Factors Influencing the Number of National Car Sales in Malaysia

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ABSTRACT

The goal of this senior project is to investigate the variables that affect Malaysia's national car sales. The purpose of the study is to determine how the national car sales rate is affected by the gross domestic product, unemployment rate, inflation rate, and interest rate. The number of national automobile sales in Malaysia is the dependent variable (DV) in this study, whilst the gross domestic product, unemployment rate, inflation rate, and interest rate are the independent variables (IV). The study combines a qualitative research methodology and data from the internet, including the gross domestic product, unemployment rate, inflation rate, and interest rate as well as the number of national car sales in Malaysia from 1994 to 2022. Stata is then used to analyse the data. According to the literature analysis, those factors significantly influence the volume of national auto sales. Gross domestic product, unemployment rate, inflation rate, and interest rate are considered to be important variables that affect the volume of national auto sales. According to the study's findings, there is a substantial correlation between all of the independent factors (gross domestic product, unemployment rate, inflation rate, and interest rate) and the dependent variable (number of national car sales). The findings indicate that the number of national car sales in Malaysia is positively impacted by the gross domestic product, the unemployment rate, the inflation rate, and the interest rate. In conclusion, this study sheds light on the variables affecting the volume of domestic auto sales. Overall, this study adds to the body of information about the variables affecting the volume of domestic auto sales in Malaysia and provides guidance for policymakers and auto industry firms.

Keywords: Car Sales, Gross Domestic Product, Unemployment, Inflation, Interest

INTRODUCTION

Proton is a Malaysian automotive manufacturer that has played a significant role in the country's automotive industry since its establishment in 1983. The company has made notable contributions to the development and growth of the automotive sector in Malaysia, including the production of various models and achieving significant sales figures over the years.

Proton's success in Malaysia can be attributed to several factors. One of the key reasons is its position as the national car brand, which has garnered a sense of patriotism and support from Malaysian consumers. Proton has been able to establish itself as a trusted and reliable brand in the country, catering to the needs and preferences of the local market.

Over the years, Proton has introduced a range of models that cater to different segments of the market. These models include compact cars, sedans, and SUVs, offering a diverse portfolio to attract a wide range of consumers. Proton cars are known for their affordability, fuel efficiency, and robust performance, which have contributed to their popularity among Malaysians.

In recent years, Proton has witnessed significant growth in sales in Malaysia. In 2020, despite the challenges posed by the COVID-19 pandemic, Proton achieved its highest sales volume in eight years, with a total of 109,716 units sold. This was a remarkable achievement for the company, indicating its ability to adapt and thrive in challenging market conditions.

One of the contributing factors to Proton's success is its partnership with Geely, a renowned Chinese automotive manufacturer. The collaboration between Proton and Geely has allowed for the exchange of technological expertise and resources, resulting in the development of high-quality vehicles that meet international standards. This partnership has also helped Proton expand its reach beyond the Malaysian market, with exports to countries like Egypt, Pakistan, and Indonesia.

In addition to product quality, Proton has implemented various marketing and promotional strategies to boost sales in Malaysia. The company has engaged in strategic partnerships and collaborations with popular local and international brands to create special editions and limited-edition models, attracting consumers with unique offerings. Furthermore, Proton has invested in marketing campaigns, emphasizing its commitment to innovation, reliability, and affordability.

The Malaysian government has also played a significant role in supporting Proton's sales through various initiatives and policies. For instance, the government has introduced measures such as tax incentives and rebates for Proton car owners, making the brand more appealing and affordable to potential buyers.

Looking ahead, Proton aims to continue its growth trajectory and expand its market share in Malaysia. The company has plans to introduce new models and innovative technologies to meet evolving consumer demands. Proton also aims to strengthen its presence in international markets by leveraging its partnership with Geely and capitalizing on the growing demand for affordable and fuel-efficient vehicles.

In conclusion, Proton has established itself as a leading automotive manufacturer in Malaysia, achieving significant sales figures and contributing to the growth of the country's automotive industry. Through its commitment to product quality, strategic partnerships, effective marketing strategies, and government support, Proton has been able to win the trust and loyalty of Malaysian consumers. With a focus on innovation and expansion, Proton is poised to continue its success story in the Malaysian market and beyond.

PROBLEM STATEMENT

The Malaysian automotive market has become increasingly competitive as local manufacturers face strong pressure from international brands. Although the vehicle sector has shown steady growth according to Khamis and Abdullah (2014), consumer purchasing decisions continue to be shaped by various factors. Leow and Husin (2015) highlight product quality, pricing, customer satisfaction, trust, perceived value and perceived risk as important determinants of vehicle sales. Studies on the marketing mix also indicate that certain elements, particularly location, may have less influence on purchasing decisions compared to other factors (Toh, 2006; Leng & Chin, 2017; Don et al., 2024).

Despite these findings, there is still limited consolidated evidence on how broader economic conditions influence car sales in Malaysia. Because the automotive sector contributes to national economic performance and reflects consumer purchasing power, it is important to understand how macroeconomic indicators affect vehicle demand. Key indicators such as Gross Domestic Product (GDP), the inflation rate, the unemployment rate and the interest rate may significantly influence car sales. Yet, their combined effects have not been thoroughly examined within the Malaysian context.

To address this gap, this study investigates how these economic indicators relate to the number of car sales in Malaysia between 1994 and 2022. The study seeks to answer the following research questions:

1. To what extent does GDP affect car sales?
2. How does the inflation rate influence car sales?
3. Does the unemployment rate impact car sales?
4. How does the interest rate affect car sales?

In line with these questions, the study aims to determine the relationships between each of these economic variables and Malaysia's car sales over the specified period.

By examining these macroeconomic relationships, the study provides insights into the dynamics of Malaysia's automotive industry and its interaction with the wider economic environment. This understanding is essential for policymakers, industry stakeholders and researchers who aim to evaluate economic stability, forecast market trends and support sustainable growth in the automotive sector.

LITERATURE REVIEW

The Malaysian automotive industry has experienced steady development over the years, supported by national manufacturers such as Proton and Perodua and strengthened through technological collaborations with international automotive producers (Khamis and Abdullah, 2014). Prior research indicates that vehicle demand is shaped by various consumer-related factors, including product quality, pricing, customer satisfaction, perceived value and perceived risk (Leow and Husin, 2015). While these studies highlight important behavioural determinants of purchase intention, they provide limited insight into how broader macroeconomic conditions influence national car sales, particularly within an increasingly competitive market.

Given the economic relevance of the automotive sector, scholars have examined the effects of macroeconomic indicators such as Gross Domestic Product (GDP), inflation rate, unemployment rate and interest rate. Sivak and Tsimhoni (2008) found a positive relationship between GDP and car sales across developing countries, including Malaysia, suggesting that stronger economic performance enhances consumer purchasing power. Research on inflation consistently shows that rising price levels suppress vehicle demand, as evidenced by Nawi et al. (2013), who reported a negative relationship between inflation and passenger car sales. Similarly, unemployment has been shown to reduce car demand, with studies demonstrating either no significant relationship (Smusin and Makayeva, 2010) or a negative association (Nawi et al., 2013). Interest rates also play a key role, where lower lending rates stimulate demand and higher rates constrain vehicle purchases, as supported by Ong (2013) and further confirmed by Nawi et al. (2013) through tests including ADF, Philip Perron and the Vector Error Correction Model.

To contextualise these relationships, the Law of Demand provides a theoretical foundation by explaining how purchasing behaviour responds to changes in price and economic conditions. In the automotive context, stable economic conditions, favourable loan rates and strong labour market performance enhance consumers' ability to purchase vehicles, whereas inflation, unemployment and rising borrowing costs tend to reduce demand. Integrating these theoretical and empirical findings, this study examines how GDP, inflation, unemployment and interest rates collectively influence national car sales in Malaysia, forming the basis for the research framework and hypotheses.

RESEARCH METHODOLOGY

Research design, according to Burns and Grove (2010), is a blueprint for performing a study with maximal control over issues that may interfere with the validity of the findings. The variables in this study were utilised to evaluate the association between macroeconomic indicators and Malaysian vehicle sales. The dependent variable in this study is total automobile sales in Malaysia, whereas the independent variables are GDP (current USD), inflation rate, UR, and ITR on car loan. Descriptive statistics and quantitative analysis will be used in the study process.

Figure 1 presents the research framework for this study, showing the relationship between the independent variables, which are Gross Domestic Product (GDP), unemployment rate, inflation rate and interest rate, and the dependent variable, which is the number of car sales in Malaysia. The figure illustrates how each macroeconomic indicator is expected to influence national car sales.

The research method used in this study corresponds directly to the relationships shown in Figure 1. This study adopts a quantitative research design using time series data covering a period of 30 years from 1985 to 2014. The dependent variable is the total number of car sales in Malaysia, while the independent variables are GDP measured in current USD, the inflation rate, the unemployment rate and the interest rate on car loans, as shown in Figure 1. All data were obtained from online sources, and linear regression analysis was carried out using SPSS to examine the relationship between the variables.

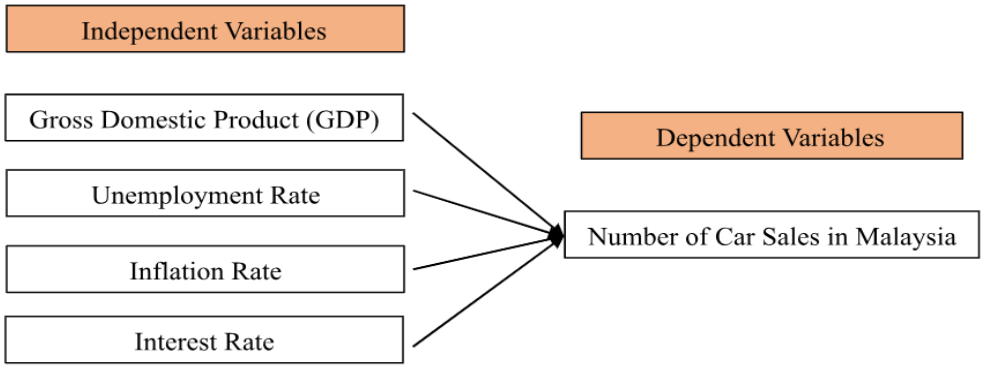

Fig. 1 The research design.

The dependent variable in this study is the number of car sales in Malaysia, which represents the total volume of vehicles sold within a specific period and reflects consumer demand and overall market performance in the automotive sector. The independent variables consist of key macroeconomic indicators, namely Gross Domestic Product (GDP), inflation rate, unemployment rate and interest rate. GDP measures the total value of goods and services produced in a country and indicates overall economic growth and purchasing capacity, while the inflation rate reflects changes in general price levels and purchasing power. The unemployment rate represents the proportion of the labour force actively seeking employment and signals economic conditions that may influence consumers' ability to purchase vehicles. The interest rate refers to the cost of borrowing, particularly for car loans, and affects the affordability of vehicle financing and consumers' willingness to make car purchases.

Method of Data Analysis

The data analysis methods applied in this study are described in detail based on the research design, the type of data collected and the research objectives. Descriptive statistics, correlation analysis and regression analysis are used as the primary analytical techniques. All data were processed and analysed using Stata.

FINDINGS AND DISCUSSION

Regression

Table 1. Regression Analysis of Factor Influence and Car Sales

CS	Expected Sign	Coef.	t	P-value
GDP	+	3165.434	1.76	0.090*
IR	+	-21605.7	-2.92	0.007***
UR	+	-6099.801	-1.75	0.094*
ITR	+	-6492.794	-2.15	0.042**
Adj.R^2	0.3591			

Note: n=100. CS is car sales; GDP is gross domestic product; IR is inflation rate; UR is unemployment rate and ITR represents the interest rate of Malaysia.

*p<0.10, **p<0.05, ***p<0.01.

Table 1 presents the regression results examining the influence of GDP, inflation rate, unemployment rate and interest rate on car sales in Malaysia. The findings show that all variables are statistically significant at their respective levels. GDP has a positive coefficient, indicating that higher economic output is associated with

increased car sales. Inflation rate, unemployment rate and interest rate all show negative coefficients, meaning that increases in these indicators tend to reduce car sales. The significance levels, reflected by the p-values, confirm that the inflation rate is significant at the 1 per cent level, the interest rate is significant at the 5 percent level and both GDP and unemployment rate are significant at the 10 percent level. The adjusted R^2 value of 0.3591 indicates that approximately 36 percent of the variation in car sales can be explained by the combined effect of the four macroeconomic variables. Overall, the model suggests that economic conditions play an important role in shaping national car sales in Malaysia.

Descriptive

Table 2. Descriptive Statistics of Dependent Variables and Independent Variables

Variable	Mean	Std. Dev.	Min	Max
CS	285678.4	63883.79	120180	423452
GDP	3.127931	5.611652	-9.8	9.5
IR	2.388621	1.405006	-1.14	5.44
UR	1.858966	2.87668	-3.53	3.97
ITR	2.989655	3.592884	-3.9	11.8

Note: n=100. CS is car sales; GDP is gross domestic product; IR is the inflation rate; UR is the unemployment rate and ITR represents the interest rate of Malaysia.

In Table 2, the average CS is 28.56%, which corresponds to an average return on assets of RM28.56 million. GDP has a mean value of 3.12%, indicating stable economic performance in Malaysia from 1994 to 2022. The average IR is 2.38%, reflecting a low inflation environment during the 6 years within the study range. The UR shows an average of 1.85%, suggesting consistently low unemployment levels. The minimum CS recorded is 120180, while the maximum is 423452. The lowest and highest ITR values are -3.9% and 11.8%, respectively, showing that fluctuations in interest rates may impact consumer demand for car purchases.

Pearson Correlation

Pearson correlation analysis helps researchers determine the strength and direction of the relationship between two continuous variables. It is commonly used in fields such as psychology, social sciences, economics and finance to identify associations, evaluate the intensity of relationships and observe potential patterns or trends in the data. This method also provides useful insight into whether one variable may have predictive value for another.

Table 3. Pearson Correlation Matrix

	CS	GDP	IR	UR	ITR
CS	1.0000				
GDP	0.4151***	1.0000			
IR	-0.4233***	-0.1337	1.0000		
UR	-0.2271	-0.0256	0.0875	1.0000	
ITR	-0.1963	-0.1822	-0.3096	-0.2637	1.0000

Note: n=100. CS is car sales; GDP is gross domestic product; IR is inflation rate; UR is unemployment rate and ITR represents the interest rate of Malaysia. ***, **, * indicate that the estimated levels are statistically significant at the 1%, 5% and 10% respectively.

The Pearson correlation matrix for the variables in the car sales (CS) model is presented in Table 3. At the 1% statistical significance level, CS shows significant relationships with GDP, IR, UR and ITR. GDP and IR demonstrate a positive correlation with CS ($r = 0.08$, $p < 0.05$). CS is negatively correlated with UR and ITR ($r = -0.22$ and $r = -0.19$, $p < 0.05$), while the correlation between CS and IR is also negative ($r = -0.40$, $p < 0.10$). Based on the Pearson correlation guidelines, r values within the range of ±0.30 to ±0.70 indicate moderate relationships. Therefore, the results show no indication of multicollinearity among the variables, consistent with the criteria outlined by Pallant (2007).

Skewness and Kurtosis

Table 4. Skewness and Kurtosis Value

	Skewness	Kurtosis
CS	-.9299515	4.349006
GDP	-1.377425	3.493715
IR	.0033275	3.381244
UR	-1.177804	2.466017
ITR	.1852359	3.026132

Note: n=100. CS is car sales; GDP is gross domestic product; IR is inflation rate; UR is unemployment rate and ITR represents the interest rate of Malaysia.

Table 4 shows that the Kurtosis values fall between 2.466017 and 4.349006, while the Skewness values range from -1.177425 to 0.1852359. Because both Skewness and Kurtosis fall within the acceptable limits of ±1 and ±5 respectively, the results indicate that the dataset satisfies the assumptions of normal distribution.

Table 5. Results of Hypotheses Testing

Number of Hypotheses	Statement of Hypothesis	Results
H1	There is a positive relationship between gross domestic product and number of car sales.	Accepted
H2	There is a positive relationship between inflation rate and number of car sales.	Accepted
H3	There is a positive relationship between unemployment rate and number of car sales.	Accepted
H4	There is a positive relationship between interest rate and number of car sales.	Accepted

CONCLUSION

In conclusion, this study demonstrates that macroeconomic indicators play a significant role in influencing the number of car sales in Malaysia. The findings show that GDP contributes positively to vehicle purchases, while inflation rate, unemployment rate and interest rate negatively affect consumer demand. These results highlight the importance of broader economic conditions in shaping purchasing behaviour in the automotive market. The insights gained from this study offer valuable guidance for policymakers, automotive manufacturers and financial institutions in developing strategies that align with economic trends and consumer responsiveness.

While the findings contribute meaningfully to understanding car sales patterns in Malaysia, several limitations should be acknowledged. The study relies on secondary data and focuses primarily on national car manufacturers over a specific time period, which may restrict the generalizability of the results. Certain data were difficult to obtain or required extensive manual calculation, potentially affecting accuracy. Future research could address these limitations by including a larger sample of car brands, incorporating both local and international manufacturers, and expanding the timeframe. Additionally, adopting mixed-method approaches, such as interviews or case studies, may provide deeper insights into consumer motivations and industry dynamics.

Overall, this research achieves its objective of examining how GDP, inflation, unemployment and interest rates influence car sales in Malaysia. The findings offer both theoretical and practical contributions by reinforcing established economic relationships and providing strategic implications for industry stakeholders. By understanding how macroeconomic conditions shape consumer purchasing behaviour, automotive companies and policymakers can better anticipate market shifts, refine decision-making and enhance long-term competitiveness in Malaysia's automotive sector.

REFERENCES

1. Burns, N., & Grove, S. K. (2010). *Understanding nursing research-eBook: Building an evidence-based practice*. Elsevier Health Sciences.
2. Don, W. W., Kiong, T. P., Khalid, M. A., & Dada, M. (2024). Key Factors Influencing Automobile Purchase Behavior Among Consumers in Malaysia. *Electronic Journal of Business and Management*, *9*(2), 75-85.
3. Khamis, A., & Abdullah, N. (2014). Modeling relationship among factors that affecting customers' intention in purchasing Malaysian cars using structural equation model. *Scientific Research Journal*, *2*(10), 10-19.
4. Leng, K. C., & Chin, T. A. (2017). The influence of marketing mix factors on consumer's purchase intention toward hybrid car in Johor Bahru. *Advanced Science Letters*, *23*(9), 9115-9116.
5. LEOW, C. S., & Zahari, H. (2015). 04 Product and price influence on cars purchase intention in Malaysia. International Journal of Social and Educational Innovation (IJSEIro), 3142. macrotrends. (2022). Malaysia GDP Growth Rate 1961-2020. Www.macrotrends.net. https://www.macrotrends.net/countries/MYS/malaysia/gdp-growth-rate
6. Nawi, A. S., Ahmad, B. S., Mahmood, W., Nurathirah, S., & Hamid, B. A. (2013).
7. Ong, T. S., Teng, J. H., Muthu, K. S., & Teoh, A. B. J. (2013, December). Multi-instance finger vein recognition using minutiae matching. In 2013 6th International Congress on Image and Signal Processing (CISP) (Vol. 3, pp. 1730-1735). IEEE.
8. Sivak, M., & Tsimhoni, O. (2008). Future demand for new cars in developing countries: going beyond GDP and population size. University of Michigan, Ann Arbor, Transportation Research Institute.
9. Smusin, V., & Makayeva, N. (2009). Short-run macroeconomic factors affecting car sales. In Modern Management Research Conference (MMRC): Insights into the sustainable growth of business, Vilnius, ISSN (pp. 2029-3461).
10. Toh, S. S. H. (2006). Factors affecting the demand for national car in Kuching (Doctoral dissertation, Universiti Malaysia Sarawak).