FORECASTING TREND AND DIRECTION OFADVANCES ALLOTTED TO DIFFERENT SEGMENTS OF THE ECONOMY DURING COVID -19

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Abstract: *Banking sector in India is considered as one of the major pillar of the economy. Covid-19 has not only affected India but also the world in a negative way. During this lockdown there are various sectors like: real estate sector, retail sector, tourism sector, hotel and industrial sector have been badly affected. Recently the finance minister of our country made the announcement of contributing Rs 20 lakh crores in the economy. So, in this paper an attempt has been made to identify and forecast the trend and future value of loans will be given to various sectors of the economy and whether there exists any significant difference between loans given to sectors. The study period covers a period of 12 months from March 2019 to April 2020.The future values have been predicted by applying forecasting technique and various statistical tools like Mean, SD, CV and ANOVA has been applied to test the significant difference. Results indicate that the agriculture and allied sector is reflecting declining trend for coming 6 months as compared to the other sectors which is showing progressive and increasing trend. It has also been found thatthere exists significant difference in the loans given to different sectors of the economy.*
Key Words: **Covid-19, Economy, Industrial, Service and Priority Sector.**

Introduction:

Covid-19 has not only affected India but also the world in a negative manner. In order to control the situation of coronavirus in India government has decided to lockdown the entire country from 25th March 2020which continued in different phases. During this lockdown there are various sectors of the economy which has been badly affected because of less production and less employment mainly for daily wage earners and it has created artifice crises for various goods. Sectors like real estate sector, retail sector, tourism sector, hotel and industrial sector have been badly affected. So it's become absolute necessary for the government to take some measures to pull back the economy on the track, very recently the finance minister of our country made announcement of contributing Rs 20 lakh crores in the economy this 20 lakh crores have been considered as a good initiative taken by the government by allocating the money in different sectors and sub sectors of the economy so that the economic can do well during this condition and various pendant work can be started.Although pulling back the economy during a short period of time is not possible it will take time. Government has decided that rupees Rs. 20000 crores will be provided as subordinate debt to MSMEs sectors and rupees Rs. 50000 crores of equity infusion through MSME fund of funds will be done. Which will ultimately put pressure on thethe banking and financial system of our country.Banking sector in India is considered as one of the major pillar of the economy. In the year 2008-09 when the global economy has been affected by the financial crisis it is the banking system in India which has strengthen our economic system and enable us to cover up the loss which had arises because of the financial crisis. So, whenever any crisis arises it is the banking system where every on looks upon. This time also at the time of covid-19 financial crisis Reserve Bank of India announced 3 months EMI slackening for all the customers of the bank irrespective of their loans category. So that extra burdenwhich might come on the general public can be handled. The benefits related to Ujala scheme of the government has directly been credited to the needy people of the county in their bank account along with the other benefits provided by the government. So, directly or indirectly we are heavily relying on the banking system of our country and this is not the first time when we arereliant onthe banking system.

If we go back to the history will find in good number of occasions in which the gov the banking system of our country to mien for the elucidation. During the time of is the banking system which has taken all the burden and pain of exchanging the old currencies with the new currencies and it was the general public who was standing in the queue the get the benefits of the announcement of the government. So, whenever any problem comes in the economy it is the banking system which stood first and tryto tackle the situation and looks for the solution if it is available. Sometime, the question arises whether the banking system in our country is resilient enough to do all the hard work. Very recently in the year 2019 the finance minister of a country has announced the merger 10 public sector banks operating in India and grouping into 4 banks. Prior to that the State Bank of India has also been merged with its associates. This time also when covid-19situation arises government decided to transfer money to the general public of its various schemes directly into their banks accounts and when it has been felt that the time has come to take some foremost initiatives it is the banking sector which is again been chosen by the government to distribute money to the various sectors and sub segments of the economy which is very important to cover up the loss arises from covid-19 situation in India. According to RBI database various loans given to various sectors of the economy of a country has been categorised into 5 major heads that is agriculture and allied sector, service sector, industrial sector, personal loan sector and priority sector. Agricultural sector is considered one of the most important sector of the economy although the contribution of agriculture and allied sector has recently been come down and its share in the country's economic growth has been taken up by the service sector. In the year 2015 government has come up with the idea of MUDRA scheme which is considered as a major step in our economy under which three different types of loans are provided to needy people to flinch their own start-up. Various kind of loans are providing under MUDRA scheme these are: Shishu,Kishor and Tarun. But, because of this covid-19 situation the borrowers who has taken loans under this scheme will be not in a position to repay their loan on time which impact not onlythe small entrepreneurs but also the banks and financial institutions operating in India. So, it becomes essential for the government to analyse its schemes in different ways before making any kind of announcement for boosting up the economy. In this paper an attempt will be made to forecast the future values of loans given to different sectors of the economy and whether there exists any significant different among them or not.

Review of Literature:
Banking system is always expose to various types of risks when moneyis lending to different sectors of the economy. So, it's become important to establish the relationship between competition and efficiency of the banks. Various studies have been conducted in the European countries to establish relationship between competition and efficiency. Where it was found that a positive correlation exists between market power and efficiency of the banks working in the European countries **(Casu&Girardone, 2009).** Lending money to different sectors of the economy does increase the cost efficiency of the bank so it is an important aspect and its needs to be taken into consideration along with the market power of banks. A study was takenby **(Georgios Chortareas, 2016)**where they investigated the credit market freedom index and cost efficiency of the bank where they found a bank having higher degree of economic freedom are more cost efficient as compared to other banks. Sometime it is not only the internal factors of the bank but also the external factors which made impact either positively or negatively on the performance of the bank. Identification of those factors are very imperative**(Cipollini &Fiordelisi, 2012)**examined the various factors which made impact on the performance of the bank where they found credit risks, liquidity risks and bank market power were the most influential factors which made impact on the performance of banks and its lending strategy. It is not onlythe efficiency but also the competition that prevails in the market which made impact on banks performance and its efficiency **(Fiordelisi, Girardone, &Radić, 2011)**investigated the impact of competition on banks efficiency and risk where it was found that banks were taking more risks to persist in the market by giving tough competition to its competitors. It is not only the banks' risk but also the profitability of the banks which is badly affected by the degree of risk taken by the banks. Credit risk is also need to be analysed from the profitability aspects also **(Tan, 2015)**analysed the impact of risk and competition on profitability of Chinese banks where they found banks were affected by the taxation, overhead cost, labour productivity and inflation in the country. Giving loans to various segments of the economy is a very important decision its required in depth analysis from various aspect so that loan recovery becomes possible for the banks and Bank does not get involved in any kind of risk trap.

From the review of available literature, it has been found that a good numbe conducted on measuring the competition efficiency, risk analysis and measurin̳ ̳ banks but very few study has been conducted to identify the future values that a bank could produce to lend on different sectors of the economy. So, the study will be considered a unique in this aspects where attempt will be made to identify the future value of loans that will be given to different sectors of the economy by predicting their values along with the trend during the situation of Covid-19.

Research Methodology:

In this paper at attempt has been made to identify the situation of covid-19 arises in India and under this situation how Indian banks can perform and how they can provide loans to different sectors of the economy that can be predicted with the help of statistical tools and further attempts will be madeto analyse whether there exists any difference between loans given to different sectors of the economy.Following objectivehave been set for the purpose of the study

Objectives of the Study:

1. To identify and forecast the trend and future value of loans given to various sector of the economy.
2. To identify whether there exists any significant difference between loans given to different sectors of the economy.

Hypothesis: In order to seek the above objective following hypotheses have been formulated:

H_0: There exists no significant different in the mean values of loans given to different sectors of the economy.

H_1: There exists significant different in the mean values of loans given to different sectors of the economy.

Data Size: All banks operating in India(Public, Private and Foreign) have been considered till 31st March, 2020.

Data Source: The secondary data has mainly been used in the present study and data have been collected from RBI Data base and statistical table related to banks in India.

Study period: Study period covers a period of 12 months from April.2019 to March. 2020.

Variables used in the Study: Five major sector according to RBI database have been used in the study, these are:

- **Agriculture and Allied Sector(**All Agricultural Related Activities)
- **Industrial Sector** (Micro, Small & Medium Enterprises)
- **Service Sector**: (Transport Operation, Computer Software, Tourism, Hotels &Restaurants, Shipping, Professional Services, Wholesale Trade, Retail Trade, Commercial Real Estate, NBFCs and Other Services)
- **Personal Loan Sector:**(Consumer durables, Housing, Advances Against Fixed Deposits, Advances to Individuals Against Shares, Bonds Etc. Credit Card Outstanding, Education, Vehicle Loans and Other Personal Loans.)
- **Priority Sector**(Agriculture, Micro & Small, Manufacturing, Services and Housing, Micro Credit, Education Loans, State Sponsored Organisations for SC/ST, Weaker Section and Export Credit)

Statistical Tools: Various Statistical tools used in the study are as follows:

$$Mean = \sum \frac{Xi}{}$$

Standard Deviation=$\sqrt{\overline{\Sigma(X-X\ )^2}}$,

$$Co-efficient\ of\ Viriation(CV) = \frac{Standard\ Deviation}{} x\ 100$$

$$Growthn\ Rate = \frac{(P_1-P_0)}{0} \times 100$$

Here,

P_0 represents previous year and P_1 represents current year

ANOVA (Analysis of variance): One-way Classification):

$$F = \frac{MSB(\sum_{j=1}^{c} n_j (X-\overline{X})^2)}{MSW(\sum_{=1}^{c} \sum_{j=1} j (X-\overline{X})_2)}$$

Here,

MSB= Sum of Square among Groups, c =number of groups, $n_{j\,=\,Size\,of\,the\,group\,j}$, $\overline{X}_{j\,=\,Sample\,Mean\,of}$ group j and$\overline{x}$ = Grand Mean.

MSW= Sum of Square within Groups, c =number of groups, $n_{i\,=\,Size\,of\,the\,group}$, $\overline{X}_{i\,=\,Sample\,Mean\,of}$ group I and $X_{ij\,=}$ Jth measurement of the group

Forecasting Technique

$$= \frac{A_{t-1} + A_{t-2} + A_{t-3} + \ldots\ldots.. + A}{}$$

Where,

= Forecast for the coming period.

n= Number of periods to be averaged.

A_{t-1} = Annual occurrence in the past period for up to the 'n' period.

Results and Discussion:

Table 1 represents the descriptive statistics of all banks operating in India from April 2019 to March 2020. Within service sector on an average agriculture and allied sector received Rs. 1130535 during the period. It is the shipping sector among service sector which has received lowest amount of loan. The highest amount of volatility has been recorded for non-banking financial companies under service sector in terms of distribution of loan. The growth of wholesale trade under service sector has been found highest i.e. 1.3 per cent. Under industrial sector it is the large enterprises which have received highest amount of loan on an average during that period and very high degree of volatility has also been recorded for the sector also. The negative growth has been recorded for medium enterprise under this sector. Under personal loan of banking sector, it is the housing loan which has received highest amount of loan during that period. Under priority sector it is the agriculture and allied sector which is received highest amount of loan during the period followed by micro small and medium enterprises. So, overall all the sectors of the economy have received good amount of loan during that period and it is service sector which has been recorded highest as compared to all.

Table 1: Descriptive Statistics
All Banks Operating in India (April, 2019 to March, 2020)

Service Sector

Statistics	Agriculture & Allied Activities	Transport Operators	Computer Software	Tourism, Hotels & Restaurants	Shipping	Professional Services	Wholesale Trade (other than food procurement)	Retail Trade	Commercial Real Estate	Non-Banking Financial Companies (NBFCs)	Other Services
Mean	1130535	141347	18820	42260	6293	171156	231000	284285	216332	694476	565642
SD	18682	1377	492	2663	323	2638	14525	3133	10377	56413	28241
CV(In %)	1.65	0.97	2.62	6.30	5.13	1.54	6.29	1.10	4.80	8.12	4.99
Max	1157795	144466	20051	45977	6704	177085	263397	290714	229770	807383	611264
Min	1107883	139103	18212	38934	5879	166562	217325	280704	200296	623418	525586
Growth	-0.36	0.21	0.63	1.22	0.19	0.28	1.30	0.25	1.16	2.28	0.14

Industry (Micro & Small, Medium and Large)		Personal Loans	

Statistics	Micro & Small	Medium	Large	Consumer Durables	Housing (Including Priority Sector Housing)	Advances against Fixed Deposits (Including FCNR (B), NRNR Deposits etc.)	Advances to Individuals against share, bonds, etc.	Credit Card Outstanding	Education	Vehicle Loans	Other Personal Loan
Mean (in Crore Rs.)	366106	105561	2334049	1076	60887	5223	5223	216	6962	8359	37349
SD	6610	1317	31719	17.61	4.87	7.78	7.78	4.11	6.85	4.01	5.62
CV(In %)	1.81	1.25	1.36	9298	1338964	79496	79496	5692	110946	221129	726112
Max	381825	107502	2417728	5445	1168623	62607	62607	4982	92526	199817	615023
Min	358885	102601	2301894	5445	1168623	62607	62607	4982	92526	199817	615023
Growth (in %)	0.35	-0.04	0.20	4.13	1.14	-1.29	1.47	-0.51	1.33	0.83	1.40

Priority Sector lending

Statistics	Agriculture & Allied Activities	Micro & Small Enterprises (Manufacturing)	Micro & Small Enterprises(Services)	Housing	Micro-Credit	Education Loans	State-Sponsored Orgs. for SC/ST	Weaker Sections	Export Credit
Mean (in Crore Rs.)	1071785	366106	705679	448675	32561	53486	371	698120	14332
SD	29571	6610	23224	10196	3534	674	81	16756	859
CV(In %)	2.76	1.81	3.29	2.27	10.85	1.26	21.89	2.40	5.99
Max	1149394	381825	767568	461089	38237	54237	413	731409	16114
Min	1047483	358884	685875	432122	27331	51906	115	677013	13139
Growth	0.64	0.35	0.80	0.34	2.87	-0.30	14.23	0.67	0.78

Source: Author's estimation Based on Secondary Data, RBI Database>Statistical table Related to banks in India

Figure 1 represents the loan given to different sectors of the economy from April 2019 to March 2020. A mix trend of increase and decrease has been recorded by various sectors of the economy till February 2020 but it is the service sector which has behaved differently as compared to other sectors of the economy till February 2020. Coming to March 2020 the personal loan sector has declined where the other sector has shown an increasing trend and it is the service sector which recorded a sharpinclineas compared to other sectors. So, it is the service sector in which more focus can be given and it could provide more fruitful results as compared to other sectors of the economy in future.
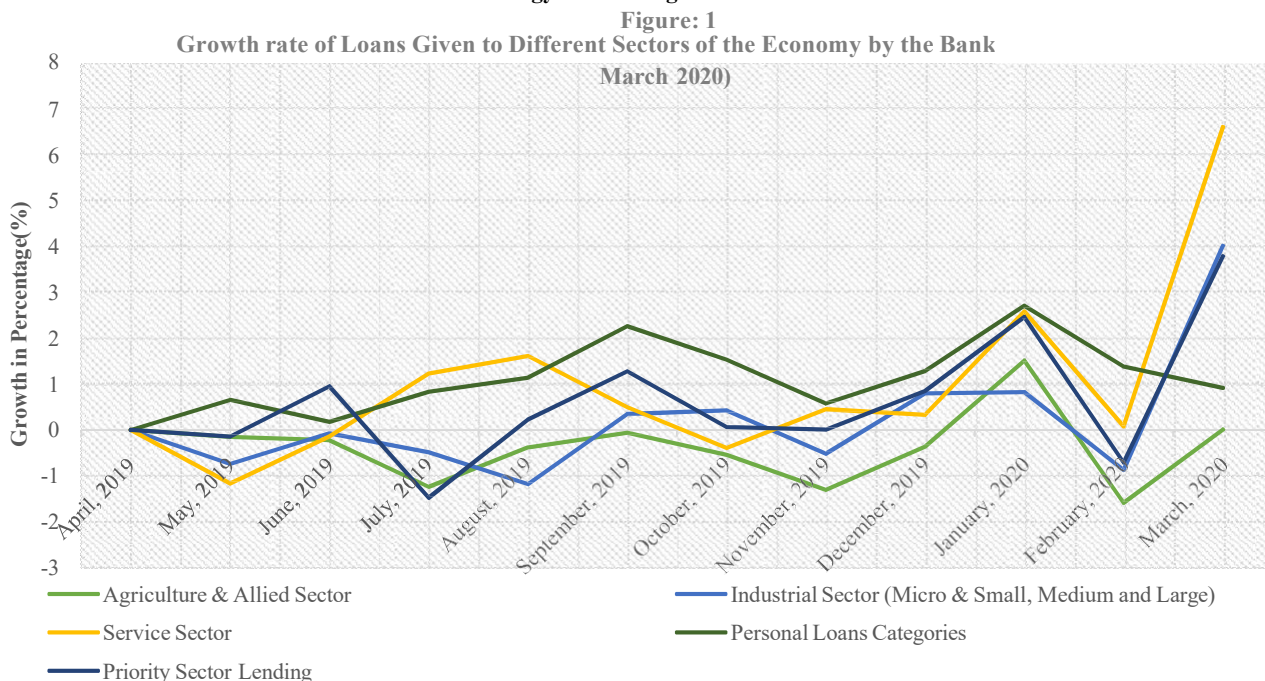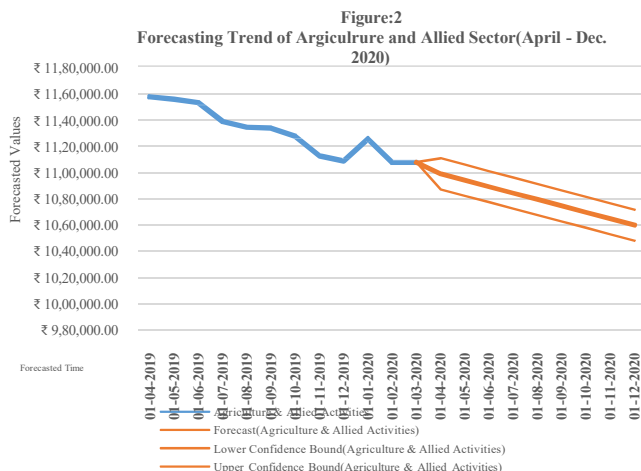
Figure: 1
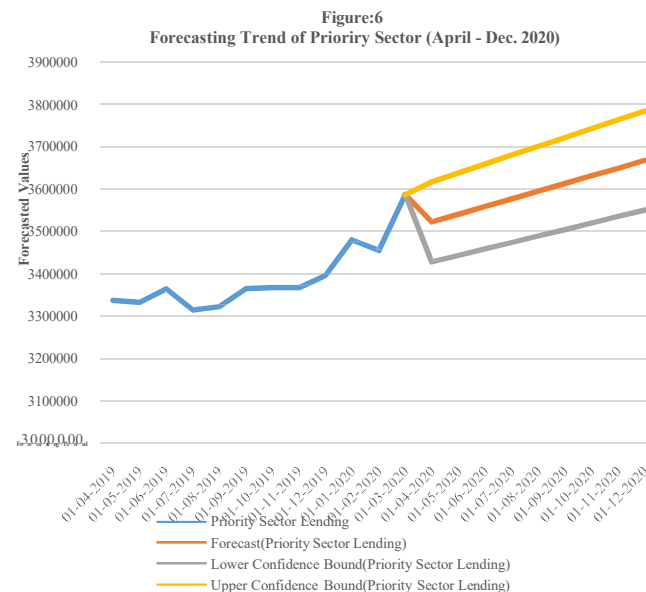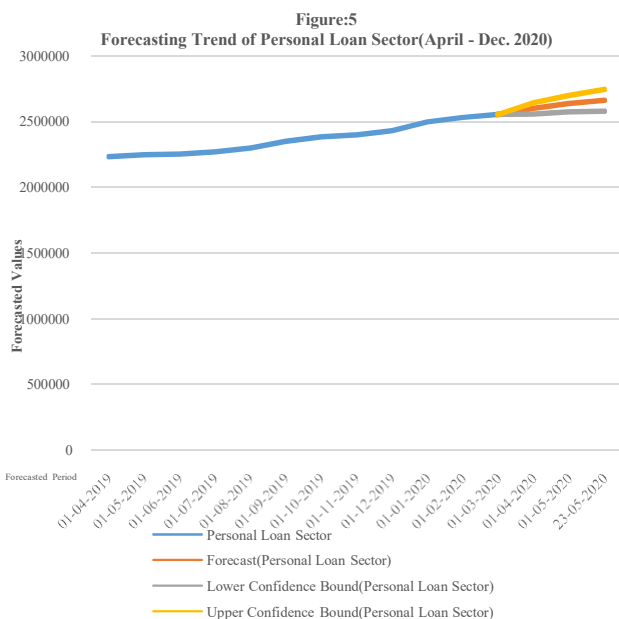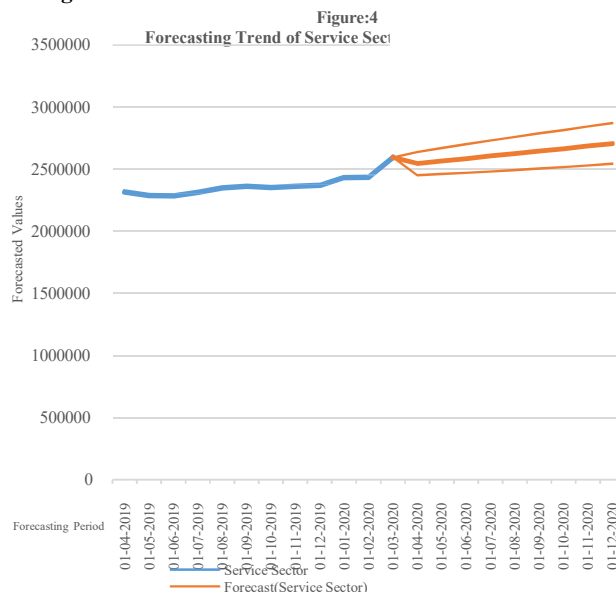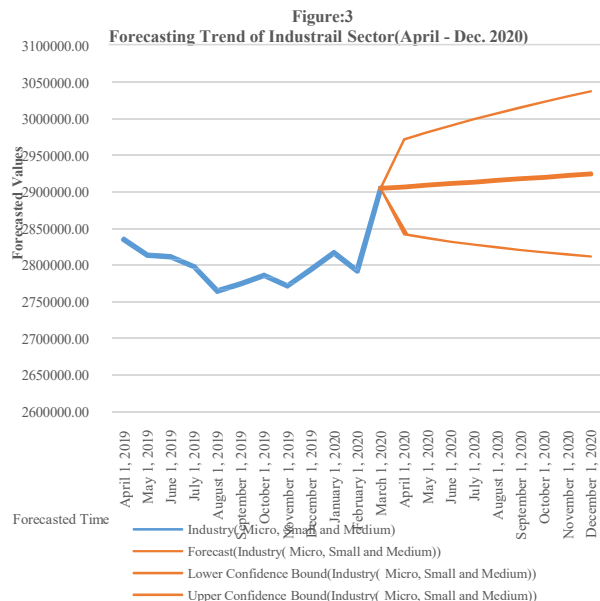**Growth rate of Loans Given to Different Sectors of the Economy by the Bank March 2020)**

Figure 2 represent forecasting trend of agriculture and allied sector from April 2020 to December 2020. A declining trend which is a bad indication for the economy that contributing much to this sector might impact negatively in terms of performance. Figure 3 represent the forecasting trend of Industrial sector which is a good indication for the economy that it is showing a positive growth if investment comes this sector might perform healthier as compared to agriculture and allied sector. Figure 4 represents the forecasting trend of service sector which is reflecting a positive increasing trend. If investment made in this sector, a good enactment can be expected. Figure 5 represent the forecasting trend of personal loan of banking sector which is again showing a positive trend of growth which is again a good indicator for the banks that bank can lend more money among various segments of the personal loans. Figure 6 represents the forecasting trend of priority sector which is one of the most important sector of the economy and its showing an increasing trend which is a good indication for the economy that if more investment is made good process can be expected from this sector which is very important to cover of the loss arises from covid-19 in India.

Figure:2
Forecasting Trend of Argiculrure and Allied Sector(April - Dec. 2020)

Figure:3
Forecasting Trend of Industrail Sector(April - Dec. 2020)

Figure:4
Forecasting Trend of Service Sect

Figure:5
Forecasting Trend of Personal Loan Sector(April - Dec. 2020)

Figure:6
Forecasting Trend of Prioriry Sector (April - Dec. 2020)

Test of Significance (ANOVA):

In order to examine whether exists any significant difference in the mean values of loans given to various sectors of the economy ANOVA (one-way classification) test has been applied. The Null and alternative hypothesis formulated in the following way:

$H_0 = R_1(\qquad) = R_2(\qquad) = R_3(\qquad) = R_4(\qquad) = R_5(\qquad)$

$H_1 \neq R_1(Agriculture\ and\ Allied\ Sector) \neq R_2(Industry\ Sector) \neq R_3(Service\ Sector) \neq R_4(Personal\ Loans) \neq R_5(Priority\ Sector)$

From the table 2 it can be observed that the calculated value of 'F' which is also known as observed value represented at the right hand side of the Table 2 was found *1460.56*, which is more than the critical value of 'F'at 0.05 per cent level of significance i.e. *2.54* and it was found significant also as reflected by P-values 0.000. So, we reject our null hypothesis and accepted our alternative hypothesis and it can be said that there exists some significant difference in the mean values of loans given to various sectors of the economy. And it has made noteworthy impact on the economy in terms of its performance.

Table No: 2
ANOVA Test
Loans to Different Sectors of the Economy

Groups	Count	Sum	Average	Variance
Agriculture &	12	13566422	1130535.167	349001875.2
Industry	12	33668591	2805715.917	1402323165
Service Sector	12	28459319	2371609.917	7237050652
Personal Loan	12	28461734	2371811.167	13013845231
Priority Sector Lending	12	40693357	3391113.083	6333266204

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	33108600106728	4.00	8277150026682.19			
Within Groups	311690358406	55.00	5667097425.57	1460.56	0.000	2.54
Total	33420290465134	59.00				

Source: Authors Estimation based on Secondary Data, Computed Using SPSS 16

Conclusion:

The primary objective of the study is to identify and forecast the trend and direction of loans given to various sectors with the economy for the coming six months that is from April 2020 December 2020 and secondary objective was to examine whether there exists any significant difference between the mean values of loans given to different sectors of the economy during that period. In the study it has been found that all the sectors of the economy are showing a positive and increasing trend of forecasted value except for the agricultural and allied sector. At the beginning of 2020 for first three months' agriculture and allied sector has affected a decreasing trend of growth but coming to the end of March 2020 agriculture and allied sector has reflected a positive trend. Which is a good indication for the economy but future values are not reflected the same manner it indicates that the government have to come up with somealternative plans to revive the agricultural and allied sector apart from the general plan that has been announced by the government for all the sectors. It has also been found that there exists significant difference in the mean values of the loans given to different sectors of the economy. On the conclusion can be said that it was a good attempt from the government to invest 20 Lakh Core rupees in the economy for casing up the economic crises but it is very important to make various segments analysis before making investment in different sector of the economy.Forecasting trend reflects that the agriculture and allied sector performance is not looking good for the coming six months. So, the Government have to come up with an alternative plan to revive this sector separately as compared to the other sectors of the economy.

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