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Indian Two Wheeler Industry - A Comparative Market Research

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ABSTRACT

In terms of sales and production both, the Indian two wheeler industry is the largest in the world. As far as the year on year sales growth rate is concerned, this industry is currently growing at a rate of more than 14 %. The Make in India campaign is also likely to attract more and more foreign investment for the further growth of this industry. At present there are around 12 major two wheeler manufacturers in India that are catering to the varied commuting needs of Indian consumers. The Indian two wheeler industry has undergone sea-changes during the last one decade and thus producing consumer-friendly, eco-friendly, stylish, fuel-efficient and technologically advanced products. This industry has become more and more consumer-centric in the recent times.

The present study is aimed at analyzing and comparing the data with regard to the domestic sales and market shares of various two wheeler manufacturers for the two consecutive financial years (i.e. 2016-17 and 2017-18). The secondary data for this purpose have been retrieved from various authentic and reliable online sources. In order to draw certain useful and sound inferences from this secondary data, we have used t-test and F-test. Moreover, the two wheeler manufacturers included in this study are-- Bajaj Auto, Harley Davidson Motor Co., Hero MotoCorp, Honda Motorcycle & Scooter India, India Kawasaki Motors, India Yamaha Motors, Mahindra Two Wheelers, Piaggio Vehicles, Royal Enfield, Suzuki Motorcycle India, Triumph Motorcycles India and TVS Motor Company.

Finally, the study concludes that the difference between sales figures of various two wheeler manufacturers for 2016-17 and 2017-18 is not statistically significant and similarly the difference between the market shares of various two wheeler manufacturers for 2016-17 and 2017-18 is also statistically insignificant. But, it is also a truth that the overall sales of two wheelers in India is increasing year by year and thus setting an upward trend.

1. Introduction

It's a fact that Indian people love to ride two wheelers as it gives them the feeling of freedom. Riding a two wheeler also provides them an opportunity to enjoy the nature. In India, two wheelers are generally preferred because of their compact sizes, affordable prices, low maintenance cost, easy loan facility and great deal of convenience and mobility. If we have a look at the Indian streets, they are generally full of two wheelers.

A couple of years back India was the second largest market for two wheelers i.e. only next to China, and the third largest manufacturer of two wheelers i.e. only next to Japan and China. But, at present, India is the largest two wheeler market of the World followed by China and Indonesia. India has also become the largest two wheeler manufacturer of the world. Over the past few years the two wheeler industry has witnessed healthy growth scenario primarily driven by strong demand from urban as well as rural areas owing to healthy economic scenario. Growing population in urban and rural areas has also created the need for public transport infrastructure for regular commuting and thereby pushing the demand for low cost and fuel-efficient two wheelers. Two wheeler industry in India can be broadly divided into motorcycles, scooters and mopeds. The production of two-wheelers recorded marginal growth of 1.8% y-o-y in the 2015-16 and reached 18,829,786 units. The segment recorded marginal sales growth of 2.7% during this year.

As far as the evolution and growth of Indian two wheeler industry is concerned, Bajaj auto began trading in imported Vespa Scooters in 1948. Meanwhile, Automobile Products of India (API) commenced the production of the scooters in the country in early 50's. Until 1958, API and Enfield were the only producers of two wheelers in India. However, in 1960, Bajaj signed a technical collaboration with Piaggio of Italy to produce Bajaj Scooters. This collaboration expired in 1970. The condition of motorcycle manufacturers was not different. Until the mid 80's, there were only two major motorcycle manufacturers in India namely Escorts and Enfield. The two wheeler market was opened to foreign manufacturers in the mid 80's. The industry which had seen a smooth ride earlier faced fierce foreign competition. Motorcycle companies like Yamaha, Honda and Kawasaki set up shops in India in collaboration with various Indian two wheeler companies. Companies like Escorts and Enfield faced immense competition from smaller 100 cc Japanese technology motorbikes. Bikes manufactured by Hero Honda, the only company manufacturing small four-stroke bikes at that time gained massive popularity. In the mid 80's, Kinetic introduced a gearless scooter in collaboration with Honda with the name "Kinetic Honda". This scooter or scooterette became popular instantly among the youth, women and elderly people or especially among the people who found it difficult to use the geared scooters. The introduction of scooterettes created a different segment of two wheeler consumers in India consisting of women, teenagers and elderly people. Later on, many companies like Honda, TVS and Hero started manufacturing scooterettes that proved to be immensely popular among the people who wanted a simple riding machine. The change in the Government's policy and norms with regard to the pollution control and the Kyoto agreement saw the phasing out of two stroke two wheelers from the production.

At present, there are around 12 two wheeler manufacturers in the country including Bajaj Auto, Harley Davidson Motor Co., Hero MotoCorp, Honda Motorcycle & Scooter India, India Kawasaki Motors, India Yamaha Motors, Mahindra Two Wheelers, Piaggio Vehicles, Royal Enfield, Suzuki Motorcycle India, Triumph Motorcycles India and TVS Motor Company. Again, it is quite evident from the sales figures of 2017-18 that Hero MotoCorp holds the largest market share (36.19 %) and is followed by Honda Motorcycle & Scooter India (29.04 %), TVS Motor Company (14.15 %) and Bajaj Auto (9.84 %). It is also worth mentioning that Hero MotoCorp is not only the largest two wheeler manufacturer of the country but also the largest two wheeler manufacturer of the world.

2. Objective of the Study

The main objective of the present study is to analyze and compare the data with regard to the domestic sales and market shares of various two wheeler manufacturers during 2016-17 and 2017-18; and thereby drawing certain useful inferences.

3. Research Methodology

This research study is an analytical kind of research study based on secondary data. The present study is related to the statistical analysis the secondary data on the domestic sales figures and market shares of various two wheeler manufacturers in India for the year 2016-17 and 2017-18. The said secondary data have been retrieved from the website of Society of Indian Automobile Manufacturers (www.siamindia.com). Moreover, for testing the equality of means and the equality of variances, the t-test and F-test have been used respectively.

4. Results & Discussion

The data with regard to the domestic sales of various two wheeler manufacturers in India is presented in a tabular form as below (Table-01)—

Table–01 : Domestic Sales of Various Two Wheeler Manufacturers

S.N.	Manufacturer	Domestic Sales (in No. of Units)	
		2016-17 (April to Feb.)	2017-18 (April to Feb.)
1.	Bajaj Auto	1,849,942	1,815,590
2.	Harley Davidson Motor Co.	3,351	2,959
3.	Hero MotoCorp	5,897,068	6,677,844
4.	Honda Motorcycle & Scooter India	4,386,211	5,357,907
5.	India Kawasaki Motors	1,011	1,500
6.	India Yamaha Motors	712,953	726,892
7.	Mahindra Two Wheelers	47,315	14,062
8.	Piaggio Vehicles	39,079	61,481
9.	Royal Enfield	592,558	727,020
10.	Suzuki Motorcycle India	314,491	454,355
11.	Triumph Motorcycles India	1,074	1,113
12.	TVS Motor Company	2,273,049	2,610,300
	Total	**16,118,102**	**18,451,023**

Source: *Society of Indian Automobile Manufacturers (www.siam.com)*

Now, for testing the equality of population means (i.e. equality of average sales in 2016-17 and average sales in 2017-18) we are using t-test here.

The null and alternative hypotheses in this case are—

Null hypothesis, H_o: $\mu_1=\mu_2$ i.e. There is no significant difference between the average sales of two wheelers in 2016-17 and 2017-18.

Alternative Hypothesis, H_1: $\mu_1\neq\mu_2$ i.e. There is a significant difference between the average sales of two wheelers in 2016-17 and 2017-18.

From the data given in Table-01, the t-statistic is computed to be $t_{cal} = 0.8238$

Now, at 5 % level of significance, for v= 12+12-2= 22 d.f., the critical value or the tabulated value of t, $t_{tab}= 2.074$.

Now, since $| t_{cal} | < | t_{tab} |$, so we accept the null hypothesis and conclude that there is no significant difference between the average sales of two wheelers in 2016-17 and 2017-18.

Again, for testing the equality of population variances (i.e. equality of variance of sales in 2016-17 and variance of sales in 2017-18) we are using F-test.

The null and alternative hypotheses in this case are—

Null hypothesis, H_o: $\sigma_1^2 = \sigma_1^2$ i.e. There is no significant difference between the variance of sales in 2016-17 and variance of sales in 2017-18.

Alternative Hypothesis, H_1: $\sigma_1^2 \neq \sigma_1^2$ i.e. There is a significant difference between the variance of sales in 2016-17 and variance of sales in 2017-18.

Here the test statistic, $F= S_1^2 / S_2^2$,
Where, $S_1^2 = n_1s_1^2 / n_1-1$ and $S_2^2 = n_2s_2^2 / n_2-1$

From the data given in Table-01, the F-statistic is computed to be $F_{cal} = 0.6329$

Now, at 5 % level of significance, for $v_1= 12-1= 11$ and $v_2= 12-1= 11$ d.f., the critical value or the tabulated value of F, $F_{tab}= 2.82$

Now, since $F_{cal} < F_{tab}$, so we accept the null hypothesis and conclude that there is no significant difference between the variance of sales in 2016-17 and variance of sales in 2017-18.

Again, the data with regard to the market shares of various two wheeler manufacturers in India at the end of 2016-17 and that of 2017-18 are presented in a tabular form as below (Table-02)—

Table–02 : Market Share of various Two Wheeler Manufacturers

S.N.	Manufacturer	Market Share (in Percentage)	
		2016-17 (April to Feb.)	2017-18 (April to Feb.)
1.	Bajaj Auto	11.48 %	9.84 %
2.	Harley Davidson Motor Co.	0.02 %	0.02 %
3.	Hero MotoCorp	36.59 %	36.19 %
4.	Honda Motorcycle & Scooter India	27.21 %	29.04 %
5.	India Kawasaki Motors	0.01 %	0.01 %
6.	India Yamaha Motors	4.42 %	3.94 %
7.	Mahindra Two Wheelers	0.29 %	0.08 %
8.	Piaggio Vehicles	0.24 %	0.33 %
9.	Royal Enfield	3.68 %	3.94 %
10.	Suzuki Motorcycle India	1.95 %	2.46 %
11.	Triumph Motorcycles India	0.01 %	0.01 %
12.	TVS Motor Company	14.10 %	14.15 %
	Total	100 %	100 %

Source: *Society of Indian Automobile Manufacturers (www.siam.com)*

Again, for testing the equality of population variances (i.e. equality of variance of market shares in 2016-17 and variance of market shares in 2017-18) we are using F-test.

The null and alternative hypotheses in this case are—

Null hypothesis, H_o: $\sigma_1^2 = \sigma_1^2$ i.e. There is no significant difference between the market shares in 2016-17 and the market shares in 2017-18.

Alternative Hypothesis, H_1: $\sigma_1^2 \neq \sigma_1^2$ i.e. There is no significant difference between the market shares in 2016-17 and the market shares in 2017-18.

Here the test statistic, $F = S_1^2 / S_2^2$,

where, $S_1^2 = n_1 s_1^2 / n_1\text{-}1$ and $S_2^2 = n_2 s_2^2 / n_2\text{-}1$

From the data given in Table-01, the F-statistic is computed to be $F_{cal} = 0.9685$

Now, at 5 % level of significance, for $v_1 = 12\text{-}1 = 11$ and $v_2 = 12\text{-}1 = 11$ d.f., the critical value or the tabulated value of F, $F_{tab} = 2.82$

Now, since $F_{cal} < F_{tab}$, so we accept the null hypothesis and conclude that there is no significant difference between the market shares in 2016-17 and the market shares in 2017-18.

5. Conclusion

The present study is an attempt to analyze the data related to the sales figures and market shares of various two wheeler manufacturers for the two consecutive financial years (2016-17 and 2017-18) and thereby drawing certain useful inferences. Table-01 deals with the manufacturer-wise sales figures and overall sales figures for 2016-17 and 2017-18. It is quite evident from this table that the overall sales for 2016-17 is 16,118,102 and that for 2017-18 is 18,451,023 (i.e. the Year on Year overall % Sales Growth is 14.47 %). Moreover, the result of t-test shows that there is no significant difference between the average sales of two wheelers in 2016-17 and that in 2017-18.Similarly, the result of F-test establishes that there is no significant difference between the variance of sales in 2016-17 and variance of sales in 2017-18.

Again, Table-02 deals with the market shares of various two wheeler manufacturers for 2016-17 and 2017-18. It can be observed easily from this table that Hero MotoCorp holds the largest market share and thus it is the clear-cut market leader. In terms of sales and market share, Hero MotoCorp is followed by Honda Motorcycle & Scooter India, TVS Motor Company and Bajaj Auto. Again, the result of F-test implies that there is no significant difference between the market shares in 2016-17 and the market shares in 2017-18.

Finally, we can conclude that the difference between sales figures of various two wheeler manufacturers for 2016-17 and 2017-18 is not statistically significant and similarly the difference between market shares of various two wheeler manufacturers for 2016-17 and 2017-18 is also statistically insignificant. But, it is also a truth that the overall sales of two wheelers in India is increasing year by year and thus setting an upward trend.

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