
The Contribution of the Traffic Management Code of Quezon City in the Revenue Collections

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Abstract

Quezon City, being one of the most populated and busy cities in Metro Manila, was not exempted from the traffic problems and its effects to the life of ordinary citizens, as well as the activities and operations of the private business and the government offices alike. This has prompted the city government authorities to find possible solution to minimize, if not to totally eliminate, the impact brought about by traffic problems in the economic aspect of our lives. Worsening traffic conditions entails financial loss, since it has already affected the economic and social life of the people, and the nation as well. In order to remedy the situations, the local government units have formulated their own version of Traffic Management Code. The statistical test used in this study was multiple regression analysis, wherein each variable (salary and other expenditures, traffic enforcers, registered vehicles, and traffic violations) was computed against the total collection of fines and penalty paid by the traffic violators. This method was used to determine if those variables were the factors that affects the performance level of the revenue collection generated from the enforcement of QC Traffic Management Code.

Keywords: Traffic Management Code; Traffic Violations; Violation Charges; Quezon City

1. INTRODUCTION

Worsening traffic conditions entails financial loss [1], since it has already affected the economic [2] and social life of the people, and the nation as well [3]. In order to remedy the situations, the local government units has formulated their own version of Traffic Management Code, to instill discipline among stubborn behavior of drivers on the road, and put order on the various busy streets [4]. Said Traffic Management Code, though it came into being first as a measure to mitigate worsening traffic problems, had become a source of potential revenue for the government, which they have set their own rates of penalty for every traffic violations that would be committed by erring motorists. Though raising revenue from fines collected from traffic violations is not the primary objective of the government on its creation of traffic management department, but to ensure that traffic congestions, snail pace of traffic flows, and other conditions that affects the socio-economic aspects of the nation, would be minimize, if not totally eradicated. Undeniably, it has created an opportunity to create revenue for the local government. Considering it had been a normal occurrence that many drivers commit traffic violations in the various roads and streets of the metropolis every day.

The Quezon City Government in 2004 has enacted “Sangguniang Panglungsod Bilang 1444, Serye ng 2004,” [5] an ordinance that is otherwise known as Traffic Management Code of Quezon City, Metro Manila. This City Ordinance provided for the Traffic Rules and Regulations to be observed by all motorists travelling on all roads of Quezon City, whether national road or local in classifications; pedestrians rules and regulations; vehicles stops and transport terminals; the use of sidewalks and alleys; roads use by all motor vehicles including motorized tricycles and pedicabs, bicycles, horse drawn rigs, push serve parking zones; and in general, such as other rules and regulations promulgated in furtherance of an optimum utilization of the road network in Quezon City [5]. The objective of said ordinance is to address the perennial problem was besetting the city concerning the effect of traffic congestion and the unrelenting behavior by drivers in committing traffic violations by imposing fines and penalties. This serve as measures to mitigate the impact of traffic problems to the people and all the other sectors that are in one way or another becomes helpless victims of worst traffic conditions. [6]

In order to ensure that said traffic ordinance are implemented and complied with by all the stakeholder and road users, and to oversee the supervision of traffic situations in the city streets, the Quezon City government decided to create the Department of Public Order and Safety (DPOS) the lead office for the purpose. Specifically, a division under DPOS called the Traffic Operations Division (TOD-DPOS) is the office of the local government that (a)

supervises the hired personnel and deputation of traffic enforcer that are tasked to ensure the smooth flows of traffic on the roads, and (b) makes all vehicle drivers observe compliance to the traffic management code.

The TOD office provides necessary training and education for traffic enforcers in order to equip and prepare them on how they would competently oversee or manages the traffic situation on the city's streets and to be able to issue an ordinance violations receipt to traffic violators with precision. The traffic enforcers were deputizing to apprehend anyone who commits traffic violations and to issue violations tickets to erring drivers and charge them to pay certain amount of fees that correspond to their committed violations.

The notorious traffic on Metro Manila's roads is not just a daily annoyance that millions of Filipinos have to live by. The country loses billions of dollars' worth of human productivity, according to a transportation official. A recent study showed that Metro Manila traffic could cost the Philippine economy \$3.27 billion a year in productivity due to wasted man hours and higher freight costs, among other problems, the Department of Transportation and Communications (DOTC) said [7]. Citing the study's findings, DOTC Undersecretary Rene Limcaoco said this highlighted the need for the government to accelerate the rollout of transportation-related projects to catch up with the country's ever-expanding needs.

In the case of Quezon City, in order to ensure that the deputized Traffic Enforcer will show good performance in the carrying out the assigned task to ensure the smooth flow and orderly traffic situation on the streets, and to ensure that they will be more conscious and vigilant in apprehending traffic violators they were given incentives to do so. As stated in SP 1444, S-2004, the deputized traffic enforcers will be given a twenty (20%) commission for every amount of the penalty charged to erring drivers who have committed traffic violations. As stated below in Article XXII, Section 30 of the said ordinance it says that:

“SECTION 130. – Creation of Traffic Development Trust Fund. – There is hereby created a Traffic Development Trust Fund generated from all receipts from franchising, supervisory, regulatory fees, fines and surcharges as set forth in this Ordinance.

All collections for violation of any section or provision of this Ordinance shall accrue to the Trust Fund of Quezon City Government. The City Accountant shall keep and maintain a special account and all records related thereto.

For the collected fines, incentives shall be given to the following:

- *Twenty percent (20%) to Traffic Enforcers concerned to be distributed through Automated Teller Machine (ATM)*
- *Five percent (5%) to Traffic Enforcement Units”*

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The general objective of the study is to ascertain the effectiveness of traffic management in Quezon City in terms of efficient and effective collection of traffic violation fees and charges with regards to rate of penalty imposed on motoring public who commit traffic violations as per City Ordinance SP 1444. S-2004 is known as Quezon City Traffic Management Code. Likewise, it seeks to determine the significance of the collection of fees and charges collected from erring drivers in the over-all performance of Quezon City revenue collections. The motoring public would be able to realize the importance of being compliant, respectful and obedient of traffic regulations of the government in order to avoid wasting of resources, time and productivity due to commission of traffic violations. This study would help the traffic authorities to assess and identify the problems and weakness in the implementation of traffic management code in order to determine the necessary policy to formulate and the strategies needed to implement. However, the study would not attempt to analyze, evaluate the efficacy of various strategies, policies and programs utilizes by government offices in its objective to address the sufferings of the people or diseconomy brought about by traffic congestion, slow-pace traffic flows that becomes a normal scenes in the daily life of people in urban cities.

2. METHODOLOGY

The study deployed the descriptive- analytical design. This type of research describes the background and nature of the subject of the study (Revenue Collection from Fines and Penalties on QC Traffic Ordinance) and analyzes the factors that affects the collection of revenues on traffic violations and explain the relationship between performance of revenue collection (Dependent variable) and several factors (independent or explaining variables) that affects the traffic violations by motoring public in Quezon City streets/road such as: spending on the management of traffic

situation, number of registered vehicles, number of traffic violations committed by motoring public, number of traffic enforcers manning the city streets/road in QC.

It aimed to test the causal relationship between the dependent variable and independent variable, to determine the true effects and true cause [8]. In a multiple regression analysis, the change in the dependent variable is explained by changes in the independent variable, holding other independent variables constant [9,10]. Thus, the multiple regression model discussed below would try to measure how the independent variables affect the revenue collection from traffic violation fees and charges.

The data being collected and used in this study were gathered from the records (secondary data) available from City Treasurer Office, Department of Public Order and Safety and Land Transportation Office. Likewise, the researcher conducted interviews with apprehended drivers, traffic enforcers and the staff and personnel at DPOS in order to get their opinions and perception on the effectiveness and efficiency, or issues and concerns, in the implementation of QC Traffic Management Code in terms of collection efficiency. In this study, a SPSS program, which is a Statistical Test Software, is used to perform statistical tests [11].

2.1 Conceptual Framework

Figure 1 demonstrates the conceptual framework of the study. This study postulates that any changes occur in any of the independent variables creates a positive impact or increases in the performance level of revenue collection from fines and penalty from any commission of violations on QC Traffic Management Code. Meaning, in order to improve the collection performance there must be also an increase on numbers of vehicles registered (plying the roads and streets of Quezon City); there should be an increase on the number of traffic enforcers that will man the road which would entails more apprehension of traffic violators, and the city government should consider investing or appropriate more funds for the installations of street signs and signboard, and traffic devices, conduct continuous hiring and training of personnel, etc.

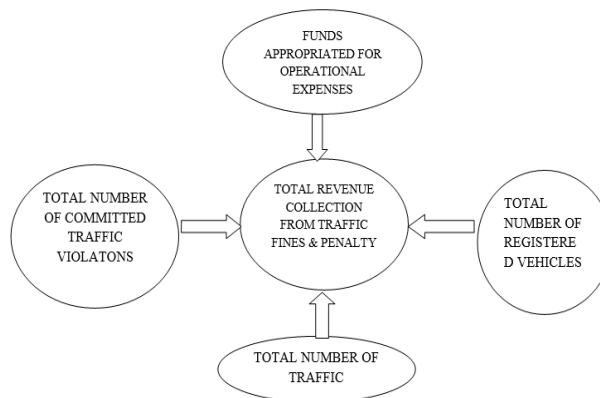


Figure 1. Conceptual Framework

3. RESULT AND DISCUSSION

Looking closely at the Table 1 of Summary of Collection Report of Penalty and Fines Traffic Violations, it indicated that during last five years of collection it was in the year 2011 that collection had registered the highest level of collection. This can be explained, as per interviews and opinion given, that during the time that coincidentally is the year where the new management was installed, where one of the measures made was to review the policy and procedures that causes low turn-over of traffic violations receipts. It was believed that due to connivance of traffic enforcers and “tricks” done by office personnel with the erring drivers wherein the supposed payment of penalty by apprehended drivers were not realized, instead that the penalty be paid at the OVR it was fixed up.

Table 1. Summary of Collection Report of Penalty and Fines on Traffic Violations

<u>YEAR</u>	<u>PAID OVR</u>	<u>OVR Amount Paid</u>	<u>Penalty Amount Paid</u>	<u>Total OVR Amount Paid</u>
2016	102,143	53,751,431.00	5,984,176.75	59,735,607.75
2015	88,428	42,020,026.50	4,602,943.00	46,622,969.50

2014	103,555	50,581,357.75	5,227,651.25	55,809,009.00
2013	105,840	46,887,817.25	3,694,563.00	50,582,380.25
2012	137,381	54,905,414.45	3,571,402.73	58,476,817.18
2011	136,889	59,973,374.88	4,369,802.95	64,343,177.83
Total	674,236	308,119,421.83	27,450,539.68	335,569,961.51

Due to that, the new management reshuffle the personnel assigned to OVR while those enforcers who have been reported to have a record of low turn-over of apprehension was investigated, and if found that there is a strong indication of being corrupt were no longer allowed to be issued an OVR ticket. Besides that, the government income by source, Quezon City 2011-2015 was tabulated in Table 2.

Table 2. Government Income by Source, Quezon City 2011-2015 (in thousand pesos)

Income Source	2011	2012	2013	2014	2015
Local Sources	8,475,341.58	9,794,982.29	10,266,500.64	11,070,555.04	12,893,611.70
A. Tax Revenues	6,870,588.30	8,479,242.63	9,002,724.72	9,451,100.55	11,243,120.27
B. Non-Tax Revenues	1,604,753.28	1,315,739.66	1,263,775.92	1,619,454.49	1,650,491.43
i. Regulatory Fees	903,427.61	734,595.68	762,050.85	871,614.87	825,546.83
ii. Service User Charges	170,078.21	106,825.45	139,091.20	150,209.17	151,042.12
iii. Other Receipts	315,082.41	227,661.91	134,320.64	341,046.56	397,572.51
External Sources	3,224,713.11	2,671,761.09	2,814,732.11	3,158,853.68	3,616,982.15
TOTAL REVENUE	11,700,054.69	12,466,743.38	13,081,232.76	14,229,408.72	16,510,593.86
REVENUE FROM TRAFFIC COLLECTIONS	64,343	58,476	50,582	55,809	46,622
% share of Traffic Collection to Non Tax-Revenue	4.00%	4.44%	4.00%	3.44%	2.82
% Share of Traffic Collection to QC Total Revenue	0.55%	0.47%	0.39%	0.39%	0.28%

The collection from traffic fines or penalty was classified under Non-Tax Revenue, specifically, from the item Regulatory Fees. Looking at Table 2, it shows that the total percentage of the amount (fines) collected from Traffic Violations is only about four (4%) percent of the Non Tax Revenue. This information entails that the revenue collected from QC Traffic Code was comparatively almost non-significant compared to other sources of revenue generated by the QC government from all sources. It was only about 0.42% of the Total Revenue of the city's collection from all sources.

3.1 Most Common Traffic Violations of motoring public in QC

During the time or period specified on this study, it shows that the kind of traffic violation who has most numbers of frequencies was traffic obstruction followed by disregarding of traffic signs followed by other types (Table 3). As time passes by the violations about Traffic Obstruction had slowly getting low. Moreover, the other types of traffic violations had also registered a slow down on its frequency or incidents of commission by motoring public. However, the violations of Disregarding Traffic Signs had registered an increasing trend of frequency over time during period of observation. This condition validated claims by articles written on the topic and with other study conducted which said that one of reason of worsening traffic conditions in Metro Manila was the behavior of drivers that keep on ignoring or disregarding traffic signs.

Table 3. Most Common Traffic Violations in QC

Violation	2013	2014	2015
DTS	28714	31186	27343
Obstruction	33094	26864	27282
No loading/Unloading	1282	14693	9503

Illegal Terminal	4357	3554	2478
Truck No Entry	6971	3590	7015
Colorum Tricycle	2516	2086	1705
Disregarding Lane Markings	884	1770	2117
No Side Mirrors	3718	3921	2581
color coding	3259	2789	2804
Reckless Driving	1572	3382	2407

3.2 Determinants of Revenue Collection from Traffic Violation in Quezon City

The regression model used in this study was called Multiple Linear Regression Model, which is a statistical tool that is normally used in a research study in order to determine or establish the behavior or performance a certain event or phenomena by using several variables that are believed to be explanatory or influential the nature of such behavior, event or phenomena. In this instance, where the subject of the study was the collection level revenue from penalty, fees and charges in relation to the traffic violations committed by motoring public as indicated in QC Traffic Management Code (SP Blg. 1444, Serye ng 2004) by which was perceived or hypothesized to be the function in the increase or decrease of the in the Expenditures of the QC Government in ensuring an orderly and smooth flow of traffic in various roads within its territorial boundary; the Number of Traffic Personnel manning the traffic in the streets who were also deputized to apprehend traffic violators and issued a citation tickets stating specific traffic violations with having a corresponding amount of penalty; the Number of Registered Vehicles in Quezon City of which was believed or perceived as strong indicator of the possible frequency of traffic violation that may occur in the streets; and finally the historical data of Actual Traffic Violations recorded by appropriate Traffic Management Office (Department of Public Order and Safety).

The Regression Model: $TR = \beta_0 + \beta_1TSE + \beta_2TE + \beta_3TRV + \beta_4TTV + \mu$

Where: DEPENDENT VARIABLE = Total Revenue Collected from traffic fines and penalty. It was the total amount of revenue being collected monthly as a result of the traffic violations committed by erring drivers while using public roads in Quezon City from year 2013 to 2015.

β_0 = Constant term in the regression model that represents the constant amount (any amount not equal to zero) of revenue regardless of any increase or decrease in the determinants.

INDEPENDENT VARIABLE 1 = Refers to Total Salary and other expenditures (β_1TSE). The first explanatory variable used in the model which represents the total amount of monthly salary and expenditures appropriated by the city government in ensuring the orderly and smooth flows of traffic situations in various streets within its territorial boundary.

INDEPENDENT VARIABLE 2 = Refers to the total number of Traffic Enforcers (β_2TE). The second explanatory variable of the regression model which represents the monthly total number of personnel deputized or given authority by the city government (includes city paid traffic enforcers and augmentation of personnel from local police traffic unit and Barangay Peace Officers) designated to apprehend drivers of motor vehicles that would violates traffic laws in pursuant to SP 1444, S-2004, or the city ordinance known as Traffic Management Code of Quezon City.

INDEPENDENT VARIABLE 3 = Refers to the Total Registered Vehicles (β_3TRV). The third explanatory variable in the regression model that represents the total monthly registered vehicles in Quezon City includes old and newly acquired motorized vehicles of all types.

INDEPENDENT VARIABLE 4 = Refers to the total number Traffic Violations (β_4TTV). The fourth and the last explanatory variable used in the regression model that represents the total number of actual traffic violations committed by drivers that is accumulated monthly that have been apprehended by Traffic Enforcers and were issued violation tickets.

ERROR TERM (μ) = It was the assigned error term value in the regression model which represents all other factors or determinants, which was not expressly identified in the model, of potential level of collection of revenue that can be generated from the commission of traffic violations by motoring public while travelling in the streets of Quezon City.

The Regression Model of this study was subjected to a Statistical Test using a software program known as SPSS. It was used in this study in order to determine whether the Statement of Null or Alternative Hypotheses were accepted

or rejected. Table 4 illustrates the regression model of this study. Therefore, after the given regression model was run or computed the new model was now stated: $T R = -.095TSE + .929TE -.179TRV + .042TTV + \mu$

Table 4. Regression Model

Coefficients ^a					
Model	Unstd. Coeff.		Std. Coeff.		
	B	Std. Error	Beta	T	Sig.
1 (Const.)	1425933 .508	832975.584		1.712	.097
TSE	-.190	.159	-.095	-1.199	.239
TE	1882.081	261.574	.929	7.195	.000
TRV	-9.190	4.972	-.179	-1.848	.074
TTV	14.121	39.149	.042	.361	.721
a. Dependent variable: T R					

Table 5 and Table 6 demonstrate the monthly collection of penalty and charges from traffic violation and total number of traffic violations (TTV) respectively. The total monthly collection of penalty and charges from traffic violations during the period of 2013 to 2015 had its highest amount of 5,389,160 pesos while its lowest collection was only 1,733,641 pesos. Based on the collected data, the monthly trend of collection shows an erratic flow of collection, though, generally it has an increasing trend over-all, there were also months that registered a reduction of amounts collected compared to its previous months. Said conditions can be attributed to various reasons such as but not limited to weather conditions, number of incidence of apprehension, shortage of OVT tickets, temporary lifting of traffic laws, or non-working holidays which compels the reduction of vehicles roaming around the city.

Table 5. Monthly Collection of penalty and charges from Traffic Violation

AMOUNTS	Frequency	Percent
Below 3 Million	4	11.11%
3M to 3.49M	1	2.78%
3.5M to 3.99M	7	19.44%
4M to 4.49M	12	33.33%
4.5M to 4.99M	5	13.80%
5M and above	7	19.44%
Total	36	100%

Table 6. Total Number of Traffic Violations (TTV)

AMOUNTS	Frequency	Percent
Below 10,000	19	52.78%
10,000 – 10,999	5	13.89%
11,000 – 11,999	3	8.33%
12,000 – 12,999	3	8.33%
13,000 – 13,999	4	11.11%
14,000 – 14,999	1	2.77%
15,000 and above	1	2.77%
Total Number of Months	36	100%

On this test, the given regression model after being computed the fitness of the parameter estimates and have had yielded a result which indicated that the regression model has a good parameter estimates to test whether the

hypotheses will be accepted or rejected since the variance of the estimates is statistically significant at 5% level of degrees of freedom of error.

Likewise, the Coefficient of Multiple Determination R^2 , which explained or defined the proportion of the total variations in Total Collection of Traffic Fines by its explanatory variables shows that it was also significant at 95% level of confidence that variations in the explanatory variables explained the outcomes of the collection of Traffic fines using those explanatory variables. Table 7 shows the obtained R^2 is 0.822.

Table 7. Coefficient of Multiple Determination R^2 (model summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.907 ^a	.822	.799	411504.387
a. Predictors: (Constant), T T V, T R V, T S E, T E				

Lastly, the Multiple Regression Model used on this study states that it is significant since the F distribution of all the parameter used in the model at 5% level of degrees of freedom exceeds the tabular value of F at specified level of significance of degrees of freedom which is more than two (2) and the regression parameters are not equal to zero and the coefficient of multiple determination is significantly different from zero. The result of Anova test is shown in Table 8. Therefore, the F ratio can be used to test to the linear restriction of whatever of the given regression parameter.

Table 8. ANOVA result

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.428E13	4	6.071E12	35.853	.000 ^a
	Residual	5.249E12	31	1.693E11		
	Total	2.953E13	35			
a. Predictors: (Constant), T T V, T R V, T S E, T E						
b. Dependent Variable: T R						

4. CONCLUSION

The issue on traffic congestion, slow-moving pace of traffic flows, traffic accidents and other traffic problems that encountered or witnessed that was usually taking place was considered a serious problem. A lot of study had been done with regards to this phenomenon in an attempt to have a meaningful and comprehensive understanding of the nature and causes of this menace. In fact, government had acknowledged that due to this condition, billions of dollars has been wasted in form of hindered flow of goods and services, wasted fuels, time and productivity. Notwithstanding, the counts of death occurred due to traffic accidents and the damaged of property.

Data regarding those variables identified as factors that could explain the behavior or level of collection performance had been gathered from appropriate government agency such as OVR-DPOS and QC Treasurers Office (for the data on Salary and Expenses, Number of Traffic Enforcers, and Actual Collection of Traffic Violations); Land Transportation Office (for the data number of registered vehicles). Afterwards, a regression parametric model was formulated in order to define the behavior of collection performance using those data as explanatory variable, wherein the Dependent Variable was the Total Revenue and the explanatory variables were the Total Salary and other Expenses; Total Number of Enforcers; Total Registered Vehicles; and the Total Traffic Violations. After all the necessary data had been collected each explanatory variable using SPSS program.

Furthermore, the test yields an information that two of the explanatory variables found to have a direct relationship or effect on the level of collection of revenue from traffic violations (Total Number of Enforcers and Total Traffic Violations) while the two other explanatory variables, though significant variables of the regression model, has an inverse relationship or effect on the level of revenue collections generated from traffic violations. Meaning to say, for every increase in the number of Traffic Enforcers, and the number of Traffic Violations there were a corresponding amount of increase in revenue collection on traffic violations. On the other hand, for whatever increase in the number of registered vehicles in Quezon City and any increase in the amount of salary and other expenses allocated for the implementation of Traffic Management Code, there is no effect in the increase of collection of revenue generated from traffic violations.

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