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The Influence of Demographics and Financial Factors on Car Purchase Price Among Indian Automobile Buyers

Executive Summary

This study investigates the factors influencing car purchase prices among Indian automobile buyers, focusing on demographic and financial variables such as profession, marital status, and total salary. Using descriptive statistics, one-way ANOVA, independent t-tests, and multiple linear regression, the analysis reveals that total salary is the most significant predictor of car price. Demographic variables like profession and marital status, however, show no substantial impact.

Key recommendations include income-based marketing strategies for manufacturers, flexible financing options, and tailored financial advice to help buyers manage budgets effectively. These insights aim to assist stakeholders in aligning their strategies with consumer purchasing behavior.

Introduction

Background

Car manufacturers and financial consultants need to understand the motivational factors that ultimately drive consumers to purchase cars in the dynamically changing Indian automotive marketplace. Since cars are a very important capital investment, the consumer's choice arises from the interaction between the demographic and economic aspects. Other important individual dimensions include age, marital status, educational

attainment, occupation, and individual economic characteristics such as income and credit availability. Utilizing this interchange will aid in the formulation of actionable suggestions for the market.

Auto consumption in the Indian market varies because of the dependence on different strata of people and income groups. For the salaried class, the budgets are normally fixed while for businesspeople, the incomes are usually very unpredictable. Besides, the marital state alters the financial priorities through family support or shared responsibilities.

Previous research shows income and education affect consumer preferences, but their link to car purchase prices is underexplored (Kumar, 2021; Patel and Singh, 2022). This study aims to address this gap using statistical methods to build on existing studies.

Study Purpose

This analysis therefore investigates how basic demographic and financial factors affect the price of cars based on profession, marital status, salary, education, and whether or not one took out a loan to see patterns for improvements that manufacturers and advisors alike can employ in bettering their strategies.

Objectives

The key objectives of this research are:

 To examine whether the profession (salaried vs. business) significantly influences car purchase price.

 To evaluate the impact of marital status (married vs. single) on car purchase price.

 To predict car prices using total salary and other factors, such as profession, education, and loan status.

Importance

Understanding the relationship among the variable parameters is essential for stakeholders in the automobile industry, as it aids in efficient advertising targeting and better planning for car purchases. In India's rapidly changing market, aligning vehicle features and pricing with consumer demographics can enhance market success. This research addresses some of the gaps in understanding the Indian automotive sector's pricing trends.

Research Design

Data Collection and Sampling

The dataset used in this study consists of 99 observations provided as a secondary data source by the mentor. No primary data collection was undertaken; hence, participant involvement was not applicable, thus negating any direct contact or field-based bias. Sampling procedures focused on a broad view in terms of the demographics and financial factors of Indian automobile buyers. These are age, profession- -salaried or business, martial status; married or single, education; graduate or postgraduate, no of dependants, personal loan; yes or no, house loan-yes or no, wife working; yes or no, personal salary, wife's salary, total salary, car brand, and price of the car. The chosen variables are those which have relevance to the research questions and test of hypotheses.

Data cleaning, thus, was an important activity to get correct, consistent, and accurate information. There were no missing values were identified, the sample was consistent. Non-statistical data were coded on a systematic basis for statistical analysis. Marital status, for example, was coded "1" for married and "0" for single; ditto for profession, which was coded "1" for salaried and "0" for business professions. While the education variable was coded as "1" for postgraduate and "0" for graduate, the loan-related variables are binary, taking the value "1" for yes and "0" for no. This is carried out to facilitate easy feeding into statistical tools, and data analysis in MS Excel and presents consistency in interpretation.

Description of Variables

Variable

Type

Description

Coding

Age

Continuous

Buyer's age.

-

Profession

Categorical

Employment type.

Salaried (1), Business (0)

Marital Status

Categorical

Marital status.

Married (1), Single (0)

Education

Categorical

Education level.

Postgraduate (1), Graduate (0)

Number of Dependents

Continuous

Number of family dependents.

-

Personal Loan

Binary

Possession of a personal loan.

Yes (1), No (0)

House Loan

Binary

Possession of a house loan.

Yes (1), No (0)

Wife Working Status

Binary

Whether a spouse is employed.

Yes (1), No (0)

Salary

Continuous

Buyer's income.

-

Wife Salary

Continuous

Spouse's income.

-

Total Salary

Continuous

The combined income of the buyer and spouse.

-

Car Make

Categorical

Coded for statistical clarity.

-

Car Price

Continuous

Primary dependent variable (car price).

-

Ethical Considerations

The basis of the research process was in ethics, anonymity of data, non-interference with respondents, accuracy, and integrity through cleaning of data, and truthfulness in reporting. This maintained privacy, reduced biases, and distortions, and ensured credibility and accountability. It had secondary data; hence, any direct contact with respondents was

eliminated, and also ethical issues on consent were reduced.

Tools and Statistical Methods

The data were analyzed using Excel's inbuilt tools; the Data Analysis ToolPak as well as pivot tables. The process involved the usage of the following statistical methods; descriptive statistics, one-way ANOVA, independent t-tests, and multiple linear regression. Each of these methods could present stringency in hypothesis testing and depth in answering the research questions. According to Sekaran and Bougie (2016), such a multivariate statistical analysis is meaningful in going through much complex data analysis.

Hypothesis Development

Hypothesis Development

Research Question 1 (RQ1)

Does the type of profession (Salaried vs. Business) significantly influence the average car price?

Null Hypothesis (H 1): Profession does not significantly affect car price.

Alternative Hypothesis (H_a1): Profession significantly affects car price.

Research Question 2 (RQ2)

Does a statistically significant disparity exist in automobile pricing when contrasting marital status (Married versus Single)?

 Null Hypothesis (H 2): Marital status does not exert a significant influence on automobile pricing.

 Alternative Hypothesis (H_a2): Marital status exerts a significant influence on automobile pricing.

Research Question 3 (RQ3)

Does total salary significantly predict car price, while controlling for other factors such as profession, education level, and loan status?

Null Hypothesis (H 3): Total salary and other factors do not significantly predict car price.

Alternative Hypothesis (H_a3): Total salary and other factors significantly predict car price.

Statistical Technique and Justification

To address RQ1, one-way ANOVA was conducted to compare the average car prices between salaried and business professionals, as it measures mean differences across groups (Field, 2018). In tandem with RQ2, an independent samples t-test was conducted for car prices according to marital status, as it allows the comparison of means between two independent groups. Based on its ability to quantify relationships between a dependent variable and multiple independent variables, multiple linear regression was used to analyze RQ3, assessing the predictive power of total salary and other variables on car price (Saunders et al., 2019). These methods ensure robust hypothesis testing.

Results and Statistical and Non-Statistical Interpretation

1. Descriptive Statistics

Categorical Variables

The data set consists of 99 observations; the profession variable is divided into 35 business professions and 64 salaried professions. From the marital status, it is observed that 84 are married and 15 are single. Similarly, the educational level is somewhat evenly distributed: 43 graduates and 56 postgraduates. In terms of car variants, SUV and Baleno are equally represented, each with 19 respondents. They are followed by Creta with 14, while all other variants have lower shares. The status for personal loans: the ones without are 67, and those with are 32.

Interpretation

Categorical variables provide clear-cut trends in demographics and finances: there are more married people and postgraduates, suggesting more maturity and education in the buyer group. The type of car trend seems to go toward mid-range to family-friendly cars, where SUVs are really popular, probably because of their versatility and appeal in the market.

Continuous Variables

Key continuous variables such as age, salary, wife’s salary, total salary, and car price have been summarized. The mean age is 36.31 years, indicating a working-age population. The average car price as per the analysis is ₹1,194,040.40, with prices ranging between ₹110,000 to ₹3,000,000. Additionally, the total salary, comprising the spouse's earnings, averages ₹2,270,707.07, demonstrating significant purchasing power.

Interpretation

The data show that most of the respondent groups are middle—to upper-class income earners, which is confirmed by their ability to buy mid to high-class cars. Differences in salaries and total incomes could also determine choices regarding car brands and price ranges.

Age

Price

Salary

Wife Salary

Total Salary

Mean

36.31313131

1194040.404

1736363.636

534343.4343

2270707.07

Standard Error

0.627752067

43990.05697

67701.53108

60849.50762

105607.103

Median

36

1200000

1600000

500000

2100000

Mode

36

1600000

1400000

0

1400000

Standard Deviation

6.246054207

437695.5404

673621.729

605444.9563

1050777.41

Sample Variance

39.01319316

1.91577E+11

4.53766E+11

3.66564E+11

1.1041E+12

Kurtosis

-0.263890781

4.198933895

-0.010220746

-0.498407118

0.47977443

Skewness

0.534932463

1.141602503

0.584393751

0.765588432

0.88007404

Range

25

2890000

3600000

2100000

5000000

Minimum

26

110000

200000

0

200000

Maximum

51

3000000

3800000

2100000

5200000

Sum

3595

118210000

171900000

52900000

224800000

Count

99

99

99

99

99

2. One-way ANOVA

A one-way ANOVA was carried out with the aim of testing if profession (salaried vs. business) significantly influences car prices.

 Results: The F-value = 1.54 with a p-value of 0.219 (see Table 1).

 Statistical Interpretation: Since the p-value is greater than 0.05, we fail to reject the null hypothesis. There is no difference in the mean prices of cars owned by Salaried and Business professionals.

Non-Statistical Interpretation:

Neither does the respondent's occupation significantly influence the automobile prices they

perceive. Their consumer behavior becomes similar despite the differences in income structure.

Anova: Single Factor

SUMMARY

Groups

Count

Sum

Average

Variance

Business

35

39200000

1120000

1.15E+11

Salaried

35

44110000

1260286

3.33E+11

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3.44E+11	1	3.44E+11	1.539032	0.219025	3.981896256
Within Groups	1.52E+13	68	2.24E+11			

Total

1.56E+13

69

3. Independent Samples T-Test

The t-test evaluated the impact of marital status (married vs. single) on car prices.

 Results: The t-statistic is 1.49, and the p-value is 0.139 (see Table 2).

 Statistical Interpretation: Because the p-value is larger than 0.05, the null hypothesis cannot be rejected. Therefore, marital status does not make a difference to the car prices.

Non-Statistical Interpretation

The difference is not statistically significant. Married individuals have a slightly higher average car price (₹1,221,547.62) than singles (₹1,040,000). This finding indicates that marital status alone is not a strong determinant of car price.

t-Test: Two-Sample Assuming Equal Variances

Married

Single

Mean

1221547.619

1040000

Variance

1.98784E+11

1.32571E+11

Observations

84

15

Pooled Variance

1.89228E+11

Hypothesized Mean Difference

0

df

97

t Stat

1.488900709

P(T<=t) one-tail

0.069878826

t Critical one-tail

1.66071461

P(T<=t) two-tail

0.139757653

t Critical two-tail

1.984723186

4. Multiple Linear Regression

A multiple regression analysis assessed the predictive power of total salary, profession, education, and loan status on car price.

 Results: The regression model explains 62.1% of the variability in car prices (R^2 = 0.621). Total salary is the only significant predictor (p = 2.22E-05), with a positive coefficient (0.27), indicating that higher income correlates with higher car prices (see Table 3).

Statistical Interpretation:

Of all predictors tested, the total salary strongly correlated with a statistical significance of automobile price, whereas marital status, occupation, and loan status are insignificant.

Non-Statistical Interpretation:

An increase in total salary continuously improves the ability to purchase more expensive cars. However, educational attainment and marital status have minor effects on the prediction of car prices, suggesting that financial ability is stronger than demographic factors in evaluating the affordability of a car.

Summary

General salary is the highest determinant factor in predicting the price of cars while occupation and marital status are not that influential. These results depict a strong association between economic endowments and choices of vehicle purchase.

SUMMARY OUTPUT

Regression Statistics

Multiple R

0.788095

R Square

0.621093

Adjusted R Square

0.566672

Standard Error

284321.7

Observations

99

ANOVA

df

SS

MS

F

Significance F

Regression

11

1.16608E+13

1.06007E+12

14.42471827

2.14839E-15

Residual

88

7.11381E+12

80838801234

Total

99

1.87746E+13

Coefficients

Standard Error

t Stat

P-value

Lower 95%

Upper 95%

Lower 95.0%

Upper 95.0%

Intercept

721247

120274.2767

5.996685645

4.35406E-08

482227.1774

960266.8795

482227.2

960266.9

Wife Salary

0.11478

0.154661494

0.742134899

0.45998187

-0.192577528

0.422136913

-0.19258

0.422137

Total Salary

0.270907

0.060440063

4.48223928

2.21506E-05

0.1507949

0.391018749

0.150795

0.391019

Salary

0

0

65535

#NUM!

0

0

0

0

No of Dependents

34482.36

28709.11136

1.201094605

#NUM!

-22570.96726

91535.68481

-22571

91535.68

Salaried

19090.87

64416.60399

0.296365657

0.767649156

-108923.595

147105.3334

-108924

147105.3

Married_

-221349

120255.8173

-1.840649849

0.069043076

-460332.0188

17634.31496

-460332

17634.31

post_grad

-36323.3

59425.20689

-0.611244559

0.542613447

-154418.4457

81771.77699

-154418

81771.78

Personal_loan

-130546

77532.14485

-1.683760898

0.095772148

-284624.4395

23533.25186

-284624

23533.25

House_loan

-142526

77881.68985

-1.830029782

0.07063118

-297299.3048

12247.681

-297299

12247.68

Wife works

-36738.7

131046.5447

-0.280348685

0.779868

-297166.1965

223688.7436

-297166

223688.7

Car_make

6702.345

12656.68366

0.52954982

0.59775753

-18450.1546

31854.84372

-18450.2

31854.84

Analysis and Summary of the Statistical Results

This segment presents an analysis of demographic and financial factors affecting car purchase prices concerning three major research questions. The findings of the above are synthesized below, together with their implications and comparisons to existing literature.

Profession and Car Price

The one-way ANOVA of the prices of cars bought by the salaried and business professions has no significant difference, having p = 0.219. That would mean that, as a categorical variable, the profession does not considerably determine car purchase prices. Even though salaried people usually have better predictability in their streams of income, it does not create 2 a statistically significant difference in car purchase behavior with business professionals.

Marital Status and Car Price

The independent samples t-test presented no significant difference in car prices concerning participant status; p = 0.139. While the average car price for married participants is somewhat higher, it is not significant. This would therefore mean that, within this sample, marital obligations or joint financial planning do not significantly influence buying decisions.

Predicting Car Price with Total Salary and Other Variables

Multiple linear regression analysis showed that the total amount of salary can be a strong predictor of car price and is very significant since p = 2.22E-05. The positive coefficient suggests that higher salaries are associated with buying more expensive cars. However, the rest of the variables such as marital status, educational attainment, and loan status are not significantly associated with the car price. The R-squared value of 62.1% in this model shows the variation of car prices taken up by the total salary, hence proving that financial capacity overrides demographic ones.

Conclusions and Practical Implications

Results indicate that while demographic factors such as occupation and marital status might determine life choices, they are less significant in the determination of the purchase price of vehicles than financial factors, especially total income. In light of such a result, consumers can start planning their finances in anticipation of motor vehicle purchases. Also, financial advisors can use the same results to advise clients on how they will go about budgeting their income and expenditure.

Comparison with Existing Literature

The finding agrees with previous studies which highlighted that financial capacity is an influential determinant of high-value purchases. For instance, Kumar (2021) shows that disposable income has an important 2 role to play in car-buying behavior. Similarly, Sharma et al. (2023) suggest that demographic factors lose much of their significance when financial variables take over in car-purchasing decisions. Therefore, it is observed that economic factors, particularly overall compensation, carry maximum explanatory power for the purchase prices of cars, symbolizing the importance of economic stability over other demographic attributes in the Indian automobile sector.

Recommendations

Based on the findings, the following recommendations are proposed for car manufacturers and financial advisors to optimize their strategies in addressing consumer needs:

For Car Manufacturers

 Focus on Income-Based Marketing - Manufacturers should focus on marketing campaigns highlighting financing options for higher-priced cars in affluent income brackets, as total salary is a significant predictor of car price.

 Broaden Appeal Beyond Demographics - Manufacturers should avoid extreme demographic segmentation for car prices, instead designing campaigns based on lifestyle preferences and vehicle functionality, as profession and marital status are not significant factors.

 Enhance Financing Solutions - Given the value of financial resources, manufacturers

could liaise with financial institutions to provide flexible loan schemes or package deals to suit a wide range of income groups.

For Financial Advisors

 Prioritize Income Planning - Advisors should assist clients in evaluating their financial readiness for car purchases, emphasizing sustainable budget allocation based on disposable income.

 Educate Clients on Loan Management- The growth of several consumers depends on loans from banks; in that regard, financial advisors can recommend balancing personal loans, mortgages, and automobile financing to avoid possible financial burdens.

Reference list

Bhatt, V. and Jigar Nagvadia (2021). -FACTORS INFLUENCING CONSUMER'S ONLINE BUYING BEHAVIOR: AN EMPIRICAL STUDY‖ Doctor of Philosophy in Management. [online] ResearchGate. Available at: https://www.researchgate.net/publication/355396679_-FACTORS_INFLUENCING_CONSUMER [Accessed 21 Nov. 2024].

Bryman, A. (2016). Social Research Methods. [online] Oxford University Press, pp.1–16. Available at: https://ktpu.kpi.ua/wp-content/uploads/2014/02/social-research-methods-alan-bryman.pdf [Accessed 21 Nov. 2024].

Field, A. (2018). Discovering Statistics Using IBM SPSS Statistics. [online] Available at: http://repo.darmajaya.ac.id/5678/1/Discovering%20Statistics%20Using%20IBM%20SPSS%20Statistics%20%28%20PDFDrive%20%29.pdf [Accessed 21 Nov. 2024].

Maheshwari, P., Seth, N. and Gupta, A.K. (2016). An Empirical Approach to Consumer Buying Behavior in Indian Automobile Sector. Industrial and Commercial Training, [online] 48(3), pp.156–162. doi:https://doi.org/10.1108/ict-09-2015-0061.

Saunders, M.N.K., Lewis, P. and Thornhill, A. (2019). Saunders, Research Methods for Business Students, 8/E. [online] Pearson. Available at:

https://www.researchgate.net/publication/240218229_Research_Methods_for_Business_Students [Accessed 21 Nov. 2024].

Appendices

Sources

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