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Article

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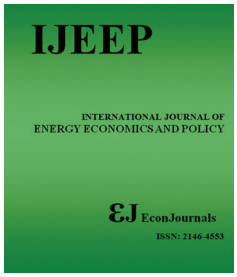
International Journal of Energy Economics and Policy

Provided in Cooperation with:
International Journal of Energy Economics and Policy (IJEEP)

Reference: Maharjan, Lasana Singh/Nuttaya Yuangyai (2024). Petrol pumps to power plugs : is the surge in electric two-wheeler adoption in Kathmandu due to unstable petroleum prices?. In: International Journal of Energy Economics and Policy 14 (6), S. 270 - 277. https://www.econjournals.com/index.php/ijeep/article/download/15932/8313/40378. doi:10.32479/ijeep.15932.



International Journal of Energy Economics and Policy

ISSN: 2146-4553

available at http: www.econjournals.com

International Journal of Energy Economics and Policy, 2024, 14(6), 270-277.

Petrol Pumps to Power Plugs: Is the Surge in Electric Two-Wheeler Adoption in Kathmandu Due to Unstable Petroleum Prices?

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Received: 25 Feburary 2024 **Accepted:** 28 August 2024 **DOI:** https://doi.org/10.32479/ijeep.15932

ABSTRACT

Since the dawn of the 21st century, the awareness towards environmental concern and sustainability slowly began to rise and the "Electric Wave" truly encompassed the world with electric automobiles. Nepal was no exception to this global electric wave. This research explores a key determinant behind this transition, the influence of fluctuating petroleum price. Using secondary data obtained from registrations of electric and petroleum two-wheelers at the Transport Management Office in Kathmandu, under the Ministry of Labor, Employment, and Transport as well as historical petrol prices over the past 4 years from 2019 to 2023, this research seeks to offer valuable insights into the connection between petrol prices and the adoption of electric vehicles in Kathmandu, Nepal. Using SPSS software, a linear regression analysis was conducted and it revealed that while petroleum prices played a role, they were not the sole determinant affecting adoption. This study contributes to the growing body of knowledge on sustainable transportation choices and their drivers. It provides valuable insights for policymakers, consumers, and industry stakeholders, as it underscores the influence of fuel prices on consumer choices and the potential for electric two-wheelers to become a viable alternative in the context of Kathmandu's urban transport.

Keywords: Electric Two-Wheelers, Energy Pricing, EV Adoption, Sustainable Transportation, Urban Transportation
JEL Classifications: O18, Q41

1. INTRODUCTION

The rising global temperature along with numerous environmental concerns have found space in headlines for years. A common culprit is the use of internal combustion engines which produce massive amounts of carbon dioxide along with harmful smoke filled with toxins. The most common use of these engines is in two and four-wheeler private and commercial vehicles. In Kathmandu, the average trip production rate is 1.409. The maximum contributor to this rate is people with vehicles rather than those who move freely. In terms of trip composition, motorcycles take up 26% of the chart followed by 40.7% who walk, 27.6% public transport commuters and 4.2% four-wheeler owners (JICA, 2012). Petrol two-wheeler vehicles dominate the scene of private transportation in Kathmandu. They make up 80% of the total vehicles used in the city (Bajracharya and Bhattarai, 2016). It is evident electric vehicles have the potential to reduce greenhouse gas emissions and mitigate the impacts of climate change (Sierzchula et al., 2014). Particularly in an urban metropolis like Kathmandu, adoption of electric vehicles, especially two-wheelers have the potential to significantly impact the emission and air index. Such is being seen currently in the city, where interest and sales of electric two-wheelers are increasing steadily. This trend does not only reflect upon the changing consumer mindset of the people but also acts as a catalyst for transformative changes in means of transportation in the city.

1.1. Global Trends in the Electric Two-Wheeler Adoption

There has been a notable rise in the adoption of electric vehicles around the world. This trend was particularly significant in the

developing nations. These environmentally friendly vehicles transformed urban transportation by addressing environmental concerns and cutting emissions and dependency on fossil fuels. As the majority of the discussions were centered around electric cars, we must note the rise of electric two-wheelers in nations such as China and Vietnam (Doucette and McCulloch, 2011).

This surge in electric two-wheelers (E2Ws) in developing nations presented a multi-faceted shift with various keynotes contributing to their growing popularity. The majority of the discussion revolves around the convenience of transportation and affordability of two-wheelers (Weiss et al., 2015). The affordable price point of purchase and upkeep of two-wheeler electric vehicles address consumers of middle- and lower-income levels in developing nations. When compared to traditional two-wheel automobiles, E2Ws have low upfront costs and require minimal operational expenses. The characteristics of these E2Ws make them a cleaner and more sustainable alternative in a world of rising global temperatures, climate change and pollution (Rajper and Albrecht, 2020).

Urban congestion, a prevalent issue in many developing countries, finds relief through E2Ws offering a nimble and efficient mode of transport capable of navigating crowded cities (Patan et al., 2016). This contributes to quicker and more convenient mobility in urban landscapes where inadequate infrastructure often leads to traffic congestion. Government initiatives play a pivotal role, as demonstrated by the proactive policies of countries like India and China, offering incentives such as tax breaks, reduced registration fees, and purchase subsidies to promote E2W adoption (Rajper and Albrecht, 2020).

Advancements in battery technology, particularly the graphene TTFAR battery, have significantly enhanced the performance of E2Ws, addressing concerns about limited range and "range anxiety" among potential buyers (Le et al., 2022). This innovation, coupled with increased speed capabilities, has played a crucial role in driving the widespread registration of electric two-wheelers. Notably, consumer behavior, beliefs, and the impact of incentives and supportive policies, such as perceived economic and environmental benefits, have been identified as influential factors in the adoption of electric vehicles, emphasizing the complex interplay of individual choices and external influences (Zhang et al., 2018). The global trend in the registration of electric two-wheelers, with its emphasis on their popularity in developing countries, is a promising development for the environment, economies, and urban mobility.

1.2. Adoption Trend of Electric Two-Wheelers in Kathmandu

The capital city of Nepal- Kathmandu is no stranger to two-wheelers. Images of this city's cultural heritage sites, landmarks and commercial centers always feature these types of vehicles. This bustling valley features chaotic traffic and many roads which are especially narrow (Gray, 2014). With its narrow roads and ever-growing population, Kathmandu grapples with persistent traffic congestion and pollution concerns. According to studies (Aryal et al., 2009; Fransen et al., 2013; Mahapatra et al., 2019), Kathmandu is among the most polluted cities in Asia in terms of PM10 (particles with aerodynamic dimensions below 10 μm). The rapidly rising number of vehicles on the road is a major cause of air pollution in the valley, which is made worse by the heavy traffic and high elevation of the valley (Shrestha et al., 2013). Two-wheelers have emerged as the primary means of daily transportation for the locals, because people are very price conscious when they buy vehicles, smaller, cheaper motor vehicles are usually ideal for personal use (MoFE, 2021).

Notably, in recent years there has been a remarkable surge in the use of electric two-wheelers as an alternative mode of transport. This upward trajectory is supported by data collected on vehicle registrations over the past 4 fiscal years (2019-2022).

The vehicle registration data collected from the Transport Management Office, Kathmandu as illustrated in Table 1, show a positive growth in the registration of electric two-wheelers in Kathmandu. As per the records of 2022-2023, a total of 4429 vehicles were registered. In terms of petrol-powered vehicles 58,515 were registered in the same fiscal year. The year-on-year growth of electric vehicle. In the recent fiscal year (2022-2023), registration of electric two-wheelers was 7.04% of total registration. In the previous years, the percentage of adoption were 0.93% in 2021-2022, 0.88% in 2020-2021 and 0.74% in 2019-2020. The data when compared to previous years shows a significant rise in adoption of these vehicles. In terms of year-on-year growth, a staggering 349.19% rise in registration of electric vehicle was recorded between fiscal year 2021-2022 and 2022-2023, the figure had decreased to −1.60% in 2020-2021 to 2021-2022 and was at 49.55% in 2019-2020 to 2020-2021 statistics.

On the contrary, the registration of petroleum two-wheelers exhibited a mixed year-on-year growth rates, with declines observed in the later fiscal years. The rate was −44.51% during the comparison of data of fiscal year 2021-2022 to 2022-2023.

The data clearly presents a change in consumer behavior. It is evident that either individuals of Kathmandu decided to adopt an electric two-wheeler or refrained from purchasing a vehicle all-together. These decisions could have been strongly influenced by awareness of environmental impact of fossil fuels, rising cost of fuel and incentives provided by the government for adopters of electric vehicles. The contrast in figures- growing registration of electric two-wheelers, as shown in Figure 1, and the declining trend in petrol-based vehicle registration highlights a preference for sustainable and cost-effective mobility solution. Furthermore, the Government of Nepal (GoN) announced its commitment towards creating a better environment and curving carbon emissions specifically for Bagmati Province, the location of the capital city. Amongst the objectives, one notable goal was to completely eliminate petrol-based vehicles from urban dwellings of the province by mid-April of 2028. This lofty ambition is expected to significantly increase the adoption of electric vehicles within the city (MoFE. 2021).

1.3. Fluctuations in Petroleum Prices in Nepal

The price of petroleum has been a subject of constant flux and discussion around the world. For a nation like Nepal, nestled

Table 1: Two-wheeler vehicle registration

Month as per Nepali calender	Month	Vehicle registration details of fiscal year 2022-2023		Vehicle registration details of fiscal year 2021-2022		Vehicle registration details of fiscal year 2020-2021		Vehicle registration details of fiscal year 2019-2020	
		Petroleum	Electric	Petroleum	Electric	Petroleum	Electric	Petroleum	Electric
Shrawan	July-August	7016	449	11,245	116	5249	-	5585	-
Bhadra	August-September	7987	525	11,100	254	3448	20	7652	114
Asoj	September-October	8484	371	17,609	136	14,594	116	14,238	114
Kartik	October-November	4136	586	11,115	20	15,814	118	12,586	106
Mangsir	November-December	3251	747	8975	38	9395	38	8543	116
Poush	December-January	2318	629	6626	30	10,677	86	5408	78
Magh	January-February	3817	190	6025	40	10,364	98	8641	48
Falgun	February-March	4389	48	6623	38	12,855	154	8326	36
Chaitra	March-April	3691	154	6204	30	11,335	136	6677	-
Baisakh	April-May	4752	250	8568	176	7578	40	4245	-
Jestha	May-June	4253	396	6663	30	679	38	662	-
Asar	June-July	4421	84	4743	78	10,671	158	7090	58
	Annual registration	58,515	4429	105,496	986	112,659	1002	89,653	670

Table 2: Types of variables

Variable type	Variable	Description
Dependent Variable	Number of electric two-wheelers	Reflects the adoption rate of electric two-wheelers in the region, which is a key indicator of interest.
Independent Variable	Petrol price	Represents the cost of using traditional petroleum-based two-wheelers

Table 3: Result of descriptive statistics

Variables	Mean	Standard deviation
Electric two-wheelers	164.81	179.527
Average petrol price	140.5930	30.84413

Table 4: Correlation matrix of electric Two-wheeler registrations and average petrol prices

Correlation		
Pearson correlation	Electric two-wheeler registration	Average petrol price
Electric two-wheeler registration	1.000	0.530
Average petrol price	0.530	1.000

amidst the towering Himalayas, this price volatility takes on added significance, affecting everything from daily commuting costs to the overall economy. Nepal represents a distinctive research subject due to its landlocked geographical location and complete reliance on India for its petroleum supply. Moreover, the sole distribution of petroleum inside the nation is carried out by the Nepal Oil Corporation (Karki and Risal, 2019). In 1974, Nepal and India signed a mutual agreement that made Indian Oil Corporation Nepal's only source of fuel and banned it from importing oil from other countries. A later version of the agreement lets Nepal buy crude oil from a third country, but it still has to be refined in India (Bhattarai, 2017). The interplay of petrol-politics exacerbates the complexities surrounding the oil price situation in Nepal. We must note that in Nepal, Nepal Oil Corporation (NOC) is the exclusive distributor of oil. Thus, the price of oil is unaffected by market forces (Sapkota, 2015; Karki and Risal, 2019).

The price of petroleum is influenced globally and domestically by numerous interplaying factors. In the specific context of Nepal, numerous factors contribute to the persistent escalation of petroleum prices. In the preceding fiscal year, Nepal recorded a notable increase of over 14% in the delivery of petroleum products. Specifically, 591,700 kL of gasoline, 1,696,202 kL of diesel, and 477,752 metric tons of LPG gas were provided during the span of 1 year (NOC, 2021). Nepal has a significantly limited oil storage capacity, allowing for a mere 20 day supply of national sales. In contrast, Israel boasts an impressive storage capacity of 270 days, while the Republic of Korea and the United States maintain capacities of 240 days and 137 days respectively (Nepal Energy Sector Assessment, Strategy, and Roadmap, 2017).

There are several important factors that have led us to our current situation. One major issue is our heavy reliance on a third country for buying and refining crude oil. This dependency makes our supply chain vulnerable and could potentially cause problems. Transporting crude oil also comes with its own challenges, which further complicates the energy landscape. Furthermore, our overreliance on petroleum as a primary energy source makes it harder to switch to renewable resources. And finally, financial difficulties faced by the involved party create hurdles in investing in and embracing sustainable energy (Sharma and Shrestha, 2023).

In recent years, the distortion of petroleum prices posed a major concern for people and policymakers of Nepal. When we looked into the records a clear trend of ups and down was visible, as seen in Figure 2, which greatly impacted the nation's economy in short and long term. In June 2023, the petroleum stood at 175 NPR (USD 1.32)/L. Post which, the price of petroleum has seen rapid fluctuations.

We noted that in the first half of 2022, the price of petroleum peaked at 199 NPR/L. This was an exponential rise compared to the prevalent rates in the previous year around the same timeframe. In the months that followed, the price came down to 181 NPR/L, which held steady till December. In the first quarter of 2023, the price oscillated between 175 and 178 NPR/L. This oscillation, monopoly, poor fuel quality and political influence became barriers

Table 5: Summary of the linear regression model

Model summary							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change statistics		
					R square change	F change	df1
1	0.530[a]	0.281	0.263	154.078	0.281	16.020	1

Table 6: Model summary of linear regression

Model summary	
Model	Moderate positive correlation between petrol price fluctuations and two-wheeler registration of two-wheelers.
R Square (R^2)	Approximately 28.1% of the variance explained by petrol price fluctuations.
Adjusted R Square	Conservative estimate considering predictors, with a value of 0.263.
Standard error	Standard error of the estimate is 154.078, indicating the model's predictive performance.
Change statistics	
R square change	Increase of 0.281 in the proportion of variation explained by petrol price changes.
F change	F statistic of 16.020 signifies statistical significance of the model.
df1	Degrees of freedom for the numerator of the F statistic.

for businesses, consumers, and policy development. Upon close examination of the trendline, we gained a broader insight on the dynamics of Nepal's energy market. Nepal exclusively meets its petroleum requirements through India. India on the other hand relies excessively on imports of crude oil to meet their national demand of refined oil goods. (Sharma and Shrestha, 2023). A widely discussed alternative to meet Nepal's energy demand has been Nepal's hydro-electric potential and its potential to significantly reduce the consumption of fossil fuels (Awasthi and Adhikari, 2019).

1.3.1. Research gap

As Nepalese consumers become more aware about environmental concerns and the need to act sustainably, their choices are slowly leaning towards sustainable solutions in every walk of life. In terms of transportation, interest in electric vehicles is rising at a steady rate. Even though there are multiple smalls scale studies conducted on the viability, potential and adoption of electric vehicles, there are very limited academic papers on two-wheeler vehicles (the most used medium of transportation). There is a scarcity of research on the consumer acceptance of electric motorcycles, an emerging and ecologically preferable substitute for traditional powered two-wheelers (Eccarius and Lu, 2020). While most studies focus on environmental and economic factors, there is limited research exploring the influence of volatile petrol prices on the surge in electric two-wheeler adoption in specific regions. Despite the fact that customer preferences for electric vehicles (EVs) are influenced by a combination of symbolic, environmental, economic, and pro-societal benefits, there is a lack of comprehensive research that encompasses the full range of factors associated with EV adoption (Axsen et al., 2015; Kumar and Alok, 2020). To address this research void, our study examines the intricate association between fluctuations in petrol prices and the rapid registration of electric two-wheelers in Kathmandu, Nepal.

Figure 1: Annual trend in petroleum VS electric two-wheeler registration

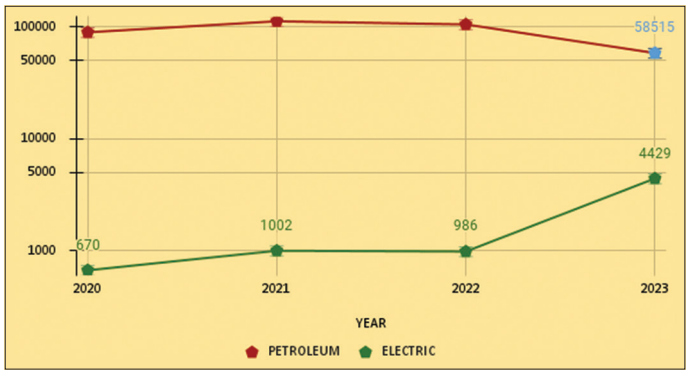
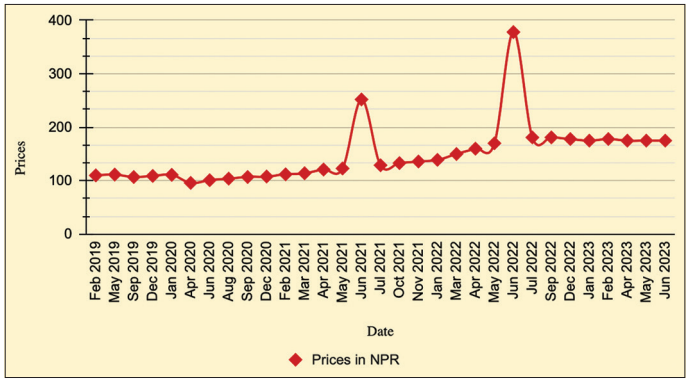


Figure 2: Annual trend in petroleum price



1.3.2. Research objectives

The objective of this study is to examine the influence of fluctuating petrol prices on the registration of electric two-wheelers in the region of Kathmandu. The study pursued the following specific objectives to accomplish this objective:

1. To understand how registration of electric two-wheelers has evolved by identifying trends and patterns through analysis of historical data on electric two-wheeler registration in Kathmandu over the span of 4 years.
2. To examine the relationship between petrol prices and the approach to electric two-wheeler adoption through various statistical techniques such as linear regression analysis to investigate correlation.

2. METHODOLOGY

2.1. Data Collection

The data was collected from the Office of Transport Management, Motorcycle (under Ministry of Labor, Employment and Transport), Kathmandu. A total of 4 data sets of vehicle registration were collected for this study. The data sets are for 2019-2020, 2020-

Figure 3: Percentage change in petroleum VS electric two-wheeler registration

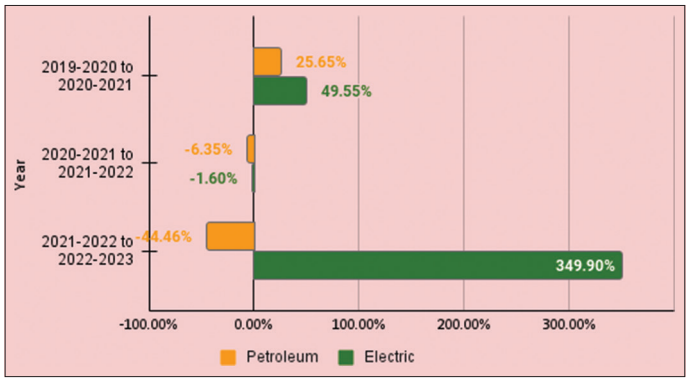


Figure 4: Histogram chart

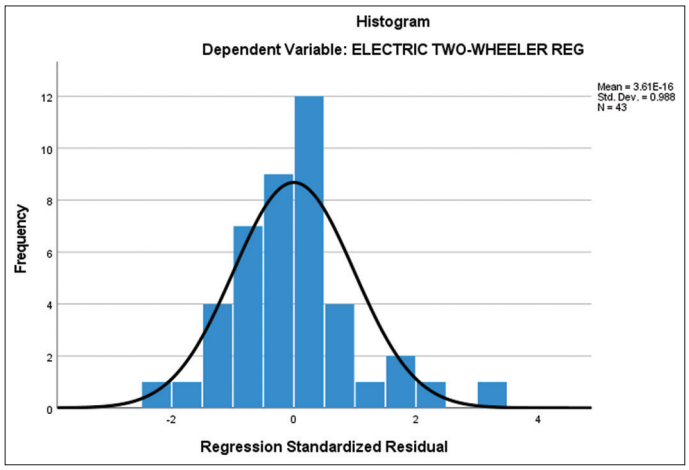
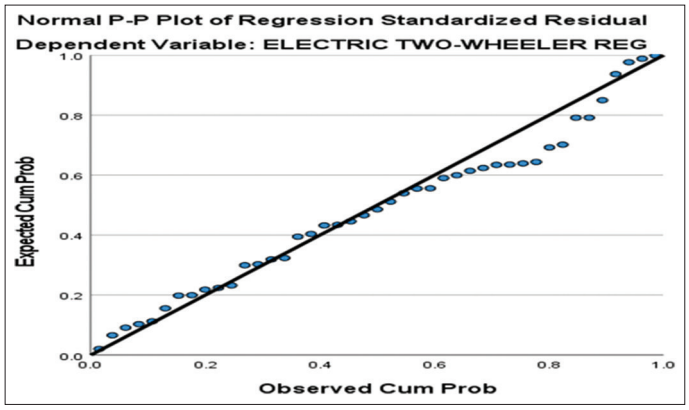


Figure 5: Normal P-P plot of regression standardized residuals for electric two-wheeler registrations

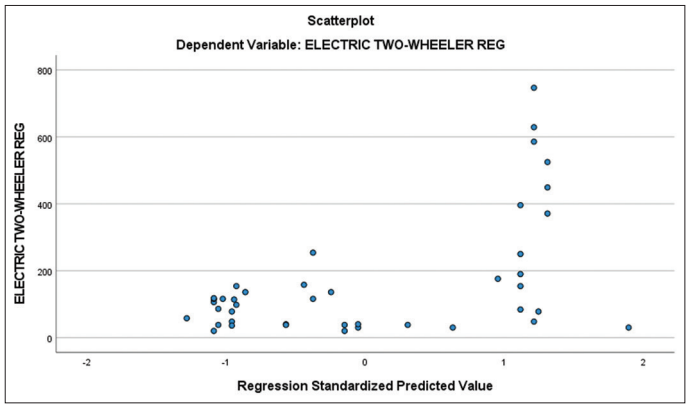


2021, 2021-2022, and 2022-2023. These data sets fulfilled the requirement of the monthly count of electric and petroleum two-wheeler registrations. For the second variable, we complied data on monthly petrol prices for corresponding years.

2.2. Data Analysis

To fulfill the primary objective, to identify if fluctuations in petrol prices had an impact on the adoption of electric and petroleum two-wheelers a linear regression analysis was conducted. The data we collected from the transport office was reviewed, and

Figure 6: Scatter plot of electric two-wheeler registrations vs. predicted limitations



entered into IBM SPSS Statistics Software. After reviewing the parameters, we initiated the test. Our primary focus was to decode the relationship between the registration of electric two-wheelers and fluctuating petrol prices, as shown in Table 2, which outlines the types of variables used in the analysis.

To illustrate, the regression model is expressed as follows:

$$\text{Electric Two-Wheeler Registrations} = \beta 0 + \beta 1\, X(\text{Petrol Prices}) + \varepsilon$$

- Electric Two-Wheeler Registrations: The number of electric two-wheeler registrations.
- Petrol Prices: The average petrol prices during the corresponding years.
- $\beta 0$: The intercept term.
- $\beta 1$: The regression coefficient representing the effect of petrol prices on electric two-wheeler registrations.
- ε: The error term.

2.3. Hypotheses

The study tests the following null and alternative hypotheses:

1. Null Hypothesis (H0): Registration of electric two-wheelers are not significantly affected by fluctuations in petrol prices
2. Alternative Hypothesis (H1): Registration of electric two-wheelers are significantly affected by fluctuations in petrol prices.

To interpret the module, if the P-value of the analysis was to be lower than the predetermined value as per the significance level, such as 0.05. The alternative hypothesis was accepted and the null hypothesis rejected.

3. RESULTS AND FINDINGS

3.1. Examining the Trend in Registration of Electric Two-Wheeler

Petroleum two-wheeler registrations over a 4-year period revealed dynamic trends. From 2020 to 2021, there was a noteworthy increase of approximately 25.65%, indicating strong demand. However, a shift occurred in subsequent years, with a decline of about 6.35% from 2021 to 2022 and a substantial drop of approximately 44.46% from 2022 to 2023. These fluctuations, as depicted in Figure 3, suggest changing consumer preferences or market dynamics, emphasizing the need for further investigation.

In contrast, electric two-wheeler registrations exhibited a contrasting pattern. A significant growth of about 49.55% was observed from 2019-2020 to 2020-2021, indicating a rising interest. A slight decline of approximately −1.60% occurred in 2021, possibly due to market saturation or temporary shifts. However, the most striking trend emerged from 2022 to 2023, with an explosive growth of approximately 349.90%, reflecting a substantial shift towards electric two-wheelers. This surge may be driven by environmental concerns, government incentives, or technological advancements. The data shows a significant rise in electric two-wheeler registrations, indicating a growing acceptance of these vehicles as an eco-friendly transportation alternative in Kathmandu.

3.2. Descriptive Statistics of the Study

We gained valuable insights into the variables. The mean of 164.81 represents the average number of registrations for electric two-wheelers. The standard deviation of 179.527 indicates significant fluctuation in the registration numbers over the study period. The sample size (N) of 43 represents the quantity of data points available for review. The average petrol price, represented by a mean of about 140.5930, reflects the standard fuel cost for the study period. The standard deviation of 30.84413 indicates significant variability in petrol prices, reflecting changes in fuel costs. The sample size (N) for petrol prices is 43, similar to the number of registrations for electric two-wheelers, showing data availability for each month. This analysis, as shown in Table 3, provided the basis for the following regression analysis by giving an in-depth understanding of the central tendencies and variability in the variables under study.

The central tendency (mean), variability (standard deviation), and sample size for the two key variables in the analysis are all explained by these descriptive statistics. In this case, the fact that both the number of registered electric two-wheelers and petrol prices have higher standard deviation values suggests that these variables have changed a lot over time (Figure 4). The variations in registrations and petrol prices may suggest an ongoing association between the registration of electric and petroleum two-wheelers and the changes in petrol prices.

In the subsequent sections of the research paper, further analysis, such as regression analysis, will be conducted to examine the statistical relationships and explore the extent to which fluctuations in petrol prices influence the registration of electric and petroleum two-wheelers.

3.3. Analysis of Correlation

As per the Pearson Correlation Coefficient test depicted in Table 4, an R-value of 0.530 was determined. This value signifies a positive relationship between these two variables. It falls under 0.40-0.59 on the scale denoting a moderate positive correlation. This entails that as the price of petrol fluctuated the registrations changed in the region of Kathmandu. When the average price of petrol increased, the number of electric registrations in the region also saw a positive increment. Conversely, when the price of petrol decreased, the registration of electric two-wheelers showed a tendency of decline even though their relationship was not perfectly linear.

The positive correlation proposed that change in petrol prices may have influenced the registration of electric two-wheelers. We must note that correlation does not imply causation. A positive correlation might indicate an association however it does not establish if petrol price fluctuations directly contributed to a change in the registration of electric two-wheelers in the region. A sample size of 43 provided us with a good level of confidence to support the correlation analysis. As depicted in Figure 5, the normality of the residuals was checked using the Normal Probability Plot of Standardized Residuals for Electric Two-Wheeler Registrations, which indicated that the residuals closely followed the expected cumulative probabilities. However, further analysis is required to deeply understand the relationship between these variables.

3.4. Linear Regression Model

As presented in Figure 6, we employed a linear regression model to determine the level of correlation between fluctuation of petrol prices and registration of two-wheelers in the region of Kathmandu. As per the test, we yielded the following summary:

The test revealed a moderate positive correlation with an R-value of 0.530, indicating a correlation between fluctuating petrol prices and the registration of two-wheelers. The R-squared resulted in 0.281, which suggested that approximately 28.1% of the variability in registration was contributed by the change in petrol prices. This demonstrated a moderate level of explanatory potential between the two values. The adjusted R-square value, determined at 0.263 in consideration of the other predictive elements provided a more conservative estimate of the model's explanatory power. We recorded a standard error of estimate at 154.078, indicating a standard discrepancy between observed and anticipated values. There is statistical significance as change statistics emphasize the impact of petrol price fluctuations on the model's explanatory capacity, with an R-squared value of 0.281 and an F change statistic of 16.020. Overall, these findings represented in Table 5 suggest a significant relationship between petrol price fluctuations and the registration of two-wheeler vehicles in the region of Kathmandu.

Overall, the findings suggested that along with various factors, fluctuations in petrol prices had a sizeable impact on the adoption of two-wheelers. The F statistic, 16.020 is statistically significant, indicating the applicability of the model as good to the data. To conclude, there is a statistical significance between the relationship between petrol price fluctuations and the purchase of electric and petroleum two-wheelers in the Kathmandu region. The scatter plot (Figure 6) further supports this by showing a positive trend in electric two-wheeler registrations as predicted by the model.

3.5. Limitations

While the results of this study are insightful, we must acknowledge the limitations. Firstly, due to time and budget restraints, we were only able to rely on secondary data sources. Despite our efforts to gather comprehensive data, we were limited to only one variable- petrol prices. This limitation significantly impacted both the validity and reliability of our research. Lastly, the outcome derived from this study possesses limitations regarding universal applicability. As the research was exclusively centered on a

singular geographical area, the application of findings will not determine accuracy in other regions.

4. DISCUSSION

The findings from the linear regression analysis offered several significant insights. The F value of 16.020 demonstrated a notable degree of significance highlighting the model's robustness and ability to deduce variations in two-wheeler adoption. Furthermore, we were able to determine that approximately 28.1% of the variance in two-wheeler adoption can be attributed to fluctuations in petrol prices. We were able to conclude this value by reflecting on the R-squared (R^2) value of 0.281. Furthermore, the adjusted R^2 value that accounts for the predictor was determined to be approximately 0.263. This finding indicates, that while petrol prices do indeed exhibit a noteworthy correlation with two-wheeler adoption, other unexplored variables and influences must also be taken into consideration. Purchasing an electric two-wheeler is a decision with multiple facets that extend beyond fluctuations in prices alone. It also encompasses aspects such as social influence and awareness, trends and government policies. To summarize, variations in the prices of petrol play a role in influencing the behaviour of consumers in the region of Kathmandu.

5. CONCLUSIONS

In this study, a comprehensive analysis was conducted to investigate if fluctuations in petrol prices serve as a determinant for users to adopt electric two-wheelers within Kathmandu valley. The research was based on secondary data sourced from the registration of electric two-wheelers, coupled with corresponding petrol price fluctuations. Linear regression analysis showed that petrol price fluctuation accounted for 28.1% of the variance in electric two-wheeler adoption, indicating a significant influence on consumer behavior. However, the adjusted R- squared value of 0.263 suggested that others like environmental awareness, government policies, infrastructure, and individual preference also play a role in adoption of electric automobile.

To conclude, this study provided importance key points into the relationship between petrol price fluctuations and the registration of electric two-wheelers in Kathmandu. In the future, further studies should be designed to inspect influences and additional factors to gain an all-rounded perspective of the aspects surrounding the adoption of eco-friendly two-wheelers. Studies such as these will allow policymakers and stakeholders to develop sustainable strategies. Such insights would also be a strong catalyst to better consumer acumen.

6. ACKNOWLEDGMENTS

We sincerely acknowledge the government of Nepal for its cooperation and the team of the Transport Management Office for providing access to the vehicle registration data.

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