficits (as % of GDP)**

	2018-19	2019-20	2020-21 (BE)	2020-21 (RE)	2021-22 (BE)
Revenue Deficit	2.4	3.3	2.7	7.5	5.1
Fiscal Deficit	3.4	4.6	3.5	9.5	6.8
Primary Deficit	0.4	1.6	0.4	5.9	3.1

Source: Union Budget, GoI

### Outbreak of Covid-19 Crisis

#### a) Global Spread

The corona-virus pandemic has reshaped the world. It started as an inexplicable pneumonia-like ailment in Wuhan, China and got spread across 221 nations and domains, including Antarctica (in December 2020). As of March 9, 2021, the virus has infected more than 117.7 million individuals, with 2.6 million reported deaths.

North and South America are the most exceedingly awful struck areas as far as case tally and fatalities. However, Asia has seen a surge in cases and fatalities due to the covid wave in India. The worldwide economy has crashed, as containment and mitigation endeavours continue to interrupt manufacturing, education, the financial sector, and other prospects of life. The USA comes out to be at the leading country in terms of all the parameters, i.e., total number of reported cases, deaths and active cases. India has the second highest number of total reported cases followed by Brazil and Russia but the total number of reported deaths due to disease is below the number of deaths in Brazil. The figures of France are cause of concern because its total number of recovered patients is lowest and the number of active cases is second highest, after the USA. This means that there is a surge in number of people getting affected due to coronavirus but the recovery of those getting infected is very low and this might raise the case fatality rate in France. The total number of reported cases, recovered cases, active cases and deaths in the world and the top ten most effected countries are given in the Table 8.

**Table 8: Covid-19 reported Cases in Top 10 Countries vis-à-vis Global**

(As on March 9, 2021)				
Country (1)	Total Cases (2)	Total Deaths (3)	Total Recovered (4)	Active Cases (5)
United States of America	29,744,652	538,628	20,449,634	8,756,390
India	11,244,624	157,966	10,897,486	189,172
Brazil	11,055,480	266,614	9,782,320	1,006,546
Russian Federation	4,333,029	89,473	3,922,246	321,310
United Kingdom	4,223,232	124,566	3,278,629	820,037
France	3,909,560	88,933	266,096	3,554,531
Spain	3,160,970	71,436	2,810,929	278,605
Italy	3,081,368	100,103	2,508,732	472,533
Turkey	2,793,632	29,094	2,632,030	132,508
Germany	2,513,768	72,698	2,310,900	130,170
Global	117,744,409	2,611,889	93,431,576	21,700,944

Source: <https://www.worldometers.info/coronavirus/#countries>



Table 9: County-wise Share of Reported Cases in the World

(As on March 9, 2021)				
Country (1)	Percentage Share in Total Cases Globally (2)	Percentage Share in Total Deaths Globally (3)	Percentage Share in Total Recovered Cases Globally (4)	Percentage Share in Total Active Cases Globally (5)
United States of America	25.26	20.62	21.89	40.35
India	9.55	6.05	11.66	0.87
Brazil	9.39	10.21	10.47	4.64
Russian Federation	3.68	3.43	4.20	1.48
United Kingdom	3.59	4.77	3.51	3.78
France	3.32	3.40	0.28	16.38
Spain	2.68	2.74	3.01	1.28
Italy	2.62	3.83	2.69	2.18
Turkey	2.37	1.11	2.82	0.61
Germany	2.13	2.78	2.47	0.60
Global	100.00	100.00	100.00	100.00

Source: Author

The Table 9 shows the percentage share of each country in the total number of reported cases, recovered cases, active cases and deaths in the world. From the total global share of total corona-virus affected cases, about one-fifth of the total number of deaths and recovered people are from the USA and it also has one-fourth share in the total number of cases. As on March 9, 2021, more than 50 per cent of the total active cases are coming from the USA and France. Among the top ten most affected countries, India has one of the lowest share in total active cases globally, after Germany and Turkey. India and Brazil have negligible difference in the share of total reported cases globally, i.e., 9.55 per cent and 9.39 per cent, respectively.

Table 10: Share of Total Cases reported out of the Country's Population

Country (1)	Population (%) (2)	Percentage Share of Total Cases (3)	Percentage of Deaths out of Total Cases (4)	Percentage of Recovery out of Total Cases (5)	Percentage of Active Cases out of Total Cases (6)	Total (7) [(4) +(5) +(6)]
United States of America	4.27	9.04	1.81	68.75	29.44	100
India	17.71	0.82	1.40	96.91	1.68	100
Brazil	2.74	5.24	2.41	88.48	9.10	100
Russian Federation	1.89	2.97	2.06	90.52	7.42	100
United Kingdom	0.88	6.25	2.95	77.63	19.42	100
France	0.84	6.00	2.27	6.81	90.92	100
Spain	0.61	6.76	2.26	88.93	8.81	100
Italy	0.78	5.09	3.25	81.42	15.34	100
Turkey	1.08	3.35	1.04	94.22	4.74	100
Germany	1.08	3.01	2.89	91.93	5.18	100
Global	100.00	1.53	2.22	79.35	18.43	100

Source: Author

The column (3) of Table 10 shows that out of the total population of the country, how many have been infected by the corona-virus. Approximately, 1.53 per cent of the total population in the world has been infected by the coronavirus till date. The USA has highest percentage (9.04) of infected population from the disease and India has the lowest percentage (0.82) of infected population. In the column (3), the values represent that out of the total infected cases, what percentage of people has died after getting infected in a country. Globally, out of the total cases reported 2.22 per cent of people have died. The highest percentage of deaths has taken place in Italy and lowest in Turkey out of the number of cases reported in the respective countries. The recovery rate at the global level is 79.35 percent and among all the nations, India has the highest rate of recovery, i.e., 96.91 per cent. Out of total cases, France has 6.81 per cent of recovery rate, and 90.92 per cent of active cases out of the total cases reported within the country.

#### **b) Spread in India**

India's first novel corona-virus patient got reported on 30 January 2020 in Kerala's Thrissur district. At that time, more than 7500 cases were reported in 20 countries of the world. As of February 2, 2021, India has the highest number of confirmed cases in Asia, and the second-highest number of confirmed cases globally after the United States, which has more than 10.3 million confirmed cases and more than 154,000 deaths. The per-day cases peaked mid-September in India with more than 90,000 cases reported each day, which decreased to under 15,000 starting as of 2021 January. A majority of those infected had a travel history to countries such as Italy, China and Iran as per the analysis of the Ministry of Health and Family Welfare, Government of India.

The Economic Survey 2020-21 rightly quotes that Covid-19 is once in a century crisis by giving three reasons. First, the crisis was a health induced slowdown and its impact got compounded due to unknown nature of virus and the high case fatality rate (CFR) of 2-6 per cent for April-March 2020. Due to the unknown nature of virus in terms of reproduction number ( $R_0$ ) and CFR there was a nationwide lockdown imposed in the major economies of the world leading to limited economic activities. This was a rarely observed phenomenon because it was not a war or financial crisis but a health induced crisis. Second, it was a synchronized crisis as 85-90 per cent of economies were hitting recession as two

successive quarters with falling GDP or negative GDP growth. This meant that recession was compounded in an interconnected world due to the disruption in global supply chain and global demand failure. Third, the crisis was creating a trade-off between life and livelihood means that saving life was given precedence over generating livelihood, in the short run. This kind of crisis required an immediate policy intervention like active surveillance, early detection, contact tracing, quarantine, case management and prevention of spread.

#### **Dealing with the Pandemic**

##### **Measures India has taken to control the coronavirus spread**

The Indian government had announced strategic multi-pronged policy response to minimize the entry and spread of coronavirus. Some of the immediate responses were increasing the testing capacity across the nation; building up the capacity to meet the requirements of personal protective equipment (PPE), masks and ventilators; setting up of 24\*7 helpline number to address queries related to corona-virus; travel and entry restrictions in the country; nationwide lockdown; stimulus package for the poor etc. Some of the major steps taken by the government are described in detail as follows:

##### **a) Legal Provisions & Nationwide Lockdown**

India's response to the Covid-19 pandemic has been predominantly dealt by the following laws:

- i. The Disaster Management Act, 2005 (DMA)
- ii. The Epidemic Disease Act, 1897 (EDA)
- iii. The Indian Penal Code, 1860 (IPC)

After the declaration of the corona-virus pandemic as a notified disaster, the National Executive Committee of the National Disaster Management Authority (NDMA), set up under the Disaster Management Act, had imposed the graded lockdowns (starting from 24<sup>th</sup> March 2020) as shown in Table 11. The centre issued periodic guidelines to states to enforce the lockdowns. The Epidemic Disease Act was used simultaneously, by both the central and the state governments to address the health aspect of the disaster. This was done despite the fact that EDA does not define what constitutes a dangerous epidemic disease. People violating lockdown orders were being charged under sections 188, 269 and 270 of IPC.

**Table 11: Phases of Lockdown during Covid period**

Phase of Lockdown	Date (From-to)	No. of Days
Phase - 1	25 <sup>th</sup> March - 14 <sup>th</sup> April 2020	21
Phase - 2	15 <sup>th</sup> April - 3 <sup>rd</sup> May 2020	19
Phase - 3	4 <sup>th</sup> May - 17 <sup>th</sup> May 2020	14
Phase - 4	18 <sup>th</sup> May - 31 <sup>st</sup> May 2020	14
<b>Total Number of Days in Lockdown</b>		<b>68</b>

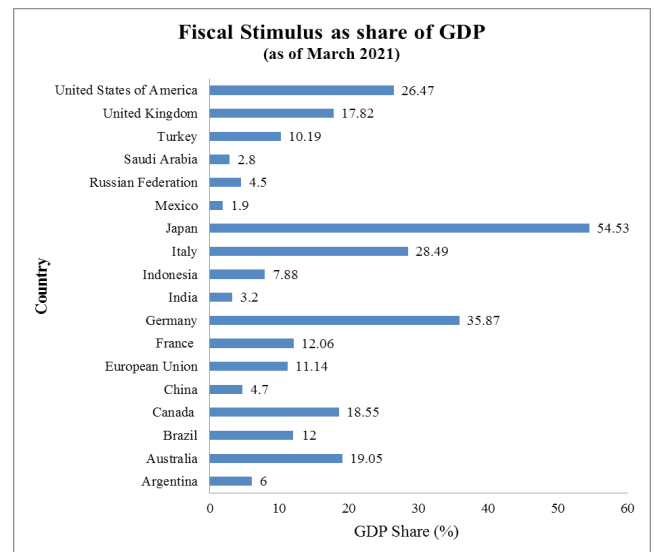
Some of the States like Andhra Pradesh, Bihar, Chandigarh, Chhattisgarh, Delhi, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Odisha, Punjab, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal had imposed the partial lockdown (like closing of schools and colleges) even before the 24th March.

**b) Evacuation Measures**

The Government of India started a ginormous evacuation of stranded Indian citizens from across the globe called **Vande Bharat Mission** in the first half of May 2020. It located several commercial jets, military transport planes and maritime warships in what is set to be one of the greatest ever peacetime repatriation exercises in history. In the first stage, around 14,800 citizens stranded in 13 nations were brought back by 64 flights. Ministry of Civil Aviation in co-ordination with the Ministry of External Affairs planned stage two of the *Vande Bharat Mission* to bring Indian residents from almost 31 nations all around the world for which 149 flights were deployed. There was another program named Operation *Samudra Setu* by Indian Navy which brought back around two thousand Indians in two ships during the first phase of evacuation.

**c) Fiscal and Monetary Steps**

In order to combat Covid-19, the Government of India and the Reserve Bank of India had adopted a multi-pronged strategy to maintain financial stability and provide necessary regulatory support to assuage both demand and supply constraints posed by the pandemic. The response to pandemic in India through fiscal policy differed from the ways adopted in other countries. In India, the demand stimulus was introduced in a phased manner with prior focus on measures to provide a cushion for the poor and vulnerable sections of society. The stimulus packages announced by G20 countries as percentage of their GDP as of March 2021 are given at Figure 1.



**Figure 1: Value of Covid-19 Fiscal Stimulus in G20 countries as share of GDP**

Source: Statista.com

The Union Finance Minister announced short term and long-term measures under the Aatma Nirbhar Bharat 1.0 (Self-Reliant India Movement). The broad categorization of the different tranches is given in the Table 12. The MSME sector received the primary focus as it is the heart of Indian industrial ecosystem and employs an estimated 11 crore persons, produces 45 per cent of the country’s total manufacturing output, 40 per cent of exports and almost 30 per cent of the national GDP.<sup>2</sup>

**Table 12: Stimulus Package in Response to Covid-19**

Division	Budget (in Rs. Bn.)
Tranche 1	5,945.50
Tranche 2	3,100
Tranche 3	1,500
Tranche 4 & 5	480
<b>Sub-Total (A) 11,026.50</b>	
PM Gareeb Kalyan Yojana (Initial Measures)	1,920



RBI Measures (Actual)	8,016.03
<b>Sub-Total (B)</b>	<b>9,944.03</b>
<b>ANB 1.0 Grand Total (A+B)</b>	<b>20,970.53</b>
<b>As percent of GDP (%)</b>	<b>10</b>

Source: Atmanirbhar Bharat (Part 5) Government Reforms and Enablers

According to the government, the total outlay for ANB 1.0 was approximately ten per cent of the GDP. The first tranche laid focus on the poor including migrant workers, who were supplied food grains; farmers were given additional re-finance support of Rs. 30,000 crore; *Mudra Shishu* loanees (loans below Rs 50,000) were given interest subvention of two percent for prompt payees; and street vendors were facilitated easy access to credit. In order to include large number of enterprises under the bracket of MSMEs, the government had expanded the definition of MSMEs to make them eligible to avail of the benefits. Again, in the second tranche the major focus was on poor, migrants and farmers. The major steps included free food grains for migrants, extension of *Pradhan Mantri Awas Yojana* (PMAY) scheme, MGNREGA wages raised to national average of Rs. 202 per day against Rs. 182 per day etc. Under the third tranche measures were taken to strengthen infrastructure, logistics and capacity building for Agriculture, Fisheries and Food Processing Sectors. In the fourth and fifth tranche measures for reforms in the sectors including coal, minerals, defense production, air space management, airports, MRO, distribution companies in UTs, space sector, and atomic energy were taken. The sector-wise allocation of the package is shown in the Table 13.

**Table 13: Sector-wise Allocation of Aatmanirbhar Bharat Package**

Sector	Allocation (Rs lakh crore)	Allocation as Percentage of Total Package
<b>Banking (RBI measures)</b>	5.22	24.40
<b>State Borrowing</b>	4.28	20.00
<b>Business and MSME</b>	3.675	17.20
<b>Agriculture</b>	3.48	16.30
<b>Social Sector (including PMGKY)</b>	2.08	9.70
<b>Power</b>	0.9	4.20
<b>Housing</b>	0.7	3.30
<b>Taxation</b>	0.5	2.30
<b>Health</b>	0.15	1.80
<b>Total</b>	<b>20.986</b>	<b>100.00</b>

Source: PRS Legislative Research

Subsequent to ANB 1.0, two more Atma Nirbhar packages were announced by the Government. PMGKY, three ANB packages and RBI measures were considered five mini-budgets in themselves which amounted to Rs. 27.1 lakh crore (more than 13 per cent of GDP)<sup>3</sup>.

According to the findings of IMF, India's fiscal measures to support its population can be partitioned into two categories. First, above-the-line estimates which incorporate government spending (about 3.2 per cent of GDP, of which about 2.2 per cent of GDP is expected to fall in the current financial year), foregone or deferred revenues (about 0.3 per cent of GDP falling in the current year) and facilitated spending (about 0.3 per cent of GDP falling due inside the current year). Second, below-the-line measures in form of equity, advances and guarantees were intended to help organizations and shore up credit arrangement to several sectors (about 5.2 per cent of GDP).

Under monetary and macro-financial measures, the Reserve Bank of India (RBI) reduced the repo and reverse repo rates by 115 and 155 basis points (bps) to 4.0 and 3.35 per cent, respectively. RBI had also announced liquidity measures across three estimates involving Long Term Repo Operations (LTROs), a cash reserve ratio (CRR) cut of 100 bps, and an increase in the marginal standing facility (MSF) to 3 per cent of the Statutory Liquidity Ratio (SLR) (further extended to September 30, 2021) and open market operations (simultaneous sale and purchase of government securities), resulting in cumulative liquidity injections of 5.9 per cent of GDP through September.<sup>4</sup>

### Impact of Covid-19 on Indian Economy

The pandemic has caused both demand and supply-side disruptions impacting the Indian economy adversely. The changed consumption pattern of people due to loss of income and ambiguity about future affected the demand side whereas the nationwide lockdown and shutting down of economic activity interrupted the supply chain. The severity of these disruptions can be comprehended through various economic indicators.

As per the second advance estimates of national income released by NSO, real GDP is estimated to contract by 8 per cent in 2020-21, as compared to a growth of 4 per cent in 2019-20 (Table 1). This contraction in GDP is mainly due to the contraction in industry and services sector. Among the industries, mining contracted by 9.2 per cent, manufacturing by 8.4 per cent and construction by 10.3 per cent. In services sector, trade, hotels, transport and communication contracted by 18 per cent. Only two sectors, agriculture and electricity registered a positive growth rate of 3 per cent and 1.8 per cent, respectively.

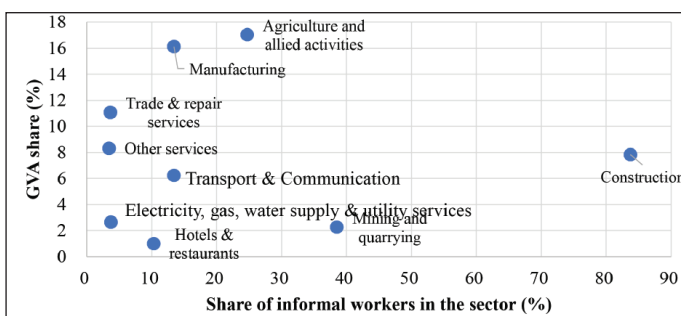
From the demand side, both private consumption expenditure and fixed investment are estimated to contract by 8.9 per cent and 12.4 per cent, respectively in 2020-21. Whereas, government consumption final expenditure is estimated to grow at 2.9 per cent in 2020-21 (Table 2).

During pandemic, the external sector of India emerged to be key cushion for resilience. The merchandise exports and imports during 2020-21 (April-January), were USD 228.25 Billion and USD 300.26 Billion, respectively which declined by 13.3 per cent and 25.9 per cent, respectively over the corresponding period of the previous year (Table 3). The steep contraction in merchandise imports and stable net services receipts led to a very narrow current account deficit of USD 1.87 Billion.

As per the latest estimates available for the price situation, the CPI-C averaged 6.6 per cent in 2020-21 (Apr-Dec) up from 4.1 per cent during the corresponding period in 2019-20. Of this, the Consumer Food Price Index (CFPI) averaged to 9.1 per cent. Inflation measured in terms of Wholesale Price Index (WPI) averaged (-)0.1 per cent in 2020-21 (Apr-Dec) as compared to 1.5 per cent in 2019-20 for the corresponding period.

As per the Economic Survey 2020-21, the contact-sensitive sectors, like trade, transport, tourism, hospitality industry, and so on had an employment shock relative to the respective employment share, with informal workers are liable to bear the bigger brunt. The construction and mining sectors, which employs a huge portion of informal sectors, had been seriously affected by the pandemic-induced lockdowns (Figure 2)<sup>5</sup>.

**Figure 2: Sectoral Distribution by GVA Share and Share of Informal Workers**



Source: Economic Survey, 2020-21, vol.2 Pg.12, Chapter 1

During the stringent lockdown of 2020, an estimated 14 crore (140 million) people lost employment while salaries were cut for many others. More than 45 per cent of households across the country had reported an income drop as compared to 2019<sup>6</sup>. People who were not working, meant that they were not getting paid which puts additional dampen on their demand, which means

less productions and more people were forced to leave job market.

The fiscal deficit and revenue deficit for 2020-21 were budgeted at 3.5 per cent of GDP and 2.7 per cent of GDP, respectively. However, the Covid-19 pandemic drastically reduced the income of the Government and exerted pressure to increase its expenditure. As a result, against an original BE revenue and expenditure of Rs.22.45 lakh crore and 30.42 lakh crore, respectively for 2020-21, RE estimates are Rs.16.01 lakh crore and Rs.34.50 lakh crore, respectively. The revised estimates of borrowing for the year 2020-21 shows a growth of over 132 per cent over the budget estimates. This resulted in the higher revised estimates of fiscal deficit and revenue deficit at 9.5 per cent and 7.5 per cent, respectively (Table 7).

**Impact on States**

The states with higher population and population density saw higher spread of cases and very few cases of deaths. According to the data maintained by covid19india.org, Maharashtra noticeably had the highest number of cases and deaths. The Economic Survey compares Maharashtra with Uttar Pradesh and Bihar. These three States have the highest population with Bihar and Maharashtra having nearly indistinguishable population. Nonetheless, Maharashtra has a lower population density than both Bihar and Uttar Pradesh. However, it was noticed that Uttar Pradesh and Bihar had lower number of cases while Maharashtra had a much higher number of cases than what was anticipated. In fact, the densely populated states like Uttar Pradesh (with a population density of 690 people for each square km) and Bihar (with a population density of 881 people for each square km) – as against the national average of population density of 382 people for each square km – have been considered to have dealt with the pandemic relatively well. As far as overall deaths are concerned, it is seen that Kerala, Telangana and Andhra Pradesh have managed it effectively.

The Covid-19 pandemic had varying impact on across states. The impact depended on factors such as – spread of the virus; demography of the state; and the composition of the economy of each state. According to India Ratings & Research, the states which had a higher share of agriculture suffered less compared to those where the share is low as overall agricultural activities were less impacted. Similarly, utility services like electricity, gas, water supply, etc are essential services used by households but states with large share in manufacturing units saw major decline in consumption of these services. Maharashtra is one of the highest contributor of output in the country. Since it is the focal point of the

pandemic situation in the nation, therefore, the state had been struggling with the shock in contact-sensitive services sector (with 56% of its yield coming from that area). The labour market is also stressed given its higher share in MSMEs and reverse migration has further accelerated the impact. While Tamil Nadu and Kerala had been struggling with the construction sector, while Gujarat and Jammu & Kashmir are facing a slowdown in manufacturing sector. Although, Punjab and Haryana were protected by the relatively resilient agricultural sector but had encounter with casual labour shocks in the services sector. Additionally, Delhi and Telangana had also experienced services led informal sector shocks. However, the comfortable fiscal situation of Delhi, one of the key COVID-19 hotspots raises high expectation from the Government of NCT of Delhi to take liberal measures combating the crises.

### Fiscal Consolidation and the Road Ahead

Exceptional time needs extraordinary measures. The government cannot keep same fiscal rules and would have to rethink about the magnitude of debts and deficits due to ambiguity created by coronavirus pandemic. As per the mandate of Fiscal Responsibility and Budget Management (FRBM) Act, the Union government needed to achieve a fiscal deficit of three per cent of GDP by March 31, 2021. However, the pandemic has affected the fiscal deficit of India both by increasing the government expenditure to provide essential relief to vulnerable sections of the society; and by decreasing the total receipts due to fall in capital receipts, tax and non-tax receipts.

The Economic Survey of 2020-21 called for a more active, counter-cyclical fiscal policy to enable growth during economic downturns. The Government of India is expected to set up internal working group to redraw the country's fiscal consolidation road map following the sharp slippage caused by coronavirus pandemic<sup>7</sup>.

In view of the pandemic, both Union Government and the Finance Commission have given their estimates for economic indicators for the forthcoming years.

As per the projected estimates given by Union Government to Fifteenth Finance Commission, the real gross domestic product (GDP) growth will be on path of improvement. After an estimated 7.7 per cent pandemic-driven contraction in 2020-21, the real and nominal GDP are projected to grow at 11.0 and 15.4 per cent, respectively, in 2021-22. This sharp recovery of 10-12 per cent of real GDP growth is based on a low base effect and inherent strengths of the economy. Further, the real GDP is expected to gradually reach 8 per cent in 2025-26, with an inflation assumption of around 4 per cent.

On the other hand, according to Finance Commission's assessment, the recovery in 2021-22 may not fully be to the level of real activity of 2019-20. After a contraction of 6 per cent in nominal GDP in 2020-21, it projects nominal GDP to grow by 13.5 per cent in 2021-22. High growth in nominal GDP in 2021-22, because of the low base in 2020-21, followed by a growth of 9.5 per cent in 2022-23 and sustained expansion at 10.5 per cent, 11.0 per cent and 11.5 per cent for the years 2023-24, 2024-25 and 2025-26, respectively (Table 14).

**Table 14: Suggested path for Fiscal Consolidation (as % of GDP)**

Fiscal Variables	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
GDP (Nominal)	-6	13.5	9.5	10.5	11	11.5
Gross tax revenue	9.81	9.84	9.94	10.07	10.25	10.47
Net tax revenue	6.8	6.79	6.85	6.92	7.02	7.16
Non-tax revenue	1.35	1.35	1.35	1.35	1.35	1.35
Revenue receipts	8.15	8.15	8.2	8.27	8.38	8.51
Capital expenditure	1.84	1.7	1.51	1.53	1.54	1.49
Revenue Expenditure	14.07	13.08	12.67	12.16	11.69	11.32
Fiscal Deficit	7.4	6	5.5	5	4.5	4
Revenue Deficit	5.9	4.9	4.5	3.9	3.3	2.8
Total Liabilities	62.9	61.0	61.0	60.1	58.6	56.6

Source: Fifteenth Finance Commission Report, Volume I, Main Report



To achieve such levels, the government needs to streamline its income generation programmes and also control the government expenditure without much affecting fiscal support required for revival of economic activity. However, given the current situation, it is difficult to keep expenditure low, as the government is involved in many welfare activities to keep up with the political system of the country and the need for public expenditure for economic recovery. Nevertheless, the Union Government has projected that the revenue expenditure will decline from 13.7 per cent of the GDP in 2021-22 to 12.4 per cent in 2025-26, while capital expenditure will increase from 2.1 per cent of GDP to 2.3 per cent. In this respect, the Union's commitments – including interest payments, pensions and salaries, subsidies, defense and others – were projected to decline from 9.4 per cent of GDP in 2021-22 to 8.6 per cent in 2025-26. In contrast, it assessed that the spending on national development priorities, including education, health, housing, employment, water supply and sanitation, social security and welfare, agriculture, rural development, power and digital technology would need to modestly increase from 2.5 per cent of GDP to 2.7 per cent during the period.

In order to reprioritize expenditure, the FFC has estimated a decline in revenue and capital expenditure to 11.32 per cent and 1.49 per cent of GDP by 2025-26 from 13.08 per cent and 1.70 per cent of GDP in 2021-22, respectively.

On revenue side, the Union Government has projected gross tax revenue to grow at 13.4 per cent per annum, with a rising buoyancy of 1.2, taking the tax to GDP ratio from 10.3 per cent in 2021-22 to 11.1 per cent in 2025-26. The Finance Commission, on the other hand, has assessed the buoyancy of gross tax revenue to be 1.13 and the tax-GDP ratio to increase to 10.5 per cent by 2025-26 from 9.84 per cent in 2021-22.

In view of such assessments of revenue and expenditure, the government is aiming to bring down the fiscal deficit to 4.5 per cent of GDP by 2025-26 from 6.8 per cent in 2021-22. The government hopes to achieve the fiscal consolidation by first, increasing the buoyancy of tax revenue through improved compliance, and secondly by increased receipts from monetization of assets, including public sector enterprises and land. The Fifteenth Finance Commission also has recommended a path for fiscal consolidation for the centre by reducing fiscal deficit to 4 per cent of GDP by 2025-26 (Table 14).

To conclude, India was already facing a tough situation in pre-pandemic year due to slow growth and was walking

on tight rope as far as fiscal situation is concerned. The pandemic has only made the matter worse. To take the road suggested by Union Government and FFC, growth is the key for fiscal expansion. It is important that the appropriate steps are taken to get a strong growth keeping checks on how debts and investments are used efficiently. It is also important to ensure compliance with administrative and tax policy changes.

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# Impact of Pandemic in Indian Agro-based Economy: A Detailed Study

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## **Abstract**

*India confirmed its first coronavirus on January 30, 2020. A nation-wide lockdown was implemented on March 25, 2020 in order to control the spread of the the pandemic. As the constraints imposed due to the lockdown are being eased, it is an appropriate opportunity to examine the effect on various sectors of the economy. The Indian economy benefits greatly from a strong agricultural sector. Agriculture accounts for around one-sixth of India's GDP and employs roughly half of the workforce. It has a significant impact on the economy's secondary and tertiary sector development via its forward and backward links. The chapter reveals the impact of pandemic in Indian agricultural business.*

## **Introduction**

The unique coronavirus (COVID-19) epidemic has swiftly spread throughout the planet, significantly impacting the livelihoods of millions around the world. India confirmed its first illness on January 30, 2020 (Bhatnagar, et al., 2020), causing the authorities to swiftly start numerous efforts to limit the spread of the disease. Given that the illness is extremely infectious, the much-needed nation-wide lockdown was implemented on March 25, 2020 in order to control the spread of the Corona virus pandemic (Prateek, Kumar, Kar, & Krishnan, 2021). During the initial few weeks, the rules and regulations were stringent and all activities which are not compulsory were stopped and companies, including every commercial establishments, academic institutions, and religious places of all races, throughout the nation were barred from functioning. Parallel, the limitations are being progressively lifted with a stepwise way in almost every sections of the nation.

As the constraints imposed due to the lockdown are being eased, it is an appropriate opportunity to examine the effect of Corona on various sectors of the economy. A lot of publications have mentioned the probability of a decrease in "Indian Gross Domestic product" in 2020–

21 (Dar & Ahmed, 2020). This is a concerning sign, as a larger Gross Domestic Product helps tremendously towards obtaining improved living standards, reducing poverty, and improvement in other socio-economic indices. While other sectors are believed to be under severe stress, it is crucial to assess the effect on agriculture and allied industries, which give employment to most of the people in India. The Indian economy benefits greatly from a strong agricultural sector. Agriculture accounts for around one-sixth of India's Gross Domestic Product and employs roughly half of the workforce. It has a significant impact on the economy's secondary and tertiary sector development via its forward and backward links.

## **Objectives of the Study**

Based on the above statement, the following objectives are required to be investigated:

- i. To see the importance of agriculture in Indian Economy;
- ii. To investigate the role of agro-business in country's economy;
- iii. To identify the impact of Coronavirus in Indian economy.

**Importance of Agriculture in Indian Economy**

The Indian economy relies heavily on agriculture and associated sectors (Rakshit & Basistha, 2020). It accounts for around one-sixth of India’s GDP and employs roughly half of the workforce. As a result, it has a direct impact on the economy’s secondary and tertiary sector development via its forward and backward links (Agrawal, 2020). The agriculture sector’s success has a significant impact on other sectors’ outcomes. Citing an example as the “World Bank’s 2008 World Development Report” emphasises that agricultural development is at least twice as beneficial as growth outside agriculture in decreasing poverty (Hall, 2009). Indirectly, agricultural expansion decreases poverty via job creation and lower food costs through increased farm earnings. In other

words, the Indian economy benefits greatly from a strong agricultural sector (Hussain & Hanjra, 2004).

**The Role of Agriculture in India**

To give people some perspective on where we stand in the agricultural world, India is number one in the production of a wide range of crops, including pulses and okra, as well as citrus fruits such as lemons, mangoes, and bananas (Table 1.1). More than a fifth of the world’s paddy and pulse output is produced in India. Okra, cauliflower, brinjal, banana, mango, and papaya are just a few of the horticultural crops that account for more than 20% of world output. However, the country’s principal field and horticultural crops have a poor level of production.

**Table 1.1: Source: Food and Agriculture Organization Corporate Statistical Database**

Item	India (Million Tones)	World (Million Tonnes)	India's		Next to
			%Share	Rank	
1. Crop production					
(A): Total Cereals	294	2849	10.3	Third	China, USA
Wheat	93.5	749.5	12.5	Second	China
Rice (Paddy)	159	741	21.4	Second	China
Total Pulses	17.6	82	21.5	First	
(B): Oilseeds					
Groundnut (in shell)	7	44	15.6	Second	China
Rapeseed	6.8	69	10	Third	Canada' China
2. Fruits & Vegetables					
Vegetables & Melons	120	1075	11.2	Second	China
Okra	5.5	9	62.0	First	
Potatoes	44	377	11.6	Second	China
Tomato	18.4	177	10.4	Second	China
Onion (dry)	19.4	93.2	21	Second	China
Cabbages & other Brassicas	9	17.2	12.3	Second	China
Cauliflower& Broccoli	8.2	25.2	32.5	Second	China
Brinjal	12.6	51.3	24.5	Second	China
Fruits excluding Melons	91	866	10.5	Second	China
Mango and Guava	18.8	46.5	40.4	First	
Lemon & Lime	3	17.3	17.2	First	
Papaya	5.6	12.6	44.4	First	

The countrywide production of key crops (save for groundnut) is less than the world average yielding output even though India is one of the leading producers in the agricultural and horticulture industries. These crops produce significantly less than other countries, and the national output is substantially below the global average. As seen in Table 1.1, Because of the COVID-19 epidemic, the world’s agricultural sector has been hit hard, and India’s agriculture industry is no exception.

**Table 1.2: Crop Yields: Comparing Global and National Data.**

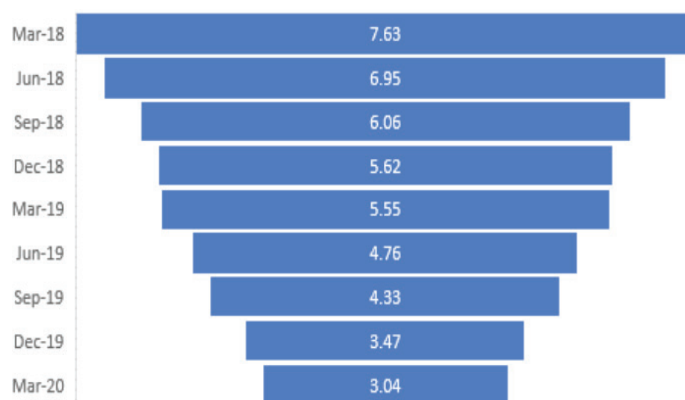
Item	World (kg/ha)	India (kg/ha)	Next to
Paddy	4602	3848	China (6917), Brazil (6210)
Wheat	3531	3219	Germany (7644), France (6757)
Maize	5755	3115	USA (11084), Argentina (7576)
Pulses	1009	664	Russia (2008), Canada (1964)
Sugarcane	70891	69735	Gautemala (121012), USA (82412)
Groundnut	1686	1732	USA (4566), China (3709)
Tobacco	1843	1711	Pakistan (2368)

Source: Food and Agriculture Organization Corporate Statistical Database

**Corona Virus: Rural Economy-Related Issues.**

When the COVID-19 epidemic struck, worldwide and our country’s economic growth was already predicted to slow. After increasing by 7.63 percent in Quarter 4 of 2017-18 and falling to 3.04 percent in Quarter 4 of 2019–20, the Indian economy’s growth rate has moderated during the last few quarters (Table 1.3). Many indicators point to the corona virus as the possible cause of the deteriorating trend’s becoming worse. The latest estimates from the government of India show that productivity in the eight very important sectors of our economy shrank for the third month at a time in May 2020, with a result of dropping by 23.4%. With the exception of fertilizers, most key industries have had their expansion slowed.

**Table 1.3: Growth in GVA on Year To Year Basis**



**Putting Agriculture at the Top of the List for Economic Regrowth**

As a result of the new pandemic, agricultural producers are more aware of their obligation to nourish and educate those who may lose their jobs. The agriculture industry remains a source of hope and a cushion for the economy at a time when most other sectors are under substantial strain. Overall kharif crop sowing is predicted to be greater this year than it was during the same time last year for all key crops. As long as the epidemic persists, the agricultural sector must be given top priority in order to secure a quick return to economic health for the nation.

**The coronavirus has had a significant impact on the Indian economy.**

There are two ways in which this affects production: COVID-19 had a negative impact on agricultural productivity in nearly half (47%) of the sample districts at the national level.

As a result of the harvesting of rabi crops like wheat being almost complete by the end of April 2020, agricultural output was not negatively affected in magnitude (-2.7 percent). But the poultry sector (-19.5 percent), followed by the fisheries and sheep, goat, and pig sectors (13.6 percent and 8.5 percent, respectively), saw a significant drop in production, mainly due to a dramatic drop in demand for these products, which may have been fueled by the widespread fear circulating in the wake of Corona virus regarding the safety of non-vegetarian food, particularly poultry meat, for health-related concerns. Dairy (6.6 per cent) and horticultural (5.7 per cent) output also decreased due to a decrease in demand for these goods and a breakdown in the supply chain.

**Farm Gate Prices:** In the agricultural sector, farm gate prices have not fallen significantly (-2.2 percent). Prices in the related industries, on the other hand, had fallen by 2–18 per cent. The poultry industry had the largest



decrease (17.8 per cent), followed by horticulture (-7.6 per cent), dairy (-5.6 per cent), fisheries (-4.8 per cent), and Standard gross production (-2.9 per cent), mostly owing to disruptions in supply induced by restrictions on vehicle mobility. Lower farm gate prices for agricultural products were reported in 54% of the areas studied.

The supply of agro-inputs such as seeds, fertilizers, insecticides, and feed was reduced by 9 to 11 percent as a result of restrictions on the movement of people and goods, as well as the closure of stores, among other factors. A lack of inputs impacted 58 percent of the sample districts in India.

Due to limitations on the movement of vehicles and closures of shops and marketplaces, agri-input prices, viz., seeds (8.01 per cent), fertilizers (9.01 per cent), pesticides (9.01 per cent), and fodder (11.5 per cent), rose by between 9 and 12 percent. Agricultural input costs increased in 54 percent of sample districts across India, most likely due to a lack of supply.

Although many state governments created local procurement centres under their control, limitations on vehicle mobility have significantly affected the smooth functioning of farm marketing via mandis in roughly 74 per cent of sample districts. The effect on rural haat operations was more severe, affecting 87 per cent of the major districts. A large part of this was due to local governments throughout the nation imposing a blanket prohibition on the construction of new rural haats.

Access to different types of credit via short and long term loans and Kisan Credit Card was negatively affected in about eighty nine percent and fifty nine percent of districts, respectively, in terms of banking services. Recovery has been hampered in 94% of the sample districts because of the epidemic and the resulting lockdown. However, sixty three per cent of the districts registered an increment of different digital forms of transactions by their clients in the lockdown period.

Microfinance and FPO/FC activities are affected. In 95% of the sample districts, microfinance operations were negatively impacted, and in 88% of the sample districts, NBFC-MFIs' business activities were negatively impacted. NabARD-sponsored FPO and Farmers' Club activities have also had a negative effect. Even while some groups took the chance to make face-masks as well as direct-to-consumer sales of veggies and fruits, they also helped the local habitats and administrative departments as well as increased their own trading consequently.

The MSME sector was the heavily damaged by the deadly pandemic in terms of raw material price levels, employment, production levels, customer demand,

and supply chain disruptions. 97% and 96% of the sample areas indicated a decrease in output levels and employment levels, respectively. Consumer demand (eighty five percent of districts) and cash flow (eighty percent of districts) in the Micro, Small, and Medium Enterprises were also reported to be negatively impacted, adding to people's overall suffering.

### **Recommendations for further study and action**

In light of the loss in agricultural productivity, agriculturists in gross and those involved in domestic fowl and fishing may be eligible for income assistance. The PM-KISAN program's enhanced income assistance may be a wise choice in this context.

Due to the economy's sluggish recovery, banks may provide a one-year interest remission for farm term loans.

More cash will be injected into NBFCMFIs, reviving microfinance businesses.

The next dosage of credit for SHGs should be pushed by banks in order to strengthen their credit relationship.

At least two-thirds of interest would be waived on current loans to boost the MSME sector with the help of short term loan as seed money at a concessional rate, interest subvention programmes, and loan forgiveness.

SHGs and FPOs may be able to take advantage of opportunities to produce masks, sanitizers, and food directly from farms.

To take advantage of the new potential for direct marketing of agro and horticultural goods to consumers, National Bank for Agriculture and Rural Development grant support to Farmers Producer Organisations for the acquisition of a compact road transport vehicle may be considered.

SHGs, FPOs, and FCs in rural regions may launch awareness campaigns and disseminate information on how to cope with situations like the Corona Virus.

Due to a decrease in farm gate prices and mandi and rural haat marketing disruptions, farmers' incomes have decreased, resulting in a weak recovery. As a result, a one-year interest-free agri-term loan may be explored.

The NBFCMFI sector has to be injected with money to resuscitate microfinance operations so that small businesses on the sidewalk and roadside may once again flourish in semi-urban and rural regions.

Financial institutions always must be pushed to increase credit linkage and/or provide the next dosage of credit to Self-Help Groups that are qualified.

Increased digital infrastructure for online agribusiness transactions



MNREGS should be expanded to include migrant workers who have returned from larger cities, as well as those who remain in rural areas.

### **Conclusions**

Overall, at the national level, the effect of the Corona virus and the consequent lockdown has been fairly severe on the agricultural and associated sectors in the majority of areas. Among various market segments, rabi harvests have been relatively untouched as their cultivation was on the edge of collapse of finalization, but affiliated industries such as livestock, fish stocks, and animal industries observed a severe decrease in sales due to misplaced rumours, leading to declining production as well as declining farm gate prices. However, costs of agriculture inputs were projected to climb partly because to interruptions in the supply chain and the closure of shops and markets. Apart from these, financial institution's operations were spared from lockdown, fundamental banking services, viz., loans, deposits, and recovery, were significantly impeded in most of the sample areas in the nation. However, the silver lining was the growth in digital banking transactions in most of the sample areas. The microfinance sector and the micro, small and medium enterprises sector were the major victims, with interruptions in more than four-fifths of the sample districts, substantially hurting the livelihoods of the unorganised sector, which offers most employment in the rural regions. The operations of farmer-producer organizations and farmers' clubs likewise came to a total end. However, these rural institutions, like Self-Help Group, embraced the opportunity presented by the scenario of sewing face masks, PPE kits, and manufacturing sanitizers, thus assisting the population as well as generating some revenue for their members. Furthermore, farmer producer organizations in close

conjunction with local authorities in several of the areas were fairly crucial in the door-to-door distribution of fruits, vegetables, and dry rations to the needy there by lending a helping hand to the community. These rural institutions, like Self-Help Groups and Farmers' Clubs, were also engaged in the promotion of creating common consciousness in village regions about Corona virus and its preventative arrangements.

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# Fiscal Decentralisation in Haryana: Some Suggestions for the Sixth State Finance Commission

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## Abstract

Through 73rd and 74th Constitutional Amendments, Panchayat and Municipal systems were provided a systematic and enduring structure of participatory political process at grass root level. State finance commission is constituted for determination of vertical and horizontal transfers to municipalities and panchayats. Haryana state finance commission (SFC) has been constituted regularly. Sixth SFC was constituted on 22nd September 2020 for the period 2021-22 to 2025-26. The state has also showed progressive development towards achieving sustainable development goals except gender equality (SDG 5) and life on land (SDG 15) goals. Haryana has been a pioneer state in carrying out fiscal reforms. As per the budget estimates for 2020-21, fiscal deficit was projected at Rs. 25,682 crore, constituting 2.73 per cent of GSDP, which is well within the stipulated norm of 3 per cent under FRBM Act. Similarly, the debt to GSDP ratio has also been maintained below the norm of 25 per cent as prescribed under the FRBM Act. The state of Haryana through the Panchayati Raj Act, 1994 has devolved all 29 functions, included in the Eleventh Schedule of the Constitution, to all the three rungs of Panchayats. Fifth SFC recommended vertical devolution of 7 per cent and horizontal devolution in the ratio of 45 per cent for Municipalities and 55 per cent for Panchayats. Sixth State Finance Commission may review previous SFC reports, suggest, inter alia, new local taxes, present data on which the reports are based, complain about poor data base, attempt estimates of local taxable capacities in terms of measurable indicators, indicate full O&M requirement of core services and suggest budget and accounting reforms of the local governments. It may recommend to standardize procedures for levy of property & other taxes, norms for basic services and norms for staffing & salaries, incentivize performance through levy & collection of taxes & user charges, economy in expenditure and people's participation.

**Keywords:** Haryana, State Finance Commission, Devolution, Panchayats, Municipalities, Local Governments, Decentralisation

## Introduction

73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendments were passed by the Parliament of India in 1992 and ratified by States in 1993. Through these amendments local self-government was introduced in rural and urban India respectively. Through this enactment, Panchayat and Municipal systems were provided a systematic and enduring structure of participatory political process at grass root level. The amendment has also enlarged the space for

people's representation and their agency in matters of governance and moved decisions making closer to them. The operative vision of grass root governance mandated by constitution has given greater emphasis on devolution of powers to panchayats and municipalities as enshrined in the Constitution of India. Article 243 G and other articles of the constitution have made it very explicit that there is greater need for devolution of roles and responsibilities and power and authority to local

governments. This translates to statutory transfer of rights, powers, authority and resources as also roles, responsibilities, duties and obligations from state government to local governments by an Act of State Legislative Assembly.

State finance commission is constituted for determination of vertical and horizontal transfers to municipalities and panchayats in the state. Haryana state finance commission (SFC) has been constituted regularly. Sixth SFC was constituted on 22<sup>nd</sup> September 2020 for the period 2021-22 to 2025-26 under the chairmanship P. Raghavendra Rao, a retired civil servant.

The commission is required to make recommendations relating to the following matters:-

- “1. (a) the principles which should govern-
    - (i) the distribution between the State and the Zila Parishads, Panchayat Samitis and Gram Panchayats, of the net proceeds of the taxes, duties, tolls and fee leviable by the State which may be divided between them under Part IX of the Constitution of India and the allocation between the Zila Parishad, Panchayat Samiti and Gram Panchayats at all levels of their respective shares of such proceeds;
    - (ii) the determination of the taxes, duties, tolls and fee which may be assigned to, or appropriated by, the Gram Panchayats, Panchayat Samitis and Zila Parishads;
    - (iii) the grants-in-aid to the Zila Parishad, Panchayat Samiti and Gram Panchayat from the Consolidated Fund of the State;
  - (b) the measures needed to improve the financial position of the Gram Panchayats, Panchayat Samitis and Zila Parishads;
2. (a) the principles which should govern-
    - (i) the distribution between the State and the Municipalities of the net proceeds of the taxes, duties, tolls and fee leviable by the State, which may be divided between them under Part IX A of the Constitution of India and the allocation between the Municipalities at all levels of their respective shares of such proceeds;
    - (ii) the determination of the taxes, duties, tolls and fee which may be assigned to, or appropriated by the Municipalities;
    - (iii) the Grants-in-aid to the Municipalities from the Consolidated Fund of the State;

- (b) the measures needed to improve the financial position of the Municipalities.

In making its recommendations, the Commission shall have regard, among other considerations, to:-

- (i) the objective of balancing the receipts and expenditure of the State and for generating surplus for capital investment;
- (ii) the resources of the State Government and demands thereon particularly in respect of expenditure on Civil Administration, maintenance and upkeep of capital assets, maintenance expenditure on plan schemes and other committed expenditures or liabilities of the State; and
- (iii) the requirements of the Panchayati Raj Institutions and the Municipalities, their potential for raising resources and for reducing expenditure.”

Source: *Finance Department, Haryana*

Against the backdrop, the paper is organized in six sections. Beside the introductory part, section two presents a brief profile of the Haryana Economy. Next section deals with the public finance management and fiscal health of the State. Section four is devoted to the devolution to local governments-both Panchayats and Municipalities in the State. Section five reviews the previous state finance commissions. Section six outlines some suggestions to the Sixth Haryana State Finance Commission for its report.

### **The economy - a brief profile**

The state of Haryana was carved out on November 1, 1966 as a result of the bifurcation of the state of Punjab. It is surrounded by Himachal Pradesh in North, Uttar Pradesh in East, Punjab in West and Rajasthan in South. Adjacent to the National Capital Territory of Delhi, the state surrounds it from three sides. It is spread over an area of 44,212 sq. km with an area covering 1.3 per cent of the country. Haryana contributes significant amount of wheat and rice to the pool i.e., a national repository system of surplus food grain. Haryana is India's 4<sup>th</sup> largest producer of cotton. The state has also made rapid strides in development of industrial sector. Major industries in Haryana are automotive, IT, agriculture and petrochemicals. Haryana's structural transformation has been seen from an agrarian State to industrial State, with services sector recording robust growth. The state has also showed progressive development towards achieving sustainable development goals except gender equality (SDG 5) and life on land (SDG 15) goals (NITI Aayog, 2021).

Though Haryana is geographically a small State, the contribution of the State to the National Gross Domestic Product at constant (2011-12) prices has been estimated as 3.8 per cent as per the Quick Estimates of 2019-20. As per the Advance Estimates for the year 2020-21, the GSDP of the State at current prices has been estimated as Rs. 7,64,872.41 crore, recording the negative growth of 2.0 per cent in 2020-21 due to Covid-19 as compared to the growth rate of 10.7% achieved in 2019-20. The GSDP at constant (2011-12) prices is estimated to be Rs. 5,28,069.75 crore with a negative growth of 5.7% in 2020-21 as compared to the growth of 8.2% recorded in 2019-20. However, this negative growth of 5.7% recorded in real GSDP is lower than the negative growth of 8.0% recorded at All India level in 2020-21 (Economic Survey of Haryana, 2021). The GSDP of the State at current and constant (2011-12) prices is given in Table 1.

**Table 1: Gross State Domestic Product of Haryana**  
(Rs. thousand crore)

Year	GSDP at Current Prices	GSDP at Constant Prices	Nominal GSDP Growth Rate (%)	Nominal GDP Growth Rate of India (%)
2011-12	0.29	0.29	16.04	15
2012-13	0.34	0.32	16.63	13.3
2013-14	0.39	0.34	15.05	11.5
2014-15	0.43	0.37	9.49	10.5
2015-16	0.49	0.41	13.35	8.7
2016-17	0.56	0.45	13.30	9.9
2017-18	0.64	0.48	14.88	10
2018-19	0.70	0.51	9.30	11.2
2019-20 (Q)	0.78	0.55	10.73	7.2
2020-21 (A)	0.76	0.52	-2.02	-3

Note: Q: Quick Estimates A: Advance Estimates

Source: Authors' computation from the data provided in Economic Survey of Haryana and Economic Survey of Government of India

**Per capita income:** In 1966, when Haryana was formed as State, the per capita income of the State at current prices was only Rs. 608. Since then, the per capita income has increased multi fold with the exception in 2020-21 due to the impact of Covid-19 pandemic. The per capita income of the State at constant (2011-12) prices is estimated to be Rs. 1,63,992 during 2020-21 with a negative growth of 6.9% as compared to the growth rate of 6.8% recorded in 2019-20. At current prices, the State's per capita income

is likely to be Rs. 2,39,535 during 2020-21 showing the contraction of 3.3% as compared to the growth of 9.4% recorded in 2019-20. Though, the State is maintaining per capita income during 2020-21 at both current and constant prices higher as compared to the National per capita income of Rs. 1,27,768 and Rs. 85,929 respectively.

### Structural Transformation of Haryana's Economy

In 1966, at the time of formation of Haryana State, the State's economy was predominantly an agrarian economy. At the beginning during 1969-70 of Fourth Five Year Plan, the contribution of Agriculture and Allied Sectors (crops, livestock, forestry and fishing) to the GSDP at constant prices was the largest (60.7%) followed by Services (21.7%) and Industry (17.6%) Sectors. During the period of 37 years (1969-70 to 2006-07) intervening 4<sup>th</sup> and 10<sup>th</sup> Five Year Plans, Industry and Services Sectors registered higher average annual growth than the Agriculture and Allied Sectors which resulted in the increased share of Industry and Services Sectors and decreased share of Agriculture and Allied Sectors in the GSDP (Reserve Bank of India, 2021). The share of Agriculture and Allied Sectors in GSDP declined from 60.7% in 1969-70 to 21.3% in 2006-07 while the share of Industry Sector increased from 17.6% in 1969-70 to 32.1% in 2006-07. The share of Services Sector increased from 21.7% to 46.6% during this period. Since the 11<sup>th</sup> Five Year Plan, the pace of structural transformation of the State's economy remained continued. In spite of the robust growth recorded in Services Sector during the past era, the spread of Covid-19 pandemic has largely affected the economic activities in 2020-21. Almost all the sectors with the exception of Agriculture and Allied Activities have been adversely affected. As a result, the share of Agriculture and Allied Sectors has improved to 18.9% in 2020-21 but the share of Industry Sector has decreased to 30.2%. The share of Services Sector at constant prices has been recorded as 50.9% in 2020-21 (Government of Haryana, 2021).

### State of Public Finance

Haryana is one of the most progressive States in the country. It has been a pioneer State in carrying out fiscal reforms and public finance management (World Bank, 2020). Public finance relates to the collection of taxes by the Government and the use of those tax funds towards production and distribution of public goods. Resource generation, resource allocation and expenditure management (resource utilization) are the essential components of a public financial management system. The purview of public finance is considered to be three fold namely; efficient allocation of resources, distribution of income, and macro-economic stabilization. As a result of prudent fiscal management, fiscal parameters such



as fiscal deficit and debt to GSDP ratio of the State are within the stipulated limits prescribed by the successive Union Finance Commissions and the Government of India. As per the budget estimates for 2020-21, fiscal deficit was projected at Rs. 25,682 crore, constituting 2.73% of GSDP, which is well within the stipulated norm of 3% under FRBM Act. Similarly, the debt to GSDP ratio has also been maintained below the norm of 25 per cent as prescribed under the FRBM Act.

### Revenue Receipts and Revenue Expenditure

The revenue receipts comprise State's own tax and non-tax revenue; share in central taxes and grant-in-aid from the Union. As per Budget Estimates of 2020-21, the revenue receipts of the Government of Haryana are expected to be Rs. 89,964.14 crore against the estimated revenue expenditure of Rs. 1,05,338.09 crore. The revenue receipts of the State Government was Rs. 77,580.73 crore against revenue expenditure of Rs. 92,256.10 crore in 2019-20 (RE). It was Rs. 65,885.12 crore against revenue expenditure of Rs. 77,155.54 crore in 2018-19.

**Table 2: Tax Position of the State**

(Rs in crore)

Year	State's Own Tax Revenue (OTR)	Share in Central Taxes (SCT)	Total Tax
2017-18	41099.38	7297.52	48396.90
2018-19	42585.60	8250.34	50835.94
2019-20 (RE)	47842.04	7111.53	54953.57
2020-21 (BE)	52095.65	8484.82	60580.47

Note: RE - Revised Estimates, BE- Budget Estimates

Source: State Budget Documents.

### Total Tax

The tax position of Haryana State from 2017-18 to 2020-21 (BE) is given in the Table 2. Total tax comprises State's own tax revenue (OTR) and State's share in central taxes (SCT). State total tax is expected to increase from Rs. 48,396.90 crore (Rs. 41,099.38 crore OTR + Rs. 7,297.52 crore SCT) in 2017-18 to Rs. 60,580.47 crore (Rs. 52,095.65 crore OTR + Rs. 8,484.82 crore SCT) in 2020-21 (BE).

### Own Tax Revenue

As per the Economic Survey of Haryana 2020-21, the contribution in tax revenue from SGST is estimated at Rs. 22,350 crore in 2020-21 (BE) as compared to Rs. 19,723.86 crore in 2019-20 (RE) showing an increase of 13.31% in 2020-21 (BE) over 2019-20 (RE). The contribution in tax

revenue from State Excise is estimated at Rs. 7,500 crore in 2020-21 (BE) as compared to Rs. 6,700 crore in 2019-20 (RE) showing an increase of 11.94% in 2020-21 (BE) over 2019-20 (RE). The contribution in tax revenue from Stamps and Registration is estimated at Rs. 7,500 crore in 2020-21 (BE) as compared to Rs. 6,600 crore in 2019-20 (RE).

### Share in Central Taxes

Transfer from the Union mainly consists of State's Share in central taxes, grants for centrally sponsored schemes, grants under the award of the Union Finance Commission and other grants. The Share in Central Taxes is estimated at Rs. 8,484.82 crore in 2020-21 (BE) against Rs.7,111.53 crore in 2019-20 (RE). It shows that Share in Central Taxes is likely to increase by 19.31% in 2020-21 (BE) over 2019-20 (RE).

### Grants-in-aid

The Grant-in-Aid received in the State is shown in Table 3. Apart from the significant amount from central taxes, Union Finance Commission has made recommendations regarding Grant-in-Aid to the States for specific purpose. State is expected to receive about Rs. 13,955.45 crore as Grant-in-Aid in 2020-21 (BE) against Rs. 12,492.07 crore in 2019-20 (RE). It indicates that Grant-in-Aid is likely to increase by 11.71% in 2020-21 (BE) over 2019-20 (RE).

**Table 3: Grant-in-aid received from Union Government**

(Rs. in crore)

Year	Amount Received
2017-18	5185.12
2018-19	7073.54
2019-20 (RE)	12492.07
2020-21(BE)	13955.45

Note: RE - Revised Estimates, BE- Budget Estimates

Source: State Budget Documents

### State of fiscal health of Haryana

There are various indicators of measuring fiscal health pertaining to state governments. For the purpose, we would only be using three indicators of fiscal health namely Revenue Deficit (RD), Fiscal Deficit (FD) and Primary Deficit (PD). Broad deficit indicators of – revenue, fiscal and primary deficits – for the period 2001-02 to 2013-14 as ratio of Gross State Domestic Product (GSDP) at current prices are given in Table 4. Data indicates that fiscal health of state improved in early half of the decade upto 2006-07 (Sen, 2000). Since then it started an upward trend and fiscal deficit was as high as 4.9% in 2009-10 primarily due to implementation of sixth

pay commission recommendations and fiscal measure undertaken in wake of global financial crisis (Bishnoi, 2018). Still Haryana has manageable gross fiscal deficit as FC-XII target of 3% for the year 2013-14 is well above fiscal deficit of 2.1% realised by Haryana. But the state is not able to bring its revenue deficit to zero as mandated by 13<sup>th</sup> Finance Commission. This indicates that though Haryana has fiscal deficits within limits set by FRBM Act but it had higher deficits than most of other states in the country and state is able to bring revenue deficit to zero as mandated by FC-XIII (Sen and Rao, 2000; Dholakia, 2003). Haryana Fiscal Responsibility and Budget Management (HFRBM) Act, 2005 which stipulated that (i) Revenue Deficit to be reduced to zero by 2008 – 09 (ii) Fiscal Deficit to be brought down to 3% of GSDP by 2009 (iii) Debt Liability to be contained to 28% of GSDP by 2010. As per the guidelines of Ministry of Finance, Government of India, the Government of Haryana has amended HFRBM Act, 2005. Now, the Government of Haryana has to attain zero revenue deficit target from 2011–12 and maintain the same till 2014–15, fiscal deficit to be brought down to 3% of GSDP from 2011–12 and maintain the same till 2014–15. The total debt liability is to be retained at 22.4% of GSDP in 2010–11, at 22.6% in 2011–12, 22.7% in 2012–13, 22.8% in 2013–14 and 22.9% in 2014–15 (Bishnoi, 2018).

**Table 4: Deficit Indicators of Haryana**

Year	Revenue Deficit (%)	Fiscal Deficit (%)	Primary Deficit (%)
2011-12	0.49	2.40	1.06
2012-13	1.28	2.99	1.62
2013-14	0.97	2.08	0.61
2014-15	1.90	2.88	1.29
2016-17	2.23	4.27	2.51
2017-18	1.69	3.05	1.14
2018-19	1.20	2.90	0.95
2019-20	2.04	2.88	1.80
2020-21 RE	2.43	2.90	0.85

Source: Authors' computation from the data provided in State Budget Documents

**Table 6: Share of Local Governments in Haryana**

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Total Revenue (Rs '000 cr)	5416	6032	6269	6588	7758	8996
Own Tax Revenue (Rs '000 cr)	3493	3784	4183	4274	4784	5209
Transfer to Municipality and Panchayat (Rs cr)	308	424	391	222	232#	184#

Source: Authors' computation from the data provided in Handbook of Statistics of India States, RBI

Note: # Figure is extrapolated as no data for Haryana was provided in the given source.

**Devolution to local governments**

As per mandate of 73<sup>rd</sup> Constitutional Amendment, the State Government has been regularly constituting the State Finance Commission under Article 243-I read with Section 213 of the Haryana Panchayati Raj Act, 1994 from time to time to review the financial position of the Panchayats and to make recommendations on the principles which should govern the distribution between the State and the Panchayats of the net proceeds of the taxes, duties, tolls and fees leviable by the State, which may be further divided between them and the allocation between the Panchayats at all levels of their respective shares of such proceeds; the determination of the taxes, duties, tolls and fees which may be assigned to, or appropriated by the Panchayats; the grants-in-aid to the Panchayats from the Consolidated Fund of the State and the measures needed to improve the financial position of the Panchayats (Alok, 2021). The grants sanctioned by State Government on the recommendations of the State Finance Commission is distributed/ released to the Gram Panchayats (GPs), Panchayat Samitis (PSs) and Zila Parishads (ZPs).

**Table 5: Local Governments in Haryana**

Particulars	No
<b>Panchayats</b>	<b>7030</b>
Zila Parishads	21
Panchayat Samitis	126
Gram Panchayats	6234
<b>Municipalities</b>	<b>90</b>
Municipal Corporations	11
Municipal Councils	22
Municipal Committees	57

Source: Haryana State Government

An amount of Rs.308 crore had been released to local governments– both Panchayats and Municipalities during the year 2015-16 in Haryana. This amount has increased to Rs.424 crore in the subsequent year i.e., 2017-18. Thereafter, a declining trend is noted in the fiscal transfers to local governments in Haryana as evident from Table 6. been released so-for.

## State finance commissions in Haryana

SFC has been set up in Haryana regularly to review the financial position of the State, Panchayats and Municipalities and to make recommendations with regard to distribution of the net proceeds of taxes/duties and fees etc. between the State Government and Panchayats & Municipalities and to suggest measures needed to improve their financial position. The First SFC was set up in May, 1994 and the award period was 1997-98 to 2000-2001. The Health Minister Kamal Verma was the chairman. There were four other members including the member-secretary. The commission submitted its report in March 1997. After more than three years, in September 2000, the State Government had accepted the recommendations with modifications of the First SFC regarding the sharing of the proceeds of stamps and registration, cattle fairs and motor vehicles tax. The Second SFC was set up on September, 2000 under the chairmanship of Suraj Bhan Kajal with four other members and the award period was 2001-02 to 2005-06. The commission submitted its report in September 2004. It made recommendations for total transfer of Rs. 1117.51 crore to Panchayats and Municipalities for the period 2001-06, of which 696.22 crore to Panchayats and Rs 421.29 crore to Municipalities were earmarked. The State government accepted the report following Articles 243 I (4) and 243 Y (2) in December 2005 with many modifications.

The third SFC was set up in four stages, initially in February, 2005 and finally constituted in December 2007. Former civil servant A N Mathur was the chairman. There were five other members. The commission recommended four per cent of the own tax revenue as devolution to local governments in the ratio of 65:35 to Panchayats and Municipalities. The Fourth SFC was constituted in April 2010 with retired civil servant L S M Salins as chairman and five other members. The commission submitted the report in June 2014 and recommended 2.5 per cent of the net own tax revenue of the State to be shared with Panchayats and Municipalities in the ratio of 65:35 based on the rural-urban population ratio as per 2011 census. The State government deferred the consideration on the recommendations.

The Governor of Haryana constituted the Fifth SFC of Haryana on 26<sup>th</sup> May, 2016 by nominating as many eight members including a chairman and a member secretary. The award period of the Fifth SFC was 2016-17 to 2020-21. In September 2017, the commission submitted its report which was considered in September 2018. The commission recommended vertical devolution of seven per cent of the State's own tax revenue to local government to be shared in the ratio of 55 per cent for Panchayats and 45 per cent for Municipalities. According to the figures

available on the transfer of funds to Panchayats (see table 6), it suggests that the funds have not been budgeted by the State. For details, please see Alok (2021).

### Box 1: Glimpses of State Finance Commission's recommendations

#### First State Finance Commission

- First SFC was constituted on 31<sup>st</sup> May, 1994 covering the period of 4 years i.e. 1997-2001
- The report of First SFC was submitted in March 1997 and the ATR was laid in September 2000.
- State Government considered only one year i.e. 2000-01.
- SFC recommended Rs. 869.31 crore for the period 1997-2001 (Rs. 567.48 crore for Panchayats, and Rs.301.83 crore for Municipalities).
- SFC recommended Rs. 263.38 crore for 2000-01 (Rs.144.59 crore for Panchayats, and Rs.118.79 crore for Municipalities).
- State Government accepted of Rs.99.49 crore (Rs.34.13 crore for Panchayats and Rs.65.36 crore for Municipalities).
- Only Rs.66.36 crore was actually transferred to the local government during 2000-01.
- Municipalities were given Rs.65.36 crore, but Panchayats were given only Rs.1.00 crore

#### Second State Finance Commission

- Second SFC was constituted on 6<sup>th</sup> September, 2000 covering the period of 5 years i.e. 2001-2006
- The report of 2<sup>nd</sup> SFC was submitted in September 2004 and the ATR was first laid in December 2005, then on 16<sup>th</sup> September 2006 and on 6<sup>th</sup> March 2007.
- State Government considered only one year i.e. 2005-06.
- SFC recommended Rs. 1117.51 crore for the period 2001-06 (Rs. 696.22 crore for Panchayats, and Rs.415.37 crore for Municipalities).
- SFC recommended Rs.231.05 crore for 2005-06 (Rs.138.43 crore for Panchayats, and Rs.92.62 crore for Municipalities).
- State Government accepted devolution of Rs.100 crore (Rs.50 crore for Panchayats and Rs.50 crore for Municipalities).

Rs.100 crore was transferred to the panchayats and municipalities in 2005-06.

Municipalities were given Rs.50 crore and Panchayats were given Rs.50 crore



### Third State Finance Commission

- Third SFC was constituted on 22<sup>nd</sup> December, 2005 covering the period of 5 years i.e. 2006-2011
- Recommended sharing of state taxes at the rate 4% excluding Excise Duty and LADT with Panchayats and Municipalities after retaining 1.25% as collection charges of the Government
- Devolution to Panchayats and municipalities in the ratio of 65:35 giving a weightage of 40% to population, 25% to SC population, 25% to number of villages & cities/towns and 10% to literacy gap.
- SFC recommended Rs. 2540.44 crore for the period 2006-11 (Rs. 1651.27 crore for Panchayats, and Rs.889.17 crore for Municipalities).
- State Government accepted Rs. 1304.60 crore [Panchayats: Rs. 847.99 crore (65%) and Municipalities: Rs. 456.61 crore (35%)]

### Fourth State Finance Commission

- Fourth SFC was constituted on 16<sup>th</sup> April, 2010 covering the period of 5 years i.e. 2011-2016
- The report of 4<sup>th</sup> SFC was submitted in June 2014.
- SFC recommended Rs. 3573.12 crore for the period 2011-16 [Rs. 2322.52 crore for Panchayats (65%), and Rs. 1250.60 crore for Municipalities (35%)].
- The Panchayats share to be allocated among GPs at the district level: PSs: ZPs in the ratio of 75:15:10 respectively.
- The share of local government, both Panchayats and Municipalities, has recommended 7% of the divisible pool i.e. net own tax revenue.

### Fifth State Finance Commission

- Fifth SFC was constituted on 26<sup>th</sup> May 2016. The report of the commission covers the five year period commencing from 2016 to 2021.
- It is recommended that financial devolution of 7% of the State's Own Tax Revenue (SOTR) to panchayats and municipalities in the ratio 55:45 (Panchayats: Municipalities) and stamp duty of 2% will be over and above the recommended devolution of 7% of SOTR to panchayats and municipalities.
- Distribution criteria will be based upon the population and area in the ratio of 80:20.
- Inter-se share of panchayats will be in the ration of 75:15:10 among Gram Panchayat, Panchayat Samiti and Zilla Parishad.

Specific grants of Rs. 250 crore for establishment of State Level Urban Shared Service Centre and Rs. 70 crore for Swarna Jayanti Haryana Institute for Fiscal Management.

### Devolution and Delegation as per State Panchayati Raj Act and Rules

The State of Haryana through its Panchayati Raj Act, 1994 has devolved all 29 matters, enumerated in the Eleventh Schedule of the Constitution, to the three rungs of Panchayats However, activity mapping was done for fourteen departments only.

### Panchayat Finances

Provision of adequate financial powers to the Panchayats by equipping them to generate sufficient resources on their own is necessary to enable them discharge their functions and obligations satisfactorily (Alok, 2021). Under the Haryana Panchayati Raj Act, 1994, Panchayats have been given powers to impose taxes and fees. The Act also provides that the Panchayats may impose any tax, duty or cess which the State Legislature may assign. However, only house tax has been imposed as per 117 (I) of Panchayat Rules in the following rates :

- (i) A land owner or a shop keeper Rs. 30 per annum
- (ii) A tenant of land or an artisan Rs. 20 per annum
- (iii) An unskilled labourer Rs. 10 per annum
- (iv) Any other person not falling under above categories may be bracketed with the above classes as may be determined by GP.

House tax is an important source of income to Panchayats. The State Government had abolished House tax with effect from 1 November 2007. Subsequently, State Government enabled the Gram Panchayats by issuing a notification to impose house tax in rural areas. Our field study reveals that in almost all sample Panchayats, house tax is being collected by GPs. In Haryana, *Shamlat*<sup>1</sup> land is the main source of income to Panchayats. The Panchayats have 849587 acres of *shamlat* land out of which 233051 acres are cultivable *shamlat* land and 598856 acres of uncultivable *shamlat* land. During the year 2012-13, the income from *shamlat* land was Rs. 230.94 crore. Lease money is being collected from *shamlat* land in almost all villages (Economic Survey of Haryana, 2020-21).

### Suggestions for Sixth State Finance Commission

Though the constitution of the SFC in Haryana has been regular but the treatment to their recommendations has been far from being satisfactory. The State Government, in tradition under different political parties, has adopted casual approach by a) nominating a large number of members as the case noted in the 5<sup>th</sup> SFC; and b) constituting the SFC in four phases in the case of 3<sup>rd</sup> SFC. Both practices are unparalleled across states in India. The sixth SFC is constituted by the State government by nominating only the chairman and a part time member secretary and no other member. The order is issued from

Source: Alok (2021)



the chief secretary without a reference to the Governor. The practice is inconsistent the constitutional provisions enshrined in Articles 243 I and 243 Y. Moreover, the terms of reference issued by the chief secretary direct the constitutional body to explore avenues so that both Panchayats and Municipalities reduce expenditure.

Under such surroundings, it is a challenge to the sixth SFC to produce a report which could be to liking of State government and consistent to the spirit of the provisions enumerated in Part IX and IX A of the Constitution at the same time.

Nevertheless, the Sixth State Finance Commission, at the outset, may review previous SFC reports; focus on SDG indicators on which the State is lagging; present data on which the reports are based; complain about poor data base; suggest new local taxes, if necessary; attempt estimates of local taxable capacities in terms of measurable indicators; indicate full O&M requirement of core services; and suggest budget and accounting reforms of the local governments.

The Sixth SFC report may recommend standardizing a) procedures for levy of property and other taxes; b) norms for basic services by Panchayats and Municipalities; and c) norms for staffing and salaries. At the same time, the commission may recommend incentivize fiscal performance by local governments through: a) levy & collection of taxes & user charges; b) economy in expenditure and c) people's participation

In addition, the 6<sup>th</sup> SFC may recommend the recommend the following for the efficiency:

- Database on local governments and their Finances
- Standardizing the template- web based:
- Local Government Profiler, Directory, Assets Register, Institutionalizing the arrangements for data collection
- Notification of Activity Maps for all schemes and services
- Delineating roles for the local governments and others in schemes
- The above be the basis for assignment of assets, staff and budget allocations
- Entitlement of local governments for funds that can be indicated preferably in State Annual Budget
- Release of funds in two installments and 2<sup>nd</sup> installment after the receipt of 1<sup>st</sup> Installment's Utilisation Certificate
- Release of funds directly to the bank account earmarked

- Payment of interest by the State, if delay is beyond seven days
- Details of grants to be placed before gram sabha and ward sabha

Finally, a clearing house at State level may be recommended for the dissemination of best practices; information sharing; professional inputs through Swarna Jayanti Haryana Institute of Fiscal Management, Panchkula.

#### **Endnote**

1. Shamlat land is owned by Gram Panchayat in Haryana according to Village Common Land Regulation Rules, 1964.

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# Globalization 4.0 and Challenges for Global Governance

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## Abstract

Processes of interchange and interaction between people, goods and services have always existed in human civilization. Though Globalization is a highly contested term, yet one cannot ignore its influence over every realm of human activity in its journey of evolution. The scale and nature of Globalization and its dynamics have been unprecedented in contemporary times. In the present parlance, when populism critiqued the ethos of establishment and institutions, which were driving forces of global interdependence, there were debates that why and how Globalization is irreversible regardless of all thorns. The paper presents an analysis of the idea of Globalization 4.0 when digital technologies and disruption have become the hallmark of global governance challenges. It attempts to underline the nuances of this idea with a focus on its likely impact on mechanisms of Global Governance. There is a need for better engagement with these new realms in order to factor in nuances of the changing contexts in a holistic way. The right approach to deal with the emerging situation on part of states with due comprehension of the policy challenges shall be useful for the sustainable future of the global arena also.

**Keywords:** Globalization, Governance, Populism, Interdependence, State and Technology.

## Introduction

The industrial revolution along with digital technologies has transformed the industries with rapid inventions. This transformation has given a number of promises regarding freedom from poverty as well as inequality. This assignment is going to discuss different facts of Globalization 4.0 and its relationship with industries. Moreover, it has an impact on the global world that will be discussed in forms identifying some issues related to new power dynamics.

It has been epitomized by the World Economic Forum that Globalization 4.0 has undergone a transformation in terms of integrating 'Artificial Intelligence' and 'cutting-edge advanced technologies. However, a rapid and prompt digital transformation in the name of the industrial revolution proposes an explicit approach that entirely impacts the existing business administration

that results in the perceived adverse implications. In this way, Globalization 4.0 creates unprecedented adverse implications on business administration in the national and international context. Due to these adverse implications, the global economy has deteriorated severely and this economic fluctuation weakens the resilience and capacity management of business organizations. Globalization 4.0 can be elucidated as the recent transformation of social, economic as well as environmental contexts (Pezzuto, 2019). At the initial stage, people across the globe are harnessing digital technologies immensely in order to generate more power for operating diverse industrial and organizational systems with greater convenience. Hence, the first change is digitalization that has made this huge revolution. In the process of germination, Globalization 4.0 is the creator of different heterogeneous innovative digital technologies such as artificial intelligence, machine

learning, robotics technology and many more. These newly innovated digital technologies are being widely harnessed in different industrial sectors. In comparison to globalization 1.0, 2.0, 3.0, 4.0 is going to take action directly on people working in service sectors. Global and international manufacturers passionately capitalize on Globalization 1.0, 2.0, 3.0 and 4.0 in order to enhance production facilities for operating the business practices in the wider context.

However, it can also be remarked that Globalization 4.0 is a subset of Industry 4.0 and hence, Industry 4.0 is purposefully internalized in order to scale up the data connection and transition processes. In this context, artificial intelligence coordinates the process of Industry 4.0 that simultaneously results in enhancing the speed of data connection. Different jobs such as architectural contexts and accounting services are executed in terms of harnessing the power of artificial intelligence to the broader context. Various migration systems existing in business organizations have facilitated business functions in the way of deriving technological advantages from the fast network connection. Financial sectors in the developed countries receive the privilege to restrain their business services in the form of diversification. As suggested by Philbeck and Davis (2018), the industrial revolution is the biggest prospect of globalization 4.0 that includes successful information technology. Furthermore, certain challenges are vividly expressed in the name of political crisis, national conflicts, economic fluctuation, and lack of human resources. One of the major challenges that are encountered in the implementation of Globalization 4.0 is that effective handling and operations of digital technologies are only possible for effective developed and emerging industries and therefore, the resurgence of global conflicts can everywhere easily be witnessed. It can lead to unemployment in industries and competition will become tough. Industries can also face infrastructure-related challenges that may oppose the advantages of globalization 4.0. Furthermore, developing countries such as North America along with some Asian countries may not be able to take advantage due to less productivity and growth.

### **Globalization 4.0 & Industry 4.0**

Globalization 4.0 and industry 4.0 are interrelated to each other that has transformed every industry throughout the board. This correlation of these emerging technologies has sharpened the path of flourishing and integrating different organizational aspects in order to increase organizational resilience. In this light of the discussion, it can highly determine that artificial intelligence is instrumental to the 'fourth industrial revolution' that has brought out flexibility within various manufacturing

grounds. Additionally, extensive utilization and usage of digital technologies reduce the manpower and therefore, the market capitalization can easily be achieved in the attainment and wider generation of digital technologies. Despite creating lucrative opportunities, Globalization 5.0 and Industry 4.0 have unintentionally generated different unknown challenges such as improper allocation of capital and unequal distribution of money. It is going to change an industry completely on electronics based in which only cyber-physical systems and big-data analytics along with the internet of things are included. As mentioned by Erboz industry 4.0 is an effective and current trend of valuable automation systems for increasing manufacturing effectiveness. The introduction of different innovation management is conveniently gained in the process of harnessing the platform of Globalization 4.0 and Industry 4.0 with promptness. In the words of Esmailian *et al.* (2020), Industry 4.0 is an advanced technology that frequently increases supply chain resilience to improve organizational performance with a sustainable approach. Being a subset of Globalization 4.0, Industry 4.0 has the potential to improve marketing approaches in a wider way and hence, governance practices are sincerely diffused to generate expected business outcomes. Artificial Intelligence (AI) or the fourth industrial revolution is a lucrative digital technology that ensures organizational sustainability in the way of increasing the high volume of production across the workplaces. As determined by Wisskirchen *et al.* (2017), artificial intelligence, machine learning and deep learning are exponentially used within workplace environment that increases organizational efficiency and resilience. In regards to this scholarly aspect, it is also admissible to opine that artificial intelligence brings and increases the flexibility of autonomous functions to contribute to the popularity of business organizations. Through this globalization 4.0, industries are opting for individual software systems that enable them to detect invoices thoroughly. Artificial Intelligence completes the entire work instead of finishing any specific work systems. In the field of technological advancement, artificial intelligence is ahead of human intelligence and therefore, minimization of using AI is inevitably required for industries to attain manpower globally.

The utilization of the 'Internet of Things' is another revolutionary form of industry 4.0 that is directly connected to globalization 4.0. Without fast connectivity, globalised platforms will be impossible for industries. It is because, during the completion of activities in the supply chain, fast internet connection has helped maximum industries to transfer information regarding product designing and many more. The possibility of running complicated software has become smooth by having IoT. Some specific reasons behind the



relationship between industry 4.0 and globalization 4.0 are improvement of projections, decreasing uncertainty among any collaborative function. In order to enhance international activities such as cooperation between two leaders of the same industry, this revolution has fulfilled requirements regarding technologies.

Report of 'World Economic Forum's has formulated three main global risks including extreme events related to weather and ineffectiveness of recognizing natural disasters. It means an indirect relation to globalization 4.0 is apprehended with lack of advanced artificial intelligence, that industry 4.0 is regarding. For example, indications of risk from Allianz 2019 are found as tariff issues as well as trade issues. Moreover, the Brexit factor has also brought out certain changes as well as challenges in the form of regulation that deregulates the UK from the EU and therefore, Globalization 4.0 along with Industry 4.0 is increasingly used in the nation of the United Kingdom.

(Roylance, 2019). Growth factors can be analysed through the development of many IT businesses as well as the protection of intellectual property. Information technology sectors exponentially utilize the latest digital technologies in order to enhance creativity and innovativeness for running business operations across the globe with remarkable intensity.

sustainable business management are intercorrelated to each other and their cooperation has significantly brought out worthwhile business productivity within different operating industries. The revolutionary transformation of advanced digital technologies is the key way to create global opportunities for enhancing the productivity of organizations and industries. These opportunities are related to the easy movement of materials, capital as well as labour. AI-oriented opportunities benefit the operating industries in terms of resolving the problem of high rate calls. Every IMF Research Development centre is inherently benefited in terms of deriving opportunities from political elites and macroeconomic divisions. As a result, historic growth in GDP of 30% has been indicated by goods exporting and importing (Barghini, 2020). 3D Printing Technology facilitates additive manufacturing processes to help industrial sectors in enhancing organizational growth (Marr, 2018). Optimizing logistics as well as the supply chain has been adjusted during passing any information. A progressive impact related to System safety and cost savings has been recognised during this assessment. For example, National Electrical Code (NEC), National Fire Protection Agency (NFPA) and Occupational Safety and Health Administration (OSHA) requirements have revealed their execution plans to stick to this compliance of industrial revolution in the context of gaining the high advantage of protection. They have analysed that companies can get better protection for their existing workers in terms of 'power circuit breaker'.

Global textiles companies are positively impacted in the way of harnessing effective digital transformation. Globalization 4.0 has also made improvements in customer-driven organizations in the way of increasing supply chain productivity, retail practices and communication processes. In the viewpoint of Kozyk *et al.* (2017), innovative technologies are exponentially being used to help businesses in increasing organizational capabilities. This scholarly aspect clearly throws light on the efficacy of innovative digital technologies in terms of digitally shaping organizational components and aspects. Due to the effective and proper utilization of Globalization 4.0, customer-driven business organizations, manufacturing businesses and production businesses are vehemently aspiring in developing an internationalization strategy to expand the business services broadly. According to this context, the associated digital technologies of Globalization 4.0 play a remarkable role in increasing the efficiency of organizational resource management in different categories such as tangible resources and intangible resources. As mentioned by Mahmoud (2021), artificial intelligence is the key technology that is adopted and resourced within different organizations in order to enhance organizational productivity. Besides AI, the manufacturing and distribution industry along with other

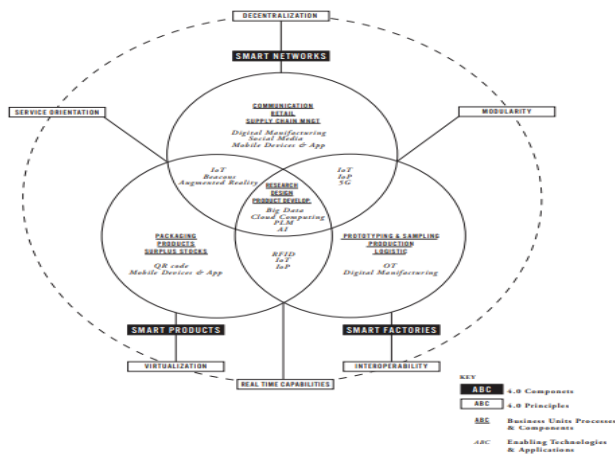


Figure 1: Components as well as principles within business units

Source: Bertola and Teunissen, 2018

Based on the above process, fashion retailing is completed in terms of having all excellence of technologies.

### Impact on Global World

The impact of both the industrial revolution and globalization 4.0 is partially effective for individual organizations. Advanced digital technologies and



industrial sectors have adopted machine learning, deep learning and other technologies in order to strengthen productivity that contributes to business development. In this way, different business approaches can also be restored to harness them in conducting future works through effective handling of digital transformation. In this way, the broader capitalization of innovative digital technologies has enhanced organizational resilience that can also increase the efficiency of organizational components in order to deliver seamless customer service with high quality. In this way, customer goods companies can easily meet the basic and market needs of heterogeneous customers.

Internalization of high quality of work into organizational approaches has introduced innovative marketing strategies such as digital marketing and influencer marketing in the realm of leveraging facilities and benefits of Globalization 4.0. The research paper of Singh (2018) reflects that the digital marketing concept is used by business organizations in order to attain customer satisfaction for the wider context. The concept of digital marketing is associated with the wider capitalization of digital technologies that have the potential and accessibility to reach and meet customer needs accordingly. In this regard, Globalization 4.0 has been widely incorporated in terms of creating the options such as social media platforms, digital networks and online platforms. These digital resources are incredibly utilized to work as the major components and cognitive marketing instruments for digital marketing and influencer marketing. In future, the business organizations can also feasibly harness automation and artificial intelligence technologies in order to foster the creativity of current marketing approaches in the broader context.

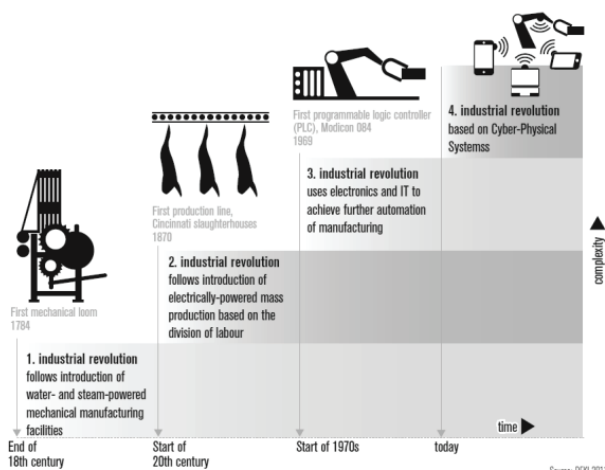


Figure 2: Stages of the industrial revolution

Source: Bertola and Teunissen, 2018

Based on the above figure, the cyber-physical system has increased the value of the competitive market and introduced the concept of ‘Smart marketing’. In the viewpoint of Savastano *et al.* (2018), advanced human-machine interfaces and big data technologies have facilitated manufacturing practices that inevitably supports organizational sustainable growth in the competitive industry. The concept of ‘Smart Marketing’ can be correlated with the wider utilization of core digital technologies such as AI and Big Data in order to foster the creativity of marketing campaigns in the establishment of prototyping processes and methods. In this regard, the term ‘digital manufacturing’ is coined in the process of integrating digital technologies into marketing campaigns and approaches. Hence, the industrial revolution has sharpened the path of deploying digital technologies in the wider way across business organizations to run operations digitally in order to generate revenue.

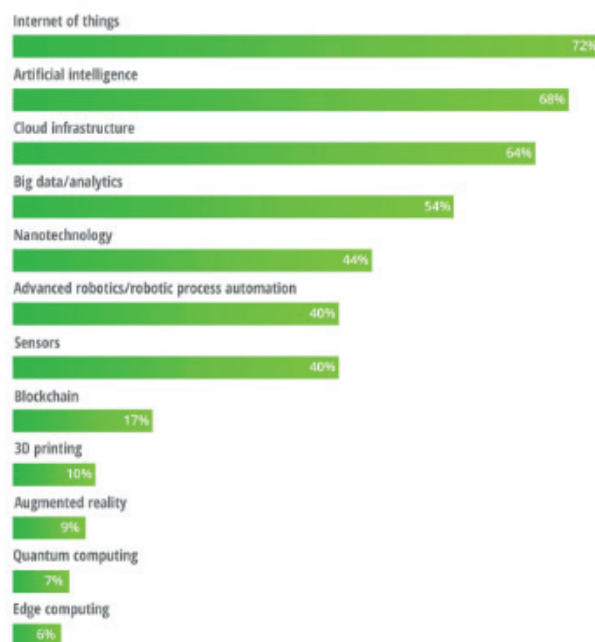


Figure 3: Impact on the global world

Source: Deloitte, 2021

The growth value of technologies through globalization 4.0 has increased transportation systems, selling of products and manufacturing essentiality. Due to this, global trade is benefited as per the annual survey report of Deloitte and it has found that government agencies respond to the incredible changes in industry 4.0. In the words of Sangwan and Bhatia (2020), Industry 4.0 is the digital solution that helps business organizations in developing trade relationships. Apart from this, Industry 4.0 is effectively and widely used by business administrations in terms of leveraging global trade benefits to sustain in the competitive job market and industry.

## Technology & New Power Dynamics:

### a. Technological issues for globalization in companies

Significant developments are made in the field of technology that enhances the globalization of businesses in multiple ways. In association with the benefits that can be acquired, the use of AI, augmented and virtual reality, biotechnology, and quantum computing processes majorly enhance the development of brands to spread across global destinations. However, there are some serious challenges and issues in association with deriving competitive advantage from these strategic technological implementations. The security risks and ethical issues are the first problems that marketers deal with while moderating ethical considerations. It is not wholly possible for business administrations in handling and implementing digital technologies without receiving any challenges. Security risks are entirely related to the implementation and smooth handling of digital technologies in global companies as some technologies such as artificial intelligence, machine learning, deep learning, augmented and virtual reality need the assurance of a secured workforce environment. In the research paper by Mohanta *et al.* (2020), it is mentioned that the implementation process of machine learning and artificial intelligence faces security challenges while conducting different computing and monitoring approaches. Ensuring the confidentiality of the gathered data is the core security challenge of the implementation of digital technologies within the workplace environment in the age of globalization. Apart from this, companies can also face certain ethical issues in terms of facing unemployment. Excessive usage of digital technologies such as artificial intelligence, machine learning and deep learning reduces the growth of employment opportunities and hence, *staff shortage* is identified as an issue. In the words of Abdeldayem and Aldulaimi (2020), effective skills of staff require in order to implement artificial intelligence within workplace management. In regards to this aspect, the staff shortage issue can be regarded as an ethical issue in the implementation of artificial technologies and other digital technologies within workforce management. These issues arise from inefficiency in mentioning rights and authentic verifications associated with the business entity. Moreover, companies must also maintain legal considerations in order to avoid issues with abiding by the government rules and regulations. In accordance with the ongoing geopolitical tensions

across various global destinations, the internet and technology implementations are witnessed as the most predominant threat in maintaining ethical security within the company. In association with the arrival of such issues, the government access to private information about the business unit cannot be controlled or diminished. Another issue in association with the globalization of companies lies in the selection of strategic tools and technological methods (Hopwood, 2019). The wrong implementation of technological strategies can lead to the generation of negative results and outcomes.

### b. Power Dynamic issues in globalisation for companies

One of the major challenges that globalization faces from power dynamics are in association with societal changes of tastes and preference patterns. Cultural and linguistic dynamics play a huge role in acquiring customer affinity. Thereby, in order to be globally acclaimed, companies must aim towards constantly satisfying customer demands by efficiently mitigating their needs. In the viewpoint of Udofia (2019), customer satisfaction can easily be achieved in terms of enhancing the practices of quality management. In association with this academic context, it can be conceptualized that the development of quality management is the core processor method to gain customer satisfaction in terms of producing innovative products through the integration of digital technologies. This must be implemented by the strategic implementation of technological tools. The wrong implementation of strategies can also disrupt this process of the performance and accessibility of the business across global destinations. The economic changes in the political territories of operation also cause the economic conditions of the population. Any changes in association with the internal availability of monetary sources will change the productivity of the businesses as customer purchasing power will be adversely affected. In association with this, economic issues such as recession, inflation, increasing government, and legal control can wreck the development strategies for globalization within business organizations. According to this context, the deterioration of economic inflation and recession can be an inevitable threat towards the implementation and development of strategies in the genre of globalization within workplace management. It also causes unemployment, which is another social issue that needs to be controlled along with aiming for globalization in order to gain

sustainability. Business organisations must develop sustainable goals for enhancing their accessibility across the global market. It has been determined by Durst *et al.* (2019), organizations responsibly manage the risk factors in order to operate the business with sustainability in the market. This is in association with the rising global demand for sustainable and renewable products and services in order to restore the hazards from the depletion of natural resources.

### c. Cyberspace and Sovereignty

The world system of interaction is changing dramatically at an unprecedented speed. We are in the midst of an information revolution. The traditional power structures are being replaced by new ones. Today, cyberspace has emerged as a venue of unprecedented opportunity, a source of vulnerability, a game-changer in the classical international order, and a potential threat to national security. It is reshaping contemporary international politics. It transcends constraints of territory and penetrates the nation-state's boundaries. Cyberspace bypasses the responsibility mechanism of the nation-state. The accessibility of cyberspace has already influenced the Westphalian state-based international system in different ways. There are some of the following notable impacts: The new aspect of national security is identified as cyber security emanating threats from unknown sources. It needs to broaden *cyber cooperation* among the nation-states by framing global cyber norms. A leading Neoliberal philosopher Joseph Nye made an important observation in the following words:

Power transition from one dominant state to another is a familiar historical event, but power diffusion is a more novel process. The problem for all states in today's global information age is that more things are happening outside the control of even the most powerful states

American Diplomat Richard Haass noted that "the proliferation of information is as much a cause of non-polarity as is the proliferation of weaponry". Some scholars glorified this new emerging trend which has undermined the power of the sovereign state which has been the dominant global institution since the Peace of Westphalia in 1648.

They argue that the information technology will undermine bureaucratic hierarchies and replace them with network organizations. Liu *et al.* (2020) opined that Industry 4.0 is an innovative digital technology that increases organizational functioning in the broader context in order to help organizations to gain sustainability within the market. In association

with this scholarly concept, it can also be remarked that Industry 4.0 is the key information technology provider that helps business organizations in increasing resilience, efficiency and productivity in order to enhance organizational performance. In this light of the discussion, the excessive utilization and maximization of information technology can strategically undermine bureaucratic organizational hierarchies. Therefore, it is transparently clear that the globalization aspect is inherently internalized within workforce management in terms of integrating digital technologies in order to produce innovative products and conduct digital marketing campaigns for generating higher market capitalization. In addition, more state functions will be managed by private stakeholders and non-profit entities. New emerging virtual communities will communicate beyond the territorial jurisdictions and develop their own form of governance. In this web-based society, modern nation-states will no longer be a primer institution to people lives. People will lead their life by multiple voluntary contracts only with the click of a mouse. These new emerging cyber-based crosscutting communities will become a more civilized analogue to the feudal world which existed before the emergence of the modern state. Under this backdrop, Neoliberal Thinker Robert Keohane rightly defined as "complex interdependence". Multiple channels of interaction exist among pluralistic societies and war is excluded as a means of policy. Historically, the notion of sovereignty has gradually gained a status as the defining principle of international politics since the peace treaty of Westphalia in 1648. Analyzing the impact of the technological revolution on nation-state, Walter Wriston (1997) noted that:

"Sovereignty, the power of a nation to stop others from interfering in its internal affairs, is rapidly eroding. Perhaps more than any of the other globalizing forces, it is joining the assault on sovereignty and will, contribute to relegating sovereignty and its traditional trappings to the ash heap of history". Wriston further pointed out, "Information technology has demolished time and distance ..... The information revolution is thus profoundly threatening to the power structures of the world".

More recently, the notion of sovereignty has been explained as "... the claim to be the ultimate authority, subject to no higher power as regards the making and enforcing of political decisions. In the international system, sovereignty is the claim by the state to full self-government. Ewans (1998) argues that a state's sovereignty implies autonomy in foreign policy and



exclusive competence in internal affairs. Scholars consider the Treaties of Westphalia as a source of sovereignty. The treaties established "... a secular concept of international relations replacing forever the medieval idea of a universal religious authority acting as the final arbiter of Christendom." Since 1648, the particularistic interests of states became paramount both politically and legally. Over time, erosion of sovereignty has been steadily accruing over the centuries.

Rosecrance (1986) argues that there is a free flow of information across territorial boundaries which have produced weapons of mass destruction that preclude the state from protecting its own people or territory. However, Gilpin (1987) does not accept the overriding impact of technological developments on the State's sovereignty. The Nation-state still has a profound influence on international politics. The territory is still the symbolizing factor in the era of 'Global Village'. Economic interdependency and free flow of cultural value across the world do not undermine the territorial sovereignty, merely influence it. Sovereignty as the autonomy of a territory within the international order is still secured. The concept of sovereignty was propounded by Jean Bodin and Thomas Hobbes in the 16<sup>th</sup> and 17<sup>th</sup> centuries. It aims to establish the legitimacy of a single hierarchy of domestic authority. To maintain domestic order was the top priority for both philosophers. Justice could not prevail without the presence of supreme power which Thomas Hobbes defines as Leviathan.

The concept of territory was explained by Jim Gottmann. Being the core element of the state, territory symbolizes the state's sovereignty. It strengthens the feeling of patriotism and a sense of belongingness among the citizens of a state. Territory, therefore, is more than a piece of land, i.e. Identity of belongings. To protect the territorial integrity has been the prime concern of the modern State. British philosopher Harold Laski pointed out that "The territories of a State are the regions over which it can exercise its sovereignty". Some technologists viewed the internet as a "lethal" instrument for states' sovereignty. The technologist perspective viewed the Internet as an effective and seamless global information network, which transcends nation-state borders. The authority of the nation-states has been dramatically curtailed. Currently, the cyber world is in an anarchic state of nature. Due to the current technological revolution, the nature of the powerhouse has become changed; the idea of technology dominates over extensive material resources. In his lecture on "Two Cultures",

C.P. Snow pointed out that scientists and humanists are ignorant of each other's knowledge and are content to stay that way.

In addition to that, the author of *The End of the Nation-State*, Jean-Marie Guehenno defines the Information Age as "imperial," He says that "virtual society too vast to constitute a political entity—a world that is at once unified and without a centre. Power bases are shifting from territory and material wealth to "accessibility," that is, constant access to a vast global electronic network". The power of information technology, therefore, has evolved new global relationships. Territory, as the major centre of power in the Westphalian order, is a no longer political entity. Since the 1990s, events across the globe have demonstrated the changing nature of communication in relation to conflict, human rights and state sovereignty. A leading authority on the internet, Henry Perritt (1998) argued that "totalitarian regimes could no longer create a secure and unchallenged environment for themselves. It was impossible for them to control newspapers, television and radio stations, as they had done before because the internet was beyond their control and manipulation (Perritt, 1998). Similarly, Kofi Annan, former Secretary-General of the United Nations, noted that

"State sovereignty, in its most basic sense, is being redefined – not least by the forces of globalization and international co-operation. States are now widely understood to be instruments at the service of their people and not vice versa"

It is fairly safe to assert that the Internet threatens traditional political institutions and perhaps even the very concept of sovereignty itself. Endorsing the role of the Information age, Walter Wriston noted that "sovereignty, the power of a nation to stop others from interfering in its internal affairs, is rapidly eroding"



Figure 4: Images of Westphalian Treaty

Source: <https://www.cnas.org/press/in-the-news/back-to-1648-the-treaty-of-westphalia>



## Conclusion

After the successful completion of this research paper analysis, it can be concluded that it has suitably highlighted the meaning and definition of globalization. Furthermore, this paper has also elucidated the impact of the global world and the shift of power dynamics after World War II. Along with that it also highlights the importance, and the issues are associated with technological implementations for deriving a competitive advantage over other brands in a similar domain.

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# Evaluation of Helicopter Services in North Eastern Region of India

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## Abstract

*The Helicopter Services in North Eastern Region of India was introduced in 1992-93 to provide connectivity to common passengers to remote areas in the region and with the rest States and UTs of India at affordable cost and to evacuate people during natural calamities and medical emergencies. Presently, the helicopter services are operational in seven NE States, namely Arunachal Pradesh (1995), Sikkim (1998), Meghalaya (1999), Tripura (2002), Nagaland (2007), Mizoram (2012), and Manipur (2018). Objectives of the paper is to examine the efficiency and usefulness of the Helicopter scheme in the North East region; to find out the extent to which the scheme has facilitated connectivity for different layers of end users; and to identify the key bottlenecks and challenges faced during implementation of the scheme. With positivist frame of evaluation, both quantitative and qualitative research methods have been used for data collection. The study has been conducted in seven states and a total of 384 respondents were sampled. During the period 2016-17 to 2018-19 the budget sanctioned by the MHA for the scheme is Rs. 86 crore, Rs. 86 crore and Rs. 90 crore, respectively which have been fully utilized by the State Governments. During 2019-20, Rs.100 crore has been sanctioned and the entire amount has been fully utilized. The budget amount was reduced to Rs. 42 core in the year 2020-21. From 2016-17 to 2019-20, the overall efficiency in North Eastern Region has seen a positive trend, although, it declined in 2018-19 due to a significant decline in the number of passengers in Nagaland and Sikkim despite a marginal decline in the input variable, i.e. number of flying hours. Among the sampled beneficiaries, women participate 22 per cent, SC represent 24 percent and ST and OBC represent 31 and 12 per cent respectively. This shows that the scheme is inclusive. In addition, the flying hours are optimally utilized and scheme caters the designated objectives.*

**Keywords:** Helicopter, Infrastructure, Transport, North East, SDG, Evaluation, India

## Introduction

Historically, the North-Eastern (NE) States are inaccessible due to its strategic location which has difficult terrain, tropical climate and about 65% of its geographical area as forest cover. This aggravated after severing of East Pakistan, now Bangladesh from India. The only narrow

land passage which link NE States to mainland India is through the chicken neck in Siliguri corridor. Following is the overview of state wise population, area, density of population, percentage share of STs in total population. High percentage of ST population can be seen in all NE States.

**Table 1: Overview of North East Area and Population**

SI No	States	Population (as per Census 2011)	Area (Sq Km)	Population (%)	Area (%)	Density of Population (per Sq Km)	% STs in State to total population of State	% STs in the State to total ST population in India
1	Arunachal Pradesh	13,83,727	83,743	0.11	2.55	17	68.8	0.9
2	Assam	3,12,05,576	78,438	2.58	2.39	398	12.4	3.7
3	Manipur	28,55,794	22,327	0.24	0.68	115	40.9	1.1
4	Meghalaya	29,66,889	22,429	0.25	0.68	132	86.1	2.4
5	Mizoram	10,97,206	21,081	0.09	0.64	52	94.4	1
6	Nagaland	19,78,502	16,579	0.16	0.50	119	86.5	1.6
7	Sikkim	6,10,577	7,096	0.05	0.22	86	33.8	0.2
8	Tripura	36,73,917	10,486	0.30	0.32	350	31.8	1.1
9	Total NE	4,57,72,188	2,62,179	3.78	7.97	173	56.83	12
10	All India	1,21,08,54,977	32,87,263	-	-	382	8.6	

Source: Census of India

The NE region, however, has few airports accessible to limited number of locations. Lokpriya Gopinath Bordoloi International Airport in Guwahati is the gateway to NE, which is very well connected to rest of States and UTs of India and to several international cities. Other airports such as Tuting & Teju Airports in Arunachal Pradesh, Lilabari, Dibrugarh, Jorhat, Tejpur, Silchar & Rupshi Airports in Assam, Dimapur airport of Nagaland, Bir Tikendrajit airport in Manipur, Lengpui airport in Mizoram, Maharaja Bir Bikram & Kailashahar airports in Tripura, Shillong airport in Meghalaya, Pakyong airport in Sikkim are smaller airports, mostly of strategic significance with limited passenger traffic.

Nevertheless, the region has poor inter and intra state connectivity resulting in low socio-economic development and feeling of alienation. Due to lack of development, fringe elements used to get alienated in the international borders with China, Myanmar & Bangladesh. In order to scale-up and accelerate economic, educational, health, social & other developmental indicators, the scheme of Helicopter Services in North East was kick-started in the year 1992-93. The scheme became operational in Arunachal Pradesh since 1995, Sikkim since 1998, Meghalaya since 1999, Tripura since 2002, Nagaland since 2007, Mizoram since 2012, Manipur since 2018. The scheme aims at providing affordable passenger transport in NE region, evacuation during natural calamities and for urgent medical needs etc.

The scheme is aligned with the objectives of the 2030 Agenda for Sustainable Development Goals. In the broad

canopy, the Scheme relates with the SDG Goal number 9.1 and 10.7. SDG number 10.7 is linked to the objective of facilitating orderly, safe, regular and responsible mobility of people through the implementation of well-planned policies and SDG goal number 9.1 of developing quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all. The scheme also leads to enhancement of global partnership for sustainable development is complemented by a multi-stakeholder partnership through mobilizing the shared knowledge, expertise, technology, and financial resources. The scheme intends to create effective commutation based on knowledge, expertise and financial resources. As such, armed with the vision to facilitate people in emergency

The objectives of the study are to examine the efficiency and usefulness of the Helicopter scheme in the North East region; to find out the extent to which the scheme has facilitated connectivity for different layers of end users; and to identify the key bottlenecks and challenges faced during implementation of the scheme in the North East Region,

### Data and Methodology

The evaluation made use of both primary and secondary data for the assessment of the scheme's goals, processes, and outcomes. Secondary information in the form of Scheme Budget, particularly actual budget from



the Ministry of Home Affairs was obtained. As the helicopter service in north east scheme is intended for the remotest beneficiaries of a sensitive border region, the appropriateness of the scheme and coverage are important factors. To gauge the scheme outcomes, the identified stakeholders were contacted to elicit their responses on the helicopter services in the north east region. The methodology of the evaluation of the scheme consisted designing of the questionnaires, interview schedule, focus group discussions and observation. The

multiple indicators pertaining to the scheme evaluation have been taken into account as to gauge the obvious impact of the scheme on the beneficiaries. The sample size of target group has been drawn in such a way that it represented the population. However, to effectively analyse the scheme outcome on parameters designed, a proxy indicator (i.e. percentage of passengers) has aptly been used by state. By taking up a 95% of confidence level and 5% error margin, a total of 384 respondents were sampled. The sample details for each state are given as under:

**Table 2: Sample Size of Study**

Sl. No.	State	Total no. of passengers from 2016-17 to 2019-20	Percent Share of states in terms of total passengers of all states	State-wise Sample Size
1.	Arunachal Pradesh	69219	37.83	145
2.	Manipur	9185	5.02	19
3.	Meghalaya	7954	4.35	17
4.	Mizoram	44139	24.12	93
5.	Nagaland	26419	14.44	55
6.	Sikkim	23512	12.85	49
7.	Tripura	2553	1.39	6
Total		182981	100	384

Source: Author's computation

**Budgetary allocation and expenditure pattern of the scheme**

During the period from 2016-17 to 2018-19 the budget sanctioned by MHA for the scheme is Rs. 86 crore, Rs. 86 crore and Rs. 90 crore, respectively which has been fully utilized by the State Governments. During 2019-20, Rs.100 crore has been sanctioned and the entire amount has been fully utilized. The budget amount was reduced to Rs. 42 core in the year 2020-21 (MHA, 2021). On the basis of past performance, the proposed budget for the scheme is Rs. 360 crore for the period 2021-22 to 2023-24.

**Table 3: Expenditure Pattern under the Scheme across States**

(Rs. crore)				
State	2016-17	2017-18	2018-19	2019-20
Arunachal Pradesh	26.24	23.18	50.16	42.52
Meghalaya	5.22	17.74	8.15	4.09
Mizoram	6.68	11.29	8.19	3.86
Nagaland	23.04	11.22	5.9	6.7
Sikkim	4.87	6.11	2.73	2.72
Tripura	9.81	8.12	6.96	4.26

Manipur	0	0	0	1.23
MHA	10.2	8.31	6.49	5.99
Total	86	86.00	90.00	100.00

Source: MHA

**Efficiency and usefulness of the Helicopter scheme**

The North East (NE) region due to its physiographical limitations has difficult connectivity to the far-fetched areas and this is where the objective of Helicopter services in NE is to be fulfilled in providing connectivity in remote areas of NE region. The scheme intends to gear-up air connectivity of NE to rest of India. The Eastern Himalaya takes a sharp turn on the Indo-Myanmar border. The NE region has rough topography and is a mega earthquake prone zone caused by active fault planes beneath formed by the convergence of three tectonic plates viz. India Plate, Eurasian Plate and Burma Plate. As a result of frequent calamities and harsh geography, there are emergency situations such as evacuation during floods, earthquakes, landslides, insurgent activities etc. and these pertain to immediate medical attention. To overcome the aforementioned challenges in NE Region, the Ministry of Home Affairs has allocated budget to

six NE states initially and, later included Manipur in 2018. The NE states have been availing the services of the scheme to reach remote border areas and this has provided an alternative i.e faster and deeper connection to the people. The region is endowed with vast natural resources in terms of forests, biological diversity, and hydroelectricity potential; nevertheless, it has remained

largely underdeveloped. Both poor infrastructure and limited connectivity within the region are regarded as key constraints to the growth of NE. The utilisation of these services according to the state-wise expenditure, number of passengers using the service and the flying hours utilised has been tabled below:

**Table 4: Expenditure and flying hours utilised**

Year	State	Arunachal Pradesh	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura	Manipur	MHA	Total
2016-17	AE	26.24 (30.49)	5.22 (6.07)	6.68 (7.76)	23.04 (26.77)	4.87 (5.66)	9.81 (11.40)	0 (0)	10.2 (11.8)	86.06 (100)
	Passenger	7749 (23.45)	2385 (7.21)	9504 (28.76)	6268 (18.97)	6280 (19.01)	850 (2.57)	0 (0)		33036 (100)
	Flying Hours	704 (17.54)	850 (21.18)	715 (17.81)	879 (21.90)	625 (15.57)	240 (5.98)	0 (0)		4013 (100)
2017-18	AE	23.18 (26.96)	17.74 (20.64)	11.29 (13.13)	11.22 (13.05)	6.11 (7.11)	8.12 (9.45)	0 (0)	8.31 (9.67)	85.97 (100)
	Passenger	17174 (37.01)	2072 (4.46)	11515 (24.81)	7732 (16.66)	7227 (15.57)	681 (1.46)	0 (0)		46401 (100)
	Flying Hours	1686 (32.76)	766 (14.88)	899 (17.46)	846 (16.43)	709 (13.77)	240 (4.66)	0 (0)		5146 (100)
2018-19	AE	50.16 (56.63)	8.15 (9.20)	8.19 (9.25)	5.9 (6.66)	2.73 (3.08)	6.96 (7.86)	0 (0)	6.49 (7.33)	88.58 (100)
	Passenger	22863 (45.64)	2417 (4.82)	10780 (21.52)	5107 (10.19)	5048 (10.07)	539 (1.07)	3334 (6.65)		50088 (100)
	Flying Hours	2121 (37.0)	766 (13.36)	889 (15.50)	793 (13.83)	608 (10.60)	240 (4.18)	316 (5.51)		5733 (100)
2019-20	AE	42.52 (59.58)	4.09 (5.73)	3.86 (5.41)	6.7 (9.39)	2.72 (3.81)	4.26 (5.97)	1.23 (1.72)	5.99 (8.39)	71.37 (100)
	Passenger	21434 (40.10)	1080 (2.02)	12340 (23.08)	7312 (13.68)	4957 (9.27)	483 (0.90)	5851 (10.95)		53457 (100)
	Flying Hours	2048 (34.87)	631 (10.74)	1085 (18.47)	941 (16.02)	478 (8.14)	240 (4.09)	450 (7.66)		5873 (100)

Note: AE = Actual Expenditure (In Rs. Crore)

Parenthesis contain percentage share

Source: Author's computation

As the Total Aggregate Expenditure under the scheme changes across the years, yet there is an increase in Total Flying Hours, which has pushed the number of passengers using the facility by a notable amount. Among all the North-eastern states, Arunachal Pradesh has spent astoundingly high over the years and has led to the gearing up the highest number of beneficiaries using the helicopter services. The mountainous ranges and sub-

mountainous terrain of Arunachal Pradesh has played an instrumental role in the passenger increase over the years. In the year 2019-20, the Aggregate Expenditure by other North-eastern states differ abysmally, but the number of passengers using the services and the number of flying hours differ considerably across the states. Mizoram, despite spending just 5.81% of the total expenditure of North-Eastern states, has the second highest share

in number of passenger using the helicopter services (23.08%) and the number of flying hours (18.47%).

**Coverage of beneficiaries**

The user of Helicopter Scheme has been mostly in urban area, which is 58.6%, because of availability of infrastructure and more than two-third users are males. The reason for inclination of services being availed by the urban male population is due to presence of more trading centers in urban areas which is mostly handled by males. Sikkim has highest number of users from rural area, which is 75%, followed by Arunachal Pradesh, 65.80% and then by Manipur, 52.38%. The female beneficiaries are highest in Sikkim, which is 56.25% and almost one-third of the female users are from Mizoram. Arunachal Pradesh and Meghalaya differ marginally in case of female users availing the scheme. The availability of the helipads and airport infrastructure in urban area is the biggest reason for people using the facility are mostly from urban towns.

**Table 5: Location and gender of beneficiaries**

States	Location		Gender	
	Rural	Urban	Female	Male
Arunachal Pradesh	25 (65.79)	13 (34.21)	11 (28.95)	27 (71.05)
Assam	74 (48.05)	80 (51.95)	29 (18.83)	125 (81.17)
Manipur	11 (52.38)	10 (47.62)	2 (9.52)	19 (90.48)
Meghalaya	23 (21.9)	82 (78.1)	25 (23.81)	80 (76.19)
Mizoram	6 (50)	6 (50)	4 (33.33)	8 (66.67)
Nagaland	0 (0)	14 (100)	2 (14.29)	12 (85.71)
Sikkim	12 (75)	4 (25)	9 (56.25)	7 (43.75)
Tripura	8 (33.33)	16 (66.67)	3 (12.5)	21 (87.5)
Grand Total	159 (41.41)	225 (58.59)	85 (22.14)	299 (77.86)

Note: Parenthesis contains percentage share in total

Source: Author's computation

**Social Category of beneficiaries**

As per the above table of social category, at least one-third of the users are of general category, followed by scheduled tribes (STs), scheduled castes (SC) and other backward classes (OBCs). Since Arunachal Pradesh has more than 50% of population in ST category and this also explains that the highest numbers of users are from Arunachal Pradesh, followed by Sikkim (50%) and Mizoram (41.67%). For Scheduled Caste (SC), Meghalaya has highest number of users, followed by Manipur and Assam. Assam and Manipur differ marginally in case of OBC category, that is by 0.42%.

**Table 6: Social categories of beneficiaries**

States	General	OBC	SC	ST
Arunachal Pradesh	9 (23.68)	1 (2.63)	2 (5.26)	26 (68.42)
Assam	51 (33.12)	30 (19.48)	34 (22.08)	39 (25.32)
Manipur	7 (33.33)	4 (19.05)	7 (33.33)	3 (14.29)
Meghalaya	28 (26.67)	6 (5.71)	40 (38.1)	31 (29.52)
Mizoram	4 (33.33)	1 (8.33)	2 (16.67)	5 (41.67)
Nagaland	14 (100)	0 (0)	0 (0)	0 (0)
Sikkim	4 (25)	1 (6.25)	3 (18.75)	8 (50)
Tripura	10 (41.67)	2 (8.33)	5 (20.83)	7 (29.17)
<b>Grand Total</b>	<b>127 (33.07)</b>	<b>45 (11.72)</b>	<b>93 (24.22)</b>	<b>0.99</b>

Note: Parenthesis contain percentage share in total

Source: Author's computation

**Source of Information**

The greatest source of information even in the remotest corner of North East, to which the helicopter service is extended, is internet. The word of mouth, i.e. through family friends is the second most important source. While it's good that internet is spreading the information, it's not leveraging end user experiences by online reservation facility, online availability of seats, rescheduling, postponement or cancellation of helicopter sorties, mechanism to cancel booked ticket, online payment or online refund. It's sad that an important leg in the supply chain, the travel agent is not integrated into the business. E-/M-Governance and transparency shall encourage participation of travel agencies in this helicopter sector business.

**Table 7: Source of information about the service**

Family/ Friends	133 (34.64)
Internet	212 (55.21)
Newspaper/ Magazines	12 (3.13)
Other	3 (0.78)
Travel Agency	24 (6.25)
Grand Total	384 (100)

Source: Author's computation

**Purpose and Frequency of availing helicopter services**

Most of our sample have completed to and fro sorties in the same trip, meaning they haven't faced bad weather and technical snag and hence able to complete their trip entirely by helicopter service. While we understand that weather is most troubling in Arunachal Pradesh,

completing to and from trip by helicopter is least in Nagaland followed by Sikkim. This indicates that, Nagaland and Sikkim have other avenues, i.e. road and railways all weathered connectivity with plenty of conveyances without much hassles. In case of Sikkim, tourist possibly prefer land route one side to enjoy the scenic beauty of the land scape. Mizoram is the remotest among all NE states. It's so rugged, without any valley

and undulating terrain for ease of travel by road, no rail network to the core of the star, it's no wonder that people travelling by helicopter prefer to travel back by the same mode. Besides, sample size is adequate and representative for the state of Meghalaya and Assam representing travel between Guwahati and Meghalaya and Guwahati and Arunachal Pradesh.

**Table 8: Purpose of Availing Helicopter Services**

States	Evacuation during natural calamity	Medical emergency	Normal Commuting	Other	Travelling for security purpose	Grand Total
Arunachal Pradesh	2 (5.26)	6 (15.79)	30 (78.95)	0 (0)	0 (0)	38 (100)
Assam	2 (1.3)	0 (0)	146 (94.81)	3 (1.95)	3 (1.95)	154 (100)
Manipur	0 (0)	0 (0)	21 (100)	0 (0)	0 (0)	21 (100)
Meghalaya	4 (3.81)	0 (0)	97 (92.38)	2 (1.9)	2 (1.9)	105 (100)
Mizoram	1 (8.33)	2 (16.67)	7 (58.33)	1 (8.33)	1 (8.33)	12 (100)
Nagaland	0 (0)	0 (0)	14 (100)	0 (0)	0 (0)	14 (100)
Sikkim	2 (12.5)	1 (6.25)	13 (81.25)	0 (0)	0 (0)	16 (100)
Tripura	1 (4.17)	0 (0)	23 (95.83)	0 (0)	0 (0)	24 (100)
Grand Total	12 (3.13)	9 (2.34)	351 (91.41)	6 (1.56)	6 (1.56)	384 (100)

Source: Author's computation

**Table 9: Frequency of Availing to and Fro Helicopter Services in NE by Beneficiaries**

States	No	Yes	Grand Total
Arunachal Pradesh	3 (7.89)	35 (92.11)	38 (100)
Assam	17 (11.04)	137 (88.96)	154 (100)
Manipur	1 (4.76)	20 (95.24)	21 (100)
Meghalaya	5 (4.76)	100 (95.24)	105 (100)
Mizoram	(0)	12 (100)	12 (100)
Nagaland	3 (21.43)	11 (78.57)	14 (100)
Sikkim	3 (18.75)	13 (81.25)	16 (100)
Tripura	1 (4.17)	23 (95.83)	24 (100)

Source: Author's computation

**Perception of end users**

Nagaland and Manipur are in the same pedestal and from same geography. Therefore, from the sample pooled, we don't see any medical or disaster related travels. The road and rail connectivity to important cities (Dibrugarh) of Assam may be one of the reasons. However, there is a silver lining in Arunachal Pradesh, where there is some use for medical service. In case of Meghalaya, the road connectivity between Shillong or Tura with Guwahati is so good and reliable that, rather than waiting for any medical emergency evacuation by

helicopter, they prefer road. Helicopter service is used mostly for business, tourism and officials in Meghalaya. From commercial point of view, it's heartening that most of the travel in all states is for business, administrative, education and tourism etc. It's to be noted that the travellers from Assam fall under other states helicopter scheme, especially Meghalaya and Arunachal Pradesh. Most of the users revealed that service is unpredictable and not available for general public and this corroborates with view of published sources (Prasad, 2018: InsideNE, 2019; Jha, 2019; Sangno, 2020)



**Table 10: Perception of end users on quality of services**

States	Ticket booking process	Ticket pricing	Quality of service	Cleanliness of Helicopter	Overall Service Level
Arunachal Pradesh	3.6	3.1	3.6	3.7	4.0
Assam	3.7	2.6	3.5	3.8	3.7
Manipur	3.9	2.5	3.7	3.6	3.7
Meghalaya	3.4	2.9	3.5	4.2	4.0
Mizoram	3.3	2.5	3.8	4.2	4.3
Nagaland	3.4	4.6	4.0	4.3	4.3
Sikkim	3.6	2.7	2.8	3.4	4.5
Tripura	3.6	2.7	3.8	3.6	3.6
Grand Total	3.6	2.8	3.5	3.9	3.9

Source: Author's Computation

The satisfaction level of end users/ travellers in different aspects of availing helicopter service is astounding. The service provider, the locals of NE, possess the reputation of showing great hospitality to mainland Indians and international travellers and empathy to the difficulties of the passengers. The end users are also easily content and show empathy to the service providers, considering the difficulties under which the service provider operates under different limiting conditions. Higher price shall allow more sorties within the same budget. Higher price shall reduce opacity, and official travel, allowing most deserving end users to avail the benefits of the connecting remote India to urban facilities. However, the sample from Arunachal Pradesh and Nagaland rated pricing above 3. Rest rated it above 2.5, but below 3. While the scale of 1 to 5 indicates 1 as least and 5 as best, 2.5 is the optimum. Most of the sample end users have rated each component of service indicators above optimal. E-&M-Governance shall enhance the satisfaction in ticket booking to much higher score. At present samples from all state rate ticket booking above 3 and below 4. The quality of service is rated highly. The government

officials in charge of helicopter service at airport took utmost care in booking, issuing boarding pass, doing COVID clearances, transporting luggage and passengers from security check in to helicopter and repeating the same process at the time of de-boarding. There is a very high rating on the cleanliness of the helicopter by all the sampled end users. The overall rating by end users outweighs the individual components.

#### Input Use Efficiency

Input use efficiency, also known as the productivity ratio refers to the extra unit of output generated from an additional unit of input. This indicates as to how efficient the input (funds disbursed in the context of the scheme) was in terms of generating the required output (the beneficiaries covered). The efficiency of input use can be computed by taking a simple ratio of output to input. A higher input use efficiency ratio indicates that output is maximized without requiring more of any input values or use of input is minimized while satisfying at least the given output levels.

**Table 11: Input Use Efficiency of Flying Hours**

Year	Arunachal Pradesh	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura	Manipur	North-East
2016-17	11.007	2.806	13.292	7.131	10.048	3.542	0	8.232
2017-18	10.186	2.705	12.809	9.139	10.193	2.838	0	9.017
2018-19	10.779	3.155	12.126	6.440	8.3026	2.246	10.551	8.737
2019-20	10.466	1.712	11.373	7.770	10.370	2.013	13.002	9.102

Source: Author's Computation

In the Input-Use efficiency, Passengers are taken to be the output and the flying hours as input. Now, from 2016-17 to 2019-20, the overall efficiency in North Eastern region has seen a positive trend, although, it declined in 2018-19 due to a significant decline in the number of passengers in Nagaland and Sikkim despite a marginal decline in the input variable, i.e. number of flying hours.

### **Key-Bottlenecks & Challenges**

**Booking Mechanism for Helicopter Ride in North East:** There's no mechanism of booking a Helicopter ride online in North East and there's no surety that once the ticket is confirmed, helicopter will going to fly. Passenger has to come physically at the respective counters of the Helicopter Service provider for the booking of the tickets. But if booking of tickets become an online process, then people whose ticket got cancelled because of cancellation of Helicopter ride due to bad weather, which is a very frequent process in North East would not be prefer for helicopter ride on the next day, which is the case now. So, booking process of Helicopter ride will be a boon only if there's a certainty of helicopter ride. So, wherever there is a dedicated helicopter for a particular route likewise from Guwahati to Shillong, the certainty of helicopter ride is very high and for such routes, online process of booking tickets will definitely bring more transparency, efficiency, enhances the outreach and reduces the cost.

**Audit System:** It is observed that payment of excess subsidies have been made to state governments. These excess payments could have been avoided. The MHA may therefore take remedial measures by reviewing the adequacy of the internal control system in vogue and strengthen the system by introduction of an effective check in the accounting software to avoid such instance in future.

**Competitive Bidding Process:** State Government should follow the competitive bidding process through e-tender for hiring of helicopter operator or it can be done through Central Public Procurement portal of the MHA.

**Bill Payment Process:** The helicopter operators and the State Governments should reduce the in-ordinate delay in submission of bills. There should be submission of bills by the State Governments to the MHA every month to ensure smooth flow of budget allocation.

**Low Budget:** Reportedly all the states were of the opinion that allocated budget is less for smooth functioning of the scheme. Some states of NE even suggested for enhance the MHA share of subsidy to 90 per cent, which is the case with most of the centre-sector schemes.

**Volatile weather:** Weather is most volatile in North East Region for the most of the time of year. There is frequent cancellation of helicopter rides due to bad

weather. As a result sanctioned flying hours are not utilized and there is less number of passengers availing the schemes. Helicopter services providers are obliged to give preference to the passengers whose flights were cancelled on the previous day that's why new passengers would not be able to get the confirmed booking of tickets.

**No connectivity in rural areas:** Currently, helicopter routes are operational mostly in urban areas that too respective capitals of the states. There is a high demand from the rural population for extending the routes and services in unreached areas of North East.

**No Functioning on Sundays:** There is no functioning of helicopter services on any routes on Sundays in North East. However, most passengers demand the service on Sundays, being a holiday, so it's convenient for travel on that day. Functioning on Sunday will also lead to utilisation of sanctioned flying hours and increase in number of passengers.

### **Conclusion and Suggestions**

The Helicopter Services Scheme in North East was introduced during the financial year 1992-93 to provide connectivity to common passengers to remote areas in the region and with the rest of India at affordable cost and to evacuate people during natural calamities and medical emergencies. There is a positive relationship between increase in actual flying hours and number of passengers availing the services under the scheme. Number of end users has increased proportionately more than increase in flying hours. Utilization of flying hours, in such difficult terrain, and weather and restriction of defense flying zone is strongly dependent on more number of helicopters. As the sanction of number of helicopters and ceiling hours is decided by MHA, GoI, it's recommended to increase flying hours and helicopters in the states, which are performing reasonably well in ceiling hours use and flying number of passengers. The analysis of states revealed that most inaccessible states and places have performed best in the utilization of the services. E.g. Beneficiaries of Arunachal Pradesh, and Mizoram have immensely benefitted in proportion of passengers flown by the helicopter services.

The Governance and operation of the scheme at the state level is managed by the state government officials. The operator is solely responsible for technical part of the operation and maintenance of the flight. The end user services provided by Government officials, such as enquiry, seat reservation, payment for ticket etc. are done through manual record keeping. Enquiry and advance seat reservation can be done by mobile phone. It seems, there is not much advance ticket booking facilities for common passengers and the helicopter services can be assigned to Government officials in short notice. This

means that, common passengers can only get a chance at the last moment, if the helicopter is not diverted for government officials. Therefore, a transparency in the advance booking system needs to be in place. Online enquiry, booking, payment, AI based chatbots, telephonic call services assisted by interactive voice response (IVR) followed with resolution of the request by customer care representative for the entire NE under one platform can be useful for people planning travel in the entire NE business, adventure sports and tourism tours. Disclosure of available seats in every route should be available to the public online. A robust North East helicopter scheme management system should be developed for smooth and effective implementation of the scheme.

### Suggestion for improvement of scheme

**Increase in regional connectivity:** Most of the remote locations of the State are connected once or twice in a week. Frequency of services may be increased to some strategic locations.

**Evacuation during Natural Calamity:** Operational cost of requisition of the helicopters for evacuation of marooned people during the natural calamity as well as supply of relief materials due to disruption of road by natural calamity may be entitled under the Subsidy Scheme.

**Transportation during medical emergency:** Operational cost for requisition of the helicopters for evacuation of patients during medical emergency may be entitled under the Subsidy Scheme.

**Alteration in scheme from initial approved plan:** More subsidies fare should be charged from students who are commuting for academic reasons and belong to below poverty line and from senior citizens who are commuting for medical treatment and belongs to below poverty line.

**Improving the effectiveness and outreach of the scheme:** Booking of helicopter ride should be an online process, which will bring more transparency and enhance the outreach of the helicopter scheme.

**Infrastructure Gap:** Helicopter Booking Services are available either at airport or at helipads, which are located at a very distant places from the main city or habitation and travelling to the booking office in a hilly terrains is quite pain for the local commuters. So, online services will not only save time but also bring the transparency and helps in cost cutting. In most of the North East Region population in India do not prefer using digital transfer of funds, they still rely on the cash transaction system only and the reason behind this is the unavailability of Network for most parts of North East Region that's why digital modes of transactions like paytm, Google-Pay, Phone-Pe, Amazon-Pay, Samsung-

Pay, etc. do not have the reachability to this part of India. If the helicopter ride got cancelled due to some technical fault then the Helicopter operator has to compensate the passenger against the cancellation of ride. To enhance the coverage by adding some new locations like Dirang, Balem, Chambang, Deomali, Raga etc. to maximize the outreach of the services to meet the needs of the people.

**Encouraging tourism to the international border areas packages with Helicopter rides (Heli-Tourism):** North East Region has immense potential in the civil aviation sector and helicopters can boost tourism in this part of India like it is already been done in Uttarakhand with Char-Dham Yatra package with chopper rides, Jammu & Kashmir with Vaishno Devi Yatra package with chopper ride, etc.

**Boosting of Tourism at International Borders help in building infrastructure and last mile connectivity:** Boosting Tourism at the international borders will help in the last mile connectivity and building infrastructure. If India can boost such tourism towards its side at India-China border then the last mile connectivity is also possible and building of infrastructure at international borders will be encouraged and justifiable by Indian side. If there will be dedicated helicopter available for cities adjoining the international border likewise for Tawang, Arunachal Pradesh then there will be a considerable amount of tourists movement at India-China border as well, like we have at Wagha, India-Pakistan border, Punjab. And recently many celebrities from Indian film and television industry, politics and other parts also visited Tawang, Arunachal Pradesh but still there's no dedicated helicopter for connecting such cities, which are adjoining with international borders in North East Region.

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# PM SVANidhi Scheme: Sustainable Livelihood for Street Vendors

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## Abstract

There are about 1 crore street vendors and it accounts for 14 per cent of the total (non-agricultural) urban informal employment. The Ministry of Housing and Urban Affairs (MoHUA) launched a central sector scheme PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) in June 2020 amid the novel corona virus pandemic. For this scheme launched in the wake of the novel coronavirus pandemic, the Government of India has earmarked a stimulus package of Rs 5,000 crore for nearly 50 lakh vendors. Till April 2021, out of total 41.23 lakh loan applications received under the PM SVANidhi scheme, around 58 per cent (23.88 lakh) have been sanctioned and about 49 per cent (20.09 lakh) have actually been disbursed. There are only four states and three union territories which have completed more than 50 per cent of the disbursement target. Overall 40 per cent of the 50 lakh target has received the loans. There are some gaps in implementation of the scheme like creation of NPAs as the loans are collateral free.

**Keywords:** Street Vendors, Livelihood, PM SVANidhi, Covid-19, Urban, Labour, India

## Introduction

A street vendor is extensively characterized as an individual who offers goods available to be purchased to the general population without having a perpetual built-up structure from which to sell. It includes stationary (selling at pavements or public/private places) and mobile vendors. Street vending fluctuates in term of scale, timing, area, compensation, labor force, skill and types of products sold and services provided. It tends to be a full-time, part-time, seasonal or occasional occupation. It can be done by one individual yet can likewise be an establishment of a larger street business. It may be an approach for basic survival or part of a major business. But street vending has a prominent place in the urban supply chain, and provides inexpensive and convenient access to goods and services to all segments of the population including the poor. These hawkers sell locally established home-made items and agricultural products that would somehow be hard to market and are crucial for the economy. In addition, since they sell less expensive items, street vendors cater for the urban poor.

Street vendors are workers that have always existed and are growing worldwide, both due to the generalized rural mass migration of low skilled workers towards urban areas, as well as global economic crisis and the lack of employment opportunities. Others, however, bring up that there is very little information on street vendors, and contend that it is difficult to discover if their numbers are growing faster than would be represented normally by urban population growth. The street vendors face a complex coexistence of persecution, regulation, tolerance and promotion.

In India, there are about 1 crore street vendors and the sudden spread of the covid-19 pandemic has caused distressing uncertainties and has only worsened their existing conditions. In order to provide relief to these street vendors, the Government of India launched PMSVANidhi scheme and provided a microcredit facility to vendors in the states which have notified rules and scheme under Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014.

The paper has been organized as follows: section I summarizes the international scenario of street vending,



section II whereas reviews the street vending in India and the policies, rules therein. Section III gives brief about the PMSVANidhi scheme introduced by GoI for street vendors in the wake of coronavirus and section IV analyzes the status of PMSVANidhi scheme with respect to the targets set therein. Section V provides the concluding suggestions.

### **International Scenario**

There are no labour norms at the international level dealing with street vendors. The way in which street vending is dealt at the domestic level differs drastically from country to country. Many countries regulate it by laying a clear legal framework and jurisdictional mandate, while others have overlapping jurisdictional mandate, which create uncertainty and conflict, and in some countries street vending is still considered as illegal.

In all the countries of Asia, there is considerable base of low-skilled rural migrants in urban centres. These are more common in the developing nations like India, Bangladesh, Nepal, Cambodia and Vietnam. These nations lacked in solid industrial base and in the past as well, the urban labour force was engaged primarily in the informal sector. Entry and exit into this kind of business is easy as it does not need high abilities and the capital involved is low as found in Bangladesh, Nepal, Vietnam and Cambodia. It has been observed that despite the number of street vendors has gone up generously in the Asian Tigers - Thailand, Singapore, Malaysia, Philippines, Korea, the government of these nations have refused to recognize street vending as legal activity. Further, most of the street vendors in Asia are not unionized and the larger, mainstream, associations are not keen on bringing these vendors into their premise. Indeed, largely the issues of the street vendors are identified with their absence of unionization. In fact, just two nations in Asia have federations or alliances of street vendors, these are Korea and India. The two nations, nonetheless, are contrasts in their policies. The Korean government appears unduly brutal on hawkers as it has left no means to oust them, while in India the National Alliance of Street Vendors of India (NASVI) has been a successful organization. It has been able to intervene at the central level and at local levels in some cases to initiate policy dialogues with the concerned authorities. Its most prominent achievement has been the initiation of the national policy.

In some of the Latin American countries like Chile and Colombia, there exists a relatively clear legal system that facilitates the implementation of and compliance with written law. At the other end, countries like Peru and Venezuela have legal framework that do not effectively

and easily accommodate them. Therefore, a legitimate system with clear jurisdictional mandate might create an effective working condition, especially security of workspace for the hawkers. The International Labour Organization (ILO) has suggested the need to secure street vendors and to regulate public spaces.

From Africa, there were just two striking instances of inclusive practices revealed in the media. First, in Liberia, the street vendors coordinated and voiced their interests to Monrovia City Corporation and set up the Federation of Petty Traders and Informal Workers Union of Liberia (FEPTIWUL) in September 2018. They got *savoir faire* with their negotiation abilities; gained the admiration of authorities. In 2018, FEPTIWUL worked with the municipality to devise a spearheading approach that incorporates street trade as a component of the city's future. Second, in Kenya, the Draft Protection to Livelihood and Regulation of Street Vending Bill vows to provide licence to street vendors, livelihood rights and social security and safeguarding them from the inhuman treatment by the police.

In Europe, hawkers are mostly migrants from Africa and they often risk their lives to enter Europe. Initially many find getting employed as incredibly challenging, regardless of whether they have official documents. At last they have no choice but to run their own business which is mostly selling goods on streets. Sellers in Spain work in a combative legislative environment. The 2015 change of the public security law recriminalized vending on the streets. Vendors face seizures and fines of in any event €500 (around INR 44,000), and a potential jail term of somewhere in the range of six months and two years.

### **Street Vendors in India**

In India, there are about 1 crore street vendors<sup>1</sup>, mainly spread in Delhi, Mumbai, Kolkata, and Ahmedabad. The majority of them are labourers who work an average of 10–12 hours a day. In different areas/contexts, they are known as vendors, hawkers, thelewala, rehriwala, theliphadwala, and so on. Vegetables, breads, fruits, pakodas, ready-to-eat street food, tea, eggs, footwear, clothing, textiles, artisan products, books/stationery, and so on are among the items they supply. Barbershops, cobblers, pan shops, laundry facilities, and other services are available. They play a crucial role in ensuring accessibility of goods and services at reasonable rates at the consumer's doorsteps.

As per the government figures, street vending accounts for 14% of total (non-agricultural) urban informal employment and every street entrepreneur or trader supports an average of three others as employees or partners or workers on commission. It is a parallel economy of an estimated daily turnover of Rs.80 crore.

India is one of the few countries in the world to have a national policy for urban street vendors. The National Policy on Urban Street Vendors was enacted in 2004 with the objective of providing and promoting supportive environment for earning livelihoods to the Street vendors, as well as ensures absence of congestion and maintenance of hygiene in public spaces and streets.

In September 2013, Ministry of Housing & Urban Poverty Alleviation (MoHUPA) introduced operational guidelines for Support to Urban Street Vendors (SUSV) under the National Urban Livelihoods Mission (NULM). These guidelines were revised in July 2018 after renaming, both the ministry as well as the scheme, to Ministry of Housing & Urban Affairs (MoHUA) and Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM), respectively.

The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014 was enacted to regulate street vendors in public areas and protect their rights. The Act calls for the establishment of Town Vending Committees in various districts to ensure that all street vendors identified by the government are accommodated in vending zones subject to norms. However, the Act's enforcement has been inconsistent. In the absence of any legal framework in place, street vendors continue to have to fend for themselves.

### **Problems faced by Street Vendors in India**

Street vendors in India face numerous challenges like the lack of education, social security, irregularity in income, lack of space and infrastructure, easy displacement, harassment and abuse by civic authorities. They often lack access to capital, face market competition and price fluctuations, and continue to be excluded from critical decisions on urban space management. Further, even after the Supreme Court of India ruling in 1989 that street vendors had the right to vend and that streets were not only "meant exclusively for passing and re-passing and no other use", there are several incidents of violation of right to vend. In August 2018, in Ahmedabad, Gujarat, for example, a razing team demolished about 5,000 street vendors and 19500 structures while the municipal corporation, as per the 2014 Act, was doing the census for street vendors. In Delhi, a Special Task Force created to deal with premises not conforming to the 2021 Delhi Master Plan has been regularly evicting vendors throughout the city. There are also cases where the implementation of the 2014, Act may well lead to a reduction in the number of vendors, for example in Mumbai and Chandigarh.

Licence quotas are impractical in most cities, such as Mumbai, which has a limit of about 15,000 licences compared to an estimated 2.5 lakh vendors. As a result,

the majority of vendors sell their wares illegally, leaving them vulnerable to exploitation and extortion by local police and municipal officials.

Vendor organizations in India are rapidly seeking redress through the courts. Notably, the Supreme Court of India ruled that state governments must publish their rules governing street vendors. However, not all rulings favour vendors. For example, in November 2018, the Punjab and Haryana High Court directed the director general of police to remove all illegal businesses from footpaths.

Furthermore, street vending is very difficult to administer as vendors move frequently depending on events in a city, the weather, customers' location, the time of day, etc. Solutions such as the establishment of off-street markets, for example, may fail because consumers do not often follow the vendors, who are then quickly replaced by new vendors in their previous location. Street vending is generally administered at local level, implying that the rules/ policies will change with the change in the local government. This further adds to the vulnerability of the vendors.

### **Covid-19 and the Street Vendors in India**

The Covid-19 induced lockdown exacerbated the problem for street vendors all over the world. India had one of the stringent lockdown which had adversely impacted the livelihoods of street vendors. The nature of their work is such that vendors have to be mobile or set their shop at crowded market place to attract customers, the lockdown however, left many of them without work. They are daily earners and have thin savings for the difficult time which they have dried up during the lockdown. They were financially crushed, had to take a loan to cover their daily expenses and were no in position to repay the loan. Also, majority of street vendors do not have identity cards or any government documents to avail benefits of government's subsidy scheme or free ratio facilities.

Further, 30% of vending population is women which are mostly found in weekly haats or street side or footpath stalls. A study on women street vendors in Delhi<sup>2</sup> found that they have lost their sources of income completely, with 97.14% of the respondents claiming that they had been affected by the lockdown unfavorably.

Given such scenarios and circumstances, the sector was required a push to start again once the lockdown was lifted and economic activities resumed. In this view, Pradhan Mantri Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) was introduced to provide credit for working capital to street vendors to resume their businesses. Out of the seven components of Support to

Urban Street Vendors (SUSV) under DAY-NULM, one of the component deals with access to credit for street vendors. PM SVANidhi had its own significance as it was de-linked from existing registration requirements.

### Pradhan Mantri Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi)

The PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) is a central sector scheme, which was launched by Ministry of Housing and Urban Affairs (MoHUA) in June 2020 amid the pandemic. Under the scheme, the centre has earmarked a stimulus package of Rs 5,000 crore for nearly 50 lakh vendors. It is a micro-credit facility that provides street vendors a collateral-free loan of Rs 10,000 at concessional rates of an estimated 7.25% for a period of one year. It aims at aiding the vendors at getting back on their feet financially. In the long run the scheme would not only ascertain the credit score of the vendors but would also keep digital records of their socio-economic status to help them avail the benefits of future central sector schemes. The scheme also intends to institutionalize this informal sector of the economy by providing them with safety nets and the ability to obtain loans in the future. The scheme is valid until March 2022.

Small Industries Development Bank of India (SIDBI) will be the implementation partner of the MoHUA for scheme administration. SIDBI will leverage the network of lending institutions including the SCBs, RRBs, SFBs, Cooperative Banks, NBFCs & MFIs for scheme implementation.

The Scheme is to be implemented in those states/ UTs only which have notified both rules and schemes under Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014. However, the beneficiaries from Meghalaya, which has its own State Street Vendors Act, may participate.

According to a study by Centre for Civil Society<sup>3</sup>, as of March 2020, 21 states only have notified both rules and schemes which are the first two steps towards implementing the Act and only two states (Andhra Pradesh and Chhattisgarh) have demarcated vending zones, the last step in implementation of the Act. However, with the introduction of PMSVANidhi scheme in June 2020, about 28 States and seven UTs have notified both rules and scheme (as on 6<sup>th</sup> April, 2021).

The Scheme is available to all street vendors engaged in vending in urban areas as on or before March 24, 2020 and is valid till March 2022. The eligible vendors will be identified as per following criteria:

- (i) Street vendors in possession of Certificate of Vending / Identity Card issued by Urban Local Bodies (ULBs);

- (ii) The vendors, who have been identified in the survey but have not been issued Certificate of Vending / Identity Card;

Provisional Certificate of Vending would be generated for such vendors through an IT based platform. ULBs are encouraged to issue such vendors the permanent Certificate of Vending and Identification Card immediately and positively within a period of one month.

- (iii) Street Vendors, left out of the ULB led identification survey or who have started vending after completion of the survey and have been issued Letter of Recommendation (LoR) to that effect by the ULB / Town Vending Committee (TVC); and

- (iv) The vendors of surrounding development/ peri-urban / rural areas vending in the geographical limits of the ULBs and have been issued Letter of Recommendation (LoR) to that effect by the ULB / TVC.

Vendors left out of the identification survey conducted by Urban Local Body (ULB) may apply through the PM SVANidhi portal. ULB has to complete the verification and issue LoR within 15 days of submission of the application.

### Committees for Steering & Monitoring of the Scheme

The Scheme has the following management structure at the Central, State/UT and ULB level for effective implementation and monitoring:

- a) At Central level - a Steering Committee under the chairmanship of Secretary, HUA;
- b) At State/ UT level - a Monitoring Committee under the chairmanship of Principal Secretary/Secretary of Urban Development/ Municipal Administration, which shall meet at least every three months.
- c) At ULB level - a Committee headed by the Municipal Commissioner/ Executive Officer (EO) and supported by the Town Vending Committee to sponsor loan applications and monitor implementation of the scheme. This committee will meet every month.

### Benefits of the scheme

- (i). **Interest Subsidy:** On timely/early repayment of the loan, an interest subsidy of 7% per annum will be credited to the bank accounts of beneficiaries through direct benefit transfer on a six monthly basis.
- (ii). **Escalation of credit limits:** The scheme provides for the rise of the credit limit on timely/ early repayment of loans i.e. if a street vendor repays the installments



on time or earlier, he or she can develop his or her credit score that makes him/her eligible for a higher amount of term loan such as Rs. 20,000.

- (iii). **Encourage digital transactions:** The scheme incentivises digital transactions by the street vendors through monthly cash back of upto Rs. 100.
- (iv). **Focus on capacity building:** MoHUA in collaboration with State Governments also aims at capacity building and financial literacy programme for all the stakeholders like Business Correspondents (BCs)/ Agents of lending institutions like banks/ NBFCs/ MFIs, SHGs/ federations, implementing bodies like ULBs/ Town Vending Committees (TVCs) and digital payment aggregators (like NPCI) to ensure effective delivery of Scheme.

**Information, Education and Communication (IEC) Activities**

- a) **E-governance:** In congruence with the vision of leveraging technology to ensure effective delivery and transparency, a digital platform with web portal/ mobile app is being developed to administer the scheme with end-to-end solution.

This platform will integrate the web portal/ mobile app with UdyamiMitra portal of SIDBI for credit management and PAiSA portal of MoHUA to administer interest subsidy automatically. It will help in integrating the vendors into the formal financial system.

- b) **Branding and Communication:** Branding is an important aspect of communicating the scheme accurately to different stakeholders, especially to the target beneficiaries. For this, various vehicles

of communications have been used like publicity through outdoor media, a dedicated website for the scheme, social media handles, films, digital advertisements, newspaper advertisements, printed collaterals, radio jingles, sharing of success stories, etc. In this, States/ UTs are also expected to adopt/ use the best possible mediums of communications addressing aspects such as cost effectiveness, innovativeness and engagement of the target group.

**Status of the scheme**

Till April 2021, out of total 41.23 lakh loan applications received under the PM SVANidhi scheme, around 58 per cent (23.88 lakh) have been sanctioned and about 49 per cent (20.09 lakh) have actually been disbursed. After completion of almost a year of the scheme, about 40 per cent of the 50 lakh target has actually got loan. The total sanctioned and disbursed amount by the banks to the vendors is Rs. 2381.85 crore and Rs. 1988.19 crore, respectively. A look at government data discloses a stark contrast among the large states (Table 1), where, West Bengal is at the bottom, with less than 15 per cent beneficiaries (only 2125 of 14006 applicants received loans) and Telangana has the highest percentage of disbursement, i.e. 67 per cent (304,889 of 453,921 applicants received loans). Among the best performing hilly and north eastern states, Manipur, Himachal Pradesh and Uttarakhand have completed 35-40 per cent of the disbursement target. In case of Union Territories, Andaman & Nicobar Islands, Ladakh and Jammu & Kashmir have completed more than 70 per cent of their disbursement target. But UTs like Puducherry and Chandigarh have not reached even 15 per cent of their disbursement target.

**Table 1: State-wise status of the PM SVANidhi Scheme**

(Till April, 2021)

States	Applications	Sanctioned	Disbursed	Disbursement Target	Disbursement Target Completed (%)
Telangana	453,921	351,152	304,889	381,000	80.02
Uttar Pradesh	1,047,946	621,544	556,562	800,000	69.57
Madhya Pradesh	476,613	340,562	310,426	452,000	68.68
Karnataka	239,720	125,869	104,058	185,000	56.25
Andhra Pradesh	214,325	127,313	110,630	255,000	43.38
Chhattisgarh	94,817	42,492	39,128	100,000	39.13
Tamil Nadu	283,736	125,786	82,465	262,000	31.48
Jharkhand	43,475	23,377	21,477	75,000	28.64
Rajasthan	143,277	63,407	48,043	170,000	28.26

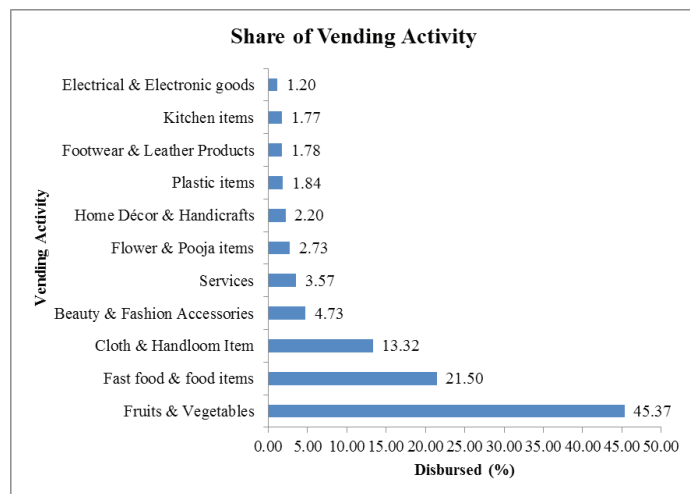


**PM SVANidhi Scheme: Sustainable Livelihood for Street Vendors**

Gujarat	216,632	117,925	101,396	375,000	27.04
Odisha	57,202	31,912	26,406	105,000	25.15
Punjab	98,377	33,740	24,980	110,000	22.71
Maharashtra	411,138	202,055	141,603	650,000	21.79
Bihar	97,903	43,800	26,212	150,000	17.47
Haryana	44,173	19,847	16,274	130,000	12.52
Kerala	11,850	8,148	7,726	120,000	6.44
West Bengal	14,006	7,235	2,125	360,000	0.59

Source: PM SVANidhi Dashboard

On an average it takes about 20 days to sanction the loan and the average age of the applicant is 41 years. Out of the total applicants about 40 per cent are women vendors and 60 per cent are male vendors. Figure 1 shows the share of disbursed percentage amount under different vending activities. Fruits and vegetable sellers are the largest borrower category (about 45%), followed by fast food and food items (about 22%); and cloth and handloom products (about 13%).



**Figure 1: Share of Vending Activity**

Source: PM SVANidhi Dashboard

SBI is the largest lender under the scheme, followed by Union Bank of India, Bank of Baroda and Bank of India. The participation of private banks has been marginal.

**Problems in Implementation of the Scheme**

As per the guidelines, Urban Local Bodies (ULBs) and Town Vending Committees (TVCs) are responsible for identifying eligible borrowers and issue Certificate of Vending, Identity Card and Letter of Recommendation to them. ULBs and TVCs verify the borrowers' details, after which the application moves to the concerned lending institution for loan sanctions. Therefore, banks give loan to urban street vendors on the recommendation of

ULBs/TVCs. Despite the interest subvention of seven per cent and verification of the vendors by local authorities, many borrowers did not submit a single installment, resulting in NPAs.<sup>4</sup> As loans under the scheme have no collateral, banks typically have no recourse in case of default. So, the banks, as pointed out by SBI officials, need cooperation of municipal authorities in recovery of NPA loan accounts.

The performance of private banks has been dissatisfactory as they have shown limited participation and disbursement of loans. Also, it was observed that some banks accept applications on stamp papers worth between Rs. 100 and Rs. 500. Additionally, there have been occasions of banks looking for PAN cards and checking the CIBIL or Credit score of candidates or state authorities asking for voter ID cards, which most of the migrant vendors do not carry with them. There were also complaint of harassment by police and municipal authorities.

**Section V: Conclusion and Suggestions**

The Covid-19 induced lockdown exacerbated the problem for street vendors all over the world. India had one of the stringent lockdown which had adversely impacted the livelihoods of street vendors. They usually work with a small capital base and might have consumed the same during the lockdown. Therefore, there was an urgent need to provide credit for working capital to street vendors to resume their business after lockdown was removed and economic activities began. The PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) is a central sector scheme, which was launched by Ministry of Housing and Urban Affairs (MoHUA) in June 2020 amid the pandemic. For this scheme launched in the wake of the novel coronavirus pandemic, the Centre has earmarked a stimulus package of Rs 5,000 crore for nearly 50 lakh vendors. As on 6<sup>th</sup> April 2021, out of total 41.23 lakh loan applications received under the PM SVANidhi scheme, around 58 per cent (23.88 lakh) have been sanctioned and about 49 per cent (20.09 lakh)

have actually been disbursed. There are only four states and three union territories which have completed more than 50 per cent of the disbursement target. This implies that the ULBs and TVCs must take the front seat and try to identify the potential vendors in order to achieve the target, especially in states like West Bengal, Kerala, Haryana, Bihar, Maharashtra, Punjab, Goa, Meghalaya, Mizoram, Assam and Nagaland, and UTs like Puducherry, Chandigarh and Delhi. At the same time they should also be cautious in lending loans to potential defaulters, so that it should not create a problem of NPAs for the banks.

It is important that the vending zones are reinvented in the wake of pandemic keeping both the given vulnerabilities of workplace of vendors and the concerns of the consumers in mind. Also, vendors who deal in cooked food, too, need to be given training on hygiene and social distancing norms. TVCs and vendor organizations can be very significant in such market reorganization and training, respectively. The National Association of Street Vendors of India (NASVI), for example, is working to provide hygiene and social distancing training to cooked food vendors<sup>5</sup>.

In order to promote more job opportunities and income, the government can promote vending in shifts keeping in view the allocation of specific areas and days for different types of vendors.

Civil society organizations can help the government identify the same. For example, vendors selling different sorts of goods can work in shifts. Fresh and cooked food vendors can operate during periods of high foot traffic when people are on their way home and stop to buy vegetables. The government also needs to alleviate concerns of consumers around hygiene by providing for hand-washing stations or sanitizers for vendors. Further, the International Labour Organization (ILO) stands upon the following points for the long term benefit of the street vendors.

### Regulating Public Spaces

Public places need to be legally secured to facilitate stable and improved work environment. It becomes irrelevant for the street vendors to have access to credit and training if their entitlement to sell in the streets or at a specific public area has not been secured. It is been observed that mostly the guidelines concerning the utilization of public space is unclear or conflicting. Moreover, this is emphasized by the way that municipal governments may try different things with different ways for implementing the contradictory national and metropolitan level laws. There may even be competing claims with respect to

which authority controls public spaces (for example municipal authority vs. local authority).

### Need for the organization of street vendors

The association of street vendors is vital to increase their bargaining power. These street vendor organizations need to have a strong base in order to engage in negotiations with municipalities. These organizations can also be a welfare association and deals with the community of that area. In some instances, area-based management may also be advisable in order to facilitate communication between street vendors and the local authorities.

### Need to disseminate information on regulatory changes

Publicity of new laws, policies and regulations needs to be brought to the notice of street vendors. This can be done by publishing and distributing the information in papers or pamphlets to the street vendors, communicating through radio broadcasts, or bringing them to the consideration of NGOs or trade unions working with street vendors.

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# Revisiting the Simple Time Series Methods for Forecasting on the Domestic Sales of the Indian Automobile Industry

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## Abstract

*In the forecasting literature, it has been observed that simple techniques can be employed unless there is a strong case for complexity in the historical data. This paper studies the annual trends and patterns in the domestic sales of the four main segments of the Indian automobile industry namely the passenger vehicles, commercial vehicles, three-wheelers and two wheelers in the last two decades from 2001-02 to 2020-21 in which the benefits of opening the economy after the reforms of 1991 seemed to be realised with an investment in equity, technology transfer and managerial skills that would reflect the reliable prediction for the year of 2021-22. The data was obtained from the secondary source mainly from the Society of Indian Automobile Manufacturers' (SIAM) database. The forecasting methods comprising of regression linear trend, Simple Moving Averages (SMA), Weighted Moving Averages (WMA), Brown's Exponential Smoothing (ES), and Holt's Double Exponential Smoothing (DES) have been used for the time series based on annual data and these techniques are evaluated on the basis of Mean Absolute Deviation (MAD), Mean Absolute Percentage Deviation (MAPD), Root Mean Square Error (RMSE) from Mean Square Error (MSE). It was observed that out of all the methods Holt's DES was carrying the least MAPD for the passenger vehicles, for the commercial vehicles and three wheelers and for two-wheelers, MAD was minimum with DES in the passenger vehicles, for the commercial vehicles and for two-wheelers but not in three wheelers segment, and RMSE value was minimum for ES method in commercial vehicle, three wheelers and two wheelers' forecast estimates for the passenger vehicles, for the commercial vehicles and three wheelers and for two-wheelers.*

**Keywords:** Indian Automobile Industry, Domestic Sales, Forecasting.

## Introduction

*"We really can't forecast all that well, and yet we pretend that we can, but we really can't."*

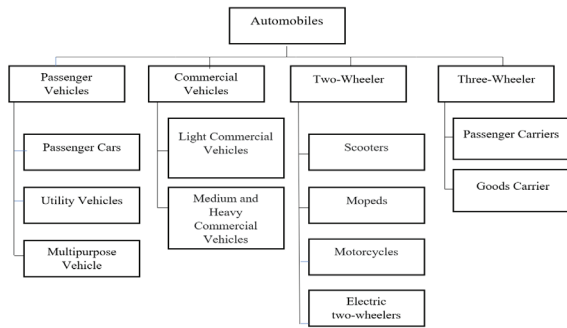
-Alan Greenspan

(American Economist)

In simple words, forecasting can be regarded as the statistical technique undertaken to predict the direction of the future values of a variable given its historical data. Armstrong (1985) divided the forecasting process into a number of stages comprising formulation of the

forecasting problem, choice of method, application of method, comparison and combination of forecasts, assessment of uncertainty in forecasts, adjustment of forecasts, and evaluation of forecasts. The annual data on the automobile industry since the last two decades provides us with the exact data required for this study to and it is used for the transportation of passengers and goods on the ground and comprises of four major segments in Original Equipment Manufacturers (OEMs), engaged in vehicle manufacturing or assembling of all components into an automobile.



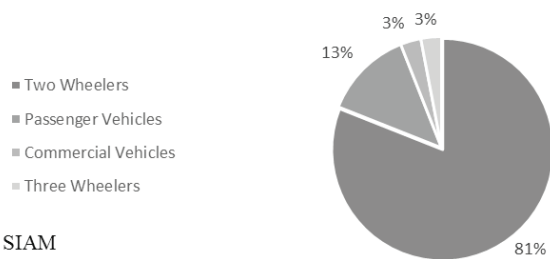


Sources: SIAM

**Figure 1 Structure of OEMs in the Indian Automobile Sector**

Source: SIAM

As shown in Figure 1 with i) Passenger vehicles including Cars, Utility Vehicle and Multipurpose vehicles, ii) Commercial vehicles that include a) Light Commercial Vehicles and b) Medium and Heavy Commercial Vehicles, iii) Two-Wheeler comprising of Scooters, Mopeds and Motorcycles and Electric Two-Wheelers; and (iv) Three-Wheeler including Passenger Carriers & Goods Carrier. SIAM has released the data for the year 2020-21 on the domestic market share of each of the individual segments of the automobile sector. The passenger vehicle holds 13% of the total market share for the time period of 2020-21 and commercial vehicles and the three-wheelers are at the tie at an equal domestic market share of 3% each. As depicted in the Figure 1.2 pie diagram representation on the market share data by SIAM, it is the two-wheeler segment that has the dominant position holder of the domestic automobile industry with 81% of the market share in the year 2020-21.



Source: SIAM

**Figure 2 Domestic Market share of various segments for the year 2020-21 (in percentage).**

Along these lines, the simple time series-based methods of forecasting to get the idea of the current situation in the domestic sales would contribute to understand the extent to which the various segments in the automobile industry could efficiently operate in the year 2021-22. The onset of the global pandemic from December 2019 in China led to worldwide lockdowns and disrupted the production process. With the national lockdown in India

since March 2020, the Indian automobile had witnessed a discernible slowdown and some really worrying expectations reflected in the domestic sales of the main segments of the automobile industry with respect to the year 2021-2022. This calls for the following objectives: -

**Objectives of the Study**

- To analyse the trends and patterns of the domestic sales with regression-based trend analysis.
- To analyse the trends and patterns of the domestic sales with Simple Moving Averages (SMA), Weighted Moving Averages (WMA), Brown’s Exponential Smoothing (ES) and Holt’s Double Exponential Smoothing (DES).
- To compare the domestic sales for the year 2021-22 on the basis of Mean Absolute Deviation (MAD), Mean Absolute Percentage Deviation (MAPD), Mean Square Error (MSE) and Root Mean Square Error (RMSE).

**Review of the Literature**

Kharina et al. (2021) compared the forecasting techniques of trend moment and double moving averages with MAD, based tracking signal and moving range and found a difference between the actual data and forecasting results is not too significant. In the case of dengue haemorrhagic fever patients in Indonesia. Febrian et al. (2020) took double moving average and double exponential smoothing methods of forecasting and compared the values with the help of MAD, MAPE and MSE to assess the number of foreign tourists in Northern Sumatra. It was found that Holt’s DES produced minimum MAPE values. According to Saha and Sinha (2020) Holt’s exponential smoothing method shows good forecasting performance in the absence of seasonal or cyclical variations listed the number of agricultural studies that made use of Holt’s linear trend method and concluded that this method shows good forecasting performance in the absence of seasonal or cyclical variation. Beevi et al. (2019) compared the simple forecasting methods in the case of stock market totality such as DES and ARIMA in the case of stock market volatility with the help of MSE, MAD and MAPE. Ivanovski et al. (2018) tried to predict tourist trends in Macedonia using a moving average model for extrapolation on monthly data moving average model provided accurate forecasting for the number of tourist guests in 2017. Kolkova (2018) also depended on SMA and the ES as the forecast techniques while giving more preference to the technique with lower MAPE. Karmarker (2017) made a comparison between eight different forecasting techniques on the basis of least value of MAD, MSE and MAPE in case of jute your demand. Ravinder (2013) compared simple methods of

forecasting simulated random data generated on MS Excel with ES and DES through the minimum value of MAD and MSE.

**Research Methodology**

This study is mainly time series based that analysed the trends and patterns of the domestic sales for various segments of the Indian automobile sector from 2001-02 to 2020-21 and predict the values for the 2021-22 based on simple moving averages, weighted moving averages and exponential smoothing and double exponential smoothing having the smallest MAE, MAPE, and mean MSE value and with regression-based trend. In this study, secondary data of domestic sales is compiled from various SIAM's Annual Reports from April-March, 2001-02 to April-March, 2020-21 on the annual basis. For the purpose of calculations, MS -Excel (where the values of alpha and beta are estimated with solver) and Stata software have been used.

**Annual Growth Rae (Percentage Change)**

$$\text{Annual Growth Rate} = (\text{Final Value}/\text{Initial Value})-1$$

**Average Annual Growth Rate (AAGR)**

$$\text{Average Annual Growth Rate} = \sum_{i=1}^N \text{Average Growth Rate} / N$$

where N is the number of years.

**Compound Annual Growth Rate (CAGR)**

$$\text{Compound Annual Growth Rate} = (\text{Final Value}/\text{Initial Value})^{(1/N)}-1$$

where N is the number of years.

Since the 20-year period has the ability to reflect on the general tendency of the data for the domestic sales data for various segments is being characterized by a rising movement throughout the same time period. Therefore, its analysis called for the following time series techniques: -

**Linear Regression based Trend**

The trend line is fitted into the data represented by the regression of the time variable as the independent variable and the forecast values as the dependent variable

$$F_i = a + b \text{time}_i$$

where a= intercept when time=0 and b is the slope of the trend line satisfying the conditions that

$$\sum_{i=1}^n (D_i - F_i) = 0 \text{ and } \sum_{i=1}^n (D_i - F_i)^2 \text{ and is minimum.}$$

**Simple Moving Average**

A simple moving average (3 yearly) of order N (here N=3) is simply the arithmetic average of the most recent N observations

$$F_i = (1/N) \sum_{i=t-N}^{t-1} D_i$$

**Weighted Moving Average**

In Simple Moving Average Forecast assigned equal weights to the previous three values but in **weighted moving average** different *m* weights i.e.  $W_1, \dots, W_m$  are assigned such that  $W_1 + \dots + W_m = 1$  to

$$F_i = w_m D_{i-m} + \dots + w_1 D_{i-1}$$

**Exponential Smoothing**

The current forecast ( $F_t$ ) is the weighted average of the last forecast value ( $F_{t-1}$ ) and the current actual value ( $D_{t-1}$ ),

$$F_t = \alpha D_{t-1} + (1-\alpha)F_{t-1}$$

where  $0 < \alpha \leq 1$  is the smoothing constant, which determines the relative weight placed on the current observation of actual value and  $(1-\alpha)$  is the weight placed on past observations of forecast value.

**Holt's Double Exponential Smoothing**

Holt's method is a type of double exponential smoothing especially for time series with linear trend having two smoothing constants,  $\alpha$  and  $\beta$  where  $\beta \leq \alpha$ , and two smoothing equations; -

- i) for the value of the intercept  $S_t$  at time t

$$S_t = \alpha D_t + (1-\alpha)(S_{t-1} - G_{t-1})$$

and for the value of the slope at time t

$$G_t = \beta(S_t - S_{t-1}) + (1-\beta)G_{t-1}$$

The  $\tau$ -step-ahead forecast made in period *t*, which is denoted by  $F_{t,t+\tau}$  is given by

$$F_{t,t+\tau} = S_t + \tau G_t$$

For the evaluation of the forecast value let  $e_i = e_1, e_2, \dots, e_t$  be the error terms that is the difference between the actual values  $D_i = D_1, D_2, \dots, D_t$  and the forecast values  $F_i = F_1, F_2, \dots, F_t$  observed over t periods of the time series i.e.  $e_i = F_t - D_t$  then,

**MAD**

The Mean Absolute Deviation is the average of the sum of the error terms as the difference between the actual values from the mean. Symbolically, it is expressed as

$$\text{MAD} = \left(\frac{1}{n}\right) \sum_{i=1}^n |e_i|$$

**MAPD**

The Mean Absolute Percentage Deviation (MAPD) measures the average absolute error as a percentage of the average value of the absolute error rate of the actual data period.

$$MAPE = \left(\frac{1}{n}\right) \left[\sum_{i=1}^n |e_i / D_i|\right] \times 100$$

**MSE and RMSE**

Mean Square Error can be defined as the averaged sum of squared difference between the actual values and the forecast values and the square root of MSE generates root mean square error.

$$MSE = \left(\frac{1}{n}\right) \sum_{i=1}^n e_i^2; \text{ whereas RMSE} = \sqrt{MSE}$$

**Data Analysis and Interpretation**

In table 1, the percentage change (the annual growth rate) in the domestic sales tend to be negative in the year 2013-14 and 2018-2021 for the passenger vehicles that also show the largest compound annual growth rate (CAGR) of 7.20% and the annual average growth rate (Annual Average Growth Rate) of 7.80 % over the 20 years of time period with a major change being witnessed in 2010-11. With three-wheeler segment the least change (0.38%) in the

Table 1 Domestic sales for the Passenger Vehicle, Commercial Vehicles, Three-Wheeler and Two-Wheeler segments from 2001-2002 to 2020-2021. (in numbers).

Segments	Passenger Vehicles		Commercial Vehicles		Three Wheelers		Two Wheelers	
	Domestic Sales	Percentage Change	Domestic Sales	Percentage Change	Domestic Sales	Percentage Change	Domestic Sales	Percentage Change
2001-02	675116		146671		200276		4,203,725	
2002-03	707198	4.752072236	190682	30.0066134	231529	15.6049651	4,812,126	14.4729
2003-04	902096	27.55918427	260114	36.4124563	284078	22.6965089	5,364,249	11.47358
2004-05	1061572	17.67838456	318430	22.4194007	307862	8.37234844	6,209,765	15.76206
2005-06	1143076	7.677670474	351041	10.2411833	359920	16.9095244	7,052,391	13.56937
2006-07	1379979	20.72504365	467765	33.2508169	403910	12.2221605	7,872,334	11.62645
2007-08	1549882	12.31199895	490494	4.85906385	364781	-9.6875542	7,249,278	-7.9145
2008-09	1552703	0.182013857	384194	-21.672029	349727	-4.1268597	7,437,619	2.598066
2009-10	1951333	25.6732936	532721	38.6593752	440392	25.9245068	9,370,951	25.99396
2010-11	2501542	28.19657127	684905	28.5672988	526024	19.4444949	13,435,769	43.37679
2011-12	2629839	5.128716608	809499	18.191428	513281	-2.422513	13,409,150	-0.19812
2012-13	2665015	1.337572376	793211	-2.0121087	538290	4.87237985	13,797,185	2.893808
2013-14	2503509	-6.060228554	632851	-20.216563	480085	-10.812945	14,806,778	7.317384
2014-15	2601236	3.903600906	614948	-2.8289439	532626	10.9441036	15,975,561	7.893567
2015-16	2789208	7.226257056	685704	11.5060135	538208	1.04801493	16,455,851	3.006405
2016-17	3047582	9.263346441	714082	4.13852041	511879	-4.8919748	17,589,738	6.890479
2017-18	3288581	7.907875818	856916	20.0024647	635698	24.189115	20,200,117	14.84035
2018-19	3377389	2.70049605	1007311	17.5507284	701005	10.2732744	21,179,847	4.85012
2019-20	2773519	-17.8797882	717593	-28.761524	637065	-9.1211903	17,416,432	-17.7688
2020-21	2711457	-2.237662695	568559	-20.768597	216197	-66.063588	15,119,387	-13.189
<b>AAGR</b>		<b>7.802320934</b>		<b>8.97727989</b>		<b>3.44077746</b>		<b>7.374744</b>
<b>CAGR</b>		<b>7.20%</b>		<b>7.01%</b>		<b>0.38%</b>		<b>6.61%</b>

Source: Compiled and computed by Author on the basis of various Annual Reports of SIAM.



CAGR and AAGR (3.44%) can be observed over the 20 years in domestic sales which were. showing a degrowth in the years of 2007-2009 following the Automotive Mission Plan (2006), then in 2011-2014; where spiralling inflation, interest rate and rapid rise in the petrol prices took its toll on the overall sentiments in the domestic market; then in 2016-17 marked by second Automotive Mission Plan (2016) and then from 2019-2021 marked by number of events such as demonetization, new emission norms and lockdown due to COVID-19; although sales achieved maximum growth rate in 2009-2010 at 25.92%. The AAGR has been the largest in the case of the commercial vehicles 8.98% and the CAGR have also been impressive at 7.01% in the same period but the annual growth rate has remained negative in the years of 2008-2009, 2012-2015 and 2019-2021 while the maximum growth was seen in the year similar to three wheelers sector at 38.66%. Finally the dominant segment of the two wheelers has shown the CAGR of 6.61% and AAGR of 7.37% with its percentage change being negative in the year 2007-2008, 2011-2012 and in 2019-2021 saw a largest percentage change in 2010-11 at 43.38%

In order to understand such basic numbers in the domestic sales, regression based linear trend line has been employed to estimate the forecast value computed on the basis of the regression line, slope coefficient and the intercept in table 2 followed by the graphical representation in figure 3 for the passenger vehicle segment, figure 4 for commercial vehicle segment, figure

5 for three wheelers, and figure 6 for two wheelers respectively. The importance of the regression-based trend line has also been emphasized by Armstrong (2001) who states that drawing a best-fitted line through a data series reduces inconsistency at the application of method stage of the forecasting process, however when data are independent and without causal factors, the line of best fit itself is a good source of forecasts. With this statement in mind, the linear trend line in the case of all the segments of the OEMs are increasing at a steady rate, despite of the random shocks that arose due to various economic events that managed to change the sentiment of the domestic consumers in the terms of spending. With table 2, in the case of passenger vehicle segment the estimated value comes out to be 35,74,130 (in numbers) through  $y = 141289x + 607061$ , with regression line  $y = 33201x + 212776$  the estimated value in the case of commercial vehicles has turned out to be 9,09,997 (in numbers), with three wheelers the estimated forecast value is 617,857 (in numbers) from  $y = 17068x + 259429$  and with two-wheelers is 21,080,895 (in numbers) in 2021-22 from  $y = 860995x + 2907463$  where domestic sales (in numbers) acted as the dependent variable (y) and the time (in years) acted as the independent variable (x).

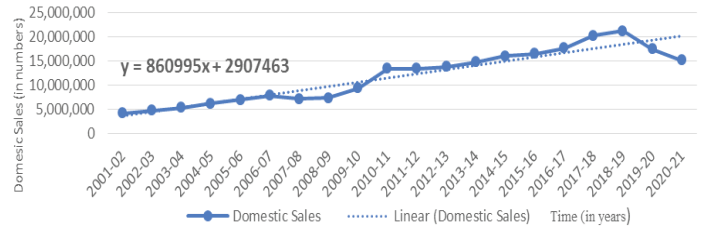
Table 2 Linear Regression based Trend analysis of domestic sales for the Passenger Vehicle, Commercial Vehicles, Three-Wheeler and Two-Wheeler segments from 2001-2002 to 2020-2021.

Year	Passenger Vehicles	Linear Trend	Commercial Vehicles	Linear Trend	Three Wheelers	Linear Trend	Two Wheelers	Linear Trend
2001-02	675116	748349.3	146671	245977	200276	276496.9	4203725	3768458
2002-03	707198	889637.9	190682	279177.8	231529	3.95E+09	4812126	4629453
2003-04	902096	1030927	260114	312378.6	284078	4.85E+09	5364249	5490448
2004-05	1061572	1172215	318430	345579.4	307862	5.25E+09	6209765	6351444
2005-06	1143076	1313504	351041	378780.2	359920	6.14E+09	7052391	7212439
2006-07	1379979	1454793	467765	411981	403910	6.89E+09	7872334	8073434
2007-08	1549882	1596081	490494	445181.8	364781	6.23E+09	7249278	8934429
2008-09	1552703	1737370	384194	478382.6	349727	5.97E+09	7437619	9795425
2009-10	1951333	1878659	532721	511583.4	440392	7.52E+09	9370951	10656420
2010-11	2501542	2019947	684905	544784.2	526024	8.98E+09	13435769	11517415
2011-12	2629839	2161236	809499	577984.9	513281	8.76E+09	13409150	12378410
2012-13	2665015	2302525	793211	611185.7	538290	9.19E+09	13797185	13239405
2013-14	2503509	2443813	632851	644386.5	480085	8.19E+09	14806778	14100401
2014-15	2601236	2585102	614948	677587.3	532626	9.09E+09	15975561	14961396
2015-16	2789208	2726391	685704	710788.1	538208	9.19E+09	16455851	15822391
2016-17	3047582	2867679	714082	743988.9	511879	8.74E+09	17589738	16683386
2017-18	3288581	3008968	856916	777189.7	635698	1.09E+10	20200117	17544382
2018-19	3377389	3150257	1007311	810390.5	701005	1.2E+10	21179847	18405377
2019-20	2773519	3291545	717593	843591.3	637065	1.09E+10	17416432	19266372
2020-21	2711457	3432834	568559	876792.1	216197	3.69E+09	15119387	20127367
2021-2022		3574130		909997		617857		21080895
	<b>Intercept</b>	6070601	<b>Intercept</b>	212776	<b>Intercept</b>	259429	<b>Intercept</b>	2907463
	<b>Slope</b>	141289	<b>Slope</b>	33201	<b>Slope</b>	17068	<b>Slope</b>	860995

Source: Computed by Author on the basis of various Annual Reports of SIAM.



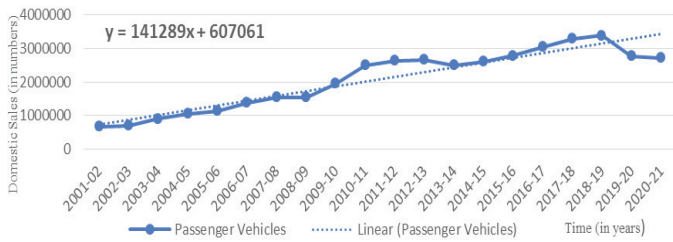
It is to be kept in mind that the longer into the future values a forecast is applied, the more uncertain the results become. Hence, forecast is made only for the relevant year of 2021-22. (See table 2). It is also to be noticed that since only annual figure of the domestic sales are presented there are no seasonal variations exhibiting any definite pattern. Such variables are more of an irregular nature arising out of the various policies programmes implementation and change in consumption pattern in the domestic market. In this scenario four main models of forecasting namely SMA, WMA, ES and DES have been employed for domestic sales within each segment of the automobile industry respectively. Following the literature reviewed the accuracy of these techniques shall be compared using the minimum value of MAD, MAPD, MSE and RMSE.



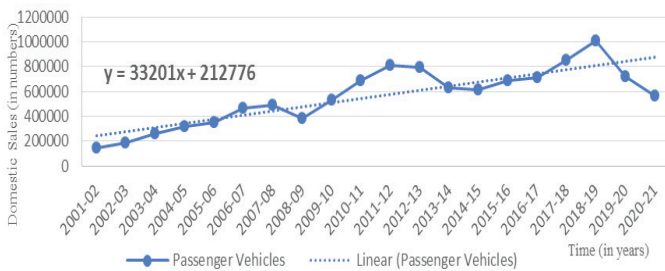
Source: Computed by author based on Table 2

**Figure 6 Linear Trend Line of Domestic Sales in Two- Wheelers from 2001-02 to 2020-21.**

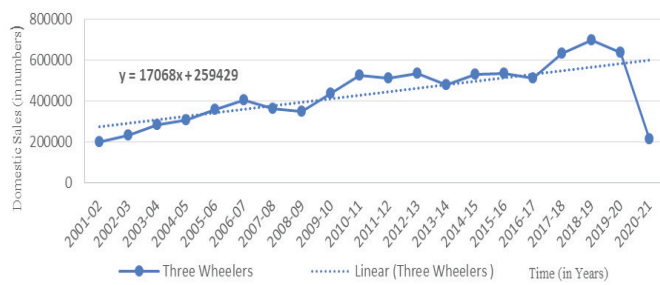
In the time series for the annual domestic sales from 2001-02 to 2020-21, the 3- yearly simple moving average (SMA) is taken to calculate the trend values while smoothing the data. However, it is the SMA method of forecasting that have generated the largest errors in the case of the passenger vehicle sector (see table 3) and the two wheelers sector (see table 6) of RMSE equalling 403357.46 and 2574720.57 respectively. The value of MAD and MAPD is also the maximum in case of all the four sectors. For passenger vehicles MAD=357469.84 and MAPD= 16.71 % (see table 3), for commercial vehicles MAD =143453.67 and MAPD= 23.60 % (see table 4), for three wheelers MAD= 82796.39 and MAPD= 23.85 (see table 5) and finally for the two wheelers, MAD=2191518.24 and MAPD=16.64 % (see table 6). The next method of weighted average methods is a step above the simple moving averages as the most recent data is weighted while taking the averages as WMA with equal weights generate forecast values same to that of SMA. However, it is must be understood that the recent data on domestic sales has been suffering from temporary instabilities since 2018 such as demonetization, lockdown and new emission norms and that might prove detrimental to forecasts. That is why the weights have been assigned with the help of the solver function in the MS-Excel. Accordingly, in the passenger vehicle segment, commercial vehicle segment, three wheelers and two wheelers greater weight of W1 is assigned to the earlier data when the data was relatively free from major random shocks. Before discussing the measures of accuracy, it would be interesting to look at the next method of exponential smoothing. The Exponential Smoothing (ES) makes the use of smoothing constant ( $\alpha$ ) to dampen the level effect in the time series. According to Armstrong (2001), Brown’s ES is appropriate in the case of time-series data with limitation of only one new data point per time period (i.e., short-range forecasts of long-interval data) allowing only small parameter adjustments, which accumulate and eventually catch up with pattern regime changes thus making the smoothing estimates appear to drift. The value of  $\alpha$  has been computed with the help of solver function in MS-Excel



**Figure 3 Linear Trend Line of Domestic Sales in Passenger Vehicles from 2001-02 to 2020-21.**



**Figure 4 Linear Trend Line of Domestic Sales in Commercial Vehicles from 2001-02 to 2020-21.**



**Figure 5 Linear Trend Line of Domestic Sales in Three Wheelers from 2001-02 to 2020-21.**

and in the case of all the segments of the automobile industry it is coming out to be 1. Now, The MAPD with the ES method in the case of the Passenger Vehicle in table 3 is 9.72% which is similar to that of the WMA at 9.33%. The value of MAD in ES (194274.5789) is lesser than WMA (203778.6471), with smaller value of RMSE turns out to be for the WMA method at 2352268.259. The MAPD in the case of the commercial vehicles is coming

out to be 18.05% for ES method and 17.24 % in the case of the WMA method. On the other hand, the value of MAD is greater when the forecasts estimates are computed on the basis of the ES in the table 4. The value of RMSE is smaller for the ES method with the value of 121110.5251. In the case of three wheelers, the forecast value of ES is lesser than that of the WMA method. (See table 5) The two wheelers

**Table 3 SMA (3-yearly), WMA, ES and DES methods of Forecasting of Domestic Sales for the Passenger Vehicle.**

Year	Passenger Vehicles	SMA	WMA	ES	DES
2001-02	675116			675116	
2002-03	707198			675116	750312.6767
2003-04	902096			707198	780688.9088
2004-05	1061572	761470	902096	902096	980390.1992
2005-06	1143076	890288.6667	1061572	1061572	1143078.036
2006-07	1379979	1035581.333	1143076	1143076	1224581.955
2007-08	1549882	1194875.667	1379979	1379979	1467633.008
2008-09	1552703	1357645.667	1549882	1549882	1640790.066
2009-10	1951333	1494188	1552703	1552703	1640126.033
2010-11	2501542	1684639.333	1951333	1951333	2051068.472
2011-12	2629839	2001859.333	2501542	2501542	2619099.785
2012-13	2665015	2360904.667	2629839	2629839	2747821.666
2013-14	2503509	2598798.667	2665015	2665015	2779721.544
2014-15	2601236	2599454.333	2503509	2503509	2607287.607
2015-16	2789208	2589920	2601236	2601236	2704775.184
2016-17	3047582	2631317.667	2789208	2789208	2896087.642
2017-18	3288581	2812675.333	3047582	3047582	3160455.291
2018-19	3377389	3041790.333	3288581	3288581	3406523.393
2019-20	2773519	3237850.667	3377389	3377389	3494178.734
2020-21	2711457	3146496.333	2773519	2773519	2861796.907
2021-22		2954121.667	2711457	2711457	2793786.933
MAD		357469.8431	203778.6471	194274.5789	156479.7975
MAPD		0.1671	0.0933	0.0972	0.0750
MSE		162697242201.50	5533165960385.71	63559194272.58	54433523389.55
RMSE		403357.4621	2352268.259	252109.4887	233309.9299
			$W_1=1$	$\alpha=1$	$\alpha=1$
			$W_2=0$		$\beta=0.0396$
			$W_3=0$		

Source: Computed by Author

**Table 4 SMA (3-yearly), WMA, ES and DES methods of Forecasting of Domestic Sales for the Commercial Vehicle**

Year	Period	Commercial Vehicles	SMA	WMA	ES	DES
2001-02	1	146671			146671	
2002-03	2	190682			146671	147351.5942
2003-04	3	260114			190682	220357.8021
2004-05	4	318430	199155.6667	260114	260114	316393.2738
2005-06	5	351041	256408.6667	318430	318430	376072.1805
2006-07	6	467765	309861.6667	351041	351041	391933.1808
2007-08	7	490494	379078.6667	467765	467765	559401.2097
2008-09	8	384194	436433.3333	490494	490494	536019.8899
2009-10	9	532721	447484.3333	384194	384194	328123.2591
2010-11	10	684905	469136.3333	532721	532721	613559.9861
2011-12	11	809499	533940	684905	684905	813485.6001
2012-13	12	793211	675708.3333	809499	809499	935411.9053
2013-14	13	632851	762538.3333	793211	793211	823967.9811
2014-15	14	614948	745187	632851	632851	535719.112
2015-16	15	685704	680336.6667	614948	614948	570833.3417
2016-17	16	714082	644501	685704	685704	718456.8105
2017-18	17	856916	671578	714082	714082	743907.3387
2018-19	18	1007311	752234	856916	856916	962362.8236
2019-20	19	717593	859436.3333	1007311	1007311	1142835.588
2020-21	20	568559	860606.6667	717593	717593	568559.9658
2021-22	21		764487.6667	568559	568559	419525.3195
MAD			143453.6667	105155.9412	100057.5789	94823.23254
MAPD			0.2360	0.1724	0.1805	0.1685
MSE			26487977918.29	409371987031.35	14667759294.42	18761356443.28
RMSE			162751.2762	639821.8401	121110.5251	136972.101
				$W_1=1$	$\alpha=1$	$\alpha=1$
				$W_2=0$		$\beta=0.67$
				$W_3=0$		

Source: Computed by Author

Table 5 SMA (3-yearly), WMA, ES and DES methods of Forecasting of Domestic Sales for the Three Wheelers.

Year	Three Wheelers	SMA	WMA	ES	DES
2001-02	200276			200276	
2002-03	231529			200276	200558.9187
2003-04	284078			231529	253853.9944
2004-05	307862	238627.6667	278020.6426	284078	327914.3134
2005-06	359920	274489.6667	302344.5152	307862	337426.8843
2006-07	403910	317286.6667	354438.0055	359920	405493.5644
2007-08	364781	357230.6667	396967.48	403910	448356.6827
2008-09	349727	376203.6667	364429.6383	364781	349745.0516
2009-10	440392	372806	353643.4435	349727	334677.5526
2010-11	526024	384966.6667	434926.7026	440392	500581.8082
2011-12	513281	438714.3333	513280.9397	526024	604322.3895
2012-13	538290	493232.3333	508012.4536	513281	526783.4643
2013-14	480085	525865	537403.3917	538290	559981.2048
2014-15	532626	510552	482484.4658	480085	444912.4397
2015-16	538208	517000.3333	533035.404	532626	559880.4527
2016-17	511879	516973	534006.7663	538208	550038.3835
2017-18	635698	527571	513378.63	511879	496550.3571
2018-19	701005	561928.3333	628651.2496	635698	719403.4429
2019-20	637065	616194	687334.6368	701005	771616.958
2020-21	216197	657922.6667	636966.1908	637065	611913.2796
2021-22		518089	251239.7833	216197	-90595.59312
MAD		82796.39	70139.63	67813.53	70414.59
MAPD		0.2385	0.2072	0.2030	0.2011
MSE		16591676014.80	238134323464.17	12354452556.37	12653207251.03
RMSE		128808.6799	487990.0854	111150.585	112486.4759
			$W_1 = 0.927718224$	$\alpha=1$	$\alpha=1.000$
			$W_2 = 0$		$\beta=0.71$
			$W_3 = 0.072281776$		

Source: Computed by Author

Table 6 SMA (3-yearly), WMA, ES and DES methods of Forecasting of Domestic Sales for the Two Wheelers.

Year	Two Wheelers	SMA	WMA	ES	DES
2001-02	4203725			4203725	
2002-03	4812126			4203725	4207529.392
2003-04	5364249			4812126	5245981.634
2004-05	6209765	4793366.667	5364249	5364249	5882228.539
2005-06	7052391	5462046.667	6209765	6209765	6960722.131
2006-07	7872334	6208801.667	7052391	7052391	7868552.451
2007-08	7249278	7044830	7872334	7872334	8691185.277
2008-09	7437619	7391334.333	7249278	7249278	7042496.637
2009-10	9370951	7519743.667	7437619	7437619	7511889.268
2010-11	13435769	8019282.667	9370951	9370951	10767577.03
2011-12	13409150	10081446.33	13435769	13435769	16730287.37
2012-13	13797185	12071956.67	13409150	13409150	14341334.16
2013-14	14806778	13547368	13797185	13797185	14342314.35
2014-15	15975561	14004371	14806778	14806778	15682281.63
2015-16	16455851	14859841.33	15975561	15975561	17059675.06
2016-17	17589738	15746063.33	16455851	16455851	17110463.33
2017-18	20200117	16673716.67	17589738	17589738	18585259.73
2018-19	21179847	18081902	20200117	20200117	22344291.18
2019-20	17416432	19656567.33	21179847	21179847	22495748.81
2020-21	15119387	19598798.67	17416432	17416432	15119401.69
2021-22		17905222	15119387	15119387	12822346.24
MAD		2191518.235	1363259.294	1280838.526	1109205.022
MAPD		0.1664	0.1052	0.1062	0.0890
MSE		6629186007275.75	184707913844304.00	2880160545203.16	2910055328103.35
RMSE		2574720.569	13590728.97	1697103.575	1705888.428
			$W_1=1$	$\alpha=1$	$\alpha=1$
			$W_2=0$		$\beta=0.71$
			$W_3=0$		

Source: Computed by Author



sector in table 6 shows the forecast value of WMA more accurate than that of the ES with  $RMSE=13590728.97$ . The values for the MAPD are coming out to be similar with WMA at  $MAPD=10.52\%$  and ES with  $MAPD=10.62\%$  whereas MAD is greater in the case of WMA at 1363259.294. Although in theory, the ES method is considered to be superior than that of the WMA but here, in some cases the accuracy measures are falling in favour of WMA method purely because of the fact that in the case of ES the smoothing constant is following the most recent data as opposed to the WMA which has placed greater weights to the older data in the series. In this regard, Beevi et al. (2019) added that exponential smoothing is an averaging technique that uses unequal intervals such that the intervals applied to past observations decline in an exponential manner. The final method of calculating computing the forecast values is Holt's Double Exponential Smoothing (DES) which as per Saha and Sinha (2020), shows good forecasting performance in the absence of seasonal or cyclical variations. Beevi et al (2019) defines DES as exponential smoothing over an already smoothed time series. The DES method according to Ravinder (2013) depends on the initial estimates of the level component ( $\alpha$ ) and the trend component ( $\beta$ ). The DES method generates the least values of the prediction accuracy measures with MAD at 156479.7975, MAPD at 7.50% and RMSE at 233309.9299 when compared with SMA, WMA and ES techniques of forecasting in the case of passenger vehicle segment in table 3. In table 3, the value of  $\alpha=1$  and  $\beta=0.04$  approximately. The forecast values for the year 2021-22 is much closer to the actual value in 2020-21 at 2793786.933. With  $\alpha=1$  and  $\beta=0.67$  in the case of the commercial vehicle segment, the value of  $MAPD=16.85\%$  and  $MAD=94823.23254$  is the minimum when compared to the values of the same measures of accuracy in other forecasting technique. (See table 4) However, the value of  $RMSE=136972.101$  is greater than that of generated with ES with  $RMSE=136972.101$ . Even in this case, forecast from DES method will be treated as more accurate because RMSE is not independent of scale causing a disproportionate increase or decrease in its computed value. Febrian et al. (2020) has mentioned the importance of MAPE criteria in evaluating the accuracy of forecasting results, where MAPD value of less than 10% is regarded very good and the value of MAPD between 10% -20% is regarded good. In table 5, with three wheelers being the main focus the value of MAPE is minimum in the case of DES at 20.11%, the value of MAD is 70414.59 which is greater than the minimum value of MAD at 67813.53 with the ES. The RMSE of ES method is also the least. The value of smoothing constants  $\alpha=1$  and  $\beta=0.71$ . In the case of two wheelers, the value of MAPD is least at 8.90% and so is the value of MAD at

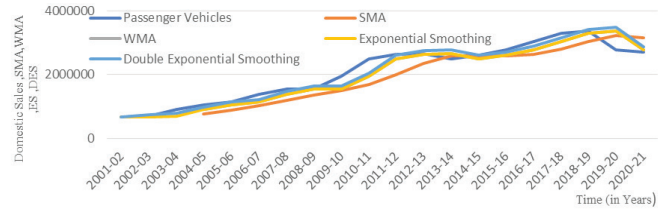


Figure 7 Graphic Effects of Forecasting in Passenger Vehicles from 2001-02 to 2020-21.

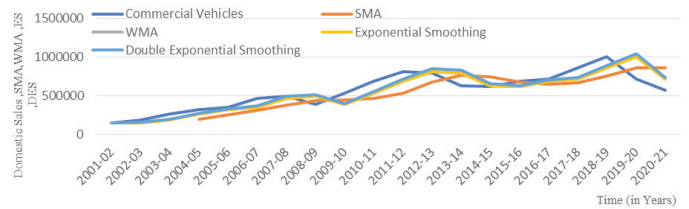
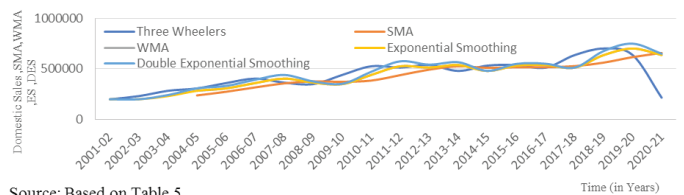


Figure 8 Graphic Effects of Forecasting in Commercial Vehicles from 2001-02 to 2020-21.



Source: Based on Table 5

Figure 9 Graphic Effects of Forecasting in Three Wheelers from 2001-02 to 2020-21.

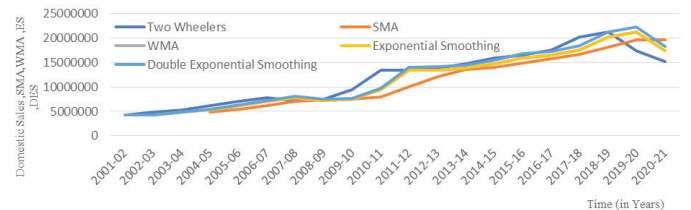


Figure 10 Graphic Effects of Forecasting in Two Wheelers from 2001-02 to 2020-21.

1109205.022. The value of RMSE is 1705888.428 which is greater than the minimum value generated by ES method with  $\alpha=1$  and  $\beta=0.71$ . (See table 6) The graphic effects of forecasting the domestic sales with all the four methods of SMA, WMA, ES and DES are shown in figure 7 for the passenger vehicles, in figure 8 with respect to the commercial vehicles, and figure 9 and figure 10 deal with the three wheelers and two wheelers. It was observed that out of all the methods Holt's Double Exponential Smoothing was carrying the least MAPD for the passenger vehicles, for the commercial vehicles and three wheelers and for two-wheelers, MAD was minimum with DES for the passenger vehicles, for the



commercial vehicles and for two-wheelers but not in three wheelers segment, and RMSE value was minimum for ES method in commercial vehicle, three wheelers and two wheelers' forecast estimates for the passenger vehicles, for the commercial vehicles and three wheelers and for two-wheelers. Therefore, on the basis of MAPE value it can be said the Holt's DES method has been able to compute the most accurate forecast estimates for passenger vehicles segment at 2793786.933 that are actually closer to the actual values of the domestic sales in 2020-21 at 2711457. (see table 3) With the commercial vehicles segment in table 4, the forecast values with DES method in the year 2021-22 and at 419525.3195 which are also closer to the actual value to the domestic sales in 2020-21. In the case of three wheelers in table 5 the level effects has seemed to clearly dominate the trend effect showing the negative values for the year 2021-22 at -90595.59 which when seen in the context of sudden drop in sales from 2019-20 to 2020-21, tend to make sense. (see table 5) In this case If MAD is to be trusted then ES method will generate the accurate forecast values for the year 2021-22 (216197) which is doubted given the ongoing situation of the COVID-19. Again, given the irregularities in the recent domestic sales, the forecast value of 12822346.24 seems more realistic in the year 2021-22.

## Conclusion

It is concluded that out of all the methods Holt's Double Exponential Smoothing was carrying the least MAPD for the passenger vehicles, for the commercial vehicles and three wheelers and for two-wheelers, MAD was minimum with DES for the passenger vehicles, for the commercial vehicles and for two-wheelers but not in three wheelers segment, and RMSE value was minimum for ES method in commercial vehicle, three wheelers and two wheelers' forecast estimates for the passenger vehicles, for the commercial vehicles and three wheelers and for two-wheelers. Therefore, based on the accuracy criteria of forecast MAPE it is the DES method generating the forecast values of domestic sales for four main segments of the Indian automobile sector for the year 2021-22.

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# Strengths and Limitations of Social Work Education in India

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## Abstract

*The research paper has come out with the advantages of social work education in India which has been explained on the basis of questionnaire framed. The received responses from the social work academicians according to their considerations and suggestions about the strengths and limitations of social work education in India till now, has been incorporated in this paper. Mode of teaching, use of audio-visual mode for teaching, number of social work journal purchased by the university, faculty exclusively to coordinate field work, kind of publications on social work, exchange / exposure visit programme for students / faculties, department publishing journal, seminar / conference organized by the department, award / scholarship / chair instituted / established in the honor of any former social work faculty, participation in any expert committee meeting / workshop on curriculum revision / development, satisfaction with present social work syllabi of their school / department and need for further indigenization of social work curriculum are the basis for the analysis of this research paper. Also, this research paper discusses the limitations of social work education which were analyzed such as non-uniformity of Social Work Curriculum and lack of Indigenous Literature on Social Work Education in India. Acknowledgement of western literature for reference and not the indigenous literature by most Schools of Social Work in India as mentioned in First Review Committee, Second Review Committee and UGC Model Curriculum.*

**Keywords:** Social Work, Education, Strength, Weakness, Challenges, India

## Introduction

According to Gore, "Education as a profession has the specific function of imparting the necessary knowledge, skills and values to those who aspire to enter the profession. In the sphere of activity characterized by the older professions a person who has not undergone the specified programme of the professional education is not allowed functioning as a practitioner. In many cases there are legal provisions which prevent unqualified persons from practicing in a particular profession. This is so in the case of the professions of law and medicine. In the case of some other professions the highly specialized nature of activities automatically prevents those who have not had the necessary professional education from practicing in them. To the extent that the entry into a profession is restricted to approximately qualified persons, the professional schools also perform the

function of serving as a channel of recruitment to new entrants to the profession. Professional education may thus sub serve the twin functions of recruitment and socialization. The fulfillment of these two functions must naturally depend upon certain conditions. So far as the function of recruitment is concerned, its fulfillment must depend upon the extent to which, by legal statutes or by the high degree of specialized knowledge and practice in a particular field, the entry to a particular field of professional activity is restricted to those who have graduated from professional schools. It must also depend upon the extent to which the right types of young persons are motivated to enter the particular profession. This in its turn must depend upon the economic and social incentives that operate with respect to a particular profession in a given society. Similarly, the fulfillment of the other function of socialization must also depend upon a variety of factors such as: (1) The existence

of a clearly identifiable and communicable body of professional knowledge and skills; (2) The availability of good educators; and (3) The closeness of contact between professional schools and the respective professions. These factors, in their turn, are governed by a variety of social conditions" (Gore, 1965).

But sometimes these two functions (recruitment and socialization) overlap and are considered as the limitations in social work education. In recruitment process, the persons other than qualified social workers with degrees are considered and recruited. As it has been seen in various advertisements of government jobs that preference for social worker is optional. The requirement is for the post of social worker and the eligibility is for the candidates from the background of sociology, psychology, law, medicines etc. along with the background from social work. This means the due recognition is not given to the people from social work discipline.

Secondly, in socialization process, it is identified that as the recruitment is from various other disciplines such as sociology, psychology, law, medicines etc., the skills, training and experience required for selection of social worker do not match, which in turn, collapses the professionalism of social work. The social work educators who are not having experience in social work and are recruited from other disciplines may negatively affect the social work education as they do not possess the knowledge and skills from the same field. They are unable to guide the students.

Another limitation, which has been observed through years, is weak social work curriculum. This limitation persists with the non-uniformity of curriculum, still relying on western based curriculum, non-recognition and development of indigenous literature etc. The uniformity of curriculum signifies that the curriculum drafted should be taught in each and every university / college / institution of the country. Where it has been identified that different university / college / institution uses different modes and subjects to the students in consecutive years. The western based curriculum such as social case work, social group work is still being taught in many universities / colleges / institutions without being significant enough to the current scenario of our localized curriculum. We still rely heavily on case work and group work from Victorian period. As we know that during Second World War, the destitute and the perpetuated, who were victimized, were given relief and care. In turn, the concept of social case work emerged from that period. In 1922, Mary Richmond came with the concept of "Social Diagnosis", which was the emergence

of social case work. But in the country like India, where many people are still perpetuating for hunger on a mass level, clothing, shelter, education etc. which are the basic needs to be fulfilled, the concept that should be applied is "community organization". But still the case work is being taught on a broader level without understanding the significance of the ground reality of the country (Gore, 1965).

The realization for emergence of social work is never recalled in India by giving due recognition to the Vedic period such as Satyug, Tretayug, Dwaparyug, Kalyug. The teachings of these periods remind of devotion, commitment, helping the poor, trustfulness, sacrifice, patriotism etc.

Non-recognition and development of indigenous literature is one of the biggest limitations in social work curriculum. As discussed above that most of the university / college / institution still relies on western based curriculum. Therefore, the teachings of the Vedic era are almost absent in our subjects. The historical emergence of Vedic era is not recognized as the emergence of Social work in India. Our Vedas, Purans, Epics teach us the way to perform, the way we should think and the way we should be civilized. As it is known that emergence of social work was started in the form of charity and philanthropy. But this charity and philanthropy has always seen its emergence through Victorian reforms. If we look back our Indian Vedic period, we would find the emergence of Vedic era between 1500-800 B.C.E. "It is the formative period when the basic foundations of Indian civilization were laid down. These include the emergence of early Hinduism as the foundational religion of India, and the social / religious phenomenon" (<https://www.timemaps.com/civilizations/the-vedic-age/>). The charity and philanthropy can be witnessed from that period. Hence, it may be said that social work has its emergence in India much before the Victorian reform movement. Ironically, we don't adhere to the indigenous facts. Therefore, many papers and articles written on the emergence of the social work in India through Vedic age, is not recognized in the development of the indigenous literature.

### **Indigenization of social work**

In his scholarly article, Dr. Dash describes, Indigenization is the process of developing certain local ideas and perspectives to be best suited to a particular geographical context. The term is primarily used by anthropologists to describe what happens when locals take something from the outside and make it their own (e.g., Africanization, Americanization). In the context of Bharatiyakaran

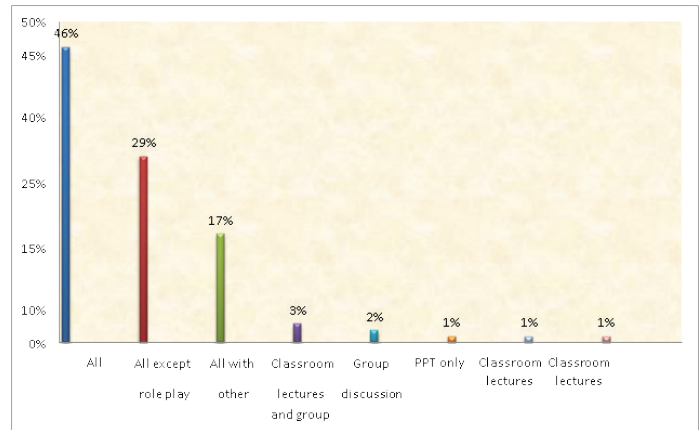


of social work education, Indigenization allows us to learn from our regional experiences and indigenous innovations in Asian, African, and other countries of the world. In the process of indigenizing the social work curriculum, the indigenous experiences particularly the role of various nationalist organizations and spiritual organizations in social work, Indian indigenous models of sanitation, housing, water harvesting, has been added in the curriculum.

Social work education has achieved many milestones. As it was started with charity, shifted to developmental approach, moved to empowerment and now the post-modernist approach is being followed. After collecting the data from various colleges / schools / institutions / departments, all across the country, the responses were observed with variations within the same colleges / schools / institutions / departments. The variations were observed in the form of questionnaire prepared for the social work academicians. Whether the question was related to mode of teaching, use of audio-video programmes, purchasing number of journals by the university, exclusive faculty to coordinate field work, kind of publications on social work, projects undertaken by their school / department / university, organization of seminar / conference in last three years, student exposure / exchange visit programme for social work students and faculties, publication of any journal by their school / department / university, faculty visiting school / department in abroad for paper presentation or the award / scholarship constituted in the honor of any former social work academicians from their department / school / university. The responses of the above questions drafted for this research study, were found accordingly.

**Mode of Teaching:** The mode of teaching implies the innovative practice of teaching being imparted by the academicians. It may be of various forms such as classroom teaching, power-point presentation, role-play, short-films, documentary etc. The innovative mode of teaching promotes healthy and prompt learning practice among the students. Therefore, mode of teaching can be seen as strength in imparting social work education. The question was asked by the social work academicians about which mode of teaching is applied by you while teaching in the classroom. The options quoted for the study were:

- a) Classroom teaching.
- b) Group discussion.
- c) Role-play, and
- d) Power-point presentation (PPT).



**Figure1: Percentage of Respondents Responded for Mode of Teaching**

Figure 1 represent the number of respondents (social work academicians) responded for the question related to mode of teaching. There are 150 respondents in the present study. The above figure signifies that sixty-nine (46%) respondents offer teaching through all modes of teaching (Classroom lectures, Group discussion, Role play and Power-point presentation (PPT)). Forty-three (29%) respondents replied that they offer teaching using all modes of teaching (Classroom lectures, Group discussion, PPT) except role-play. Twenty-six (17%) answered that they use all modes (Classroom lectures, Group discussion, Role play and Power-point presentation (PPT)) in consonance with other modes of teaching like skills labs, students' individual presentation, games, field exposures, situation-giving etc. Five (3%) responded that they opt for classroom lectures and group discussion. Three (2%) respondents answered with group discussion and power-point presentation as modes of teaching. Two (1%) opt only for power-point presentation as a mode of teaching. One (1%) respondent replied that he uses classroom lectures and power-point presentations for teaching. Another one (1%) responded that he opts for classroom lectures only.

It shows that sixty-nine (46%) social work academicians (respondents) opt all the above modes of teaching which is a healthy sign of imparting education among students in various departments / schools of social work and twenty-six (17%) social work academicians offer teaching through all modes of teaching including e) other (as fifth option) includes skills labs, field exposures among students, ice-breaking sessions, situational-analysis, assignments, and case-study methods etc. These other modes of teaching are considered as the excellent modes of imparting education among students. These modes of teaching add to the strength of social work education in India.

**Use of Audio-Visual Programme:** Audio-Visual Programme is significant in every sphere of education. It becomes more significant in higher education when the student achieves a sense of contemplation, persist doubts or situational issues. In social work education it is beneficial to study with the use of audio-visual programmes as there may be issues, doubts and problems arise in field work practice. Therefore, it can be easily encountered with the use of audio-visual programmes to understand the concepts and problems dexterously.

Audio programmes may consist of listening to a situation, radio programme, voice-over programmes, case-studies narration etc. Whereas visual programmes consist of various related documentaries, films, storytelling, Nukkad-Natak, street and skit-play etc. These programmes are undoubtedly useful for the cognitive development of the students. These programmes give students new horizons to think over the situations and act accordingly.

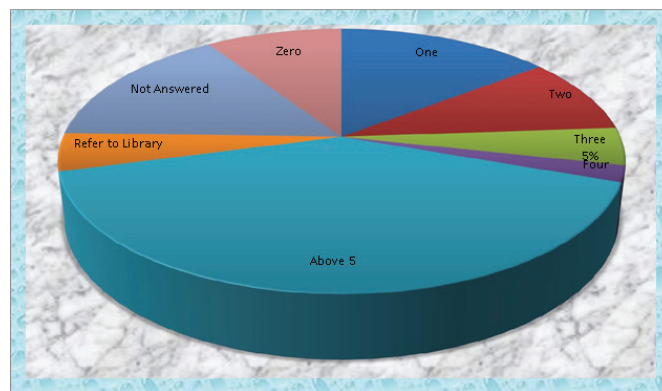
**Table 1: Use of Audio-Visual Programs by respondents in percentage (%)**

Neither use VP nor AP	17.33%
Not explained its frequency	9.33%
Use Depends	25.33%
Use VP but not AP	18.68%
Use VP & AP both	29.33%

Source: Author

Table 1 signifies the strength of social work education through the medium of audio-visual programme. VP is the Visual Programme whereas AP is Audio Programme used to denote the significance of Information and Communication Technology (ICT) in social work education. No single work can be done without ICT strategies. ICT is involved in every task in one way or the other. Here the researcher has tried to bring out the percentage of social work academicians who use audio-visual programme for teaching. From the above figure it can be seen that 44 respondents (29.33%) use both the audio as well as video programmes for teaching, whereas 28 respondents (18.68%) use only visual programme as a part of teaching but they don't prefer audio programme. Thirty-eight respondents (25.33%) replied that it varies / many / not limited / depends on the need (requirement) as a part of topic or subject. Fourteen respondents (9.33%) replied positively that they use audio-visual programme as a part of teaching but did not explain its frequency of using the same as how many sessions they take, what is the interval of taking such sessions etc. Rest 26 respondents (17.33%) neither use audio programme nor video programme as a part of teaching.

**Number of social work journal purchased by College / University:** Number of social work journals purchased by any college / university signifies that how much the teaching faculties of the particular discipline are committed to adopt the new ways, methods, tools, techniques, principles, theories and practicality from distinct areas. Through journals, the social work academicians try to learn the different but informative and influential pedagogies opted practically by the social work practitioners or by the people of local areas.



**Figure 2: Number of Social Work Journal (s) Purchased by the University**

Figure 2 depicts about the number of social work journals purchased by their (the respondents) colleges / universities. The responses for option e) were higher. Sixty-one respondents (40%) responded that the number of social work journals purchased by their Colleges / Universities is above five. Some respondents have given a particular figure of how many social work journals are purchased like thousand, ten, eight, fifteen etc. It signifies the specificity of the particular discipline (social work) as reference to various social work journals leads to have more knowledge, skills, methods, tools and techniques etc. about the same. Whereas three respondents (2%) answered that four social work journals are purchased by their colleges / universities. Seven respondents (5%) replied with the option c) Three. Fourteen respondents (9%) ticked option b) two for purchasing number of social work journals by their colleges / universities. Twenty-two respondents (15%) replied that only one social work journal is purchased by their colleges / universities. Rest other options were created on the basis of responses received by the respondents. Fourteen respondents (9%) responded that no (zero) social work journal is purchased by their colleges / universities. About five percent (7 respondents) suggested for reference to the library or administration in order to get the answer of this question. It is observed that 23 respondents (15%) did not even attempt or answer this question.

**Faculty exclusively to coordinate field work:** This question of having faculty exclusively to coordinate field work means whether the field work is being supervised by social work academicians who have the degree of social work or it is being supervised generally. Only professional social work academicians and /or practitioner should supervise the students of social work. Otherwise, the skills, methods, tools and techniques of social work cannot be incorporated to the students. Therefore, it is mandatory to have professionally qualified social work academicians and practitioners for field work guidance of students.

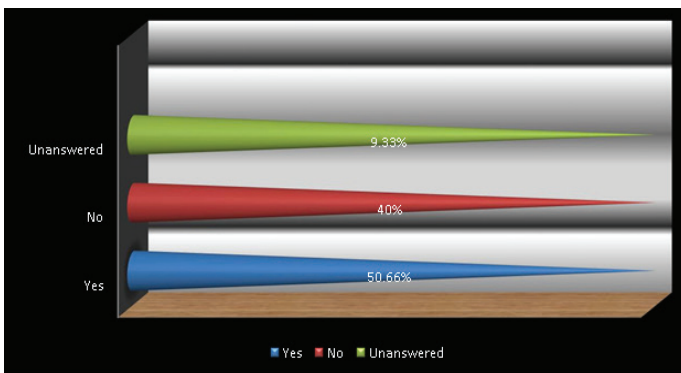


Figure 3: Faculty exclusively to coordinate field work

Figure 3 shows whether there is faculty exclusively to coordinate field work or not. Seventy- six respondents (50.66%) responded positively to have faculty exclusively to coordinate field work practice in social work. Whereas sixty respondents (40%) quoted negatively that there is no faculty exclusively to coordinate field work. Rest fourteen respondents (9.33%) did not answer or attempt this question.

**Kind of publication (s) on social work:** Kind of publication denotes the significance of accessibility of social work literature. Social work literature adds to the knowledge and existence of the particular theories, models, and methods etc. for the reference to the students as well as social work academicians. Literature may be in the form of books, journals, articles, chapters in books, periodicals etc.

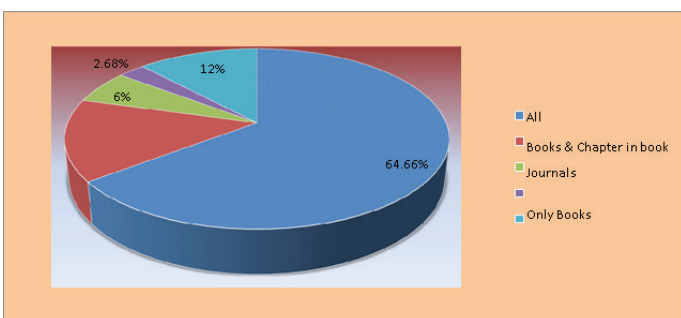


Figure 4: Kind of publications on social work

Figure 4 shows the distribution of responses received by the respondents. The question was based on the kind of publications on social work. Majorly with Ninety-seven respondents (64.66%) responded that they use all (books, journals and chapter in books). Whereas 22 respondents (14.66%) replied with two of the options a) and c) which is books (authored and edited) and chapter in books. Nine respondents (6%) responded with the option of journals only. Four respondents (2.68%) ticked the response of having books only. Rest 18 respondents (12%) did not reply or attempt this question with any of the option.

**Exchange / exposure visit programme for social work students / faculties:** Exchange / exposure visit programmes are beneficial for social work students as well as for faculties. Exchange visit programmes means interchange of ideas, beliefs, knowledge and practice, whereas exposure visit programmes are meant to learn different ways of social work practicum for the professional development of self and the students. These programmes give opportunities to the students and faculties to better understand the ideologies, perspectives and thinking of other students / faculties of different colleges / universities. It also helps in building new capacities to incorporate practice part (field work) for social work students and faculties.

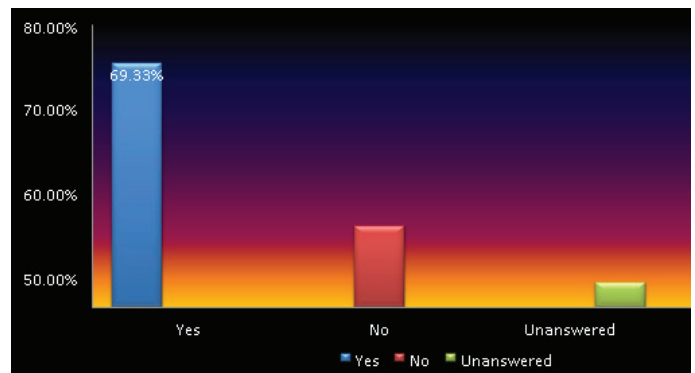


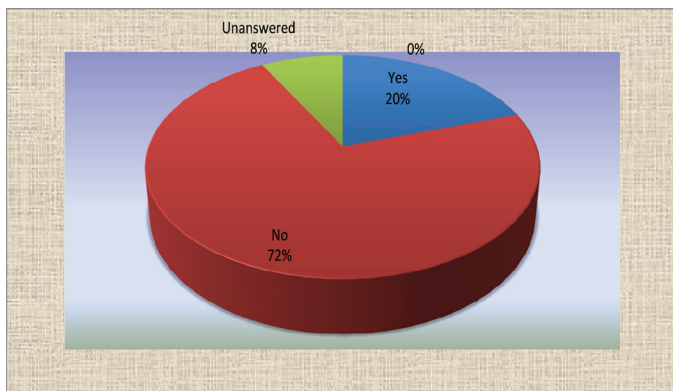
Figure 5: Exchange / exposure visit programme for social work students / faculties

Figure 5 depicts the percentage of the responses for exchange / exposure visit programme for social work students / faculties. With highest 104 respondents (69.33%) the respondents answered positively for having the provision of exchange / exposure visit programme for social work students / faculties. The respondents elaborated that NGO visits within and outside the state, rural camps, orientation visits, block placements, student exchange programme in collaboration with university in Germany, United States, United Kingdom and visit to Netherland for exposure visit programmes are some of lists of exchange / exposure visit programme for social work students / faculties. Whereas 35 respondents



(23.34%) replied negatively for not having any exchange / exposure visit programme for social work students / faculties. Rest 11 respondents (7.33%) did not answer or attempt this question. It means neither they have any provision for exchange / exposure visit programme for social work students / faculties nor they are known about the concept of exchange / exposure visit programme for social work students / faculties.

**School / department publishing social work journal:** Publication of social work journal signifies the availability of literature to social work education. This task is considered as adding the knowledge of one's own through the way of literature. This produces the skills, techniques, methods and tools by the contribution of entire social work faculties, students and researchers of a particular school / department. Through the publication of social work journal, the work done by social work faculties, students and researchers, and the success stories produced by them are disseminated to other schools / departments through the mode of journal as a part of literature review. The students and researchers may use it as a part of review of literature. The social work faculties may use it for referring it to the class. This may be a strong tool of indigenization by producing one's own ideas and thoughts to vast social work fraternity. The options created for this question were: (1) Yes. (2) No. (3) Unanswered (Option created on the basis of responses received).

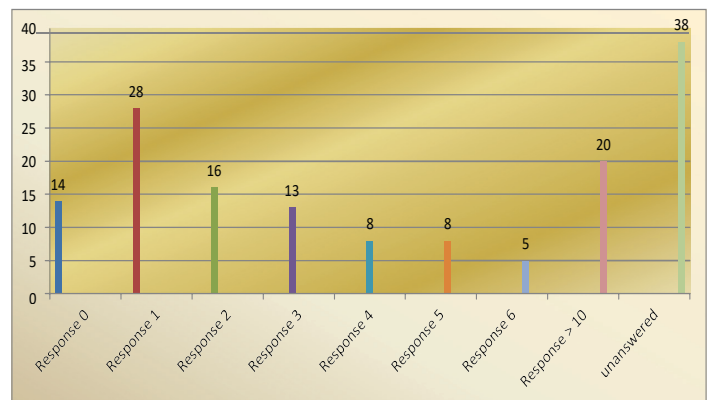


**Figure 6: School / Department Publishing Social Work journal**

Figure 6 shows the percentage of school / department publishing social work journal. Thirty respondents (20%) replied positively and given the details of social work journal published by their school / department. Whereas 108 respondents (72%) replied negatively. This can be considered as a limitation as majority of social work institutions are unable to publish or produce their own literature based on their work done. This may be one of the reasons for the non- contribution towards the indigenous curriculum development. Rest

12 respondents (8%) did not answer or attempt this question.

**Seminar / conference of social work organized in past three years:** Seminars / conferences are organized for the exchange of ideas among intellectuals. As a result, masses are aware about particular theme or topic on a single platform. The resource persons are invited to share their ideas about destined topic and the participants having doubts regarding that ask questions for clearance. Participants also present the papers on the theme destined through peer-group sessions. The overall aim of the seminar / conference is the exchange the ideas through a given topic / theme to get those ideas, thoughts, process, models etc. published in order to aware the mass and should contribute towards the development of indigenous literature.

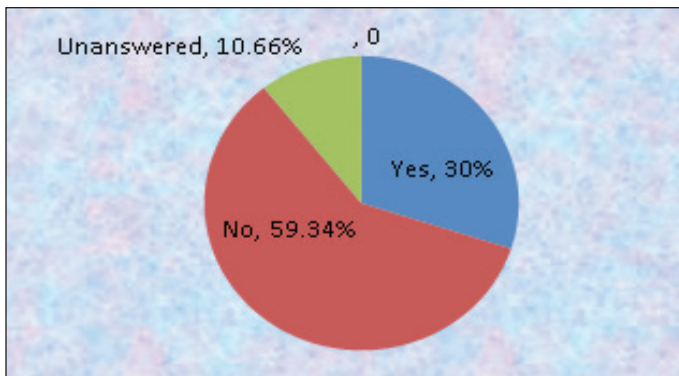


**Figure 7: Seminar / conference of social work organized in past three years**

From figure 7, it may be seen that 14 respondents' (9.33%) responses received were nil. Means no seminar or conference was organized by their (the respondents') schools / departments (9.33%) in past three years. Thirty-eight respondents (25.33%) did not answer or attempt this question. Twenty-eight respondents (18.66%) responded that only one seminar / conference was organized by their school / department. Sixteen respondents (10.66%) replied that two seminars / conferences were organized by their school / department. Thirteen respondents (8.66%) answered that three seminars / conferences were organized by their school / department. Eight respondents (5.33%) responded that four seminars / conferences were organized by their school / department. Again, the same percentage, 5.33 percent (8 respondents) responded that five seminars / conferences were organized by their school / department. Five respondents (3.33%) responded that six seminars / conferences were organized by their school / department. Final category of respondents 20 respondents (13.33%) replied that more than ten seminars / conferences were organized by their school / department.



**Award/ scholarship/ chair instituted/ established in the honor of any former social work faculty:** This is honored in the memory or for the distinguished contribution of any eminent social work faculty. The former social work faculty who has / have contributed tremendously working in a particular field like social action, community organization etc. are awarded to the extraordinary students for making remarkable in the same field.

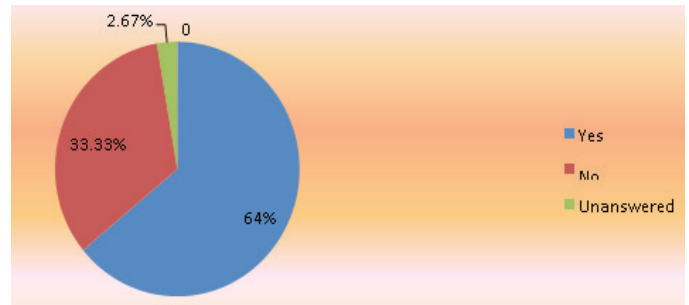


**Figure 8: Award/ scholarship/ chair instituted/ Established in the honor of any former social work Faculty**

Figure 8 shows the distribution of responses regarding award/ scholarship/ chair instituted/ established in the honor of any former social work faculty by their (the respondents') school / college / department / institution / university. Forty-five respondents (30%) responded that there is the provision of award/ scholarship/ chair instituted/ established in the honor of any former social work faculty. But many of them did not give the details of the same which it was asked for in the subsequent question quoted to describe about the details of it. Eighty-nine respondents (59.34%) replied negatively as they were not having any provision for award/ scholarship/ chair instituted/ established in the honor of any former social work faculty by their school / college / department / institution / university. Rest 16 respondents (10.66%) did not reply or attempt this question.

**Participation in any expert committee meeting/ workshop on curriculum revision/ development during the past five years in any school/ department of social work:** Participation in any expert committee meeting/ workshop on curriculum revision/ development during the past five years in any school/ department of social work means not only the professional development of self rather it contributes in the professional development of students as by quoting the examples of that meeting

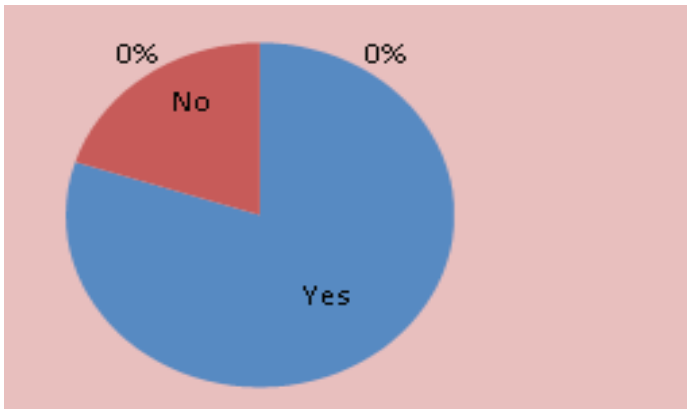
/ workshop in the classroom. It also contributes in the updation of curriculum development which stagnates the duplicity in the curriculum revision.



**Figure 9: Participation in any expert committee meeting/ workshop on curriculum revision/ development during the past five years in any school/ department of social work**

Figure 9 shows the percentage distribution of participation in expert committee meeting / workshop on curriculum revision / development during past five years in any school / department of social work by the respondents. Ninety-six respondents (64%) replied positively by describing that they have participated in any expert committee meeting / workshop on curriculum revision / development during past five years in any school / department of social work. Whereas 50 respondents (33.33%) replied negatively that they did not participate in any expert committee meeting / workshop on curriculum revision / development during past five years in any school / department of social work. Rest 4 respondents (2.67%) did not reply or attempt the question.

**Satisfied with the present social work syllabi of their school / department:** Most schools / departments of social work are still referring the western pedagogies vastly. The methods of case work and group work are being taught from the western perspectives. Even the contents of the syllabi are still not revised for updation of the curriculum. Therefore, the local efforts are needed to fit the theory according to the current Indian scenario. There are so many burning and contemporary issues required to be inculcated in our social work syllabi which are still untouched and unpublished. Therefore, the satisfaction related to present social work syllabi of the respondents' own schools / department was asked in order to whether they are satisfied with the already existing components of the syllabi of their schools / departments or they want some modifications in it. So, two options were created for this question: a) Yes, b) No.



**Figure 10: Satisfaction with present social work Syllabi of their school / department**

Figure 10 shows the percentage distribution of satisfaction of the respondents with the present social work syllabi of their university. It was observed through the responses that 120 respondents (80%) were satisfied with the present social work syllabi of their school / department. It means they did not need any modifications in their present social work syllabi of their school / department. They were contented with the existing (western) perspectives and pedagogies of their school / department. Rest 30 respondents (20%) were not satisfied with the present social work syllabi of their school / department. In the subsequent question the explanation was asked for if not satisfied with the present social work syllabi of your school / department. Those who were not satisfied specified the reasons for not having satisfied with the present social work syllabi of their school / department. The reasons have been jotted down for non-satisfaction with the present social work syllabi of their school / department:

**Non-updation and revision of syllabus:** According to thirty respondents (20%), not much attention is paid for the revision of syllabus. The syllabus is too lengthy, more theoretical rather than practical knowledge. Syllabus is not revised by the expert committee. Due to semester system, the revision of syllabi is on standby in various institutions. Semester pattern is not very useful for social work as according to the academicians (respondents), they try to amend the syllabi after every three years. The syllabus is not considered as student-friendly by some of the academicians and consists of irrelevant and vast syllabus. The field work syllabus is not structured in few institutions. The syllabus is not updated to the changing socio-political reality and unsuitable in Indian context as per the responses received. Although they have regular curriculum development meetings for syllabus updation

but they don't include professionals from development sector. Course curriculum require change, as presently it is not fulfilling the need and requirement of the current and prominent issues of our society. Syllabus should be contextual. Some respondents believe that quality of course curriculum has been compromised in their institutions.

**Theory and practice are not in consonance:** According to the seventy-five respondents (50%), theoretical aspect is more whereas practical component is less. Theory and practice linkages are not synchronized. The respondents feel that students are not able to relate theory into practice.

**Specialization is neglected:** While there are a range of interdisciplinary choices, some courses are confined in selection by certain specialization. According to fifteen respondents (10%), the curriculum ignores the specialization of labour welfare, youth welfare, geriatric care etc. It means specialization in certain areas is excluded. Environmental issues, disaster management, dissertation and other prominent social issues which are relevant in our society and needs to be dealt, not considered necessary to include in our curriculum framework.

**Optional subjects are taken for-granted:** According to fifteen respondents (10%), all the subjects are not carefully offered as they are kept as optional subject and due to lack of infrastructure, these subjects are not open to the students. Due to the availability of various courses, some courses are kept as optional. As these courses are optional in nature, the classes are not held up according to the schedule or occur fewer times in the semester. Although these optional courses depict the vary nature of our society which is essential for the students to learn. This in turn adds to the learning and increasing indigenous knowledge of our society. Also, this indignity helps synchronizing the more practical base component in social work and making available the indigenous practice-based theory. Due to its non-compliance in the curriculum, the teachers and students remain unaware of these aspects and in turn could not produce the indigenous literature which leads to ineffectiveness between social work theory and practice.

**Irrelevant Eurocentric model of social work and lack of indigenous knowledge:** Social work profession owes its origin through eurocentrism. It is quoted that social work came into existence in 1869 in United Kingdom with the establishment of Charity Organization Society (COS). Studies show that the models, theories,

perspectives taught are not relevant in our country. Community organization method is widely accepted in our Indian society. Neighborhood Development Model is one such model which best suits our Indian society. According to sixty respondents (40%), indigenous knowledge in social work must be added to teach the social work students to make the social work profession more practice-based. It's been more than eight decades of formalization of social work, that we are still relied on western perspectives, theories and models for social work origin. Indigenous knowledge in the form of indigenous literature availability; indigenous origin, models, perspectives, methods, theories etc. needs to be incorporated and adhered in order to strengthen the social work profession. The initiatives have been taken by the IGNOU in the development and publication of varied courses in social work education such as "Professional Social Work: Indian Perspectives (MSW-002)", "Social Work Practicum and Supervision (MSW-005)" and "Contemporary Methods and Values of Social Work (MSW-017)". These courses are offered in both the languages i.e., English and Hindi. Various other initiatives such as twelve values of social work, code of ethics and contemporary methods of social work have been developed by the IGNOU.

Teaching hours are compromised: According to forty-five respondents (30%), the teaching hours are not in consonance as the teachers are engaged in other activities. The social work faculty especially those who are recruited on guest and adhoc, are burdened with administrative tasks, which hampers the academic arena. Their engagement in seminars, workshops, conferences etc. lacks the academic quality.

**Need for further indigenization of social work curriculum:** The concept of indigenization of social work curriculum means the localization and contribution of the different spheres of one's own ideas, skills used, techniques etc. The western pedagogies have been influential over the years since the formalization of social work education. After eight decades, most of the schools / departments of social work are still relied on the Eurocentric model of social work. Therefore, it's high time to indigenize our practice related to social work. To indigenize the practice of social work, the concept of 'Bhartiyakaran' is being included in the curriculum of some universities. In this, the contribution by various unknown tribes, rural areas, and specific models of development within the country has been and still being inculcated. The proliferation of indigenization (Bhartiyakaran) is taking place on a wider level.

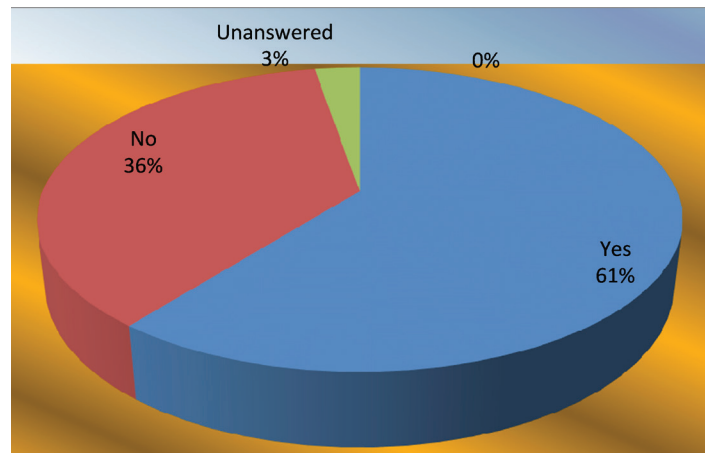


Figure 11: Need for further indigenization of social work curriculum

Figure 11 shows the percentage distribution for having the need for further indigenization of social work curriculum. Ninety-one respondents (61%) responded for having the need for further indigenization of social work curriculum. Fifty-five respondents (36%) responded of not having the need for further indigenization of social work curriculum. Rest four respondents (3%) did not answer or attempt this question. The options created for this question. Those who felt of having the need for further indigenization of social work curriculum have specified the following areas to be included in the social work curriculum:

#### Different regions especially rural and tribal areas

According to seventy percent of responses, different regions in India especially rural and tribal areas must be included while reframing the curriculum. The development done in the rural and tribal sectors, Indian experiences related to these sectors, success stories etc. should be given weightage in our theoretical aspects.

Availability of indigenous literature: According to approximately 75 per cent of responses received, the books should be written on Indian Perspectives and Indian authors. The literature should be made available on Indian concepts, philosophy, ideologies, methods, principles, values, techniques, etc. Indian history, cultural perspectives through the lenses of social work should be introduced in the curriculum. Community organization method needs to be developed in a proper manner as this is the only vast and apt method in social work through which all other methods can be practiced. More illustrations and case studies such as family-based interventions should be integrated as indigenized theories and approaches in social work educational curriculum and should teach to our students. As there is



a course in social work syllabi named areas of social work practice should be imbibed from Indian perspectives. Local concepts and knowledge of indigenization related to area-specific community should be developed more. Indigenization of social work in India should be framed in the line of social reform movements. It should be indigenized by giving credits to our Indian social reformers, activists and welfarists as it is much needed to understand and appreciate the relevance of various social thinkers, their thoughts and writings in the practice of social work and understanding ideologies for social change. Other indigenous methods existing and pertinent to our current social needs, need to be developed and documented in our syllabus. Current issues should be addressed in our curriculum and the fundamental provisions, enactments, various policies and legislations related to current social issues should be formed and included in social work curriculum. Methods should be contextualized and resolve the structural issues of the country. Indigenous knowledge must be explored and added to the present means indigenization needs to be operationally defined, what to be explored, how to be explored etc. The knowledge of field exposure (MSW-005) should be included in the curriculum. Rich ancient yogic system should be introduced. Use of novels, stories in Indian context in teaching and practice of social work should be introduced to make students understand the social reality and the sensitivity required to deal with different situations. Testing and validating the existing knowledge and theories in the Indian context is needed. Greater focus on social work research and evidence-based practice documentation pertinent to indigenous aspects can be used for teaching, learning and developing theorization.

**Socio-economic-political and cultural aspect:** India is a blend of a diverse culture, ethnicity, language, beliefs and traditions. Every aspect has its own relevance which is significant to be incorporated in different areas of social work practice. Forty percent of respondents opined that the development related to economic and social aspects are also very important and should be included in the curriculum. Whereas it is necessary to know and understand the concepts of Indian politics in social works to what rights are being given to citizens of the country; what are the policies, legislations, acts etc. For instance, inclusion of excluded sections and minority communities such as Dalits, tribes, cross-cultural aspects, differently-abled etc. needs to be given more focus and are apt to study in indigenous context.

**Contemporary and Environmental issues:** According to ten percent of responses received, contemporary issues

such as relevance, usage, pros and cons of technology driven education, women's related issues especially upliftment and development of women living in rural and remote areas, issues related LGBT and commercial sex workers, Corporate Social Responsibility (CSR), Forensic social work, cyber-crime and social work etc. should be given peculiar focus and should be inculcated in the curriculum of social work. Social work curriculum should include more courses on sustainable development in terms of environment; eco-friendly aspects should also be addressed and included with much emphasis. The matter of environmental degradation is a very crucial social issue in today's arena which should be inscribed in our curriculum.

**Social work council is mandatory:** According to sixty respondents (40%), most institutions offer social work by clubbing it with or under other disciplines like sociology, human resource etc. In such case social work academicians and students have to follow their exam and study criteria. This imposes a huge pressure on social work profession to flourish independently. It all sustains due to the lack of social work council. Therefore, a proper council for social work is direly needed in our country.

### **Conclusion**

The above findings depict the responses from the social work academicians (respondents). Majority accepts almost all mode of teaching in the classroom, use of audio-visual programme, number of social work journals purchased, faculty exclusively to coordinate field work, kind of publications, exchange / exposure visit programme for social work students / faculties, publication of journal by their school / department, seminar / conference organized by their school / department, award / scholarship in the honor of former social work academician, participation in expert committee meeting, satisfaction with present social work syllabi and need for further indigenization. Whereas there are others who are unsatisfied with the present social work syllabi of their school / department and feel the need for further indigenization. They have specified the reasons for the same. So, the areas which are uncovered according to some of the social work academicians need to be addressed and included in the social work curriculum as these loopholes, if inculcated in the curriculum, would be paid attention to and worked upon. This will not only fill in the gaps lying in social work education (curriculum) but would even strengthen the social work as a profession.



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# Health Condition of Women Worker's in Hosiery Industries of Tamil Nadu

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## Abstract

Women's health is always looked in relation to maternity and their occupational health problems are seldom being considered. Women's health play a vital role but their aspect is been overlooked by the authorities to promote the industry as well as women workers and their family. The measures taken by the government to provide a healthy place to work in brings a solution to many issues and problems. Where health is, wealth prevails, so working women should work in a clean and healthy atmosphere.

**Keywords:** Women, Work, Health, Hosiery, Industry, Tamil Nadu, Issue, Challenges

*Women know the financial, social and physical costs of not having access to basic health care.*

*–Martha Plimpton*

## Introduction

The term "Health" is widely used in every day conversation, with little apparent ambiguity. However, on closer examination reveals various different interpretation of health each with different implications for the role of the state. According to the oldest definition health is "the absence of disease". An older definition of health is the ability to function effectively within one's environment.

The WHO defines health as "a state of physical, mental and social wellbeing and not merely the absence of disease on infirmity and indicates clear shift away from an earlier narrow organic or functionally based definitions of health to a more holistic view. It seems the health of an individual or community being concerned not only with physical and mental status, but also with social and economic relationship. A directory definition defines health of "soundness" of Body.

**Importance of Health:** Health status is one of the important indicators of the welfare of the people. The

issue of health is of great importance both from the point of view of the individual and the nation as well. In any country it is the health status of the people that determines their well being and pace of economic and social development.

**Health Scenario of Women:** The tragic loss of ideals in public conduct and policy within India is now here more obvious than in the area of health. For in this area alone, failure cannot be ignored or glossed over. It is visible in the glaring spotlight of health statistics, reflecting the pain, suffering and death of the Indian man, women and child. The poor continue to bear the brunt of infections illnesses, both old and new, such as infective gastroenteritis, tuberculosis, malaria, hepatitis and of course HIV/AIDS. As for women, not only are they falling victims to a worryingly high incidence of cancer of the cervix and breast, they are getting increasingly trapped by the complex health issues raised by hormone use and abuse.

**Issue of Health:** Women anywhere in the world have to suffer from some in built disadvantages, compared to men, because of certain biological reasons. They have to put up with menstruation, pregnancy, child birth, lactation, child rearing and menopause and their various complications. Physically, they are less strong they are

also one vulnerable to sexual aggression and abuse. The different cultural, social and economic situations have given different focus to these biological disadvantages of women. These situations also influence the way these biological disadvantages of women. These situations also influence the way these biological disadvantages affect the health of the working women. The Factory Act outlines the principal health risks to factory workers, which arise from dangerous gases, acids and dust, harmful bacteria and micro-organisms, compressed and rarefied atmosphere, improper lighting, extremes of temperature, humidity and excessive strain. But it is silent on the impact of all these on women workers. The repercussions on women can be slightly different from those on men because of the additional physical and psychological factors and can be complicated by pregnancy, maternity and gynecological issues. Further environmental factors like heat, humidity, repetitive work, toxic substances also affect women. They can adversely condition pregnancy, child birth, lactation, child rearing and menopause and their various complications. Women must be prohibited from employment in dangerous and heavy operations. Industrial working women general weakness persisting among the workers during the evening and the night time is an indicator of their poor health status. An effort to trace out their particular health problems exposes that, majority of the respondents making up 66% suffer from pain in the backbone, neck and shoulder. The problem of "Back Pain" may be associated with the women either working in garment. Besides back pain, the other health troubles occurring among these workers are Gastritis Joint Pains and Headache.

**Health Status of Working Women:** Every human being possesses the right to life and health and to the necessities of life including proper medical services. People in general are poor in health; women in particular are the poorest in health. The health status of women in India as indicated by demography and statistics is a matter of concern. Improved health status of women provides the key to their equitable and effective participation in overall socio-economic development. The health status of women in industries and as it is affected by various loopholes contained in the work environment of industry. A large number of women under economic compulsion search out work in the informal industrial sector and the situations of stress and strain both at workplace and home lead to the loss of mental pre-requisites of a person's general well being.

**Occupational Health:** Modern industry creates environment to a host of unknown disease. The Factory Act of 1948 dealt with comprehensive problems of health, welfare and safety. Health ministers conference was held in 1949 to discuss the industrial health. The Public Health

Act of 1939 was amended in 1939 was amended in 1959. It provided for the preventive and control of communicable disease and hygienic and sanitary conditions in catering establishments. Health officers in the state inspected the factories very often and their work improved the health of the factory workers. Garment manufacturing like other industrial processes, can be hazardous work. There are many different types of machinery used in the garment industry. They are used to knit and weave, sew or cut patterns and cloth. Many tasks in garment manufacturing require repetitive motions. The work is also characterized by awkward, uncomfortable working positions. To prevent ergonomic injuries workers should be encouraged to rotate tasks or take frequent, short breaks to stretch and relax muscles. Female garment workers are among the highest risk occupational groups for ergonomically related diseases initiating with aching backs, painful shoulders or burning wrists. Besides that, there are many other hazards for the health of garment workers noise, poor lighting, dust etc. Chemicals are also used in garment industry; dyes, enzymes, solvents. Therefore sometimes respiratory protection might be needed. Also eye protection and hearing protection may be necessary. The psychological side cannot be under estimated either as those working in sewers often face monotonous work and constant time pressure (their wages is calculated by the price of certain operations per minute. The Knitting Textile Ltd, the investigated company in this research employs female garment workers. Its main production is work clothes (Jackets, trousers, smokes, overalls, winter cloths and specific work clothes).

#### **Occupational Accidents:**

- (i) a sewing machine operator forgot to remove her finger from the press-stud machine (1 cm of the finger tip was cut)
- (ii) a cleaner fell which caused a bone fracture.

Other accidents included sewing the finger, pricking a finger with scissors, trailer falling on toes, falling down on the way from home to work.

Many more work accidents occurred in the textiles and clothing industry.

- (i) a sewing machine operator stumbled on the stairs and fell (fracture of scaphoid bone of right arm).
- (ii) a sewer omitted her finger to the press-stud machine (1 cm of the finger tip was cut).
- (iii) a sewer fell in the hall because of wet floor. (fracture of left spoke bone)

The most common microclimate problem in the controlled companies was insufficient ventilation. The main disturbing factors were dust, lack of air and draught. It is especially problematic in summer when

the doors and windows are opened to get more air which causes general sicknesses (bronchitis) as well as sicknesses caused by compulsory work posture (overload diseases). In most of the checked companies, there was no risk analysis carried out which means there was no definite plan framed to improve work conditions. Workplace design, assessing the design and layout included physical layout of the workplace, temperature, noise lighting of workplaces and ventilation.

**Health Problem of Hosiery Women Workers**

Thermal stress associated with inadequate airflow or cold conditions can increase the risk of health problems. Badly designed air conditioning, such as the positioning of ventilation above the working area can cause droughts discomfort and contribute to other problems. Noise not only affects concentration, but it also causes permanent hearing loss. Lighting problems also include glare and a lack of natural light that can cause eyestrain and vision problems. Noise and lack of appropriate privacy can lead to poor concentrations and affect work performance.

**Seating:** The vast majority of operations are performed in a seated position. Seating encountered in the sewing environment typically consists of straight-backed wooden or metal chairs. These kinds of chairs might lack any cushion that reduces compression and fatigue, lack any adjustable backrests, and often are of improper height. Most operators customize their chairs with homemade cushions on the pain and backrest in order to adjust the height and increase pliancy. Most adjustments increase seat height by 3-6 cm when compressed.

**Opinion of Respondents**

**Table 1: Work Effects The Health**

S.No	Details	No. of Respondents	Percentage
1.	Yes	584	64.9%
2.	No	304	33.8%
3.	No Response	12	1.3%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

People working in Hosiery industries are prone to get some fatal effects. With the research taken, 64.9% people assert positive answer to the question. 33.8% feel that there is no barrier for health. In common, every work undertaken in Hosiery industries is dangerous. Women get aggravation of health sooner. They are prone to diseases like asthma, lung injuries, etc. They also get itches and skin diseases too. They are always used to expose to many chemicals that are very harmful.

**Table 2: Common Health Hazards Found in Hosiery Industries**

S.No	Details		Yes	No	Total
1.	Back Pain	No. of Respondents	756	144	900
		Percentage	84%	16%	100%
2.	Leg pain	No. of Respondents	747	153	900
		Percentage	83%	17%	100%
3.	Eye pain	No. of Respondents	145	755	900
		Percentage	16.1%	83.9%	100%
4.	Nervous weakness	No. of Respondents	816	84	900
		Percentage	90.7%	9.3%	100%
5.	Others	No. of Respondents	292	608	900
		Percentage	32.4%	67.6%	100%

Whatever the work may be, hazards would be there and they are inevitable. Women are prone to face so many problems in the workplace. Women working in the Hosiery industry are forced to face so many difficulties like back pain, neck pain, eye problems and nervous disorders.

**Back Pain:** Women in Hosiery industry undertake works sitting alone. Among them cutting, sizing, tailoring and coloring play a vital role, these works are done sitting. They work for more than twelve hours in the workplace. However large amount of clothes may be they have to do some works standing. Because of their hectic work, they get ailments that are inevitable. 84% women assert that they get leg ailments to a greater extent. They face crucial consequences. 16% women feel that the leg ailments do not matter. They face a lot of physical ailments.

**Eye Pain:** Eyes are so important for the people. If eyes are spoilt, it is not easy to recuperate them. Eyes play an important role for the workers in the Hosiery industry. Through this research, it is evident that 83.9% assert that there is no problem for their eyes during their works. 16.1% of them feel their eyes to be in a problematic stage. If we do any works, concentrating severely with our eyes, it is obvious that people may spoil our eyesight. Workers in the Hosiery industry put much concentration in their workplace and therefore their eyes are strained to a greater extent. During the works like coloring and sizing, they too much strain their eyes. Working sometimes with acids and colors, they are prone to get some essences unto their eyes. They also sometimes get migraine. They keep their eyes in same direction for long time that they may spoil their eyes during old age. It only shows their ignorance toward eyesight. The companies may arrange for an eye camp for their workers.



**Nervous Disorder:** Nervous disorder occurs because of too much of work. Especially in Hosiery it is prevalent for women working hard to earn for their family. Having scissors in hands, working in machines and knitting the clothes demand too much of physical works in the industry because of which they are prone to nervous disorder sooner. 90.7% women assert that they get nervous disorder working in the Hosiery industries and 9.3% of them agree that they are not known to such disorders and it only shows their illiteracy. For some women, they soon get such disorders because of which their extensive life span is curtailed. Already women are not that valorous physically and because of strenuous works in Hosiery industries, they further spoil their health.

**Other Health Issues:** Because of the reasons mentioned above, women are prone to some contagious diseases. Besides, they are also happened to tolerate harassments from the male side. The air they breathe, the acid they respire and the congestion they bear within the companies, make the workers feel suffocated all the times. Because of the reasons mentioned above, they are also sometimes driven to get lung cancer. Further consequences also they face because of congestion and combustion within the company. 67.6% women feel that they do not face any harm in their workplace and 32.4% of them agree that they face such harms in the workplace.

**Chi Square Analysis**

**Table 3: Common Hazards Found in The Handloom Industries for each Age group**

Age	Back pain	Leg pain	Eye pain	Nervous weakness	Others
10-14	22	21	8	22	14
15-19	31	31	4	32	5
20-24	49	49	13	59	31
25-64	263	259	50	285	96
65+	391	387	70	418	146
<b>Total</b>	<b>756</b>	<b>747</b>	<b>145</b>	<b>816</b>	<b>292</b>

From the above table it can be observed that there is a significant relationship between age and perceived hazards in the handloom industry. The hazards are perceived more with the advancing age. The age group of 65 plus perceive the most issues in all the categories of hazards, followed by the 25-64 age group and then the 20-24 age group. The very young age group do not perceive the hazards that much.

**Prevention of Occupational Hazards:** In order to prevent accidents in the industries, 83.8% women agree to the preventive measures in the workplace. 14.0% agree

the inefficient preventive measures in their workplaces. There is no proper facility for emergency. They do sometimes lend emergency measurements but they are not enough. In growing Hosiery industries, they do not take such measures when building the companies. Even if the sand for stopping the fire and the air puffed cylinder, the company is found to be built in a meager place. There is no emergency exit. The steps built are not that large. In some companies, the buildings so sophisticated are not that efficient in protecting when during emergency. Machines being available for the work do not include preventive measures. They wear gloves and masks so as to protect them from the dangers but even then their legs are prone to get injured. They do not wear slippers till their knees for prevention. But the preventive measures are not at all taken by the company for the welfare of the people.

**Table 4: Problems Faced at Work**

S. No	Details	No. of Respondents	Percentage
1.	Noise	230	26%
2.	Lack of Ventilation	368	41%
3.	Heat	264	29%
4.	Lack of Space	30	3%
5.	No Respondents	8	1%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

With the discussion had in the Hosiery industry workers, they say that noise pollution, heat, insufficient place and ventilation are the most disturbing factors in their workplace.

**Noise Pollution:** Noise from knitting machine, cutting machine and from other machines make the working place so noisy. 26% women assert that this causes many disturbances in their regular life.

**Ventilation:** Ventilation is the basic necessity of every people. Pure air is necessary in the workplace. In Hosiery industry, this need is always met for the ventilation is not proper and huge inside the company because the dust the machines exude is breathed by the workers. It causes some damages in the lungs. 41% women feel ventilation's need to be necessary.

**Heat:** Since there is noise pollution, improper ventilation and huge working population, the heat inside the company is inevitable. It causes some disturbances among working women. On their working table and over their machines, there are lights and so the production of heat is huge. The heat spreads into the body sooner. It does not cause any cessation in their works but the danger to come in the future is severe. 29% women feel heat to be a kind of disturbance.

**Lack of Space:** Lack of space is a heavy disturbance to the place of work but only 3% women feel space to be a disturbance. During the research, it is observed that the space for the workers is filled with clothes that their faces are hardly seen. They are immersed in the clothes. They do not have proper working environment. Even if the working space is huge, it would be submerged with clothes. With this observation, it is evident that the space of work is not that large. It is a hidden problem for the workers. It causes some respiratory problems for the workers and it may also cause heart attack for the workers. Some women are not aware of the problems they face because of lack of space. They work because of the family situation.

**Sexual Harassment:** Working women are harassed by their bosses and colleagues. Those who come from cultured families and also have some financial means give up their job as a protest. But women who come from the lower middle class and are sole supporters of a family or their income is an indispensable supplement to their husband bear their boss's sexual overtones silently. Sexual harassment is on the increase more due to the aggressive, brash and antagonistic "Masculine" behavioral patterns prevalent today. Harassment is about unequal power relations. This has a direct bearing on women right to health and environment. Most women do not even want to register a complaint not because of the social stigma attached to such a situation, but out of fear of the backlash. Hence forth sexual harassment, which included in welcome sexuality determined behaviour such as physical contact and advances, a demand or request for sexual favors, sexually coloured remarks, showing pornography and any other unwelcomed physical, verbal or non-verbal conduct under the MSSO, according to a labour department release. Sexual harassment a lonely girl away from her family or lonely women away from her husband is always criticized, commented upon and taken for the one or other type of sexual harassment by society. Working women is not only alone from her family but under the obligation of her owner employer and superior people and have easy working conditions. It normally happens in private factories that women are sexually harassed.

**Table 5: Problems Faced by Women Worker**

S.No	Details	No. of Respondents	Percentage
1.	Yes	681	75.7%
2.	No	207	23.0%
3.	No Response	12	1.3%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

Between men and women, it is women who face lot of difficulties and struggles in their working place

physically and psychologically. They are expected to spread a lot of physical strength for accomplishing any kind of work and so it plots a way for lot of sexual harassments in the workplace. During night shifts, they have to face a lot struggles and they also encounter some sexual harassments. The disparity between men and women are strongly shown in the working environment. The domination of male is always held high. They are prone to face lot of sexual torchers in the place of work. 75.7% women say that men give some sexual in the work place in Hosiery industry. Moreover, the noise pollution aggravates their strength of psychology. They cannot build relationships between the co-workers and so if the place for women is separately given, it would yield good for women.

**HIV / AIDS:** HIV / AIDS and other sexually transmitted diseases, the transmission of which is sometimes a consequence of sexual violence, are having a deva stating effect on women's health, particularly the health of adolescent girls and young women. They often do not have the power to insist on safe and responsible sex practices and have little access to information and services for prevention and treatment. Women who represent half of all adults newly infected with HIV / AIDS and other sexually transmitted diseases, have emphasized that social vulnerability and the unequal power relationships between women and men are obstacles to safe sex, in their efforts to control the spread of sexually transmitted diseases. The consequences of HIV/ AIDS reach beyond women's as mothers and caregivers and their contribution to the economic support of their families. The social, developmental and health consequences of HIV / AIDS and other sexually transmitted diseases need to be seen from a gender perspective. Sexual and gender – based, violence, including physical and psychological abuse, trafficking in women and girls, and other forms of abuse and sexual exploitation place girls and women at high risk of physical and mental trauma, disease and unwanted pregnancy. Such situations often deter women from using health and other services. Mental disorders related to marginalization, powerlessness and poverty, along with overwork and stress and the growing incidence of domestic violence as well as substance abuse, are among other health issues of growing concern to women. Women throughout the world, especially young women, are increasing their use of tobacco with serious effects on their health and that of their children. Occupational health issues are also growing in importance, as a large number of women work in low paid jobs in either the formal or the informal labour market under tedious and unhealthy conditions and the number is rising. Cancers of the breast and cervix and other cancers of the reproductive system, as well as infertility affect growing numbers of women and may be

preventable, or curable, if detected early. Communicable diseases remain the leading causes of death world wide. That inequalities dominate in the AIDS battle has stunned even the hardened fighters in the AIDS and HIV was the rampaging advance of AIDS and HIV among women and girls.

**Aids in Knitting Garments:** Due to the congestion in the town, New Tirupur has been developed 12 km from the town. A part from surge in development, the health condition of the people here is deteriorating quickly due to the high amount of pollution. Many severe disease such as asthma, brochettes and sleeplessness affect the people very badly. Recently, there has been an outbreak of the wide spread endemic disease AIDS in the town due to the sexual illiteracy among the workers and the majority of the teenaged girls and boys working during the night shift hours in the knitting garments factories. The disease spread in the town is heading top the list in worst affected cities in Tamilnadu. Many health rehabilitation programmes have been organized by Government of Tamilnadu and many private agencies to open the eyes of the people.

**Challenge in Water River Pollution:** It is very clear that the export boom in Tirupur has led to damage to the environment. To industry has undervalued the environmental costs. However, the environmental cost, borne by the downstream communities who have no connection with the industries is a major concern. Moreover the physical environment (ground water, soil, river, ponds and biodiversity) of the entire region may be losing its Ecological value in an irreversible manner. There are a number of reasons for the unsustainable development of Tirupur, which can broadly be classified as market failure, policy failure and institutional failure.

**Responses of Entrepreneurs :** The processing. Units are in the small-scale sector and hence the affordability of pollution control is a problem. In a competitive market situation entrepreneurs have problems in transferring the burden of pollution abatement to the consumers. The possibility for integrating the pollution abatement cost in the overall garment production in a decentralized cluster like Tirupur is small. At present the dyers have the full responsibility of environmental management in Tirupur but they are relatively small players. Thus, it has not been possible to internalize the external cost of pollution – a classic case of market failure. Market failure at the international level has also failed to provide a “premium” for eco-friendly production which would have been an incentive to the industry. The concept of “green production business” has not influenced the Tirupur industry. Ecolabeling considers only the product quality and not about the environmental aspects related to

manufacturing. The overseas importers and consumers are aware about the environmental problems related, to hosiery production, but their primary consideration is the market price. Presently they are not willing to pay more for the products, which are manufactured in an eco-friendly manner with proper pollution management.

**Responses of Government :** The liberalization policy and the subsequent expansion in international trade did not take into account the potential impact on the environment. It was anticipated that trade liberalization. It would provide significant gains to developing countries. Since most of the developing countries do not have sound environmental policies, trade liberalization often results in natural resource degradation and pollution problems. Many of the industrial units which achieved substantial progress after trade liberalization are in the cottage and small scale sectors. This has take place also as part of national industrial policies, which provide reservation of industries, like hosiery under SSIs. Since SSIs do not have clean technologies as well as modern pollution management, they are facing serious difficulties in complying with domestic environmental regulations. In the Tirupur case, exports which enhanced the economic activities have also increased pollution.<sup>23</sup> Industrial policies do not taken into account environmental repercussions. In Tirupur, textile industrial growth is the key factor responsible for water pollution. But industrial policies rarely consider the pollution/ environmental aspects. The policy decision of the pollution Control Board (PCB) to permit the units to put up their own individual effluent treatment plants has added to the workload of the Board. In a Small Scale Sluster all. Majority of the units should have joined with Common Effluent Treatment plant. But in Tirupur out of 702 units only 278 units are with common Effluent Treatment Plant. The Pollution Control Board. (PCB) established a separate District Environmental Engineer's office at Tirupur in 1996. Besides, a District Environmental laboratory was also established. Even, with the existing staff all infrastructure facilities it is extremely difficult for them to monitor the 702 processing units in an effective manner.

**Responses of Associations:** The environmental management history of Tirupur reveals the difficulties faced by the different institutions / actors like the State Pollution Control Board, Industrial organizations, NGOS, Local Government and the Water Resources Organizations, in finding a solution for the problem. Otherwise the environmental impacts may not have reached this level. At present with the existing effluent treatment facilities are not meeting the TDS Standard. Tirupur Exporters' Association (TEA), South India Textile Research Association



(SITRA), Export Promotion Council (AEPC), Textile Committee (TC) South India Hosiery Manufacture Association (SIHMA), and the Tirupur Dyers Association (TDA) are the major facilitators for hosiery industrial development in Tirupur.

**Table 6: Precautions Taken to Avoid Occupational Hazards**

S.No	Details	No. of Respondents	Percentage
1.	Yes	754	83.8%
2.	No	20	2.2%
3.	No Response	126	14.0%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

In order to prevent accidents in the industries, 83.8% women agree to the preventive measures in the workplace. 14.0% agree the inefficient preventive measures in their workplaces. There is no proper facility for emergency. They do sometimes lend emergency measurements but they are not enough. In growing Hosiery industries, they do not take such measures when building the companies. Even if the sand for stopping the fire and the air puffed cylinder are kept the company is found to be built in a meager place. There is no emergency exit. The steps built are not that large. In some companies, the buildings so sophisticated are not that efficient in protecting when during emergency. Machines being available for the work do not include preventive measures.<sup>51</sup> They wear gloves and masks so as to protect them from the dangers but even then their legs are prone to get injured. They do not wear slippers till their knees for prevention. But the preventive measures are not at all taken by the company for the welfare of the people.

**Table 7: Medical Expenses Borne**

S.No	Details	No. of Respondents	Percentage
1.	Industry	636	70.7%
2.	Individual	212	23.6%
3.	Both	40	4.4
4.	No Response	12	1.3%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

In medical emergency, the companies most of the times would voluntarily face the medical expenses. When during the work, if some medical emergency has happened, the company may not take responsibilities just like that. 70.7% women say that the company would not meet the medical emergencies. 23.6% women assert that the companies do not take any responsibilities during the medical emergency. 4.4% women say that the companies and the injured share the expenses and so if the government

intervenes in such cases, it would be definitely helpful for the people that they would be indulgent in their workplaces asserted to them. The widows in the family must be under a kind of stress if there is no medical emergency for them.<sup>52</sup>

**Facilities of Working Women:** The establishment of Day-Care Centres, Creches and balwadi should be promoted on a large scale in rural, semi-urban and urban areas to help working mothers and active women social workers discharge their duties and enable the older children to attend school. Hostel facilities for working women of the lower income groups should be expanded.

**Table 8: Availability of Crèche Facility**

S.No	Details	No. of Respondents	Percentage
1.	Yes	228	25.3%
2.	No	656	72.9%
3.	No Response	16	1.8%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

In this modern era, women go for work. However, family and children are important to them. They have to take care of their familial responsibilities and the work too. Women working in Hosiery industry, they are from northern part of India and therefore they have to concentrate on both things – family and work. Among them some are newly married and some workers desire to have their own privacy. So they cannot leave their children back at home and go for working because in some families there is no elder to take care of the children. In some industries there is no separate building for caring the children. In some hosiery industries, it functions only during the commission of the authority but not regularly.<sup>53</sup> Through this research, 72.9% of the women assert that there is no proper maintenance of crèche in the industries and 25.3% of them say that there is crèche in the industries.

**Table 9: Presence of First Aid Boxes in Work Place**

S.No	Details	No. of Respondents	Percentage
1.	Yes	736	81.8%
2.	No	156	17.3%
3.	No Response	8	0.9%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

First aid box comprises some important medicines used for some sudden accidents. For some urgency, these medicines could be used. It is necessary to have such aid boxes in every company that it may be helpful in the times of accidents. In the research done in Hosiery industry, 81.8% workers assert that there is proper maintenance of first aid box and 17.3% of them say that there is nothing called First aid box in their companies.



During some accidents like fire or laceration in the body or scalding through acids, one respondent says that there are only old medicines in the first aid box and it cannot be used. Being unable to use those medicines, they only use aids like talcum powder and such things.

**Table 10: Sick Room Facility In Work Place**

S.No	Details	No. of Respondents	Percentage
1.	Yes	799	88.8%
2.	No	89	9.9%
3.	No Response	12	1.3%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

For doing any kind of medical activities, there must be a separate room in every company. Under the research, 88.8% working women say that there is a proper maintained room for them in Hosiery industries. 9.9% says that there is no separate room for medical activity in the industries. In the accident places itself, people are treated medically.

**Table 11: Presence of Doctor and Nurse in Work Place**

S.No	Details	No. of Respondents	Percentage
1.	Yes	210	23.3%
2.	No	678	75.3%
3.	No Response	12	1.3%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

It is inevitable in every industry that during any kind of urgency to keep a practitioner within the industry. For some unexpected accidents to the women workers, it is necessary to get a doctor suddenly but 75.3% of women assert that there are no separate doctors, appointed for emergency. Besides, 23.3% of them say that there are some possibilities for them to avail a doctor during emergency instead they are taken to the hospitals by their co-workers. Some serious conditions only doctors are asked to come.

**Table 12: Presence of Lady Doctor to Look into Health Issues**

S.No	Details	No. of Respondents	Percentage
1.	Yes	343	38.1%
2.	No	545	60.6%
3.	No Response	12	1.3%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

For the working place completely comprising women, it is necessary to appoint a lady doctor and a lady nurse. With the research, 60.6% of women assert that there is

no facility as such. 38.1% women say that there is always a lady doctor and a lady nurse in their industries. In big companies alone, there is an availability of lady doctor and a lady nurse.

**Table 13: Number of Respondents Availing Medical Leave**

S. No	Details	No. of Respondents	Percentage
1.	Yes	302	33.6%
2.	No	582	64.7%
3.	No Response	16	1.8%
<b>Total</b>		<b>900</b>	<b>100.0%</b>

Women without any means of support and the physically handicapped should be provided services for education, training and rehabilitation so that they can become selfreliant. Old aged homes should be opened for the aged and the infirm special programmes should be developed for unmarried mothers and their children. The provision of the suppression of Immoral Traffic Act (1956) should be reviewed to facilitate their more efficient implementation. Comprehensive rehabilitation programmes for victims of immoral traffic and their children should be developed. Special steps should be taken to prevent vulnerable young girls and women from becoming victims of this social evil.

**Health Provisions Under The Factories Act**

**Cleanliness**

1. Every factory shall be kept clean and free from effluvia arising from any drain, privy or other nuisance and in particular.
  - a. Accumulation of dirt and refuse shall be removed daily by sweeping or by any other effective method from the floors and benches of workrooms and from staircases and passages, and disposed of in a suitable manner.
  - b. The floor of every workroom shall be cleaned at least once in every week by washing, using disinfectant, where necessary or by some other effective method.
  - c. Where a floor is liable to become wet in the course of any manufacturing process to such extent as is capable of being drained, effective means of drainage shall be provided and maintained.
  - d. All inside walls and partitions, all ceilings or tops of rooms and all walls, sides and tops of passages and staircases shall painted, otherwise than with washable water paint or varnished, be repainted or revarnished at least once in every period of five years;

### **Disposal of Waste and Effluents**

1. Effective arrangement shall be made in every factory for the treatment of wastes and effluents due to the manufacturing process carried on therein, so as to render them innocuous, and for their disposal.
2. The State Government may make rules prescribing the arrangements to be made under subsection or requiring that the arrangements made in accordance with sub-section shall be approved by such authority as may be prescribed.

### **Measures Adopted for Proper (Ventilation and Temperature)**

1. Effective and suitable provision shall be made in every factory for securing and maintaining in every workroom.
2. Adequate ventilation by the circulation of fresh air, and
3. Such a temperature as will secure to workers therein reasonable conditions of comfort and prevent injury to health; and in particular,
4. Walls and roofs shall be of such material and so designed that such temperature shall not be exceeded but kept as low as practicable;
5. Where the nature of the work carried on in the factory involves, or is likely to involve, the production of excessively high temperatures. Such adequate measures as are practicable shall be taken to protect the workers therefore by separating the process which produces such temperatures from the workroom, by insulating the hot parts or by other effective means.
6. The State Government (proper measuring instruments at such places and in such position as may be specified, shall be provided and such records, as may be prescribed, shall be maintained).
7. If it appears to the Chief Inspector that excessively high temperatures in any factory can be reduced by the adoption of suitable measures, he may, without prejudice to the rules made under sub-section. Serve on the occupier an order in writing specifying the measures which, in his opinion, should be adopted, and requiring them to be carried out before a specified date.

### **Dust and Fume**

In every factory in which, by reason of the manufacturing process carried on, there is given off any dust or fume or other impurity of such a nature and to such an extent as is likely to be injurious or offensive to the workers employed therein, or any dust in substantial quantities,

effective measures shall be taken to prevent its inhalation and accumulation in any workroom, and if any exhaust appliance is necessary for this purpose, it shall be applied as near as possible to the point of origin of the dust, fume or other impurity, and such point shall be enclosed as far as possible.

### **Artificial Humidification**

1. In respect of all factories in which the humidity of air is artificially increased, the State Government may make rules:
  - a. Prescribing standards of humidification;
  - b. Regulating the methods used for artificially increasing the humidity of the air;
  - c. Directing prescribed tests for determining the humidity of the air to be correctly carried out and recorded;
  - d. Prescribing methods to be adopted for securing adequate ventilation and cooling of the air in the workrooms.
  - e. If any factory in which the humidity of the air is artificially increased, the water used for the purpose shall be taken from a public supply, or other source of drinking water, or shall be effectively purified before it is so used.

### **Overcrowding**

1. No room in any factory shall be overcrowded to an extent injurious to the health of the workers employed therein.
2. Without prejudice to the generality of sub-section (1), there shall be in every workroom of a factory in existence on the date of the commencement of this Act at least (9.9 cubic metres) and of a factory built after the commencement of this Act at least (14.2 cubic metres) of space for every worker employed therein, and for the purposes of this sub-section no account shall be taken of any space which is more than (4.2 metres) above the level of the floor of the room.
3. If the Chief Inspector by order in writing so requires, there shall be posted in each workroom of a factory a notice specifying the maximum number of workers who may, in compliance with the provisions of this section, be employed in the room.
4. The Chief Inspector may be order in writing exempt subject to such conditions, if any, as he may think fit to impose, any workroom from the provisions of this section, if he is satisfied that compliance there with in respect of the room is unnecessary in the interest of the health of the workers employed therein.

### **Lighting**

1. In every part of a factory where workers are working or passing there shall be provided and maintained sufficient and suitable lighting, natural or artificial, or both.
2. In every factory all glazed windows and skylights used for the lighting of the workroom shall be kept clean on both the inner and outer surfaces and, so far as compliance with the provisions of any rules made under subsection (3) of Section 13 will allow, free from obstruction.
3. In every factory effective provision shall so far as is practicable, be made for the prevention of
  - a. Glare, either directly from a source of light or by reflection from a smooth or polished surface.
  - b. The formation of shadows to such an extent as to cause eyestrain or the risk of accident to any worker.
4. The State Government may prescribe standards of sufficient and suitable lighting for factories or for any class or description of factories or for any manufacturing process.

### **Drinking Water**

1. In every factory effective arrangements shall be made to provide and maintain at suitable points conveniently situated for all workers employed therein a sufficient supply of wholesome drinking water.
2. All such points shall be legibly marked "drinking water" in a language understood by a majority of the workers employed in the factory, and no such point shall be situated within (six meters of any washing place, urinal, latrine, spittoon, open drain carrying sullage or effluent or any other source of contamination) unless a shorter distance is approved in writing by the Chief Inspector.
3. In every factory wherein more than two hundred and fifty workers are ordinarily employed, provision shall be made for cooling drinking water during hot weather by effective means and for distribution thereof.
4. In respect of all factories or any class or description of factories the State Government may make rules for securing compliance with the provisions of subsections (1), (2) and (3) and for the examination by prescribed authorities of the supply and distribution of drinking water in factories.

### **Latrines and Urinals**

1. In every factory
  - a. Sufficient latrine and Urinal accommodation of prescribed types shall be provided conveniently situated and accessible to works at all times while they are at the factory;
  - b. Separate enclosed accommodation shall be provided for male and female workers;
  - c. Such accommodation shall be adequately lighted and ventilated, and no latrine or urinal shall, unless specially exempted in writing by the Chief Inspector communicate with any workroom except through an intervening open space or ventilated passage;
  - d. All such accommodation shall be maintained in a clean and sanitary condition at all times;
  - e. Sweepers shall be employed whose primary duty it would be to keep clean latrines, urinals and washing places.
2. In every factory wherein more than two hundred and fifty workers are ordinarily employed
  - a. All latrine and urinal accommodation shall be of prescribed sanitary types;
  - b. The floors and internal walls, up to a height of (ninety centimeters), of the latrines and urinals and the sanitary blocks shall be laid in glazed tiles or other finished to provide a smooth polished impervious surface;
  - c. Without prejudice to the provisions of clauses (d) and (e) of sub-section (1), the floors, portions of the walls and blocks so laid or finished and the sanitary pans of latrines and urinals shall be thoroughly washed and cleaned at least once in every seven days with suitable detergents or disinfectants or with both.
3. The State Government may prescribe the number of latrines and urinals to be provided in any factory in proportion to the numbers of male and female workers ordinarily employed therein, and provide for such further matters in respect of sanitation in factories, including the obligation of workers in this regard, as it considers necessary in the interest of the health of the workers employed therein.

### **SPITTOONS**

1. In every factory there shall be provided a sufficient number of spittoons in convenient places and they shall be maintained in a clean and hygienic condition.

2. The State Government may make rules prescribing the type and the number of spittoons to be provided and their location in any factory and provides for such further matters relating to their maintenance in a clean and hygienic condition.
3. No person shall spit within the premises of a factory except in the spittoons provided for the purpose and a notice containing this provision and the penalty for its violation shall be prominently displayed at suitable places in the premises.
4. Whoever spits in contravention of sub-section (3) shall be punishable with fine not exceeding fine rupees.

### Conclusion

Women's health is always looked in relation to maternity and their occupational health problems are seldom being considered. Women's health play a vital role but their aspect is been overlooked by the authorities to promote the industry as well as women workers and their family. The measures taken by the government to provide a healthy place to work in brings a solution to many issues and problems. Where health is, wealth prevails, so working women should work in a clean and healthy atmosphere.

### Suggestions

- Education to be given to workers on gender equality and reproductive health.
- The Employers to be motivated for savings.
- Educate workers on safety and health regulations.

- Voluntary HIV/AIDS, STD's counselling should be given at workplace.
- Yoga, meditation classes should be conducted at workplace.

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# User Satisfaction with Library Resources, Services and Facilities in an Academic Library: Special Reference to Dhubri District of Assam

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## **Abstract**

*Academic Libraries participate a significant role in the institutions they serve. The central objective of academic libraries is to support the parent institution to attain its objectives. The purpose of the study was to identify the information needs of Academic Library Users and assess the satisfaction level of the Users towards the library services. Upon the basis of findings, strong user-oriented hands-on training is suggested, a majority of the students from both faculties are lack ICT skills. Improved ICT skills are a must. This study is an investigation of the use of user's satisfaction in library facilities, resources, and services of the students of Academic Library to Dhubri District of Assam. 670 questionnaires were distributed among students to collect relevant data and 500 were received back. The study suggested that college libraries should carry out user studies at regular intervals and user guidance is necessary to help library users to meet their information Sources and make users aware of the available library resources and services.*

**Keywords:** *Academic Libraries, Library Resources, Library Services, Users Satisfactions*

## **Introduction**

The user of the academic library covers the student community, teacher community, library staff, and non-teaching staff of its parent Institution. The library staff emphasizes the need and purpose of the student community. If a library remains the failure to serve the right reader with the right information at the right time in the right way, it is a total failure of the library. Hence authority should be conscious enough to improve the library with its servicing weapons to serve properly, pinpointedly and exhaustively expediting all its processes and exploiting all its services. A library should be well equipped with modern technologies along with the latest one as soon as it becomes available in the market. No effective source of information, no effective processing results in no effective service, and subsequently there is

no use of the library. The library is a very much functional unit of the library.

## **Categories of Users**

Broad classification of users i.e., male and female belong to different positions such as students, researchers, teachers, non-teaching staff.

## **Library Resources**

All categories of holdings of the library are its resources. Primarily holdings of the library are classified into two broad classifications such as possessed holdings and accessed/accessible holdings. The possessed holdings are sub-classified into the tangible and non-tangible collections. Again, tangible is classified into conventional and non-conventional. The conventional includes

books, journals, and newspapers, etc. whereas non-conventional includes patents and standards, reports, dissertations and thesis, manuscripts, drawings, and graphic materials, conference proceedings. The non-tangible resources are digital/electronic resources such as cassettes, CDs, multimedia, floppies, DVDs, e-books, e-journals, etc. On the other hand, the other part of broad classification i.e., Accessed/accessible which is instantly accessible that covers www, e-mail, online, databases, e-books (online), blogs, networks, etc.

### **Library Services**

A typical library has so many services such as Reading Room services, Book Circulation services, Online Public Access Catalogue/Web OPAC Services, Internet Access services, E-Resource Access services, Audio-Video services, References services, Current Awareness services, Photo-Copying services, Subject Bibliographic services, Abstracting/Indexing services, Newspaper clipping services, Interlibrary Loan services,

### **Usages and Purposes of Library Sources/Services**

The users may use the library resources daily, twice a week, weekly, fortnightly, monthly, occasionally for study, updating knowledge, research work, teaching, and issue/return of documents.

### **Library Infrastructure and Facilities**

A well-arranged library should have some infrastructure and reading room facilities like provision of the separate reading room, reading tables, adequacy of lights, overall healthy atmosphere, the opening of the reading room, and availability of books for on-the-spot reading, library environment, reading space, cleanliness, lighting, ventilation, equipment and drinking water.

### **Reference Services**

The reference services are categorized as (1) helps to search the document, (2) helps to use reference sources, (3) helps to use bibliographic sources, and (4) helps to search specific information.

### **Favourite Activities While Using the Internet**

The students generally use the internet in doing e-mail, discussion forums, blogging, E-learning, and preparing presentations/documents, etc.

### **Overall Assessment of Users**

Some issues were provided to the users through the questionnaire to collect their views and thereby overall assessment can be obtained. These are - physical facility of the library, library collection, organization of the collection, attitude of library staff.

### **Sample of the Study**

The sample is drawn from Academic libraries of different Institutions from the minimum degree level established so far in the Dhubri District of Assam from pre-independent till date including newly provincialized colleges and also non provincialized colleges which are already listed to be provincialized. There are in total 14 nos. degree colleges, 1 Law college, 1 B.Ed. i.e., PGTT. College and 1 DIET college are available in the district. These 17 nos. Academic Libraries are taken under this study.

### **Objectives of the Study**

- To assess the Satisfaction Level of Users towards the Library Services
- To identify the frequency of visiting the library by the undergraduate students.
- To find out the purpose of visiting the library by the undergraduate students.
- To study the use of library resources, facilities, and services by Academic Library Users.
- To determine the level of satisfaction of users towards library resources and services.
- Services provided by the libraries and
- To assess the available Infrastructures in the library.

### **Research Methodology**

The present study used data collected from different academic libraries of Dhubri District and to find out their prevailing situation for solving the present research problem the survey method has been adopted. The academic library is a phenomenon spreading all over the country, so the survey method of the present work should have been nationwide but due to operational problems and the nature of the present study covers Dhubri District only, so the survey method has been kept limited to the area of the district. As the study covers to some extent history of collection development of the library, hence the historical method has been applied, and also as the study covers the description of collection development of different libraries, so the descriptor method also has been applied.

The questionnaires, literature search method along observations are selected as appropriate tools for collecting data. To collect necessary information under the respective heading, two types of questionnaires have been prepared based on the guidance of a guide that is distributed to different librarians and the users of the library. The first type of questionnaire is about the libraries and the second type of questionnaire is about

the users. Collection of data through questionnaire is supplemented by Interview and discussion method. In the literature search method different types of documents of various authors are studied to draw the idea and principles of different aspects involved in carrying out the study:

In this study, the survey method is used to study the collection development problems and services in selected academic Libraries in Dhubri District of Assam.

To achieve the objectives of the study, two sets of questionnaires were prepared, one for Library Professionals and others for the users of libraries under study.

The first set of questionnaires was administered to the following categories of respondents.

- Librarian/ Head of the Library/ In-charge in Acquisition Section.

The second set of questionnaires was administered to the following categories of users

Student (UG)/ Student (PG)/ Research Scholar/ Faculty Member

The first questionnaires were designed to study collection development (Library Collection) Provision of collection development policy, modes of Acquisition of Library Materials/ Book Selection, Library Budget, Conservation and Preservation of the Library Collection, Technical work in academic Library, Circulation, Resource sharing, Library Automation & Networking and awareness and satisfaction about the Library Services provided by the libraries, etc.

The second questionnaire was designed to study Library Users General Information, Library Usage & Services, Purpose to visit the Library, Infrastructures, Reference Services, and overall assessment of users.

### Distribution of Questionnaires

The research methodology used herein under this study has adopted the questionnaire as a tool for collecting data specially designed for both categories such as for library as well as for users of the library. In the surveyed libraries both categories of questionnaires were served to the responses separately for collecting data. A single questionnaire of the first category was served to every library whereas the second category of the questionnaire was served to the users of the library @40 per Library excluding one library who is provided with 30 questionnaires and accordingly good responses are found. The primary data collected so, have been analyzed and interpreted as below.

## Data Analysis and Interpretation

### Analysis of the Responses Received from the Users

**Table 1: Gender-Wise Users**

S.No.	Gender	Library Users	Percentage
1.	Male	319	63.8
2.	Female	181	36.2
	Total	500	100

As depicted in Table 1, reflects that male users are 63.8% and female users are 36.2%. Male users are more than Female users.

**Table 2: Positions Of Users (Respondents)**

S.No	Position	No. of Users	Percentage
1.	Student (UG)	355	71
2.	Student (PG)	91	18.2
3.	Research Scholar	--	--
4.	Faculty Member	34	6.8
5.	Non-Teaching Staff	20	4
6.	Others	--	--
	Total	500	100

As depicted in Table 2, it can be seen that the student (UG) users are 71%, the student (PG) users are 18.2%, faculty members are 6.8% and non-teaching staff is 4%. It is seen that students' category users are highest in numbers among all others as bonafide users of the library.

### Library Usage and Services

**Table 3: Frequency of Use of the Library**

S. No	Option	No. of Users	Percentage
1.	Daily	184	36.8
2.	Twice a week	91	18.2
3.	Weekly	190	38
4.	Fortnightly	31	6.2
5.	Monthly	4	0.8
6.	Occasionally	--	--
	Total	500	100

As depicted in Table No.3, it reflects that daily user is 36.8%, the weekly user is 38%, twice a week user is 18.2%, the fortnightly user is 6.2% and the monthly user is 0.8%.

**Purpose of Visit to the Library**

**Table 4: Purpose of Visit to the Library**

S.No	Option	No. of Users	Percentage
1.	Study Purpose	500	100
2.	updating Knowledge	20	04

3.	Research work	00	00
4.	Teaching	40	08
5.	Issue /Return Documents	500	100
6.	Other	00	00

As depicted in Table 4, it is found that study purpose the user is 100%, updating knowledge user is 4%, research work the user is 0 %, teaching user is 8% and issue/return user is 100%.

**Level of Satisfaction**

**Table 5: Awareness (Level of Satisfaction) About the Reading Room Service of the Libraries**

S.No.	Academic Library	Reading Room	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA	-	-	08	12	10	-	-	-
2	BNCD	-	15	15	-	-	-	-	-
3	BCB	-	-	16	14	-	-	-	-
4	CCG	-	-	05	10	15	-	-	-
5	DCD	-	-	-	10	21	-	-	-
6	DDCD	-	-	08	02	19	-	-	-
7	DGCD	-	-	-	10	20	-	-	-
8	DLCD	-	-	14	06	10	-	-	-
9	DPCD	-	-	12	05	13	-	-	-
10	HKCH	-	-	07	03	20	-	-	-
11	HCH	-	-	-	21	09	-	-	-
12	HDCH	-	-	07	05	18	-	-	-
13	JCTJ	-	-	-	20	10	-	-	-
14	PCA	-	-	-	30	-	-	-	-
15	PBCG	-	19	11	-	-	-	-	-
16	RCC	-	-	17	13	-	-	-	-
17	SCS	-	-	14	12	04	-	-	-
	Total		34	127	173	169			

From Table 5, it is found that 34 users comment as excellent, 127 users comment as good, 173 users comment as fair, 169 users comment as poor. It reflects that, only B.N. College and P.B. College could achieve the excellent level of satisfaction of more users in the reading room service as compared with other college libraries.



**Table 6: Awareness (Level of Satisfaction) About the Book Circulation Service of the Libraries**

S.No.	Academic Library	Book Circulation	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA		30	-	-	-	-	-	-
2	BNCD		30	-	-	-	-	-	-
3	BCB		30	-	-	-	-	-	-
4	CCG		30	-	-	-	-	-	-
5	DCD		20	10	-	-	-	-	-
6	DDCD		10	10	-	-	-	-	-
7	DGCD		25	05	-	-	-	-	-
8	DLCD			-	-	-	-	-	-
9	DPCD		26	04	-	-	-	-	-
10	HKCH		30	-	-	-	-	-	-
11	HCH		30	-	-	-	-	-	-
12	HDCH		30	-	-	-	-	-	-
13	JCTJ		23	07	-	-	-	-	-
14	PCA		22	08	-	-	-	-	-
15	PBCG		30	-	-	-	-	-	-
16	RCC		30	-	-	-	-	-	-
17	SCS		30	-	-	-	-	-	-
			426	44	-	-	-	-	-

Table 6 provides the maximum excellent comments of users in book circulation service provided by libraries; 426 users (85.2%) are satisfied with excellent and 44 users are satisfied with good in this service. Even a poor library is seen to achieve a better service in book circulation.

**Table 7: Awareness (Level of Satisfaction) About the Internet Access Service of the Libraries**

S.No.	Academic Library	Internet Access	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA		11	19	-	-	-	-	-
2	BNCD		27	03	-	-	-	-	-
3	BCB		22	08	-	-	-	-	-
4	CCG		12	18	-	-	-	-	-
5	DCD		12	18	-	-	-	-	-
6	DDCD		14	06	-	-	-	-	-
7	DGCD		15	15	-	-	-	-	-
8	DLCD		17	13	-	-	-	-	-
9	DPCD		19	11	-	-	-	-	-
10	HKCH		13	17	-	-	-	-	-
11	HCH		10	10	-	-	-	-	-
12	HDCH		11	19	-	-	-	-	-
13	JCTJ		14	16	-	-	-	-	-
14	PCA		15	15	-	-	-	-	-

15	PBCG		11	19	-	-	-	-	-
16	RCC		16	14	-	-	-	-	-
17	SCS		17	13	-	-	-	-	-
		Total	256	234					

Table 7 has focussed the service of THE INTERNET ACCESS benefited by 256 users (51.2%) and 234 users (46.8%) out of 500 users who have commented as excellent and good respectively.

**Table 8: Awareness (Level Of Satisfaction) About The E-Resource Access Service Of The Libraries**

S.No.	Academic Library	E-Resources Access	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA		06	14	-	-	-	-	-
2	BNCD		27	13	-	-	-	-	-
3	BCB		16	14	-	-	-	-	-
4	CCG		14	16	-	-	-	-	-
5	DCD		12	18	-	-	-	-	-
6	DDCD		11	09	-	-	-	-	-
7	DGCD		13	17	-	-	-	-	-
8	DLCD		10	10	-	-	-	-	-
9	DPCD		09	21	-	-	-	-	-
10	HKCH		05	15	-	-	-	-	-
11	HCH		08	22	-	-	-	-	-
12	HDCH		06	24	-	-	-	-	-
13	JCTJ		09	21	-	-	-	-	-
14	PCA		11	19	-	-	-	-	-
15	PBCG		10	20	-	-	-	-	-
16	RCC		08	22	-	-	-	-	-
17	SCS		12	18	-	-	-	-	-
		Total	187	293					

Table 8 has focussed on the service of E-Resources Access Service benefited by 187 users (58.6 %) out of 500 users who have commented as excellent and 293 users (58.6%) comment as good.

**Table 9: Awareness (Level of Satisfaction) About The Reference Service Of The Libraries**

S.No.	Academic Library	Reference Service	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA		05	11	14	-	-	-	-
2	BNCD		21	09	-	-	-	-	-
3	BCB		03	06	21	-	-	-	-
4	CCG		04	06	20	-	-	-	-
5	DCD		02	04	14	-	-	-	-
6	DDCD		08	12	-	-	-	-	-
7	DGCD		08	16	06	-	-	-	-
8	DLCD		07	13	10	-	-	-	-
9	DPCD		09	14	07	-	-	-	-

10	HKCH		06	10	14	-	-	-	-
11	HCH		05	11	14	-	-	-	-
12	HDCH		08	15	07	-	-	-	-
13	JCTJ		08	16	06	-	-	-	-
14	PCA		07	14	09	-	-	-	-
15	PBCG		21	09	-	-	-	-	-
16	RCC		11	08	11	-	-	-	-
17	SCS		20	06	04	-	-	-	-
		Total	153	180	157				

Table 9 focuses that there is a poor scenario in reference service in all the libraries; practically there is no organized reference section even in one of the colleges, of course, in 2 college libraries, reference materials are kept separately but without a reference librarian. So, reference services rendered by the libraries are incidental. The users of these libraries understand reference service as to be the issue/return of the books only and not beyond this. Here 153 users (36.6%) comment as excellent, 180 users (36%) as good, 157 users (31.4%) as fair in the satisfaction of reference service of libraries. It is observed that only B.N. College and P.B. College could achieve an excellent level of satisfaction of more users in the reference service of libraries compared with other college libraries.

**Table 10: Awareness (Level Of Satisfaction) About The Current Awareness Service Of The Libraries**

S.No.	Academic Library	Current Awareness Services	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA	-	-	-	17	13	-	-	-
2	BNCD	-	-	15	07	08	-	-	-
3	BCB	-	-	-	18	12	-	-	-
4	CCG	-	-	-	16	14	-	-	-
5	DCD	-	-	-	07	23	02	-	-
6	DDCD	-	-	-	09	09	-	-	-
7	DGCD	-	-	-	14	16	-	-	-
8	DLCD	-	-	-	27	03	-	-	-
9	DPCD	-	-	-	11	19	-	-	-
10	HKCH	-	-	-	05	06	19	-	-
11	HCH	-	-	-	10	09	11	-	-
12	HDCH	-	-	-	12	06	12	-	-
13	JCTJ	-	-	-	-	-	-	-	-
14	PCA	-	-	-	-	-	-	-	-
15	PBCG	-	-	11	14	05	-	-	-
16	RCC	-	-	06	12	12	-	-	-
17	SCS	-	-	08	12	10	-	-	-
	Total			40	191	165	44		

From the Table 10, it comes to the focus that 40 numbers users (8%) comment as good, 191 numbers users (38.2%) comment as fair, 165 numbers users (33%) comment as poor, and 44 numbers users (8.8%) comment as very poor. In CAS, all libraries are showing their poor performances.

**Table 11: Awareness (Level of Satisfaction) About the Photo-Copying Service of the Libraries**

S.No.	Academic Library	Photo-Copying Services	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA		-	21	09	-	-	-	-
2	BNCD		-	23	07	-	-	-	-
3	BCB		-	25	05	-	-	-	-
4	CCG		-	19	11	-	-	-	-
5	DCD		-	14	06	-	-	-	-
6	DDCD		-	15	05	-	-	-	-
7	DGCD		-	23	07	-	-	-	-
8	DLCD		-	-	-	-	-	-	-
9	DPCD		-	-	-	-	-	-	-
10	HKCH		-	21	09	-	-	-	-
11	HCH		-	12	18	-	-	-	-
12	HDCH		-	24	06	-	-	-	-
13	JCTJ		-	16	14	-	-	-	-
14	PCA		-	18	12	-	-	-	-
15	PBCG		-	27	03	-	-	-	-
16	RCC		-	14	06	-	-	-	-
17	SCS		-	28	02	-	-	-	-
		Total		300	200				

From Table 11, it is clear that PHOTO-COPYING SERVICE is a well-known service to the users and out of 500 users 300 users comment as good and 200 users comment as fair. Still, nobody is found to comment as excellent in this regard. No excellent service is shown by any library in photocopy.

**Table 12: Awareness (Level of Satisfaction) About the Subject Bibliographic Service of the Libraries**

S.No.	Academic Library	Subject Bibliographic Services	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA		-	-	-	-	-	-	-
2	BNCD		16	14	-	-	-	-	-
3	BCB		-	05	12	13	-	-	-
4	CCG		-	06	13	11	-	-	-
5	DCD		-	-	10	14	06	-	-
6	DDCD		-	12	08	-	-	-	-
7	DGCD		-	17	13	-	-	-	-
8	DLCD		-	20	10	-	-	-	-
9	DPCD		-	05	12	09	04	-	-
10	HKCH		-	06	13	11	-	-	-
11	HCH		-	16	14	-	-	-	-
12	HDCH		-	17	13	-	-	-	-
13	JCTJ		-	-	-	-	-	-	-
14	PCA		-	14	07	09	-	-	-



15	PBCG		08	12	10	-	-	-	-
16	RCC		-	13	07	10	-	-	-
17	SCS		-	17	13	-	-	-	-
		Total	24	174	155	77	10		

From the Table 12, it comes to the focus that 24 users comment as excellent, 174 users comment as good, 155 users comment as fair, 77 users comment as poor, 10 users comment as very poor that is as the level of satisfaction in the service of subject bibliography. It is seen that, only B.N. College and P.B. College could achieve an excellent level of satisfaction of more users in the service of subject bibliography as compared with other college libraries.

**Table 13: Awareness (Level of Satisfaction) about the Abstracting/Indexing Service of the Libraries**

S.No.	Academic Library	Abstracting/ Indexing Services	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA		-	05	12	13	-	-	
2	BNCD		15	10	05		-	-	
3	BCB		-	16	07	07	-	-	
4	CCG		-	17	13		-	-	
5	DCD		-	12	11	07	-	-	
6	DDCD		-	12	06	02	-	-	
7	DGCD		-	13	07	10	-	-	
8	DLCD		-	04	06	09	11	-	
9	DPCD		-	-	-	20	10	-	
10	HKCH		-	03	06	08	13	-	
11	HCH		-	04	03	06	17	-	
12	HDCH		-	07	04	06	13	-	
13	JCTJ		-	05	07	09	09	-	
14	PCA		-	08	09	04	09	-	
15	PBCG		14	16	-	-	-	-	-
16	RCC		-	09	11	10	-	-	-
17	SCS		-	12	14	04	-	-	-
		Total	29	153	121	115	82		

From Table 13, it comes to the focus that 29 users have shown their level of satisfaction as excellent, 153 users as good, 121 users as fair, 115 users as poor, and 82 users as very poor. It is seen that, only B.N. College and P.B. College could achieve an excellent level of satisfaction of more users in the service of abstracting and indexing as compared with other college libraries.

**Table 14: Awareness (Level of Satisfaction) about the Newspapers Clipping Service of the Libraries**

S.No.	Academic Library	Newspaper Clippings Services	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA		-	-	-	21	09	-	-
2	BNCD		24	06	-	-	-	-	-
3	BCB		-	-	-	25	05	-	-
4	CCG		-	05	22	03	-	-	-
5	DCD		-	06	10	14	-	-	-
6	DDCD		-	12	08	-	-	-	-

7	DGCD		-	05	25	-	-	-	-
8	DLCD		-	12	18	-	-	-	-
9	DPCD		-	11	19	-	-	-	-
10	HKCH		-	21	09	-	-	-	-
11	HCH		-	12	18	-	-	-	-
12	HDCH		-	17	13	-	-	-	-
13	JCTJ		-	09	21	-	-	-	-
14	PCA		-	-	-	-	-	-	-
15	PBCG		21	09	-	-	-	-	-
16	RCC		06	09	15	-	-	-	-
17	SCS		12	10	08	-	-	-	-
		Total	63	144	186	63	14		

Table 14 focuses that, 63 users being satisfied with excellence, 144 users are with good, 186 users are with fair, 63 users are with poor and 14 users are very poor. It is seen that, only B.N. College and P.B. College could achieve an excellent level of satisfaction of more users in the service of newspaper clipping as compared with other college libraries.

**Table 15: Awareness (Level of Satisfaction) about the Inter Library Loan Service of the Libraries**

S. No.	Academic Library	Inter Library Loan Services	Excellent	Good	Fair	Poor	Very Poor	Not used	Not avail
1	ARCA		-	-	-	09	21	-	-
2	BNCD		-	-	-	21	09	-	-
3	BCB		-	-	-	08	22	-	-
4	CCG		-	-	-	05	25	-	-
5	DCD		-	-	-	-	-	-	12
6	DDCD		-	-	-	-	-	-	17
7	DGCD		-	-	-	15	13	-	02
8	DLCD		-	-	-	-	-	09	-
9	DPCD		-	-	-	-	-	11	-
10	HKCH		-	-	-	-	-	15	-
11	HCH		-	-	-	-	-	14	-
12	HDCH		-	-	-	-	-	13	-
13	JCTJ		-	-	-	-	-	17	-
14	PCA		-	-	-	-	-	-	-
15	PBCG		-	-	-	24	06	-	-
16	RCC		-	-	-	-	-	-	-
17	SCS		-	-	-	-	-	-	-
		Total				82	96	79	31

From Table 15, it is found that 82 users rank the service as poor, 96 users rank as very poor, 79 users express as not used and 31 users expressed as not available. There are no networked-based information services, hence no ILL or resource sharing is found even at the minimum level.

**Infrastructures**

**Table 16: Satisfaction With Library Infrastructure And Reading Room Facilities**

S.No.	Academic Library	Pro. of Separate RR		Pro. of Reading Tables		Adequacy of Lights		Overall Serenity of Atmosphere		Opening of RR		Availability of books for on-the-Spot Reading	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1	ARCA	22	08	16	14	30		30		30			30
2	BNCD	30	-	30	-	30		30		30		30	
3	BCB	28	02	14	16	30		30		30			30
4	CCG	12	18	12	18	30		30		30			30
5	DCD	11	19	13	17	30		30		30			30
6	DDCD	20	-	15	05	20		20		20			20
7	DGCD	04	26	14	16	30		30		30			30
8	DLCD	16	14	30	-	30		30		30			30
9	DPCD	12	18	16	14	30		30		30			30
10	HKCH	13	17	11	19	30		30		30			30
11	HCH	08	22	13	17	30		30		30			30
12	HDCH	19	11	17	13	30		30		30			30
13	JCTJ	17	13	14	16	30		30		30			30
14	PCA	18	12	16	14	30		30		30			30
15	PBCG	29	01	30	-	30		30		30		30	
16	RCC	21	09	13	17	30		30		30			30
17	SCS	25	05	24	06	30		30		30			30
	Total	305	195	298	202	500		500		500		60	440

Table 16 focuses on the satisfaction of users that, in separate reading room provision, 305 users (61 %) are satisfied while 195 users (39%) are dissatisfied. Inprovision of reading tables, 298 users (59.6%) are satisfied whereas 202 users (40.4%) are dissatisfied. In Adequacy of light, overall healthy atmosphere and opening of the reading room, 500 users (100%) are satisfactory. In the case of the Availability of books for spot reading, 60 users (12%) are satisfied whereas 440 users (88%) are dissatisfied.

**Table 17: Satisfaction With General Facilities Available In The Library**

S.No.	Academic Library	Library Environment		Reading Space		Cleanliness		Lighting		Ventilation		Equipment		Drinking-Water	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1	ARCA	30			30	30		30		30			30	30	
2	BNCD	30		30		30		30		30		30		30	
3	BCB	30		30		30		30		30			30	30	
4	CCG	30			30	30		30		30			30	30	
5	DCD	30			30	30		30		30			30	30	
6	DDCD	20			20	20		20		20			20	20	
7	DGCD	30			30	30		30		30			30	30	

8	DLCD	30			30	30		30		30			30	30	
9	DPCD	30			30	30		30		30			30	30	
10	HKCH	30			30	30		30		30			30	30	
11	HCH	30			30	30		30		30			30	30	
12	HDCH	30			30	30		30		30			30	30	
13	JCTJ	30			30	30		30		30			30	30	
4	PCA	30			30	30		30		30			30	30	
15	PBCG	30		30		30		30		30		30		30	
16	RCC	30			30	30		30		30			30	30	
17	SCS	30				30		30		30			30	30	
	Total	500		90	410	500		500		500		60	500	500	

Table 17 provides the user’s assessment that the library environment is good as viewed by yes by 500 users (100%), reading space satisfies 90 users but is not satisfactory viewed as yes by 410 users (82%), cleanliness certified to be satisfactory by all 500 users (100%), similarly “lighting” and “ventilation” as to be satisfactorily assessed by all 100% users, but in case of equipment, 60 users find satisfactory and 440 users are dissatisfied.

**Table 18: Overall Assessment of Users (Physical Facility)**

S.No.	Academic Library	Physical Facility	Very Good	Good	Poor	Very Poor
1	ARCA		-	09	21	-
2	BNCD		22	08	-	-
3	BCB		05	19	06	-
4	CCG		-	18	12	-
5	DCD		-	11	19	-
6	DDCD		-	05	15	-
7	DGCD		-	-	05	25
8	DLCD		-	11	19	-
9	DPCD		-	12	18	-
10	HKCH		-	13	17	-
11	HCH		-	12	18	-
12	HDCH		-	10	05	15
13	JCTJ		-	05	07	18
14	PCA		-	10	04	16
15	PBCG		17	13	-	-
16	RCC		13	17	-	-
17	SCS		21	09	-	-
	Total		78	182	166	74

Table 18 reflects that “Very Good” is viewed by 78 users, “Good” is viewed by 182 users, “poor” is viewed by 166 users, and “very poor” is viewed by 74 users. “Very good” views given as overall assessment in the physical facility of B.N. College and P.B. College library by more users as compared with other college libraries.



**Table 19: Overall Assessment Of Users (Library Collection)**

S. No.	Academic Library	Library Collection	Very Good	Good	Poor	Very Poor
1	ARCA		25	05	-	-
2	BNCD		25	05	-	-
3	BCB		05	25	-	-
4	CCG		12	10	08	-
5	DCD		13	17	-	-
6	DDCD		04	20	06	-
7	DGCD		08	12	10	-
8	DLCD		08	20	02	-
9	DPCD		11	10	09	-
10	HKCH		08	18	04	-
11	HCH		06	24	-	-
12	HDCH		06	30	-	-
13	JCTJ		09	30	-	-
14	PCA		14	30	-	-
15	PBCG		20	10	-	-
16	RCC		12	30	-	-
17	SCS		10	30	-	-
		Total	196	326	39	

Table 19 reflects that “Very Good” is viewed by 196 users (39.2%), Good is viewed by 326 users(65.2%), and poor is viewed by 39 users (7.8%) as an overall assessment of the library collections.

**Table 20: Overall Assessment of Users (Organization of Collection)**

S. No.	Academic Library	Organization of Collection	Very Good	Good	Poor	Very Poor
1	ARCA		25	05	-	-
2	BNCD		30	-	-	-
3	BCB		05	25	-	-
4	CCG		12	18	-	-
5	DCD		13	17	-	-
6	DDCD		04	16	-	-
7	DGCD		08	12	-	-
8	DLCD		08	22	-	-
9	DPCD		11	19	-	-
10	HKCH		08	22	-	-
11	HCH		06	24	-	-
12	HDCH		06	24	-	-
13	JCTJ		09	21	-	-
14	PCA		14	16	-	-
15	PBCG		26	04	-	-
16	RCC		12	18	-	-

17	SCS		10	10	-	-
		<b>total</b>	207	293		

Table 20 reflects that Very Good is viewed by 207 users whereas Good is viewed by 293 users regarding the organization of the collection. Finally found that “very good” views in the organization of the collection of B.N. College and P.B. College libraries are found as viewed by more users as compared with other college libraries.

**Table 21: Overall Assessment of Users (Attitude of Library Staff)**

S.No.	Academic Library	Attitude of Library Staff	Very Good	Good	Poor	Very Poor
1	ARCA		14	12	04	-
2	BNCD		30	-	-	-
3	BCB		30	-	-	-
4	CCG		15	15	-	-
5	DCD		22	08	-	-
6	DDCD			18	02	-
7	DGCD		20	10	-	-
8	DLCD		13	17	-	-
9	DPCD		16	14	-	-
10	HKCH		05	25	-	-
11	HCH		21	09	-	-
12	HDCH		08	22	-	-
13	JCTJ		19	11	-	-
14	PCA		27	03	-	-
15	PBCG		18	12	-	-
16	RCC		17	13	-	-
17	SCS		16	14	-	-
		<b>Total</b>	291	203	06	

Table 21 reveals that 291 is the number of users who view the attitude of library staff as very good as the assessment of the users whereas 203 and 06 are the number of users who view the attitude of library staff as good and poor respectively.

**Table 22: Overall Assessment of Users (Library Services)**

S.No.	Academic Library	Library Services	Very Good	Good	Poor	Very Poor
1	ARCA		-	25	05	-
2	BNCD		21	09	-	-
3	BCB		05	25	-	-
4	CCG		-	26	04	-
5	DCD		-	12	18	-
6	DDCD		-	20	-	-
7	DGCD		-	11	19	-
8	DLCD		-	18	12	-
9	DPCD		-	11	19	-
10	HKCH		-	13	17	-

11	HCH		-	21	09	-
12	HDCH		-	19	11	-
13	JCTJ		-	18	12	-
14	PCA		-	21	09	-
15	PBCG		18	12	-	-
16	RCC		05	09	16	-
17	SCS		06	14	10	-
	Total		55	284	161	-

Table 22 reflects that “Very Good” is viewed by 55 users whereas “Good” is viewed by 284 users and “poor” is viewed by 161 users in case of the user’s overall assessment in library services. “Very good” view as an overall assessment of more users in library service is found in B.N. College and P.B. College as compared with other college libraries.

**Table 23: Overall Assessment Of Users (It-Based Services)**

S.No.	Academic Library	IT-Based Services	Very Good	Good	Poor	Very Poor
1	ARCA		-	02	11	17
2	BNCD		25	05	-	-
3	BCB		-	05	10	15
4	CCG		-	03	07	20
5	DCD		-	04	11	15
6	DDCD		-	-	10	10
7	DGCD		-	03	07	20
8	DLCD		-	06	11	13
9	DPCD		-	-	12	18
10	HKCH		-	-	11	19
11	HCH		-	-	12	18
12	HDCH		-	-	14	16
13	JCTJ		-	-	13	17
14	PCA		-	05	13	12
15	PBCG		18	12	-	-
16	RCC		-	02	12	16
17	SCS		-	12	08	10
		Total	43	59	162	236

From the Table 23, it reflects that “Very Good” is viewed by 43 users whereas “Good” is viewed by 59 users and “poor” is viewed by 162 users, “very poor” is viewed by 236 users in case of user’s overall assessment in IT-based services. Only B.N. College and P.B. College could get a “Very good” view as overall assessment in IT-based service from more users as compared with other college libraries. But the majority of users are seen to assess IT-based services as very poor service in the majority of libraries.

**Suggestion**

Suggestion regarding the library collection in the college libraries in the Dhubri district area: -

1. To fulfill the five laws of library science and also the primary objective of librarianship, an open access system is essential. So, all the college libraries should adopt open access system with proper infrastructure facilities and staff.

2. Adequate professionally qualified staff should be appointed and in-service training is given to the working staff so that they may be able to give maximum services to their library users by using the latest technologies. Every library staff should know the ethics of librarianship and he/she should serve the user to his/her best satisfaction.
3. Librarians and other professionals should be permitted to visit other advanced libraries for motivation. Attempts should be made to convince the library authorities and the funding agencies for getting more funds.
4. Library authorities should understand the important roles played by librarians in the dissemination of information. The librarian should be given some financial power to handle the library account on urgent needs.
5. The collection of libraries should be developed based on the needs /requirements of the users. To ascertain the information needs of the users, it is essential to conduct users' studies from time to time.
6. The college library should update the collection on regular basis. The latest titles should be collected instead of duplicating existing titles. Proper physical arrangement in the shelves is suggested for the collection.
7. Every college library should have a well-equipped internet section with the best internet service and a good number of internet terminals. The provision of LAN, Wi-Fi should be made in the college and library for access to the internet.
8. Training for using e-resources should be provided to the user from time to time and the library staff should also provide guidance to the users who face problems in using e-resources. Awareness also should be done among users about the availability of e-resource services and about the use of N-LIST Program of INFLIBNET.

## **Conclusion**

The main target group of academic libraries is the user of its parent institution who form the basis of this present study. Here 500 populations taken out of 19000 total populations of all academic libraries in Dhubri District of Assam are covered under the sample of the study. Data are collected through questionnaires and interpreted as the above results to the findings. It is found in the findings so many anomalies, irregularities, shortcomings, and deficiencies in the sources and services of the surveyed libraries. Accordingly, some valuable suggestions for remedies to redress the issues in the findings are recommended that have been discussed.

This study has obtainable information on the users' satisfaction towards the library services, infrastructure, location, space, ventilation, seating, collection of materials, and information. The study found that on average, the library users are quite satisfied with the services, infrastructure, location, space, collection, and information of the library as a whole.

The matter-of-fact implication of the study is that the libraries need to give serious attention to delivering the best services to their users. The findings suggest that libraries evaluating users' satisfaction with academic library performance should improve their services, infrastructure, and collections to serve the users learning and research requirements.

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