Impact of Coronavirus on Automobile Sector of India

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I. INTRODUCTION

In the face of an uncertain adversity, each and every human being has been affected, some have lost jobs and some have lost loved ones. Many industries have crashed and our health care workers are working overtime. The automobile industry has also faced a lot of backlash due to the lockdown. For the first time in the history of the country, the automobile industry had registered zero sales. The industry was suffering from huge revenue losses which were estimated to be around $1.5-2 billion per month since the start of the lockdown. This pandemic has had short and medium term impacts on all the stakeholders in the value chain. This could range from shortage of raw material, shifting of production to other countries, delays in availability of models, deferred launches and shrinkage in consumer demand. Although, the future of the automobile industry looks very promising for the country, as many automobile companies have planned for setting up their factories and plants in India, and also use it for exports. This will boost the GDP of the automobile industry in the country and also reduce the prices of the cars.

II. LITERATURE REVIEW

The paper (**Economy impact of covid-19 - A case study of India, 2020**) reviews the Indian US$120-billion automobile industry registering an unprecedented zero number of sales for the first time in the history of India. Society of Indian Automobile Manufacturers (SIAM) states that car marketers have undergone an average revenue loss of Rs 2,300 crore turnover each day since the lockdown on March 24th, 2020.

The paper titled (**Can India stay immune enough to combat COVID- 19 pandemic? An economic query, 2020**) mentions China's key role as the leading supplier of auto components in India. The disruptions in the supply chain of automotive components and its severe impact has been discussed further. As the manufacturing industries in China were shut down in the wake of the coronavirus crisis, many Indian automobile companies including Mahindra & Mahindra, Tata Motors have announced that they are facing constraints in the supply of auto components and thus have suffered the losses.

The struggle of the automobile sector in India regarding adjustment to new regulations of Bharat Stage (BS) VI, effective from April 1st, 2020 is being highlighted in (**COVID-19 and Indian Economy: Impact on Growth, Manufacturing, Trade and MSME Sector, 2020**). The paper converses about the problem of reverse migration of skillful workers and its disruptions to the chain of the domestic production network. It's probable impact on manufacturing of automobiles (a labour-intensive industry) can come from a drop in industrial productivity by reason of skill shortage.

The research by (**Veeramani, 2020**) reveals that several automobile OEMs have established assembly plants in India. Some of these companies have begun to use India as an export base within their production networks. The automobile exports were hit badly due to the disruptions in supply chains.

The positive effect of the Make-in-India campaign is acknowledged in the paper titled (**COVID-19 and Indian FDI Policy, 2020**). The research also confers the significant interest displayed by Chinese companies to invest in a wide range of sectors in India, including the automobile sector.

III. RESEARCH GAP

Due to the contemporary nature of the pandemic as well as the subject of the study, an empirical gap exists in the research.

IV. RESEARCH OBJECTIVE

The objective of the study is to analyse the market trends in regard to the automobile sector in India.

V. OBSERVATIONS

The consumer behaviour observed can be justified by Abraham Maslow's **"Need Hierarchy**

Theory". Abraham Maslow postulated that a person will be motivated when his needs are fulfilled. Given below is the hierarchy of needs:

In the initial stages of the coronavirus outbreak, there was a massive decline in the sales and revenue of the automobile sector. There was a global recession and people from various sectors all over the world lost their jobs.

The theory suggests that the need starts from the lowest level basic needs and keeps moving up as a lower level need is fulfilled. Masses of people did not have their safety and security needs fulfilled due to instability of income, company layoffs and various other factors. Several companies instructed employees to 'work from home', ripping them off their need for belongingness in the workplace.

The motivation process begins with an unsatisfied need, which creates tension and drives an individual to search for a goal that, if attained, will satisfy the need and reduce the tension. In the above case, an unsatisfied need of purchasing an automobile was not being created and hence, there was no consumer behaviour of purchasing the shoes. This went on till June.

As the lockdown in India began to open up, there was a need generated amongst the public. However, this was not an 'Esteem' need. Due to the contagious nature of coronavirus, public transport was not a safe means of transport anymore. Due to this, there was a sudden spurt in demand of automobiles. An increase in desire for individual mobility was observed.

Despite the needs of people, there was still a deflationary impact in the economy. Individuals would not fulfil their need or motive to buy a car while burdening their own pocket and disrupting their fulfilled need for safety and security. This is the reason why there was predominantly a sale of compact segment cars and utility vehicles, and these was a plunge in the sale of luxury automobiles.

By August, the demand in the automobile sector had increased, but in a transformed way. In spite of car dealerships opening up, there was a visible trend of purchasing cars online. Dedicated dealerships constructed digital sales solutions by digitalising their sales teams and maintaining contact with their buyers using digital channels.

Another common trend was that of subscription models. These models allow customers to own a brand new vehicle at just a fixed monthly subscription fee and the fuel cost with zero down payment. Insurance, road tax and maintenance are taken care of by car companies

Car companies take care of insurance, road tax, and maintenance. Young car owners prefer unproblematic access to ownership instead of wanting to deal with the higher cost of

ownership that new cars bring as it does not cause inconvenience to their safety need concerning finances.

VI. RESEARCH HYPOTHESES

Two sets of hypotheses have been formed to illuminate and validate the social impact of coronavirus on the automobile sector with statistical evidence.

1.   First set of hypothesis:
Null Hypothesis or H0:
August'20 Retail Sales of Non-Luxury Cars = August'19 Retail Sales of Non-Luxury Cars
Alternate Hypothesis or H1:
August'20 Retail Sales of Non-Luxury Cars > August'19 Retail Sales of Non-Luxury Cars

2.   Second set of hypothesis:
Null Hypothesis or H0:
August'20 Retail Sales of Luxury Cars = August'19 Retail Sales of Luxury Cars
Alternate Hypothesis or H1:
August'20 Retail Sales of Luxury Cars < August'19 Retail Sales of Luxury Cars

VII.   RESEARCH METHODOLOGY

Type of Research
The present study uses mixed research as a part of its methodology. Using inter method mixing, a computer-assisted personal interview has been conducted for collection of qualitative data and quantitative data has been collected through the review of documents of an institutional syndicated data source. Qualitative data has been used for in-depth evaluation to explore and report phenomena which would not be apparent through more structured methods. Quantitative data has been used to test certain hypothesis for a more conclusive research.

Type of Research Design
With the objective of exploration and obtaining more clarity of the situation, the study uses an exploratory research design to provide direction to subsequent rigorous research. The design selected is less structured and more flexible in approach.

Sources of Data
As per the recommended techniques of data collection for exploratory research design, a secondary resource analysis has been conducted.

Variables:
The study makes use of two types of variables i.e. independent and dependent variables.

The aim is to understand and describe the variability of the dependent variable by studying the impact of the independent variables on it. The following are the variables:

Dependent Variable:
● Original Equipment Manufacturers of Passenger Vehicles
Independent Variables:
● Automobile Retail Sales for August 2020
● Automobile Retail Sales for August 2019

Data:
For the purpose of secondary resource analysis, data was extracted through an institutional syndicated data source known as (FEDERATION OFAUTOMOBILE DEALERS ASSOCIATIONS). The source was preferred by the reason of its credibility and was authenticated by qualifying the methodology, accuracy, topical and financial check.

Number of Observations:
The number of observations present in the dataset were 28. These observations were further divided into two categories for the purpose of the study. The categories, namely luxury brands and non-luxury brands of Original Equipment Manufacturers (OEM) of Passenger Vehicles, consist of 11 observations each. The remaining six observations partially fell in both categories and were hence not taken into consideration.

Time Period:
The study has been conducted in the month of September, 2020 in the cooldown period to analyse the impact of nationwide lockdown, as a result of COVID-19, on the automobile retail sector of India.

Time series or Cross Sectional Data:
The data collected consists of retail sales of OEMs in August 2019 and August 2020. It falls under the category of time series data as the change in the independent variables with respect to the dependent variable over time is being observed.

Tools used for Data Analysis:
With the intent to perform inferential data analysis for the present study, the software MS Excel has been used due to its convenience and utility. To carry out parametric analysis for hypothesis testing, Paired t-Test with a significance level or α of 0.05 has been selected as the research tool. The motivation for selection of this tool is as follows:

● The sample size for both samples is less than 30.
● The population standard deviation is unknown.

● The comparison of August retail sales of OEMs for two consecutive years has been done, making the two samples paired instead of independent.

VIII. DATA ANALYSIS

● Hypothesis Testing for First Set of Hypothesis

t-Test: Paired Two Sample for Means

	Sum of AUG'20	Sum of AUG'19
Mean	15886.27273	16492.18182
Variance	674323171.2	696840040.2
Observations	11	11
Pearson Correlation	0.988996439	
Hypothesized Mean Difference	0	
df	10	
t Stat	-0.514252768	
P(T<=t) one-tail	0.30912384	
t Critical one-tail	1.812461123	

Using the P-value approach, as the P-Value is higher than α we retain the null hypothesis.

● Hypothesis Testing for Second Set of Hypothesis

t-Test: Paired Two Sample for Means

	Sum of AUG'20	Sum of AUG'19
Mean	96.27272727	197.9090909
Variance	26067.61818	81043.29091
Observations	11	11
Pearson Correlation	0.949804029	
Hypothesized Mean Difference	0	
df	10	
t Stat	-2.395649262	
P(T<=t) one-tail	0.018797029	
t Critical one-tail	1.812461123	

Using the P-value approach, as the P-Value is lesser than α, we reject the null hypothesis.

IX. DATA INTERPRETATION

● It can be observed that the sales of automobile cars in August 2020 have not increased in comparison to August 2019.

● It can deduced that the sales of luxury cars in the month of August 2020 are less than that in August 2019

X. CONCLUSION

The study discusses the psychology of consumer behaviour observed in the midst of the COVID-19 Pandemic. It is observed that there is no increase in the number of car sales in August 2020 as compared to August 2019. Furthermore, the future of the automobile sector suggests that cars will be seen as points of health. Sales of cars and vehicle related services have begun to enter the world of digitalisation. Keeping in mind the recent trend of 'work from home culture', the role of the car, which used to be primarily for a commute to the office or workplace, will shift to its usage being evening trips and short drives. Provision of various services such as subscription service will make owning cars a delightful and easier experience for the customers.

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