

FORECASTING FRANCHISE-RELATED VIOLATIONS IN THE DAVAO REGION

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ABSTRACT

The researchers studied violations related to Public Utility Vehicle (PUV) franchising, both administrative and traffic violations, in Region XI, Philippines, to identify the trend and possible mitigation to minimize these violations. The Land Transportation Franchising and Regulatory Board (LTFRB) is the agency under the Department of Transportation (DOTr) responsible for regulating these PUV franchises' issuance. And the set rules and by-laws of LTFRB are the guiding principles in policing the violators on the road. The researchers obtained the violation data from LTFRB covering the period from year 2018 up to the year 2022. This data were analyze through a statistical tool using the linear regression method.

This study aims to project the PUV franchise violations on the road for 3 years after 2022 and draw the analysis and conclusion and the possible mitigation of the problems with its effects brought by these road traffic lapses. With the computed data, the trends show an increasing franchise violation from 2022 to 2024. It is noteworthy to consider and find out the reasons why these drivers committed these violations.

As mitigation measures, periodic mobile messages and emails on information dissemination can be done by LTFRB to keep the drivers and operators be more aware on the violations and keep them on track and guided. A potential policy improvement should also be exercise in preventing and or minimizing the franchise-related violations among PUVs.

KEYWORDS:

PUV Franchising, PUV Violations, Linear Regression, LTFRB, Region XI, Philippines.

INTRODUCTION

Public transportation offers Filipinos a cheaper and more accessible method of mobility and the transfer of goods [2]. Indeed, it plays a crucial role in community development and the economy. In a country heavily reliant on public transportation, it is only right and fitting to improve its transport landscape in the Philippines totally.

In the consultant's report "Infrastructure Preparation and Innovation Facility Output 3 Sub-project: Davao High Priority Bus System (HPBS), 2021" prepared for the DOTr, several thousand PUVs operate in Davao City. These vehicles are described as poorly maintained, uncomfortable for passengers, and following an unpredictable schedule of services.

While public land transportation modernization is currently underway through DOTr projects such as the Public Utility Vehicle Modernization Program (PUVMP) and the Davao Public Transportation Modernization Project (DPTMP) for Davao City, the researchers of this study deem it necessary to closely look at the current data on franchise-related violations of the Public Utility Vehicles (PUV) as recorded in the LTFRB.

The Land Transportation Franchising and Regulatory Board (LTFRB) [3] is the government agency regulating public land transportation services in the Philippines. The LTFRB's mission is to ensure the riding public's safety, protection, comfort, and convenience. The LTFRB accomplishes its mission by promulgating, administering, enforcing, and monitoring compliance with policies, laws, and regulations governing public land transportation services [4].

Currently, the granting of new franchises to PUVs by the LTFRB follows the provisions under the DOTR & DILG Joint Memorandum Circular No. 001, Series Of 2017. These guidelines require all LGUs, in consultation with all transport stakeholders, to formulate a Local Public Transport Route Plan (LPTRP). Only when the LPTRP is submitted and approved by the LTFRB will the processing of public transport franchises proceed.

Citing the report of Pontawe [5] presented in the National Center for Transportation Studies at the University of the Philippines in 2021, the LPTRP is a thorough plan route network with specific modes of transportation and the necessary number of units per mode for providing land transport services in a locality.

Under all these conditions, the researchers seek to study recorded franchise-related violations and use the obtained data to project and forecast future franchise-related violations through Quantitative Time Series analysis.

PURPOSE OF THE STUDY

As far as contributing to the body of knowledge goes, the results, significant discussions, and recommendations generated in this study would also help the following stakeholders:

1. **Land Transportation Franchising and Regulatory Board (LTFRB).** As the primary government agency that regulates public land transportation, this study would initiate a potential re-evaluation process to improve the agency's current franchising and regulatory procedures and practices for PUVs to avoid franchise-related violations in the future.
2. **Other government agencies for transportation.** Similarly, this study would also inform other government agencies, particularly in the transportation sector, specifically in enhancing services that go hand-in-hand with preventing traffic violations and promoting road safety.
3. **Local Government Unit (LGU).** On a local scale, this study would deepen the understanding of the local government body on the franchising and regulatory aspects of PUVs. Further, the results and recommendations in this study would inform the Local Public Transport Route Plan (LPTRP) of LGUs in the Davao region.
4. **The riding public.** The potential positive action of involved government agencies utilizing the recommendations of this study would improve the current public land transportation landscape, thereby benefiting the daily commuters in the Davao region.
5. **Future Researchers.** This research is a good reference for academic researchers pursuing similar research traction in public transportation.

RESEARCH QUESTIONS

The study was conducted to determine how many PUV franchise-related violations were reported in Davao Region. Additionally, it intends to forecast PUV franchise-related violations for the following three years and create potential solutions. The following questions were specifically addressed in this study:

1. What types of PUV franchise-related violations were reported most frequently between 2018 and 2022?
2. Which types of PUV franchise-related violations are expected to occur most frequently during the next three years?
3. What policy initiatives and mitigations can be created based on the findings?

METHODOLOGY

This chapter describes the research design, data sources, data gathering instruments, sampling technique, study procedure, and statistical treatment.

This study uses a quantitative approach using a time-series or forecasting research design. As stated on the website of Influx Data [1], this method enables the researchers to predict the future values of concerned variables over a period of time. This technique also influences the creation of models based on the five-year data of franchise-related violations from the LTFRB.

The primary data source for this research study is from the LTFRB, the recorded numbers of franchise-related violations among the PUVs in the Davao region from the said agency were used as the main data of the study. The researchers deem the data relevant because of its scope and validity.

DISCUSSION OF FINDINGS

The result of the linear regression computations significantly exhibits reasonable data that helps the LTFRB to revisit their rules and by-laws and understand where they can amend or improve their processes. This data shall be used as the tools and reference to mitigate the violations in both traffic and administrative cases. This research will serve as the assessment tools for creating possible solutions to improve road traffic and the quality of services with our public vehicle drivers. Moreover, with this research design, the researchers were able to draw conclusions and suggest future, potential policy improvements to prevent franchise-related violations among PUVs.

The researchers used the following statistics tools:

Frequency Count and Percentage. This was used to determine the frequency of vehicular accidents recorded in Davao Region. A frequency is the number of times a data value occurs. The percentage is calculated by dividing the frequency in the category by the total number of participants and multiplying it by 100 percent.

Linear Regression. This was used to forecast the frequency of future vehicular accidents for the next three years. The formula:

$y = \beta_0 + \beta_1 X_1 + \dots + \beta_n X_n$, the coefficients β_0 and β_1 denote the intercept and the slope of the line, respectively.

The intercept β_0 represents the predicted value of y when $x=0$. The slope β_1 represents the average predicted change in y resulting from a one-unit increase in x .

These lists of violations were analyzed to enhance road discipline and emphasize obeying the rules and bylaws of the road. These standards intend our drivers to be mindful of driving safely and professionally. The data are summarized in Table as shown below:

Table 1. Raw Data for the Number of Violations per PUV Types for 5 Years

DENOMINATION	2018		2019		2020		2021		2022	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Ficab	5	1.79%	40	7.66%	71	23.13%	33	13.69%	34	8.70%
Public Utility Bus (PUB)	34	12.14%	78	14.94%	31	10.10%	57	23.65%	48	12.28%
Public Utility Jeepney (PUJ)	35	12.50%	105	20.11%	43	14.01%	61	25.31%	85	21.74%
School Transport Service	1	0.36%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Taxi	118	42.14%	119	22.80%	77	25.08%	10	4.15%	70	17.90%
Truck for Hire	0	0	0	0.00%	0	0.00%	1	0.41%	0	0.00%
Utility Van Express	87	31.07%	179	34.29%	83	27.04%	79	32.78%	154	39.38%
Tourist Transport - UVE	0	0	1	0.19%	2	0.65%	0	0.00%	0	0.00%
TOTAL	280	100.00%	522	100%	307	100.00%	241	100.00%	391	100.00%

With the data shown above, the researchers were able to compute and project the possible numbers of violations for the next 3 years after 2022. In Table, it will show the computation of the gathered data from 2018 to 2022 and compute the possible violations for the succeeding (3) years through linear regression method.

And to give emphasis on the data, the succeeding table shows the graph per PUV's with projected 3 years of possible violations. Using the formula:

$$y = \beta_0 + \beta_1 X_1 + \dots + \beta_n X_n$$

The researchers were able to tabulate the respective forecasted results as follows:

Table 2: Data Violation Trends from 2018 to 2022

DENOMINATION	X										TOTAL
	2018		2019		2020		2021		2022		
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	
Ficab	5	2.73%	40	21.80%	71	38.80%	33	18.00%	34	18.58%	183.00
Public Utility Bus (PUB)	34	13.71%	78	31.45%	31	12.50%	57	22.98%	48	19.35%	248.00
Public Utility Jeepney (PUJ)	35	10.64%	105	31.91%	43	13.07%	61	18.54%	85	25.84%	329.00
Taxi	118	29.95%	119	30.20%	77	19.54%	10	2.54%	70	17.77%	394.00
Utility Van Express	87	14.95%	179	30.76%	83	14.26%	79	13.57%	154	26.46%	582.00
TOTAL	280		522		307		241		391		

Table 3. Forecast of PUV Franchise Related Violations for the next 3 Years using Linear Regression

DENOMINATION	REGRESSION EQUATION	Y						TOTAL
		2023		2024		2025		
		Number	Percentage	Number	Percentage	Number	Percentage	
Filcab	$Y = 26.40 + 5.1 X1$	32	28.69%	37	33.33%	42	37.98%	110
Public Utility Bus (PUB)	$Y = 48.20 + 0.70 X1$	49	32.86%	50	33.33%	50	33.80%	149
Public Utility Jeepney (PUJ)	$Y = 54.60 + 5.6 X1$	60	30.50%	66	33.33%	71	36.17%	197
Taxi	$Y = 119.80 - 20.50 X1$	99	42.01%	79	33.33%	58	24.66%	236
Utility Van Express	$Y = 109.60 + 3.40 X1$	113	32.36%	116	33.33%	120	34.31%	349
TOTAL		353		347		342		1042

The tables shown above are the results of linear regression computation on forecasting the trend of violations for the filcab, public utility bus, public utility jeepneys, taxi, and public utility vans.

To understand the trend of the violations per PUV types, it is appropriate to show the data within (5) five years. Here, the data shows that the trend of violations are fluctuating, and it is noteworthy that when the violation trends are high, the forecasted succeeding (3) three years were also increasing. And when the trends of violations were decreasing per year, the forecasted computed result for the succeeding year will be zero and or diminishing.

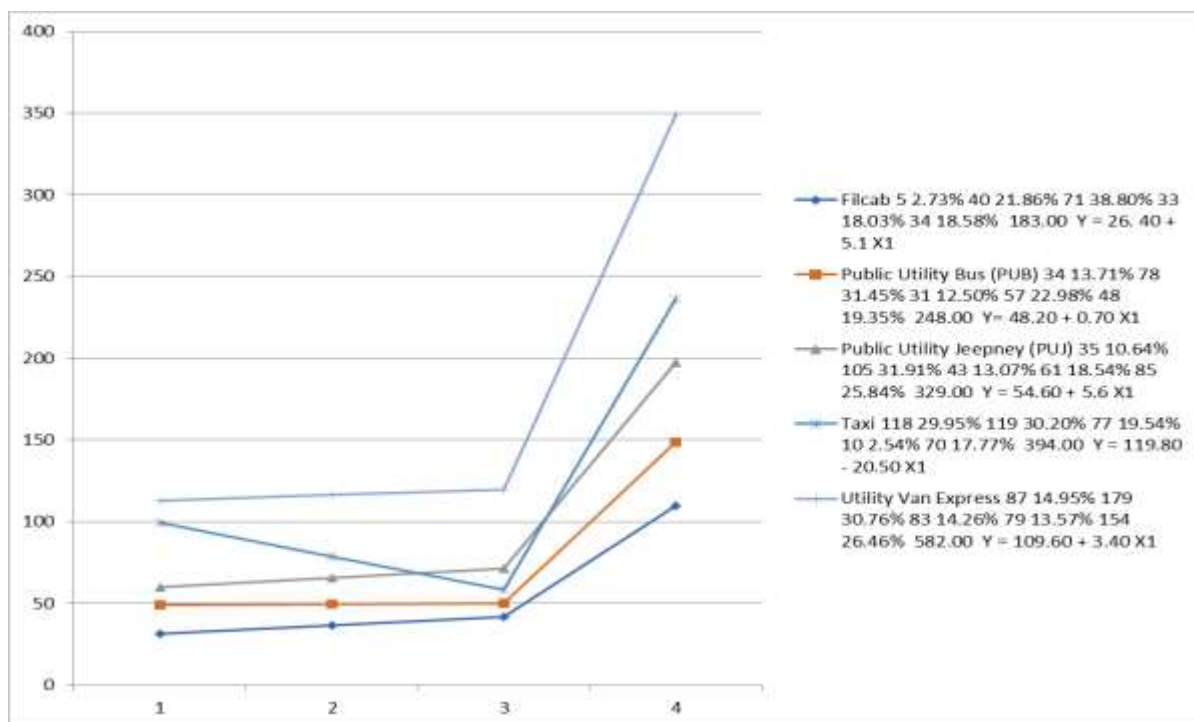


Fig. 1 – Linear Regression Graph. Source: Own Research

There are different factors of why the number of traffic and administrative violations may go up or down over time. Some reasons could be that traffic laws and information campaigns are not saturated to all the involved stakeholders and not clearly or less enforcement procedures to promote safer driving, which could result in deviation of the number of violations and accidents.

The data for the school transport service, Truck for Hire, and Tourist Transport have zero values in 3 years between 2018 to 2022. Reviewing the tabular data for each vehicle type and inspecting the plotted line of the linear equation shows zero violations for the next 3 years (2023-2025), the violations committed are minimal and rounded to zero, which the researchers have disregarded.

CONCLUSION AND RECOMMENDATION

Policy Intervention Developed Base on the Findings

The implementation of the PUVMP is a timely policy direction that responds to the problems created by the old procedures of granting franchises to private operators without the meaningful involvement of transport stakeholders. Technological advancements in vehicle safety features, such as automatic emergency braking and lane departure warning systems, may lead to fewer accidents and violations. Infrastructure changes, like adding traffic signals or speed humps, could also help reduce traffic violations and accidents. In the administrative violations, it will be of big impact to have constant reminders to the operators through periodic mobile messages from LTFRB and email messages to ensure that these (2) information dissemination platforms will be successfully delivered. By these means, the franchise violations will be lessened. Other factors, such as demographic changes, wherein an aging population and people with high comorbidity using public transport, wherein the drivers will be more cautious on the road, will also help minimize road violations and accidents. The projected three-year violations are essential for drafting a framework for reform and/or improvement in the Land Transportation Franchising and Regulatory Board (LTFRB) as an organization. It will also help answer which traffic and administrative violations were most often recorded between 2016 and 2021 and their corresponding PUV types.

Furthermore, the study emphasizes the need for stronger enforcement methods and education initiatives to resolve the most commonly reported transgressions. This can entail performing routine inspections, educating drivers about the repercussions of infractions, and offering instruction on adherence to franchise rules.

Implementing proactive monitoring and surveillance systems is advised to foresee and address the anticipated rise in certain sorts of violations over the ensuing three years. This can entail utilizing technology, such as cameras and sensors, to spot infractions and creating a specialized task force to oversee adherence to franchise requirements.

Policy Initiatives and Mitigations: The study's findings can be used to create policy initiatives and mitigating measures. This can entail evaluating and revising current guidelines, toughening sanctions for infractions, and rewarding or benefiting drivers who consistently follow franchise standards to encourage compliance.

Collaboration and Stakeholder Engagement: To effectively resolve the reported infractions, it is essential to encourage collaboration among the LTFRB, local government entities, operators, and drivers. This can be accomplished by holding frequent meetings, workshops, and consultations to review the study's findings and create a thorough action plan.

CONCLUSION

The projected three-year violations are essential on drafting a framework for reform and/or improvement in the Land Transportation Franchising and Regulatory Board (LTFRB) as an organization. It will also help answer the question of which traffic and administrative violations were most often recorded between 2016 and 2022 and their PUV types.

The urbanization of the Davao Region is increasing, which means more public utility vehicles (PUVs) are on the road. However, the modernization of public transport is still in its early stages of implementation. To implement an inclusive transport reform, our PUV drivers should be educated and undergo capacity building to make our roads safe. We should also assist with the basic problems and needs of poor drivers and encourage them to follow LTFRB guidelines to improve our public transportation system. Collaborative assistance from the city local government unit (LGU) and legislative initiatives are potential solutions for creating safe and efficient regional road networks.

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