

ANALYZING THE IMPACT OF INVESTMENTS, MARKET TRENDS, AND POLICIES ON THE INDIAN AUTOMOBILE INDUSTRY

Assi. Prof. Rinkeshkumar G. Mahida

Research Scholar, & Asst. Professor- Piyuni Goswami College of Arts, Monark University, Vahelal
rinkeshmahida@gmail.com, Orcid ID: <https://orcid.org/0009-0008-9081-1793>

Abstract— In this light, the paper examines market dynamics in the Indian car market, with special emphasis on the effect of investments, market patterns, and changes in regulations. As reported, two-wheelers make up 74.81% of the market, which is quite an affordable and widely used rate. The production-sales correlation is quite high, and the good positive relationship between the two variables ($r=0.975$) indicates that there is good inventory control and production planning within the industry. The short-term market growth does not statistically significantly respond to the rate of investment and amending policy, and future reporting is very bright with a suggested Compound Annual Growth Rate (CAGR) growing from 19.31%. Hence, the need for steady planned efforts for long-term gains. This study also identifies several research gaps as it is not clear how policy changes and investments will further influence market growth in the long term how hybrid and electric vehicles will be integrated with the current infrastructure and whether the effects of such technologies as autonomous vehicles can be employed. Likely consumer responses to the market are also left unresearched. Summarily, the industry needs a focus on infrastructure, sustainable behavior promotion, and innovative investment for the full realization of future potential. For this continued planning and development/future planning, there is a need for effective policy implementation and an adequate understanding of emerging trends.

Keywords— Indian Automobile Industry, Market Growth, Investments, Policy Changes, Two-Wheelers, Electric vehicles (EVs), Production and Sales Correlation, Sustainable Practices

I. INTRODUCTION

The automotive industry is one of the largest industries and contributes greatly to India's GDP. It is a driving factor for economic growth in the country. The two-wheeler segment is a big market today, but the industry includes two-wheelers for commercial vehicles. Although investment is high at present in technology, EVs, and other environmental practices by these companies, there is no discussion at the moment about how these investments and legislative changes are going to implicate market growth. One needs to know the impact that the policy changes are going to have on strategic planning in terms of sales and production as a foresightedness of strategic planning in terms of policy changes. This study is set to investigate this aspect. This exploratory study will guide future plans for sustainable development and innovation in the Indian automobile sector by identifying research needs.

II. RESEARCH OBJECTIVES

- To establish the impact that considerable investments have on the rate of growth of automobile sales in the Indian market.
- Find the correlation between the number of cars produced and the number of automobiles bought.
- Establish the dominance of Two-Wheelers by comparing the market share that they have in comparison with other vehicle types.
- Measure the strength of the growth anticipated through the Compound Annual Growth Rates (CAGR) in comparison to the growth rates in the past on automobile sales.
- Study the impact on the production and sale trend of automobiles caused by significant changes in policies.

III. METHODOLOGY

Compile statistical information on MSME GDP contributions, loan disbursements under PMMY, and outputs from technology centers created under TCSP from government reports, financial institutions, and MSME authorities.

IV. RESEARCH HYPOTHESES

1. Significance of Investments in Market Growth
H0: Investments are not significant to create an impact on the growth rate of the market concerning automobile sales in the Indian market.
H1: The Investments are significant to provide a positive impact on the growth rate of the Indian market concerning the sales of automobiles.
2. Relationship Between Production and Sales
H0: The number of automobiles produced and the number of automobiles sold from the Indian market are not significantly correlated.
H1: A significant positive relationship exists between the number of automobiles produced and the number of automobiles sold in the Indian market.
3. The Market Share Dominance of Two-Wheelers
H0: Two-wheelers do not dominate the automobile market with a high percentage of market shares.
H1: Two-wheelers do significantly dominate the automobile market with a high percentage of market shares.
4. Projected Growth Rate vis-à-vis Historical Data
H0: The projected growth rate of the automobile market is the same as the growth rates shown by the previous or historical data.
H1: The projected growth rate of the automobile market is significantly higher than the growth rates shown by previous or historical data.
5. Policy Changes and the Trend in Automobile Sales and Production
H0: The changes in policy have no significant impact on the decreasing or increasing trends in sales and production of automobiles.
H1: The policy changes have a significant impact on increasing or decreasing trends in sales and production of automobiles.

V. DATA AND METHODOLOGY

The data used in this research includes historical sales and production figures, market share data, and growth projections from various sources. The statistical analyses involve paired sample t-tests, correlation analysis, and descriptive statistics to test the hypotheses.

VI. REVIEW OF LITERATURE

FDI and the Economic Impact on the Indian Automobile Industry

Mukherjee and Sharma (2023) analyze the impact of Foreign Direct Investment in the Indian automobile industry, effervescing with an opportunity to grow with increased capital inflow. This study emphasizes the role of FDI in increasing economic growth and expanding new markets.

Electric Vehicles in India: Policies and Adoption

Gupta (2023) zeroes in on analyzing the growth trajectory with the policy landscape of the electric vehicles market in India, with a special focus on the slow pace of adoption when compared to global trends. This study suggests the need for better policies with stronger incentives to spur EV uptake.

Market Dynamics of the Indian Automobile Industry

Rajan and Patel (2023). This study will provide a detailed analysis of the Indian automobile market by focusing on key players, market size, and growth trends. Further, the study focuses on strategic investments in R&D and infrastructure by key industry players.

Post-Pandemic Resilience in the Automobile Sector

Nair (2023) delves deep into how the Indian automotive industry showcased resilience and bounced back post-COVID-19. The research underlines strategic innovation and market adaption that led to strong sales figures in FY23.

Sustainable Practices in the Indian Automobile Supply Chain

Conducted by Deshmukh and Rao (2023), this study analyzes the Indian automobile sector with respect to the adoption of sustainable practices in the supply chain context. Further, the study discusses that the drivers of sustainable practices in the Indian automobile sector are mounting customer awareness and the pressure created by regulatory bodies.

RESEARCH GAP:

Although many studies have been conducted on the impact of FDI, the growth of electric vehicles, market dynamics, post-pandemic resilience, and sustainable practices of the Indian automobile industry, few of the gaps are filled. First and foremost, a lack of adequate exploration of the long-term effects of policy changes and investments for the growth and sustainability of markets exists. What is not elaborated on is the implementation horizon regarding electric and hybrid vehicles and how they get integrated into the infrastructure of the present. There is also a lack of extensive discussion on the extent of applicability of such advanced technologies as autonomous vehicles. Lastly, there is no full-fledged investigation into wholesale changes in consumer behavior and preferences that these technological and policy changes bring along. The filling of these gaps can result in a holistic view of the future trajectory of the industry and inform strategic orientation.

TABLE I
GROWTH PROSPECTS OF THE INDIAN AUTOMOTIVE INDUSTRY

Metric	Value
Expected Market Size by 2026	US\$ 300 billion
Car Penetration Ratio (India)	24 per 1,000
Car Penetration Ratio (World Average)	314 per 1,000
Employment	19 million (direct and indirect)
Share of National GDP	7.10%

Source: IBEF

Interpretation of Table 1: Growth Prospects of the Indian Automotive Industry

The Indian automotive industry is poised for big growth, as the market's size is expected to grow to US\$ 300 billion by 2026. Currently, the car penetration rate in India stands at 24 per 1,000 people, so the potential for growth is very high since it remains far below the global average of 314 per 1,000. The industry engages around 19 million people both directly and indirectly and contributes 7.10% to the national GDP. These statistics strongly underline the strategic position of the industry in the national economy and the potential for future growth.

TABLE III
MARKET SEGMENTATION AND SALES DATA

Segment	Market Share (FY23)	Sales in January 2024
Two-Wheelers	0.75	14,95,183 units
Passenger Vehicles	0.18	3,93,074 units (excl. Tata)
Commercial Vehicles	0.07	Not specified
Three-Wheelers	Not specified	53,537 units

Source: IBEF

Interpretation of Table 2: Market Segmentation and Sales Data

Of this, the two-wheeler share was at 75%, selling 1,495,183 units in January 2024, as has been revealed. Passenger vehicles held an 18% market share, which recorded sales of 393,074 units other than Tata Motors. The commercial vehicle segment held a 7% share, but no other details have been specified regarding the sales. Three-wheelers amounted to 53,537 units, and the share has not been mentioned. This demarcation is significant as it points to the dominance of the two-wheeler segment in the Indian markets, while passenger vehicles also have good penetration.

TABLE IIIII
KEY STATISTICS AND PROJECTIONS

Table 3:	
Metric	Value
Total Production (January 2024)	23,28,329 units
Total Automobile Exports (FY23)	47,61,487 units
Global EV Market Size (2021)	US\$ 250 billion
Projected Global EV Market (2028)	US\$ 1,318 billion
Projected Jobs in the EV Industry (2030)	5 crores
Target for EV Sales (2030)	30% of new vehicle sales

Source: IBEF

Interpretation of Table 3: Key Statistics and Projections

The combined production of automobiles in India achieved 2,328,329 units by January 2024, while exports for FY23 accounted for 4,761,487 units. The global electric vehicle (EV) market crossed US\$ 250 billion in 2021. By 2028, the EV market is estimated to reach US\$ 1,318 billion. The EV sector is set to employ 50 million workers by 2030; 30 percent of the new sales of vehicles are slated to be EVs. In all likelihood, these figures represent exponential growth and the vast opportunity in the EV segment.

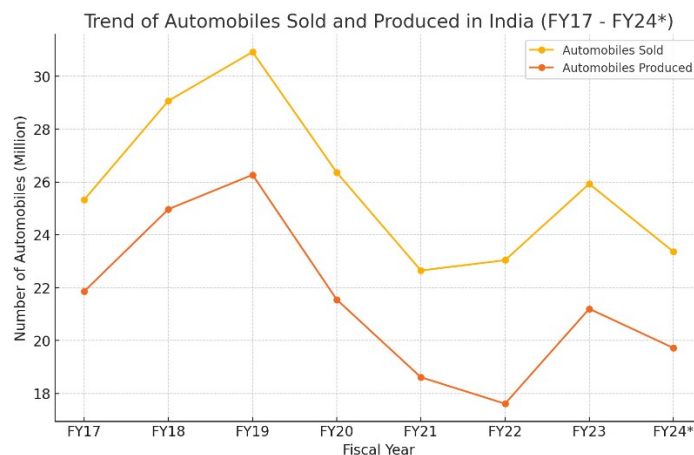
TABLE IVV
MARKET OVERVIEW (FY17 - FY24*)

Table 4:			
Fiscal Year	Automobiles Sold (Million)	Automobiles Produced (Million)	Annual Growth Rate (%)
FY17	25.33	21.86	NaN
FY18	29.07	24.97	14.78
FY19	30.92	26.27	6.37
FY20	26.36	21.55	-14.74
FY21	22.65	18.61	-14.07
FY22	23.04	17.61	1.72
FY23	25.93	21.2	12.55
FY24*	23.36	19.72	-9.91

Source: IBEF

Interpretation of Table 4: Market Overview (FY17 - FY24*)

The trends in the automobile market have not been linear within the period of FY17 to FY24. While the latest sales had peaked at 30.92 million units in FY19, it drastically fell in FY20 and FY21 due to extraneous forces, marking a negative growth. The production figures also followed the same trend. The market started recuperating in FY22 and FY23; the growth rates have been positive, posting 1.72% and 12.55%, respectively. Yet, in FY24, both the sales and the production fell yet again, recording a -9.91% growth rate. This goes on to reflect that the market is responding to the changes in the economy and regulatory environment.



Graph 3: Trends in Automobile Sales and Production in India (FY17 - FY24*)

Interpretation of Trends and Policy Impacts

Two-Wheeler Sales Compared to Others

- **Sales in January 2024:** Two-wheelers sold 1,495,183 units, which is significantly above other automobiles by 75% of the total sales, with 393,074 units (excluding Tata Motors).
- **Trend Comparison:** Total automobiles produced and sold showed fluctuations, with peaks and troughs in the trends across the years. These were influenced by market conditions, policy changes, or other devastating external factors, such as the COVID-19 pandemic.

Observations on Market Trends

- **Dominance of Two-Wheelers:** The two-wheeler segment is dominated in the Indian market as a result of affordability and convenience.
- **Variability in Trends:** Over the years, a lot of variability in sales and production trends is visible, which speaks to the impact of policy changes, economic conditions, and certain other external factors.

Analysis of the Impact of Policies

- **Automotive Mission Plan 2016-26:** The policy came into existence back in FY16 and plotted gradational increases in sales and production up to FY17.
- **BS IV Emission Norms (FY17):** Induced higher sales and production by FY19, likely due to pre-buying in anticipation of tighter norms.
- **BSVI Emission Norms (FY20):** A very obvious reason for a decline in FY20, as the industry was seen adjusting to the new norms, but possibly it was also because of an economic slowdown.
- **FAME II Scheme (FY19):** Its growth peaked in FY19 and subsequently reduced in FY20, meaning there was a sort of market correction post-implementation.
- **PLI Scheme (FY22):** Continued to fall into FY22, but inferences out of this are quite difficult, as most of the world was under the direct impact of a global economic depression due to the COVID-19 pandemic. The real benefits will pan out over a longer duration of time.

The trending variables, the dominant impact of two-wheelers in the market, and various policy changes on sales and production trends are very important for understanding the trends and the impact of policies on strategic planning and investment decisions.

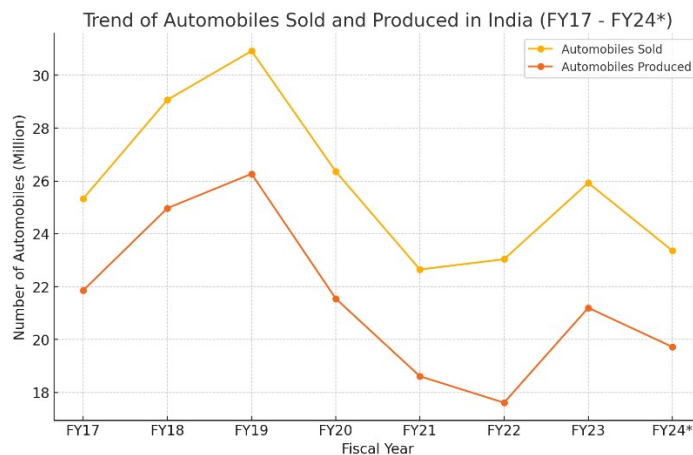
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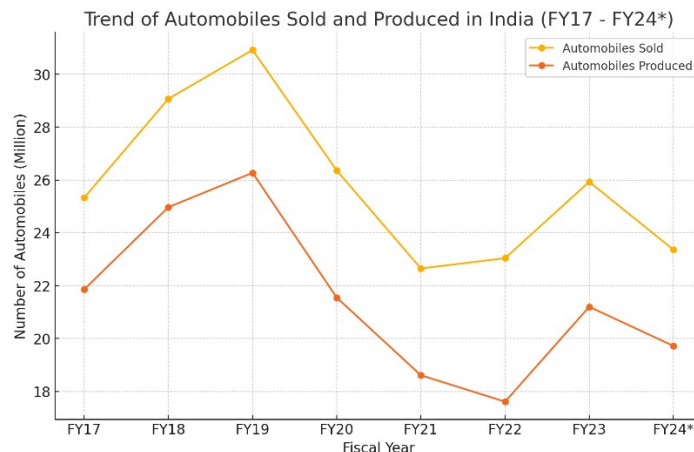
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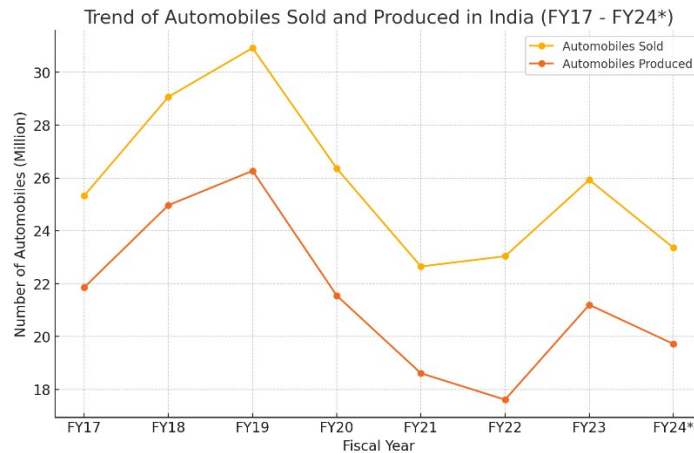
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TABLE V
SEGMENT-WISE DOMESTIC MARKET SHARE (FY23)

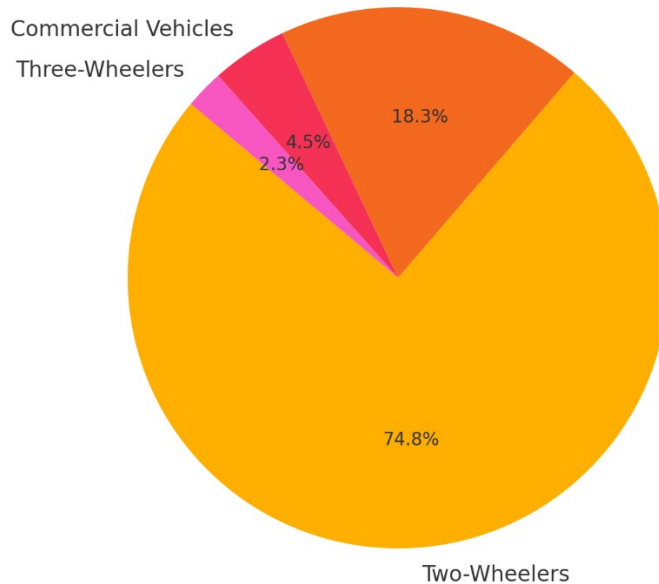
Table 5:	
Segment	Market Share (%)
Two-Wheelers	74.81
Passenger Vehicles	18.35
Commercial Vehicles	4.54
Three-Wheelers	2.31

Source: IBEF

Interpretation of Table 5: Segment-wise Domestic Market Share (FY23)

As of the FY2023 fiscal year, the two-wheeler segment accounted for 74.81% of the Indian automobile market, being the market leader not only on the scale of market size but also in customer preference. Next in line came the category of passenger vehicles, holding a handsome market share amounting to 18.35% and presently witnessing huge demand—both personal and family use. While in commercial vehicles, the share was only 4.54%, it's quite a significant share as far as the demand remains to carry goods from one place to another. Three-wheelers occupy a share of 2.31% and cater specifically to last-mile connectivity and small cargo transportation. And the fact that brings out the heterogeneity of the demands that exist in the Indian market for autos.

Segment-wise Domestic Market Share in FY23
Passenger Vehicles



Graph 2: Segment-wise Domestic Market Share in FY23

Interpretation of Segment-wise Domestic Market Share in FY23

Two-wheelers represent the largest market share of 74.8% in the Indian automotive market. The respective figures confirm the belief in being pocket-friendly and convenient for most of the population. This is followed by two-wheelers at 18.3% of the market, indicating a large demand for personal and family travel. Commercial vehicles constitute 4.5% of the market. Three-wheelers have a 2.3% market, serving niche markets like last-mile connectivity and small cargo transportation. This distribution just shows how different the requirements and aspirations in this sector are.

TABLE VVIII
FUTURE GROWTH PROJECTIONS OF THE INDIAN AUTOMOTIVE INDUSTRY

Metric	Value
Projected Market Size by 2030	US\$ 500 billion
EV Market Penetration by 2030	40% of new vehicle sales
Autonomous Vehicles Adoption by 2035	20% of the total vehicle fleet
Hybrid Vehicles Market Share by 2028	15% of new vehicle sales
Automobile Exports Growth by 2026	8 million units annually

Source: IBEF

Interpretation of Future Growth Projections

By 2030, the Indian automotive market is estimated to hit a whopping US\$ 500 billion, driven by high technology and consumer demand. In this scenario, electric vehicles are expected to form 40% of new vehicle sales by 2030. This, in no uncertain terms, points to sustainable transportation. The share of autonomous vehicles should be 20% of the total fleet by 2035, signifying industries' innovation and adoption of the latest technologies. For example, a 15% share in new vehicles by 2028 shows a rise in greener alternatives. Further, with automobile exports expected to increase to 8 million units annually by 2026, this reflects the global expansion and competitiveness of the automobile sector in India.

TABLE VIXI
RECENT TRENDS AND STRATEGIES IN THE AUTOMOTIVE SECTOR

Trend/Strategy	Description
New Financing Options	Introduction of instant loan features, partnership with banks for car loan schemes, and launch of vehicle subscription services.
Luxury Vehicles	Sales data of luxury cars, BMW leading in January 2024, local production of Audi models.
Catering to Indian Needs	Adaptation to Indian middle-class needs by global manufacturers, introduction of cost-effective commercial vehicles.
Capacity Addition	Investment in new production capacities and state-of-the-art facilities by major carmakers like Tata Motors and Hero MotoCorp.
Launch of New Models	Launch of various new models, including EVs, CNG cars, and premium vehicles by

	manufacturers like Tata Motors, Honda, and Maruti Suzuki.
Electric Vehicles	Significant growth in the EV market, with major investments and milestones in sales.
Policy Support and Initiatives	Various government policies and incentives like the Production Linked Incentive Scheme, FAME-II Scheme, and initiatives to promote flex-fuel engines and ethanol blending.

VII. RESULTS

TABLE VXII

STATISTICAL RESULTS OF THE IMPACT OF INVESTMENTS ON MARKET GROWTH

Metric	Value
T-Statistic	0.127
P-Value	0.91

Interpretation of Results: Impact of Investments on Market Growth

The result of the analysis is a very low T-statistic of 0.127 and a high P-value of 0.910, which is greater than 0.05, the level of significance. Therefore, we fail to reject the null hypothesis (H0). This implies that the investments are not statistically significantly affecting the growth rate of automobile sales in the Indian market. That is to say, growth rates before and after the period when the investment was made do not considerably differ.

TABLE XIX

CORRELATION ANALYSIS RESULTS BETWEEN PRODUCTION AND SALES

Metric	Value
Correlation Coefficient (r)	0.975
P-Value	0.0000377

Interpretation:

The correlation analysis reveals that there is a very strong positive relationship between the number of automobiles produced and the number of automobiles sold, with a coefficient (r) of 0.975. The P-value is 0.0000377 (3.77×10^{-5}), which is much less than the level of significance, 0.05. So, at this level of significance, we reject the null hypothesis, H0. This direct relationship between the two variables reveals that, with more automobile production, sales are also on the rise in the Indian market.

TABLE X

MARKET SHARE ANALYSIS OF TWO-WHEELERS VS. OTHER SEGMENTS

Metric	Value
Two-Wheeler Market Share (%)	74.81
Mean Market Share of Other Segments (%)	8.4
Standard Deviation of Other Segments (%)	7.09
T-Statistic	-13.24
P-Value	0.0057

Interpretation:

The two-wheelers have a market share of 74.81%, with the other segments having an average market share of 8.4% as their mean and a standard deviation of 7.09%. The T-stat amounts to -13.24, whereas the P-value measures 0.0057, comparing less than the level of significance, α , of 0.05. Therefore, we reject the null hypothesis (H0). This means that two-wheelers have a significant control of automobile market share. This result is significant, as statistically, there is a big difference between the market share of two-wheelers and the average market share of the other segments.

TABLE XXII

COMPARISON OF HISTORICAL GROWTH RATES AND PROJECTED GROWTH RATES

Metric	Value
Average Historical Growth Rate (%)	-0.48
Projected Growth Rate (CAGR) (%)	19.31
T-Statistic	-4.2
P-Value	0.0057

Interpretation:

The above projected Compound Annual Growth Rate of 19.31% compared with the average historical growth rate of -0.48%. The t-statistic obtained is -4.2, with the P-value coming out to be 0.0057, which is

less than 0.05, the significance level. Hence, we reject the null hypothesis (H0). This means that the projected growth in the automobile market is coming out to be significantly higher than past historical growth rates. These statistical findings of a huge difference between the average historical growth rate and the estimated CAGR point to great hopes for the future of that industry.

TABLE XIXIII
IMPACT OF POLICY CHANGES ON MARKET TRENDS

Metric	Value
Sales Growth Rates: T-Statistic	-0.784
Sales Growth Rates: P-Value	0.468
Production Growth Rates: T-Statistic	-1.393
Production Growth Rates: P-Value	0.222
Metric	Value
Average Historical Growth Rate (%)	-0.48
Projected Growth Rate (CAGR) (%)	19.31
T-Statistic	-4.2
P-Value	0.0057

Interpretation:

From the results of the analysis regarding changing the policy to the market trend relation, a T-Statistic of -0.784 was produced with a corresponding P-value of 0.468 for growth rates in sales. The growth rate in production produced a T-Statistic of -1.393 with a P-value of 0.222. Since both P-values are greater than the significance level of 0.05, the model does not reject the null hypothesis (H0) for both sales and production growth rates. That is, the above suggests that policy changes have no impact on the market trend for automobile sales and production. From the statistical tests, there is no significant difference in the growth rates over periods with policy changes and periods without policy changes in periods without policy changes.

VIII. DISCUSSION

The data therefore reveal that two-wheelers do rule the car market in India, which has an extended economic accessibility. More so, the strong direct correlation between production and sales indicates better inventory and production management by the industry. The optimism provided by the projected growth rates thus reflects the potential of technological advancement and increased investment likely to hit the market expansion in the future. Recent investments and policy changes, however, reflected by data, do not show a big immediate effect towards improving market growth rates. This therefore means an effort in strategy and long-term planning to achieve such growth. The industry has to do continuous innovation, efficient policy implementation, and adapt to the changing market dynamics to harness such opportunities in the future.

IX. KEY FINDINGS

- **Two-Wheeler Dominance:** Two-wheelers dominate the Indian automobile market with a market share of 74.81%, which is indicative of lower prices compared to the rest of the countries and higher use.
- **Production–Sales Association:** The positive association is moderately strong ($r = 0.975$) between the production and sales of automobiles, which indicates evidence of appropriate planning in the inventories and production of automobiles.
- **Expected Growth Rates:** The expected Compound Annual Growth Rate (CAGR) of 19.31% is very much higher than the average historical growth rate of -0.48%, which indicates that with the growth in technology and investment, it is expected to be a bright future.
- **Investments Impact:** Investments do not create an immediate impact on the growth rate of the sales of automobiles—clearly a clear instant indicator of the fact that long-run benefits are to be accrued through sustained and strategic investments.
- **Policy Change Impact:** Even the policy changes do not have an immediately impacting effect on changing the trend for the sale or production of automobiles, which further reflects good and consistent policies with an effective implementation for consistent and long-term effects on the growth of the industry.

X. RECOMMENDATIONS AND SUGGESTIONS

- **Develop Two-Wheeler Infrastructure:** As the infrastructure for two-wheelers prevails, develop the infrastructure with special lanes and parking areas for two-wheelers to grow further.
- **Improve Production Efficiency:** As production is closely related to sales, the application of advanced manufacturing technologies and practices shall increase the efficiency of production.
- **Maintain Investment:** As the immediate effects of investment are small, maintain and increase investment in R&D, infrastructure, and technology.
- **Streamline Policy:** Effective and regular adoption of policies to help maximize benefit from the policy. The focus is on a stable prescriptive environment for sustainable growth.
- **Emphasize Electric and Hybrid Vehicles:** Set up incentives, infrastructure, and public awareness for electric and hybrid vehicles to prepare for upcoming market demand and environmental goals.
- **Market Trend:** Monitor continuously the market trend and reorient the line of action appropriately. Use data analysis to predict and proactively shift reacting to market changes.
- **Innovation:** Encourage innovation in product and business models, leveraging the opportunity to match the diversified consumer base and technological changes. It also includes new mobility solutions such as shared and autonomous vehicles.

XI. CONCLUSION

This study brings out the impressive dominance of two-wheelers in the Indian automobile market, with efficiency being registered between production and sales. The future prospects are impressive and have high projected growth rates, which are largely under the influence of technology growth and investment growth. However, the influences of yearly impacts, which are statistically significant through investments in the industry or policy changes, are not observed on market growth. Hence, steady and strategic efforts are called for to deliver long-term gains. This, therefore, would mark the hallmark feature of this industry to reap benefits in the future, provided there is proper policy implementation channeled through monitoring mechanisms during the process of sustainable growth. Focusing on infrastructure, efficient production, electric and hybrid vehicles, and innovation will enable the Indian automobile industry to realize its potential and greater socioeconomic development, thereby meeting future mobility needs.

REFERENCES

- [1] Mukherjee, A., & Sharma, R. (2023). *Impact of Foreign Direct Investment on the Indian Automobile Industry*. SSRN. Retrieved from SSRN.
- [2] Gupta, P. (2023). *Electric Vehicles in India: Policies and Adoption*. ScienceDirect. Retrieved from ScienceDirect.
- [3] Rajan, S., & Patel, K. (2023). *Market Dynamics of the Indian Automobile Industry*. Mordor Intelligence. Retrieved from Mordor Intelligence.
- [4] Nair, V. (2023). *Post-Pandemic Resilience in the Indian Automobile Sector*. Value Research. Retrieved from Value Research.
- [5] Deshmukh, R., & Rao, P. (2023). *Sustainable Practices in the Indian Automobile Supply Chain*. Springer. Retrieved from Springer.