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Understanding Vehicle Import Trends in Pakistan: Insights from Economic and Regulatory Factors

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Abstract

The growth of economies is often driven by the expansion of large industries, with the automobile sector being a notable example due to its extensive linkages with other industries. As the automobile industry grows, it stimulates growth in related sectors such as steel, rubber, glass, and electronics, earning it the moniker "the mother of all industries." In the context of Pakistan, a developing country, the automobile sector operates predominantly under private ownership. A significant shift in this sector occurred with the implementation of the new import policy, which had a substantial impact on auto sector imports. This paper investigates the key factors influencing the import of road vehicles in Pakistan, utilizing time series data from 2000 to 2019 and applying the ordinary least square regression method for analysis. The results of the study reveal several noteworthy findings about the dynamics of vehicle imports in the country. Firstly, the analysis shows that oil prices do not significantly impact the demand for imported vehicles in Pakistan. This counterintuitive result can be attributed to the classification of an elite urban class that remains unaffected by fluctuating oil prices. This segment of the population continues to import vehicles irrespective of changes in oil prices, likely due to their higher disposable incomes and preference for personal transportation. Secondly, the study finds a negative relationship between population growth and the demand for vehicle imports. This might seem unusual at first glance, but it can be explained by considering the socio-economic context of Pakistan. As the population increases, a larger segment of the population may fall into lower income brackets, thereby reducing the overall demand for imported vehicles, which are often considered luxury items. Another critical factor highlighted in the study is the issue of vehicle smuggling. Approximately 2.5 million vehicles have been smuggled into Pakistan from neighboring Afghanistan. This significant number underscores the challenges posed by improper and lax border controls on both sides. The smuggling of vehicles not only undermines the formal import market but also impacts government revenue and poses safety and regulatory challenges. The implications of these findings are significant for policymakers. To address the issues identified, several measures could be implemented. Strengthening border controls and implementing stringent checks can help curb the smuggling of vehicles, thereby protecting the formal market and ensuring proper tax collection. Additionally, policies aimed at making vehicles more affordable and accessible to a broader segment of the population could help align vehicle import trends with overall population growth. Moreover, considering the influence of the elite urban class on vehicle imports, policymakers could explore targeted taxes or incentives to balance the market dynamics and ensure that the import policies are equitable and sustainable. Promoting local vehicle manufacturing and assembly could also reduce dependency on imports and stimulate domestic economic activity, further supporting the growth of related industries.

Keywords: Vehicle Imports, Oil, GDP, Pakistan
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1. INTRODUCTION

The automobile industry in Pakistan has undergone significant changes since its establishment in the 1950s, transitioning between periods of public and private control. Initially under government control, the industry shifted to private sector dominance by the 1980s. Currently, three major car manufacturers dominate the market: Pak Suzuki Motor Company Limited, Indus Motor Company Limited (Toyota), and Honda Atlas Cars Limited. Additionally, Dewan Motors produces various car brands, including Suzuki, Toyota, Honda, Mitsubishi, Hyundai Santro, KIA, Coure, Revo, Proton, and Chevrolet. Pak Suzuki holds the largest market share at approximately 61%, followed by Indus Motor Company with nearly 26%, and Honda Atlas Cars with around 10%. Import policies have played a significant role in shaping the industry, with regulations on the age limit of imported cars being a key factor. Until December 12, 2012, the policy allowed cars with a maximum age of five years to be imported. However, this policy was revised, reducing the allowable age limit to three years. Additionally, changes to depreciation rules on August 31, 2012, further impacted the industry, providing domestic producers with advantages in meeting market demand. These policy shifts have influenced market dynamics and competition within the Pakistani automobile sector.

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The 2000s marked a significant turning point for the auto sector in Pakistan. In the late 1990s and early 2000s, the industry faced challenges, with negative growth of 24% in 1999-2000 due to weak consumer demand. However, since then, the sector has experienced remarkable growth driven by factors such as strong GDP growth, increased availability of financing facilities, rising income levels, and population growth. From 2003 to 2007, the industry witnessed an average annual growth rate of 33%, highlighting the robust expansion of the sector. In October 2006, changes in import policies further shaped the industry landscape. The import policy limited the importation of cars to those that were no more than five years old. Additionally, the government maintained a high customs duty of 50% on imported vehicles. Manufacturers argued that such restrictions on imports would protect the competitive advantage of domestic manufacturers. They contended that a ban on imports would lead to increased sales for local manufacturers, resulting in economies of scale and lower production costs. Ultimately, they argued that these benefits would be passed on to consumers. These policy measures aimed to support and stimulate growth in the domestic auto manufacturing industry, shaping the dynamics of the sector in Pakistan. The smuggling of cars into Pakistan, particularly from the Afghan border, is a significant issue that has persisted over the years. It's estimated that hundreds of thousands of smuggled vehicles are readily available in markets near the border areas. According to reports from the Customs Intelligence Department, there are approximately 2.3 million vehicles on the roads that have not been cleared through customs or are considered smuggled. One of the challenges in addressing this issue is the lack of a reliable system to verify the authenticity of vehicles. This makes it difficult for authorities to distinguish between legally imported vehicles and those that have been smuggled into the country. Furthermore, the Federal Bureau of Revenue has identified cases where 50,000 vehicles possess either duplicate or dual chassis numbers, indicating widespread irregularities in vehicle registration and documentation. The prevalence of smuggled vehicles not only poses a threat to public safety and security but also undermines the integrity of the automotive industry and the government's revenue collection efforts. Addressing this issue requires concerted efforts from law enforcement agencies, customs authorities, and policymakers to implement stricter border controls, improve surveillance and monitoring systems, and enhance collaboration with neighboring countries to curb illegal smuggling activities.

The limited choices available to consumers in Pakistan's automobile market, particularly after the discontinuation of non-Euro II vehicles like the Daihatsu Cuore and Suzuki Alto in 2013, have raised concerns among buyers. Currently, the Suzuki Mehran stands as the sole locally produced car in the 800cc category, further exacerbating the situation for consumers. Given these circumstances, this study aims to analyze the determinants of imports of road vehicles in Pakistan. The structure of the study is divided into several sections. Section one provides an introduction to the study, outlining the background and context of the research. Section two offers a comprehensive review of the existing literature on the subject, highlighting key findings and insights from previous studies. In section three, the methodology employed in the study is discussed, along with the results of the regression analysis conducted to estimate the determinants of vehicle imports in Pakistan. Finally, the last section presents the conclusions drawn from the study, summarizing the key findings and implications for policymakers and stakeholders in the automobile industry.

2. REVIEW OF LITERATURE

Meignan, Simonin, and Koukam (2007) conducted an analysis forecasting vehicle ownership trends and income growth until 2030 across 45 countries. Their projections indicate a substantial surge in vehicle ownership, notably in China, where ownership is anticipated to escalate by roughly 20%. Notably, the study underscores that by 2030, 56% of vehicles would be owned by non-OECD countries, consequently driving up oil demand. The analysis by Meignan, Simonin, and Koukam sheds light on a pivotal shift in vehicle ownership patterns, particularly in emerging economies like China. Their findings underscore the significant impact of income growth on the proliferation of vehicle ownership, with projections indicating a substantial increase in the number of vehicles owned by non-OECD countries by 2030. This surge in vehicle ownership is poised to drive up the demand for oil, highlighting the intricate interplay between economic development, transportation infrastructure, and energy consumption. As countries continue to urbanize and incomes rise, the need for efficient transportation solutions and sustainable energy policies becomes increasingly paramount to mitigate environmental impact and ensure long-term energy security.

Woodburn et al. (2008) conducted an extensive investigation into the dynamics of motor vehicle demand in Barbuda, offering valuable insights into the intricate interplay between economic variables and consumer behavior in the automotive sector. Through the application of Ordinary Least Squares (OLS) analysis, the study shed light on the multifaceted impacts of government policies, particularly those related to vehicle imports, on various aspects of the economy. One noteworthy finding of the research was the differential impact of fiscal and monetary policies on vehicle import demand. By demonstrating that fiscal measures wielded a more pronounced influence compared to monetary interventions, the study underscored the importance of government regulations and taxation policies in shaping consumer preferences and market dynamics. Moreover, Woodburn et al. (2008) identified several key determinants of vehicle import demand, including interest rates, vehicle prices, and real income levels. These factors were found to exert significant influence on the purchasing decisions of consumers, highlighting the complex web of economic forces that drive demand patterns in the automotive industry. Importantly, the study also illuminated the broader ramifications of increased motor car imports on various economic indicators. From heightened fuel consumption to fluctuations in government revenue and dealer profits, the expansion of the car industry was shown to have far-reaching implications for both the fiscal health of the government and the profitability of automotive

businesses. Furthermore, the research underscored the positive socio-economic outcomes associated with the growth of the car industry, particularly in terms of job creation and unemployment reduction. By providing employment opportunities and stimulating economic activity, the automotive sector emerged as a significant contributor to Barbuda's overall economic development.

Woodburn et al.'s (2008) study provided a comprehensive analysis of motor vehicle demand dynamics in Barbuda, offering valuable insights for policymakers, industry stakeholders, and researchers seeking to understand the intricate linkages between government policies, economic variables, and consumer behavior in the automotive market. Odero, Khayesi, and Heda (2003) provided insightful perspectives on the significance of purchasing a first car, highlighting its transformative impact on individuals transitioning from lower to middle-class status. They underscored the pivotal role of the local auto industry in Pakistan's manufacturing sector, contributing substantially to both economic output and GDP. Remarkably, the automotive sector accounted for 16% of the manufacturing sector and approximately 2.8% of the country's GDP, indicating its considerable economic significance. The study also shed light on the dramatic expansion of Pakistan's vehicle population, which doubled over the past decade, reaching a staggering 11 million vehicles by 2012. This exponential growth underscored the rising demand for automobiles in the country, driven by various socio-economic factors such as increasing disposable incomes and changing lifestyles. Furthermore, Odero, Khayesi, and Heda (2003) analyzed the impact of import policies on the domestic automobile industry, particularly during the period from 2001 to 2007 when the ban on imported cars was lifted. While this policy change facilitated significant growth in the automotive sector, it also posed challenges, such as a shortfall in production targets and declining revenue in 2008. The study highlighted the complexities of managing import policies to balance domestic production and market demand effectively. Odero, Khayesi, and Heda (2003) provided valuable insights into the dynamics of Pakistan's automotive industry, emphasizing its vital role in the country's economy and the challenges and opportunities associated with import policies and sectoral growth.

The automotive sector in Pakistan plays a multifaceted role, not only in terms of employment generation but also in contributing significantly to government revenue and the overall economy. As highlighted by Hilling (2003), the labor force engaged in this sector constitutes a substantial portion of the workforce, underlining its importance as a source of livelihood for many individuals. Moreover, the sector's contributions extend beyond job creation to include substantial tax revenues derived from both production activities and vehicle imports. The sheer magnitude of the road vehicle population in Pakistan, estimated at around 11 million vehicles traversing approximately 260,000 kilometers of roads, underscores the extensive reach and impact of the automotive sector within the country. This vast network of vehicles serves as a critical component of Pakistan's transportation infrastructure, facilitating mobility and economic activities across various sectors. Furthermore, the economic significance of the automotive industry is reflected in its substantial contribution to the country's GDP and investment landscape. According to the Economic Survey of Pakistan, the sector accounted for a staggering $109 billion in investment, representing a significant capital inflow into the economy. Additionally, its direct contribution of $3.6 billion to the GDP underscores its role as a key driver of economic growth and development. Importantly, the automotive sector also serves as a vital source of government revenue, with significant contributions to national coffers through taxes and duties levied on production activities and vehicle imports. The annual revenue generated by the sector, amounting to $0.82 billion, underscores its importance as a revenue-generating source for the government, which can be allocated towards various developmental initiatives and public services.

The study examining the impact of oil prices on automobile sales in Pakistan yielded interesting findings, suggesting that there is no significant relationship between oil prices and the sales of the auto industry within the country. The results of the hypothesis testing indicated a multiple R value of 0.09 and a p-value of 0.51, indicating a negligible correlation between the two variables. Furthermore, the R-squared value of 1% underscored the negligible relationship between oil prices and auto sales in Pakistan. These findings are noteworthy, especially considering Pakistan's status as a significant consumer of Compressed Natural Gas (CNG) in South Asia and its prominent position as the second-largest user of Natural Gas Vehicles (NGVs) globally, comprising 18.8% of the world's total. As of 2011, natural gas-powered vehicles accounted for 63.3% of the total vehicles in Pakistan, highlighting the country's heavy reliance on this alternative fuel source. It is important to recognize that natural gas consumption in Pakistan extends beyond the transportation sector, with significant usage observed in industries, households, and electricity generation. This multifaceted utilization underscores the diverse applications of natural gas within the country's energy landscape and its importance in powering various sectors of the economy.

Given Pakistan's substantial reliance on natural gas for vehicular propulsion and other energy needs, the negligible correlation between oil prices and auto sales raises intriguing questions about the factors influencing consumer behavior and market dynamics within the automotive industry. Future research may delve deeper into these dynamics to uncover the underlying drivers shaping purchasing decisions and industry trends in Pakistan's auto sector, thereby providing valuable insights for policymakers and industry stakeholders alike. The contrasting perspectives regarding the importation of cars in Pakistan reflect the ongoing debate surrounding the automotive industry and its impact on consumer choice and domestic manufacturing. On one hand, the increasing number of car imports, surpassing the 1 million mark, highlights the growing demand among consumers for imported vehicles. This trend is further exacerbated by the significant disparity between the total production of cars, which stands at 110,000, and the installed capacity of 240,000, indicating a considerable gap between supply and demand within the local manufacturing sector.

In response to this imbalance, local car manufacturers have advocated for protectionist measures against imports, seeking to safeguard their market share and address concerns regarding competition from imported vehicles. These manufacturers argue that the auto industry has benefited from protectionist policies for decades, and as such, consumers should have the opportunity to choose domestically produced vehicles without facing undue competition from imported counterparts. Conversely, proponents of car imports contend that consumers deserve the freedom to choose from a wider range of options, including imported cars that may offer superior quality and features compared to domestically manufactured vehicles. They argue that consumers should not be constrained by limited choices dictated by protectionist policies that favor local manufacturers, especially if imported cars are available at comparable prices. This debate underscores broader issues related to consumer welfare, market competition, and the role of government intervention in shaping industry dynamics. Finding a balance between protecting domestic industries and promoting consumer choice remains a key challenge for policymakers tasked with navigating the complexities of the automotive market in Pakistan. Ultimately, addressing the underlying factors driving the demand for car imports and fostering a competitive environment that benefits both consumers and local manufacturers will be essential for achieving sustainable growth and development in the automotive sector.

3. MODEL

This study used time series data set from 2000 to 2019. The data are obtained from the State Bank of Pakistan, Economy Survey of Pakistan and World Bank. The dependent variable of this study is the import bills of the vehicles. Whereas, the independent variables incorporated in the study per capita income in U.S dollar, Crude oil Price per barrels in U.S dollar, and population in million. Below is an Ordinary Least Square (OLS) regression model for car imports in Pakistan. The model is given in logarithmic form

Imported Cars=f(Crude Oil, Per capita income, Population)

where *C* a number of import cars bill is postulated as a function of per capita income Y, the crude oil price lambda, the average population pie,

This study, considers cars to be the normal goods, as such, it is expected that income will have a positive influence on their demand, while an increase in price should have a negative impact. The oil price variable is postulated with a one period lag since the price of fuel is essentially the operating cost of owning a car; in this study anticipate a negative relationship between oil price and vehicle's demand. Finally, population expected that population and imports car have positive relationship means population increase as well as car demand increase now we apply regression model and then check what the results show its relations see appendix for further detail

Table 1: Regression Results

Dependent: Imported Cars				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
OIL	3.067036	1.408003	2.178288	0.0722
GDPP	1.279271	0.408204	3.133898	0.0202
POP	-15.98388	5.547532	-2.881260	0.0280
C	296.1088	96.48768	3.068877	0.0220
R-squared	0.883697	Mean dependent var		19.70567
Adjusted R-squared	0.825546	S.D. dependent var		0.537450
S.E. of regression	0.224481	Akaike info criterion		0.139119
Sum squared resid	0.302349	Schwarz criterion		0.260154
Log likelihood	3.304403	Hannan-Quinn criter.		0.006345
F-statistic	15.19650	Durbin-Watson stat		2.624186
Prob(F-statistic)	0.003288			

The regression results, presented in Table 1, provide insights into the relationship between the dependent variable, Imported Cars, and the independent variables: OIL, GDPP, and POP. For the variable OIL, the coefficient is estimated at 3.067 with a standard error of 1.408, resulting in a t-statistic of 2.178 and a probability value of 0.0722. This suggests that the impact of Oil on Imported Cars is marginally significant at the 10 percent level. Similarly, the variable GDPP exhibits a coefficient of 1.279 with a standard error of 0.408, yielding a t-statistic of 3.134 and a probability value of 0.0202. This indicates a statistically significant positive relationship between GDP per capita and Imported Cars at the 5 percent level of significance. In contrast, the coefficient for POP is estimated at -15.983 with a standard error of 5.548, resulting in a t-statistic of -2.881 and a probability value of 0.0280. This suggests a statistically significant negative association between Population and Imported Cars at the 5 percent level of significance. The constant term (C) has a coefficient of 296.109 with a standard error of 96.488, leading to a t-statistic of 3.069 and a probability value of 0.0220, indicating statistical significance.

The overall model fit is assessed using the R-squared and adjusted R-squared values, which are reported as 0.884 and 0.826, respectively. These metrics suggest that approximately 88.4 percent of the variability in Imported Cars can be explained by the independent variables included in the model. Other statistics such as the F-statistic (15.197), Akaike information criterion (0.139), Schwarz criterion (0.260), and Durbin-Watson statistic (2.624) further support the statistical significance and adequacy of the regression model. Additionally, the probability associated with the F-statistic is 0.0033, indicating overall significance of the model. Overall, the regression results provide valuable insights into the determinants of Imported Cars, highlighting the importance of Oil prices, GDP per capita, and Population in explaining variations in the dependent variable.

4. CONCLUSIONS

The findings of this study suggest that the demand for vehicles in Pakistan is driven by factors such as low tax duty and the availability of low-cost fuel, particularly Compressed Natural Gas (CNG). Despite fluctuations in oil prices, the analysis indicates that they have no significant impact on the demand for vehicle imports. This finding may be attributed to the preferences of the urban elite class, who are less sensitive to changes in oil prices and more inclined towards importing vehicles regardless of fluctuations in fuel costs. Additionally, the study highlights a negative relationship between population and the demand for vehicle imports. This unexpected finding could be explained by the demographic distribution in Pakistan, where a significant portion of the population resides in rural areas with lower demand for imported vehicles compared to urban centers. As a result, despite the overall increase in population, the demand for vehicle imports may be tempered by the preferences and purchasing power of the urban elite class. Overall, these conclusions shed light on the nuanced dynamics influencing vehicle import demand in Pakistan, emphasizing the roles of socioeconomic factors and consumer preferences in shaping market trends. Furthermore, the surge in demand for CNG, driven partly by the increasing preference for vehicles powered by this fuel source, has resulted in a shortage of gas for domestic use. This imbalance in gas distribution may have repercussions for the country's production capacity and export capabilities in the foreseeable future. While this study has incorporated several crucial determinants into its analysis based on theoretical frameworks, future research endeavors could benefit from the inclusion of additional variables. For instance, factors such as customs duty, lending rates, availability of loan financing, and exchange rates could provide further insights into the dynamics of vehicle imports and their impact on the economy. By broadening the scope of analysis to encompass these variables, future studies can offer a more comprehensive understanding of the factors influencing the importation of vehicles and their implications for the broader economic landscape.

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