

Factors Affecting Growing Service Sector in Indian Economy

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Abstract: *The research has been undertaken to study the role of service sector in Indian economy also to evaluate the growth of service sector by considering primary and secondary sector. Here attempt is to find factors affecting the growth of service sector. The data has been collected from various secondary source for the time interval 1950-2020. This research reveals that the service sector is a major sector in Indian economy and relationship between IT industry and service sector is positive. Service sector has comparatively high growth rate than agriculture industry. Based on last 20 years data we conclude that service sector has 57% share in Indian economy. This factor is affecting the growth of service sector. By analyzing last 70 year of Indian economy growth data, we have predicted the position of service sector growth in upcoming year.*

Keywords: Service sector, Indian economy, time Series, economical factor, growth rate of economy, economy growth, etc.

1. Introduction

Post independence, Indian economy was highly influenced by the agriculture sector. There was a significant contribution from agricultural side income. Over the period of time, if we see the chronological data of Indian economy, it's been transformed to service sector. Due to advancement in technology, research and development many changes happened. Here our attempt is to identify those factors responsible for change in economic dimensions from sector to sector like Industry to Service sector. If we go through the historical data, as per the financial report given by government of India (ref: Ministry of Statistics and Program Implementation (17 June 2021)) in FY1948 total contribution by agriculture sector to Indian economy was approximately 54.8 %. The same contribution from industry sector was 11.8 % and most importantly service sector contributed around 25.48%. Considering the recent data, in FY 2021 agriculture sector contributed 20.19%, industry sector 25.92% and service sector contribution was 53.89%. Which shows the clear transformation towards service sector. This kind of transformation or growth of service sector making service sector a heart of Indian economy. We are curious to know what are the factors responsible for this transformation. Here historical data has been used and analyzed statistically to come to the conclusion.

Objective

- To identify the role of service sector in Indian economy.
- To evaluate the remarkable growth of service sector relative to other sectors.
- To study the factors affecting the service sector.

2. Research Methodology

The above objective has been studied through the use secondary data. The secondary data has been collected from various secondary source such as published reports of RBI, ministry of statistics and programme permeation, world

bank, Macro.tends.com, IBIF, Ministry of Commerce & Industry, Government of India, statista.com, m.rbi.org.in, etc.

We have dealt with the factors which affecting the growth of service sector in Indian economy over the period of 2000 to 2021 on the basis of secondary data. A statistical model was developed to investigate the relationship between growth of service sector and factors. This analysis has revealed that factor has positive and significant impact on service sector growth.

The data collected has been analyzed through tables & graphs. We have used pie charts, correlation analysis to understand the relationship between FDI, GDP in per Capita, Literacy, inflation rate, IT industry share in GDP, Annual growth rate in GDP per Capita. Also used regression analysis where dependent variable is service sector and independent variables are FDI in service sector, GDP per capita, literacy rate, inflation rate, export of service sector, IT industry share in GDP, annual growth rate in GDP per capita, etc.

Service sector = $\beta_0 + \beta_1 * \text{GDP in per capita} + \beta_2 * \text{FDI in service sector} + \beta_3 * \text{literacy rate} + \beta_4 * \text{inflation rate} + \beta_5 * \text{export of service sector} + \beta_6 * \text{IT industry share in GDP}$

Time series analysis is one of the statistical tool used for prediction. Using this we have predicted the growth of service sector for upcoming years.

Now, Indian economy is growing day by day. Our main aim is to find the role of service sector in Indian economy. From the last 20 years historical data of sector wise contribution in GDP shows that service sector is 57.17%, industry is 26.83% and agriculture has 18.95% contribution in Indian economy. After observing the pie chart. we conclude that, service sector is major sector in Indian economy. Service sector is dominating factor in Indian economy. To

Volume 12 Issue 10, October 2023

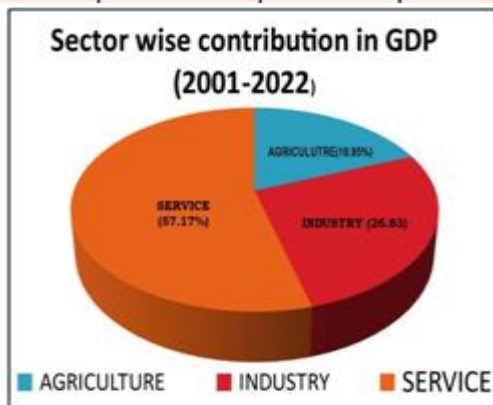
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understand growth of the service sector in Indian economy, the data related to sector wise share in GDP in economy of last 70 is analyzed.

SECTORWISE DATA OF LAST 70 YEAR

YEAR	AGRICULTURE	INDUSTRY	SERVICE
1950	51.81	14.16	33.25
1960	44.76	17.76	38.40
1970	43.29	20.11	36.07
1980	33.63	25.02	41.33
1990	28.97	26.53	44.17
2000	23.02	26.00	50.98
2010	17.74	27.76	54.50
2020	20.19	25.92	53.89

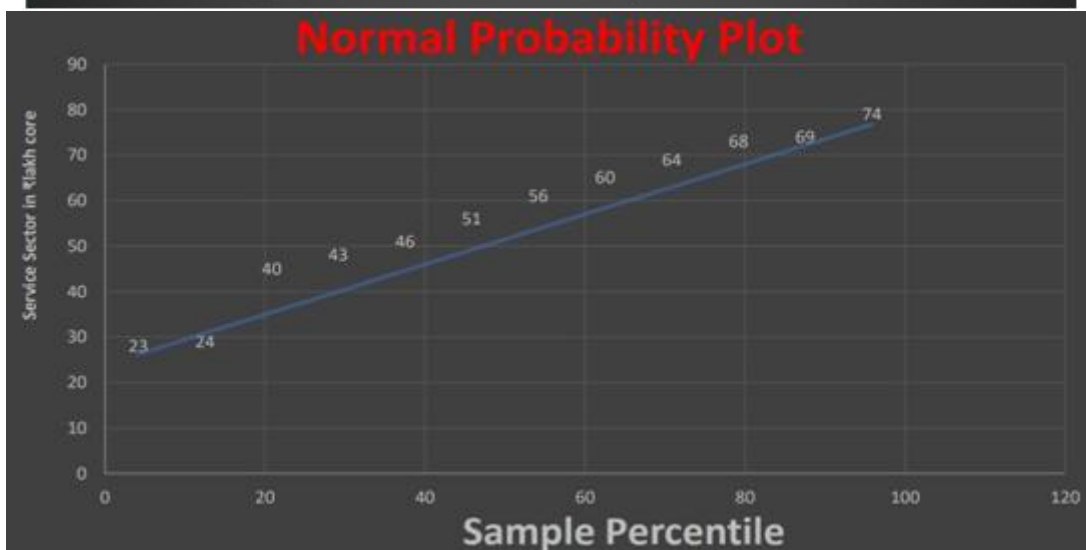
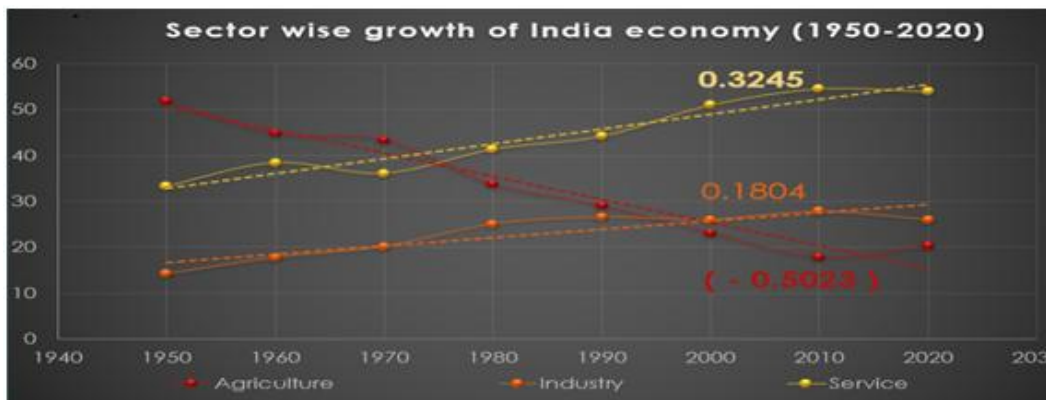


For analysis, we have used scatter plot and line chart. A scatter plot is a set of points plotted on a horizontal and vertical axis. Scatter plots are important in statistics, to study correlation between the values of observed quantities or phenomena (called variables).

Closer the data points, higher the correlation between two variables, or the stronger the relationship. If the data points make a straight line going from near the origin out to high y-values, the variables are said to have a positive correlation. The scatter plot is the statistical tool is use for determine the relationship between the two variables.

Above plot shows that the growth of the service sector is positive and the rate is 0.3245. Similarly in the industry sector there is positive growth with the rate of 0.1804 but in the agriculture sector the growth is negative and the rate is -0.5023. Service sector has highest growth rate in comparison with others.

From the data of last 70 years, it is been observe that there is rapid growth in the service sector. But our main aim is to find the factors affecting the rapid growth in the service sector. For this we have collected data from over last 20 years. We did regression analysis.



Now we check the relationship between foreign direct investment (FDI) in service sector and service sector. For this we use last 10th year data.

To fit model we have used regression method. A regression model is able to show whether changes observed in the dependent variable are associated with changes in one or more of explanatory variable's. The sign of a linear regression coefficient tells you whether there is a positive or negative correlation between each independent variable and the dependent variable. A positive coefficient indicates that as the value of the independent variable increases, the mean of the dependent variable also tends to increase.

P-value is defined as the most important step to accept or reject a null hypothesis. Since it tests the null hypothesis that its coefficient turns out to be zero i.e. for a lower value of the p-value (<0.05) the null hypothesis can be rejected otherwise null hypothesis will hold. In other words, the predictor that holds a lower p-value is likely to be more meaningful addition to the model as a change in the predictor values are related to the changes of the response variable. It is one of the important steps to reject or accept the null hypothesis. A p-value less than 0.05 is typically considered to be statistically significant, in which case the null hypothesis should be rejected. A p-value greater than 0.05 means that deviation from the null hypothesis is not statistically significant, and the null hypothesis is not rejected.

Decision Criteria:-

We reject null hypothesis if p-value > 0.05, otherwise accept null hypothesis.

1) Checking relationship between foreign direct investment (FDI) in service sector and service sector

Hypothesis to be tested:-

H01: There is no significant difference between the FDI & service sector

H11: There is significant difference between the FDI & service sector

(Level of significance is 0.05)

	Estimate	Std. Error	t value	p value
Intercept	705569.8	834381.1	0.846	0.417539
FDI in service Sector	85.84	15.42	5.567	0.000238

Adjusted R-squared: 0.7316

Multiple R-squared: 0.756

Here p value < 0.05

Conclusion:

We accept the H01 at 5% level of significance. (i.e there is no significant difference between the FDI & service sector)

2) Checking relationship between GDP per capita and service sector

Hypothesis to be tested:-

H02: There is no significant difference between the GDP per Capita & service sector

H12: There is significant difference between the GDP per Capita & service sector

	Estimate	Std.Error	tvalue	p value
Intercept	-3430934	1427200	-2.404	0.037064
GDP per capita	4923	809	6.085	0.000118

(Level of significance is 0.05)

Adjusted R-squared: 0.7661

Multiple R-squared: 0.7874

P value < 0.05

Conclusion

We accept the H01 at 5% level of significance (i.e there is no significant difference between the GDP per Capita & service sector)

3) Checking relationship between Inflation & service sector

Hypothesis to be tested:-

H03: There is no significant difference between the Inflation & service sector.

H13: There is significant difference between the Inflation & service sector

(Level of significance is 0.05)

	Estimate	Std.Error	tvalue	p value
Intercept	705569.80	834381.11	0.846	0.417539
Inflation	-85.84	15.42	5.567	0.0002385

Adjusted R-squared: 0.7316

Multiple R-squared: 0.756

P value < 0.05

Conclusion

We accept H03 at 5 % level of significance (i.e. there is no significant difference between the Inflation & service sector)

4) Checking relationship between literacy & service sector

Hypothesis to be tested:

H04: There is no significant difference between the literacy & service sector

H14: There is significant difference between the Literacy & service sector

(Level of significance is 0.05)

	Estimate	Std.Error	tvalue	p value
Intercept	-30543512	4818005	-6.339	8.47e-05
Literacy	486882	65690	7.412	2.28e-05

Adjusted R-squared: 0.8306

Multiple R-squared: 0.846

P value < 0.05

Conclusion

We accept H04 at 5 % level of significance (i.e there is no significant difference between the Literacy & service sector)

5) Checking relationship between IT industry share in GDP & service sector

Hypothesis to be tested:

H05: There is no significant difference between the IT industry share in GDP & Service sector

H15: There is significant difference between the IT industry share in GDP & service sector (Level of significance is 0.05)

	Estimate	Std.Error	tvalue	p value
Intercept	13.51319	0.71474	18.907	3.72e-09
IT industry Share in GDP	0.23616	0.08919	2.648	0.0244

Adjusted R-squared: 0.6356

Multiple R-squared: 0.6546

P value < 0.05

Conclusion

We accept H05 at 5 % level of significance. (There is no significant difference between the IT industry share in GDP & Service sector)

Time Series Analysis:

Time series is a collection of observations of well-defined data items obtained through repeated measurements over time. A time series is a data set that tracks a sample over time. In particular, a time series allows one to see what factors influence certain variables from period to period. Time series analysis can be useful to see how a given asset, security, or economic variable changes over time. Time series regression is a statistical method for predicting a future response based on the response history (known as autoregressive dynamics) and the transfer of dynamics from relevant predictors)

After observing the last 70th year data.

Now using of time series method Here

X =economical year

Y =contribution of service sector in Indian GDP

Our equation is $Y = a + b(X)$

Where

$a=44.07375$ $b=0.3244642857$

if financial year is 2030 then

$Y= 58.67464286$

We predict that, under the assumption that all conditions are similar to the past situation, then contribution of service sector in Indian GDP in financial year 2030 is equal to 58.67%.

3. Conclusion

- Service sector is playing important role in Indian economy. Service sector is dominating sector, approximately contributed to Indian GDP by 58% in past 20 year.
- Service sector have high GDP growth rate in comparison with other sectors. The growth of service sector is positive that is 0.3245.
- After observing the result of the regression model, we conclude that service sector is positively affected by the FDI in service sector, GDP per capita, literacy rate, growth of IT industry. i.e this factor is responsible for remarkable growth of service sector in Indian economy.
- The relationship between inflation and growth of service sector is negative. i.e if inflation increases then this will have a negative effect on growth rate of service sector.
- By observing the past data and using statistical model we conclude that contribution of service sector in Indian

GDP is approximate 58.67%

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