

A STUDY INTO THE VIABILITY OF CONSOLIDATING BUS COMPANIES OPERATING IN METRO MANILA

Domingo L. GUARIÑO, Jr.

Graduate Student

School of Urban and Regional Planning/
National Center for Transportation Studies

University of the Philippines Diliman
Quezon City, Philippines 1101

Fax No. (63 2) 929-5664

E-mail: doguar@eudoramail.com

Primitivo C. CAL, Ph.D.

Professor

School of Urban and Regional Planning/
National Center for Transportation Studies

University of the Philippines Diliman
Quezon City, Philippines 1101

Fax No. (63 2) 929-5664

E-mail: primcal@up-ncts.org.ph

Hussein S. LIDASAN, Ph.D.

Associate Professor

School of Urban and Regional Planning/
National Center for Transportation Studies

University of the Philippines, Diliman
Quezon City, Philippines 1101

Fax No. (63 2) 929-5664

E-mail: thosl@up-ncts.org.ph

Abstract: In 1996, there were 437 active bus operators in Metro Manila, which independently ran 10,000 units of buses. Nineteen bus companies had more than 100 units and 263 had less than 10 units each. The large number of bus companies does not warrant market differentiation in terms of passengers' choice behavior. One can hardly differentiate which company offers a certain level of service. Too many operators with few units result to stiff competition between operators for more profit, resulting to inefficiency of bus services. The research looked into the viability of consolidating bus operators in Metro Manila into an optimum that would promote public interest. Consolidation is dependent on the characteristics of bus operators, the passengers, and the government. The research found that there is no strong basis to consolidate bus companies operating in Metro Manila because of the entrepreneurial attitude of bus operators and passengers' satisfaction on the current bus service.

Key Words: Consolidation of Bus Companies, Bus Operation

1. INTRODUCTION

The large number of operators currently operating in Metro Manila leaves passengers no choice in their preference for bus companies that offer quality service. Passengers would take any bus that comes along the way as long as it serve their route because they do not want to prolong their waiting time. The large number of bus companies does not warrant market differentiation in terms of passengers' choice behavior. In fact, one can hardly differentiate which bus company offers a certain level of service preferred by commuters. At the same time, the large number of bus operators agitates the current market equilibrium of both the operator and bus users in terms of profit maximization and welfare benefits, respectively. Moreover, the current situation does not warrant the promotion of new transport policies, such as intelligent fare collection and fare deregulation. These policies can be implemented only with manageable number of operators operating in the market. This research would look into

the viability of reducing the number of bus companies operating in Metro Manila into a desirable level that would promote market differentiation.

The objectives of the study are:

1. To review the previous attempts to consolidate bus companies and determine the factors that have influenced the formation of consortia and its failure.
2. To describe the operating characteristics of small and big bus companies operating in Metro Manila in terms of profitability of their operation.
3. To determine the preferences of bus riders in choosing transport services based on their individual social characteristics.
4. To determine the preferable number of bus operators that would allow market differentiation, in terms of passengers' ability to recall the number of distinct bus companies.

The buses operating in Metro Manila were characterized according to the bus operators' system of operation and the perception of bus-riders on the level of services provided. The level of service provided by bus operators can be measured through the behavior of bus-riders based on their needs, preferences and their capacity to pay. The decision to consolidate the bus companies in Metro Manila is dependent on three factors: 1) the profitability of the current bus operation; 2) the level of service provided as perceived by bus-riders; and 3) the government, the policy making body.

(Fig. 1) Theoretically, the economies of scale are expected to exist in the operation of public transportation system - as the fleet size of public transport increases, the cost of operation per vehicle decreases. Consequently, profitability per bus is also expected to increase. In this context, the profitability and cost of operation of each bus company were evaluated against its fleet size.

Relatedly, the consolidation of bus companies is also influenced by the perception of its end users in terms of the level of service they perceived to avail. The questions of whether passengers were satisfied with the current operation of bus companies and whether they were willing to pay more for better quality service were answered through a survey of bus-riders. Different factors considered in this aspect were waiting time, fare, comfort and safety, behavior of drivers and conductors, loading capacity, and the perceived number of bus companies passengers can identify.

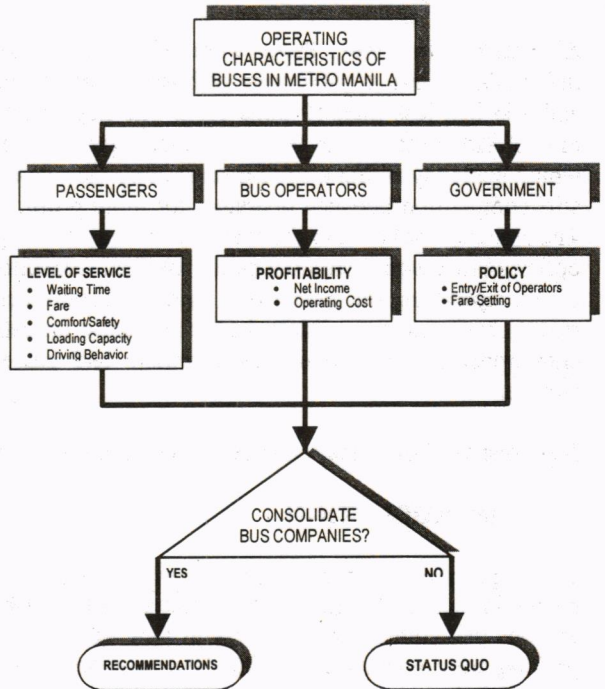


Figure 1. CONCEPTUAL FRAMEWORK

2. LITERATURE REVIEW

The cost of bus operation in Metro Manila is influenced by different factors, both internal and external to the system. By using direct operating cost on per bus-kilometer basis, the performance of bus transit is influenced by the characteristics of operators and the environment in which they are operating. The characteristics of operators which include the scale of operations, management type, and characteristics of hardware or facilities, are the internal factors; while the road conditions, market being served, and the institutional setting the bus system is operating in are the external factors. The efficiency of bus operators' operation depends mainly on their individual characteristics (Montalbo and Ishida, 1997).

Small bus operators when fared with large bus operators show efficiency in terms of profitability and level of service delivered (Bayan, 1995). Using cost models to analyze the operating characteristics of buses, Bayan showed that positive economies of scale do exist in bus transit operation in Metro Manila. Though refuted by the large number of small bus operators, Bayan believed that small bus companies manage to survive only because they are operating with ill-maintained bus fleets. Maintenance related costs are therefore minimized enabling them to stay in business. There is therefore a sort of trade off between quality of service and profitability among small operators. This kind of system will eventually put them out of business in the long run. On the contrary, large companies could manage to offer better service because they have more units to fill the gap created by unfit units.

Bus operation in Metro Manila continues to deteriorate and has been found short of meeting the increasing demand for public transportation. In fact, buses are often blamed as the cause of traffic congestion along the EDSA corridor because of unruly driving and loading/unloading practices of bus drivers (MMUTIS, 1998). MRT3 along the EDSA corridor became a threat to the bus industry because almost 80 to 90 percent of public transportation along EDSA is being served by bus transit. Bus passengers, however would prefer other alternative modes, which offers convenience and comfort during travel if it would cause them further travel cost in taking MRT3 (Lim, 1999).

The profitability, as in jeepney operation (Labastilla, 1999), is influenced by the carrying capacity of the vehicle, the number of hours it operates and the route length it service. The capacity and operating hours of jeepneys' however, show inverse relationship with the level of services they provides. Jeepney fleetsize has no clear relation with profitability and the level of service. This could be true since majority of jeepneys in Metro Manila operate on a one vehicle one owner scheme.

To attain optimality in the provision of transit service, the economic theory of public transit firm shows that the operating objectives of public transit and the factors, such as, operating options (frequency, speed and accessibility of service) and quality of service characteristics (in-transit, waiting time) as perceived by the commuters, should be taken into consideration (Talley 1988).

Economists view that transport service should be left to the market since competition could result to better quality service. In this manner, fare deregulation can be promoted enabling commuters to avail the services of their choice. This encouraged the government to go into privatization hoping for better service and to augment its meager resources. In Southeast Asian countries, privatization of public transportation, however, was not realized to the full (Rimmer, 1988). This is because of the lack of capital investments in many Asian countries to

operate bus transit systems. Singapore and Malaysia however are exceptions, as these countries have made policy decisions in favor of privatization. They are the only countries within the region with large enough capital and share markets to finance the privatization of public transport.

Theoretically, researches on competition in public transportation had been keenly studied by researchers using mathematical computations to determine the behavior of bus industry in the market. Williams and Abdulaal (1992) developed a model of competition between public transport services operating on a single route and explored its properties analytically and numerically. The first part of the paper deals with a theoretical and numerical analysis of competition between public transport services operating on a single route. The passenger demand function incorporates both substitution between services, expressed through a multinomial logit model, and elastic demand for the public transport market as a whole. Each operator is assumed to maximize its net revenue. Expressions are derived for the Nash-Cournot equilibrium fares and frequencies, which determine the resultant profits to suppliers and consumer benefits to users. The equilibrium analysis allows explicit conclusions to be drawn about the determinants of market concentration and the emergence of monopolies. The second part is extended in two respects: firstly, to consider the demand models which reflect perceived similarities between groups of services; and secondly, to incorporate the possibility of various forms of collusive behavior between operators in setting fares and/or frequencies of service. These extensions are of importance in view of the wide range of existing organizational and operating arrangements in public transport systems.

3. THE BUS CONSORTIA (1976)

In 1976, bus operation in Metro Manila performed badly in operational and financial terms. The situation was aggravated by the stiff competition offered by the jeepneys, which greatly outnumbered the buses. At the same time, the increase in traffic jams reduced the number of trips possible in a day and the high cost of maintenance and the continuous increase in fuel prices contributed to the dilemma. The formation of a manageable number of consortia, which has been proven and found to be successful with the commercial banks, was proposed. It was envisioned that the scheme would work as well with the transport sector. The philosophy was to achieve the economy of size; and, with bigger capital the scheme would work better without financial constraint. Main features of the consortia include the grouping of bus operators with a combined fleet size of at least 200 units into one consortium; while bus operators with more than 200 units each were allowed to operate as separate consortium.

The requirements of the consortia, however, were argued to be impractical and impossible to accomplish because of the problems of labor, liabilities and obligations (present, pending and contingent) plus other big problems that may inevitably come. A Special Committee on Alternative Proposal was created to draft the alternative proposal, which took into account the P400-Million subsidy from the Gasoline Fund of the government. The subsidy was used to purchase 1,000 units of brand new buses and was allocated to bus operators who joined the consortia under the Guidelines in the Formation of Buses Corporation in Metro Manila. (de Dios, 1980).

The formation of the consortia was implemented under the Public Transport Improvement Project (PTIP) in 1980. Fourteen (14) consortia were organized; each with specific designated routes and were color-coded for easy identification. The biggest fleet belonged to the Metro

A Study into the Viability of Consolidating Bus Companies Operating in Metro Manila

Manila Transit Company (MMTC), a government owned and operated bus company, with 700 units.

The consortia, however did not last long and eventually folded up. The absence of documentation on the operation of the scheme limited the author to rely on data gathered during interviews with bus operators who participated in the consortia and the government officials who have knowledge about the scheme. Based on these, the following reasons were identified as the detrimental factors to the sustainability of the consortia, to wit: a) inadequate fare structure to cover increasing costs; b) stiff competition with the jeepneys; c) maintenance cost being charged by the government accredited contractors, continuously siphoned out the finances of bus operators; d) the entrepreneurial character of Filipinos to do business on their own, particularly in the transport sector. Although bus operators were grouped into consortia, member-operators operated their buses on their own.

In 1989 to 1991, severe transportation crisis was experienced in Metro Manila. The rapid increase in passenger demand was not met by the existing transport service, particularly the route along EDSA corridor. To augment the existing number of buses along this corridor, Executive Order No. 354 was issued in 29 March 1989 to legalize the importation of second hand buses through the Bus Installment Procurement Program (BIPP). The program was aimed to encourage private bus operators to invest in bus transit industry through the procurement of second hand buses. The inability of the government to finance the need for more transport service to meet the demand of the passengers started the idea of liberalizing and totally privatizing the bus industry. MMTC itself was privatized in March 1985 (MMUTIS, 1998).

4. THE STUDY AREA

Metro Manila is the largest metropolitan area in the Philippines. It is composed of eleven (11) cities and six (6) municipalities. It has a total land area of about 636 square kilometers or 0.28% of the total land area of the country. It has been constantly growing rapidly with population of less than 2 million in 1950 to 5.9 million in 1980 and 9.5 million in 1995. Its population growth rate of 3.2 percent per annum over the past fifteen years (1980-1995) has been brought about by industrialization, in-migration and brisk commercial activity in addition to its normal growth. It is very likely that population will increase further and reach 25 million by 2015.

The road network in Metro Manila consists of 10 radial and 5 circumferential roads. Circumferential Road No. 4 (C-4) also known as EDSA has length of 25.26 kilometers, from Monumento in the north to Baclaran in the south and has 6 lanes per direction at its widest. EDSA is the major transport corridor in the metropolis absorbing traffic volume of more than 10,000 vehicles per day. This thoroughfare also serves as the major bus corridor in the capital serving as the link between the major employment, commercial, institutional, and residential areas in the metropolis.

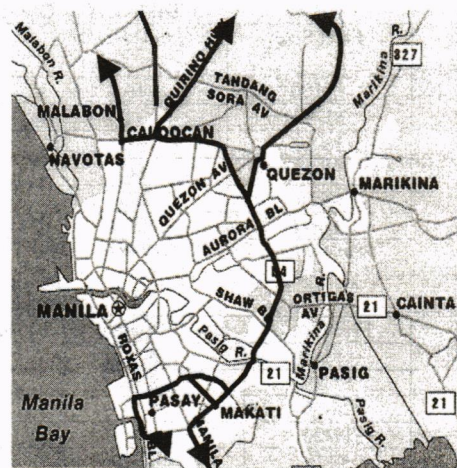


Figure 2. The Study Area

Mode of public transportation in Metro Manila is mainly road based. Road vehicle fleets consist mainly of buses, jeepneys and tricycles. Buses which numbered to almost 8,000 units in 1995 are operated by private operators. About 80 percent of buses serve the EDSA corridor. Jeepneys are still the most popular mode of transportation in Metro Manila. There are about 58,000 units of jeepneys serving mostly the radial roads of the metropolis. There are also tricycles and pedicabs, which carry short local trips, mostly in subdivision areas.

The rail transportation system is still in the stage of development. LRT Line 1, operational in 1985, serves the 15-km route from Monumento to Baclaran along Taft Avenue in Manila. Mass Rail Transit (MRT) 3 along EDSA corridor, which was fully operational in December 2000, serves as complementary public transport to buses.

While the use of rail transit is still limited, 98% of the total transport demand is dependent on road. Use of public transport is high at 69.8% for all trips in the metropolitan area. The share of private car use, however, has increased from 16% in 1980 to 19% in 1996. Jeepneys still dominate public transport with 39% of the total person trips. Buses, which serve mostly the EDSA corridor accounted for 14.9% of the total person trips. Majority of person trips (69.8%) were carried by public transportation pointing to a high level of transport usage in Metro Manila. In 1995, there were 1,055,692 vehicles registered in Metro Manila. An average growth of 5.9% per year from 1980. Of this, 410,814 or 39% were private cars.

5. BUS OPERATION IN METRO MANILA

Bus operation in Metro Manila is characterized by the presence of few big operators and many small operators. About 60% of bus operators have fleet size less than or equal to 10 units but contribute only 14.6% in terms of the number of units while bus operators with greater than or equal to 100 units share only 4.3% of operators but it has the highest percentage share in the number of units at 32%. These large operators, although few in number, control a big part of the market. (Table 1)

Table 1. Bus Operators Profile in Metro Manila

Fleet Size	No. of Operators	% Share of Operators	No. of Units	% Share of Units
>=100	19	4.3	2,955	31.8
51-99	31	7.1	2,163	23.3
26-50	38	8.7	1,367	14.7
11-25	86	19.7	1,448	15.6
<=10	263	60.2	1,359	14.6
Total	437	100.0	9,282	100.0

Source of Data: MMUTIS, April 1997

Table 2. Profile of Samples

Fleet Size	No. of Operators	% Share of Samples	No. of Units	% Share of Units
>=100	6	21.43	809	47.37
51-99	8	28.57	543	31.79
26-50	5	17.86	225	13.17
11-25	5	17.86	92	5.39
<=10	4	14.28	39	2.28
Total	28	100.0	1,708	100.0

Source: MMUTIS, 1997

For purposes of this study, only the 28 bus companies with complete information on financial statements were included in the analysis. Table 2 reflects the profile of the 28 bus operators.

Of the 28 operators, 6 have fleet size of more than 100 units, 8 have 51 to 99 units, 5 each have fleet sizes of 26 to 50 units and 11 to 25 units, and 4 operators have less than 10 units. In terms of percentage share of the number of units, 47.37% of the 1,708 units were operated by the 6 operators with more than 100 units, 31.79% were by operators with 51-99 units, 13.17% and 5.39% were by operators with 26-50 units and 11-25 units, respectively, while 2.28% were by operators with less than 10 units.

5.1 Operating Characteristics of Buses in Metro Manila

The operating characteristics of 28 bus companies are shown in Table 3. Relative operational and financial items were selected to describe the operational characteristics of the operators. It can be noted that the operating characteristics of buses in Metro Manila were far from homogeneous. The net income per bus and the cost of operation per bus varied among companies of different fleet sizes. Bus companies with fleet sizes 26 to 50 units showed higher income than those with fleet sizes of 51 to 99 units; while those with fleet sizes of 25 and below were losing at negative income per bus. The cost of operation also varied among the group of buses of different fleet sizes. Bus companies with negative income per bus had higher cost of operation than any other companies with fleet sizes greater than 25 units and lesser than 11 units. The disparities in operation of these companies were best seen in analyzing the bus-kilometer factor as shown in the table. Cost of operation seemed to be higher on bus companies with fleet sizes of less than 50 units, while net income per bus-kilometer was almost zero on all companies. Fuel consumption varied between 0.43 and 0.69 liters per bus-km., an average of 0.55 liters per bus-kilometer. Fleet utilization at the average was 75.53%. Bus companies with fleet sizes of 26 to 50 units registered the highest utilization rate at 85.33%.

Table 3. Characteristics of Samples

Analysis Items	Fleetsize Range					Total
	>=100	51 to 99	26 to 50	11 to 25	<=10	
# of samples	6	8	5	5	4	28
Total Bus-kms per year	50,968,109	36,136,428	14,085,312	6,711,418	1,497,178	109,398,444
Total Revenue	284,183,740	131,251,262	33,329,035	26,324,063	5,684,401	480,772,501
Total Operating Cost	277,158,942	131,154,850	31,327,437	33,224,452	5,739,211	478,604,894
Total Net Income	7,024,798	96,412	2,001,598	(6,900,389)	(54,810)	2,167,608
Total Fleetsize	809	543	225	92	39	1,708
Total Active Fleetsize	604	405	192	58	31	1,290
Total Fuel Consumption (lit/yr)	31,895,014	15,713,160	7,089,142	4,616,712	949,632	60,263,660
% Share of Samples	21.43	28.57	17.86	17.86	14.28	100.00
Net Income per Bus	10,345.80	194.77	9,486.24	(86,254.87)	(1,660.91)	1,447.00
Total Cost per Bus	408,186.95	264,959.29	148,471.27	415,305.65	173,915.50	319,495.92
Revenue per Bus-km	5.58	3.63	2.37	3.92	3.80	4.39
Total Cost per Bus-km	5.44	3.63	2.22	4.95	3.83	4.37
Net Income per Bus-km	0.14	0.00	0.14	(1.03)	(0.04)	0.02
Fleet Utilization Level	74.66%	74.59%	85.33%	63.04%	79.49%	75.53%
Total Fuel per bus-km	0.63	0.43	0.50	0.69	0.63	0.55

Source: MMUTIS, 1997

5.2 Cost of Bus Operation

Fleet Size vs Operating Cost per Bus

Figure 3 reflects the characteristics of bus operators of varied fleet sizes with regard to the cost of operation per bus. The scatter plot shows the declining cost in operation as fleet size increases. This may indicate the presence of economies of scale in the current bus transit

operation. However, the relationship between fleet size and the cost of operation per bus was not really strong because of the resultant R^2 which was very low at 0.00596. This result indicates that 99.4% variation of the dependent variable could not be explained by the regression. The result of the tests for the existence of a linear relationship between fleet size and operating cost per bus show that the computed value of F at 0.14998 is very much lower than the critical point F of 4.24 at $\alpha=0.05$. This result also indicates no linear correlation between variables. It can be noted that value of t computed for the intercept at 4.1655, seem to indicate a relationship in the model since it is greater than the critical value of t at 2.06. However, the value of t computed for x variable and resultant P -values are very low which further show no relationship between the two variables.

Fleet Size vs Operating Cost per Bus-Kilometer

The variable bus-kilometer is also a function of operating cost since the longer the bus run the higher the cost it would take to operate and maintain. To determine the relationship between fleet size and cost of operation per bus-km, statistical tests were conducted in the two variables using regression analysis. Figure 4 shows the result of the analysis between the two variables. Comparing the results with the previous tests conducted on fleet size and the cost of operation per bus, the findings is almost the same with regard to the correlation of the two variables. The resultant R^2 at 0.00756, computed value of F at 0.1904, value of t computed for x -variable at 0.4364, and the resultant P -values are very low indicating weak relationship between variables.

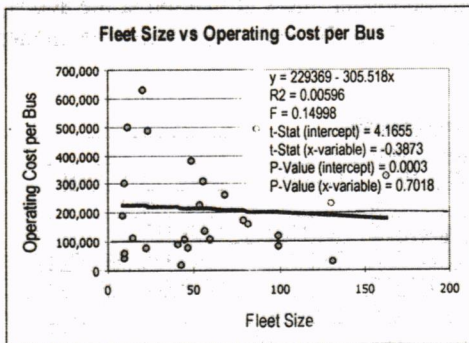


Figure 3

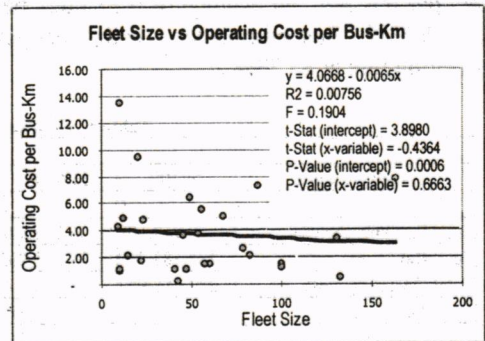


Figure 4

In summary, the analysis above shows that fleet size does not significantly influence the operating cost of bus transport. Although the graph indicates economies of scale in bus operation, it does not significantly influence the outcome because of the almost flat probability line and the very low correlation between variables as indicated in the tests conducted.

5.3 Profitability of Bus Operations

Fleet Size Vs Net Income per Bus

The profitability of bus operation is measured through the revenue generated for the year less the total operating cost of the same year. Because of the limitation of the data available, analysis was limited to the revenue and operating costs generated in 1995 only. Figure 5 shows the result of the regression analysis of the income generated by the bus

operator per bus as against the total number of buses per operator. Statistical analysis indicates that fleet size does not strongly influence the net income generated per bus. This is shown by nearly flat probability line generated by the scatter points and the resulting R^2 , which is very low at 0.0526. T-test on the same data also shows weak relationship between variables.

Fleet Size vs Net Income per Bus-Kilometer

Since the profitability of bus operation is also dependent on the total kilometer length traveled, analysis was also conducted on the net income per bus-kilometer in relation to fleet size. Figure 6 shows the result of the regression analysis on fleet size and net income per bus-km. Statistical parameters indicates also a very low relationship between the two variables.

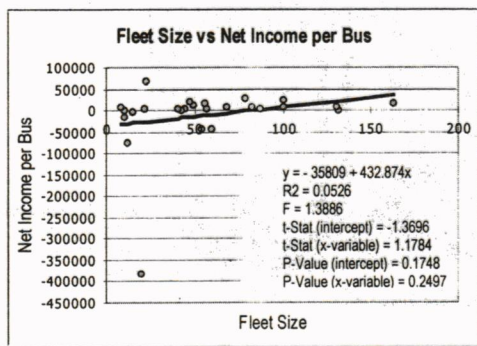


Figure 5

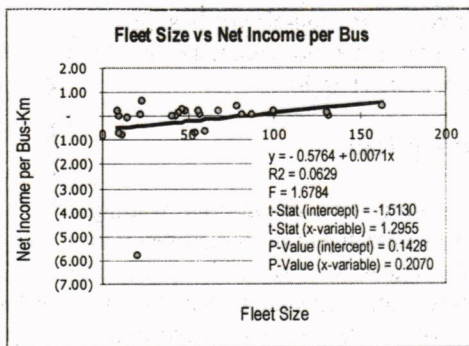


Figure 6

6. BUS RIDERS' INTERVIEW SURVEY

The bus passenger attitude survey was conducted to determine the preferences of passengers in their choice of bus company. The data gathered was represented by the preferences of bus passengers relative to their socio-economic characteristics. The survey was conducted on board the different bus companies. The buses, both ordinary and air-conditioned were randomly selected along the EDSA corridor. A total of 395 valid respondents were considered in the analysis. Majority of the respondents mentioned that residence and work was the common trip origin and destination. Most respondents were aged 21 to 30 years old and were service, shop and market workers.

6.1 Levels of Service

Bus passengers were asked whether they chose to ride specific bus companies on the basis of their individual perception of the level of services of bus operation. Analysis was undertaken according to the different level of services, which were perceived to influence consolidation. The level of services were categorized into fare, waiting time, frequency of service, and other level of service indicators which include comfort during travel, load capacity, cleanliness, courteousness of personnel, safety of passengers, entertainment and air-

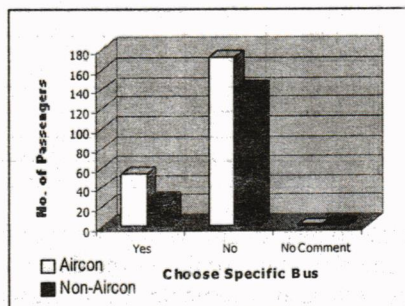


Figure 7. Bus Passengers Who Choose and not Choose Specific Bus to Ride

conditioning facilities. Perception on the operation of MRT3 was also considered in the analysis. The presentation of data uses cross-tabulation method among variables.

Out of 395 respondents, only 20.25% choose specific bus to ride while almost 79% did not choose at all. Of these, 56.71% are aircon bus riders and 43.29% are non-aircon bus riders (Fig. 7).

Fare

Majority of the respondents were satisfied with the present fare of bus companies. For aircon bus-riders, 64.33% (110) of those who did not choose a bus company were satisfied with the present fare while for non-aircon bus-riders, 51.46% (88) said they were satisfied with the present fare. A significant percentage of aircon and non-aircon bus riders, however, have no comment on the present fare (Fig. 8).

Waiting Time

On waiting time, the average waiting time of passengers during survey was 5.50 minutes for aircon bus and 5.25 minutes for non-aircon bus. About 76% of all respondents favored the actual waiting time while 23.04% were not satisfied with the actual waiting time. Of the 300 respondents who favored the actual waiting time, 55% were aircon bus riders and 45% were non-aircon bus riders. Passengers who chose specific buses had longer waiting time than those who do not choose. On the average, those who said yes waited 5.75 minutes to get a ride; while those who said no had shorter waiting time at 5.31 minutes. It can be noted that passengers of aircon buses, both of those who choose and not choose specific bus companies, have longer waiting time than non-aircon riders (Table 4).

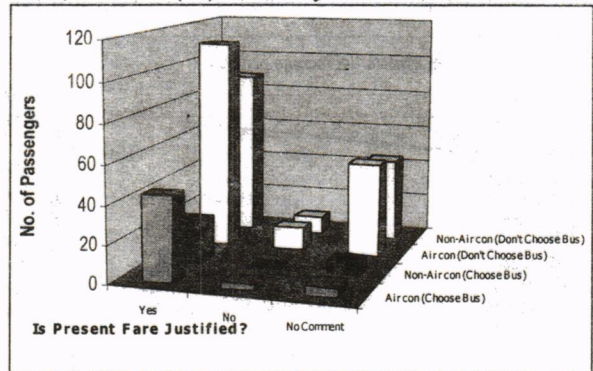


Figure 8. Satisfaction on Present Fare

Table 4. Average Waiting Time during Survey by Choice of Specific Bus

Waiting Time	Mean WT	No. of Passengers x Mean WT								
		Yes			No			No Comment		
		A	Non-A	Total	A	Non-A	Total	A	Non-A	Total
<5	3	66	45	111	288	246	534	3	3	6
6-10	8	232	104	336	552	440	992	0	8	8
11-15	13	13	0	13	78	52	130	0	0	0
Totals		311	149	460	918	738	1656	3	11	14
Average WT		5.98	5.32	5.75	5.37	5.23	5.31	3.00	5.50	4.67

Of the 80 respondents who chose specific buses to ride, 76.25% found the actual waiting time acceptable; while for those who do not choose, 75.96% of 312 respondents, the actual waiting time was also acceptable. Most passengers, about 76%, who do not choose specific bus company for both aircon and non-aircon were amenable to the actual waiting time of less than 5 minutes; while a number of passengers, about 23% for both aircon and non-aircon did not find the actual waiting time of more than 5 minutes to be acceptable.

The average waiting time for passengers who did not choose specific bus was lower at 3.02 minutes than the passengers who choose specific bus at 3.06 minutes.

A Study into the Viability of Consolidating Bus Companies Operating in Metro Manila

Majority (40%) of bus-riders, both aircon and non-aircon buses, said that they do not choose specific bus companies because they do not want to be late in going to their destination, 22% said that it was not necessary; and 14% said they did not care as long as the ride was comfortable (Fig 9). This result showed that with so many bus operators, the socio-economic characteristics of bus passengers do not affect their decision to choose or not to choose specific bus companies. They would take any bus that comes along the way because they do not want to be late in their destination. The result also showed that some bus-riders prefer to ride the bus that would give them comfort during travel. A significant number also indicated that it was not necessary to choose. This findings signifies that there is indeed a shortage of buses during peak hours and that choosing which bus to ride is not any more a concern to the passengers.

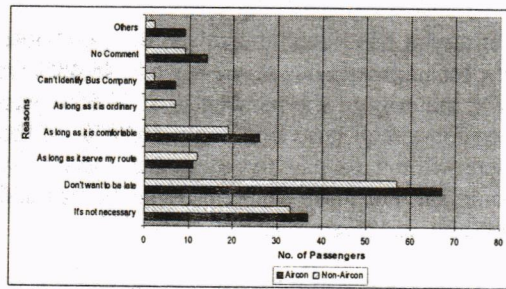


Figure 9. Reasons Why Bus Passengers Do Not Choose Specific Bus Company

Frequency of Service

In terms of frequency and availability of bus service particularly along EDSA, majority of bus passengers were satisfied. When asked about their perception of the current bus operation, majority of bus passengers who chose and did not choose specific bus to ride were also satisfied with the current bus operation. (Figs. 10 & 11)

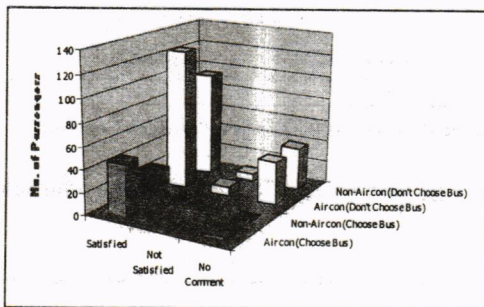


Figure 10. Satisfaction on the Frequency of Bus Service

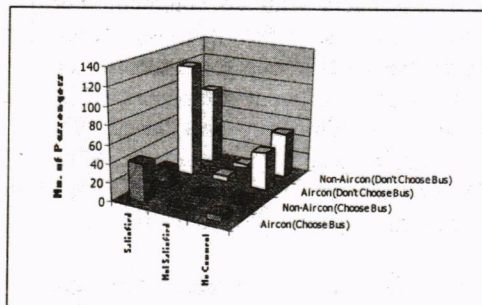


Figure 11. Satisfaction on the Availability of Bus Service

Other Level of Service Indicators

Bus-riders were also asked about their satisfaction with the other levels of service. In this survey, passengers were asked to indicate their satisfaction with as many levels of service as they could think of. This question allowed the researcher to identify the performance of bus operators according to the level of services they provide.

Survey showed that significant number of bus-riders who chose and do not choose specific bus companies were satisfied with the other levels of service, such as comfort and safety, cleanliness of buses, travel time/speed, loading capacity, and driving behavior of bus drivers.

6.2 Preferred Areas for Improvement

For aircon bus riders, those who do not choose specific bus to ride, 53.52% were willing to pay for improved bus services while 46.48% were not. For those who chose specific buses to ride, majority of the passengers at 79.55% were willing to pay more for improved services. For non-aircon bus riders, only 36.88% of those who did not choose specific buses to ride were willing to pay for improved services while 42.55% were not and 20.57% did not comment. For those who chose specific buses, 64% were willing to pay for improved services and only 25% were not.

In terms of bus services improvement, most bus-riders wanted the loading capacity to be limited to seating capacity to prevent overcrowding. Other services primarily identified as needing improvement were comfort and safety of passengers, driving behavior of bus drivers, shorter waiting time, and regularity or promptness of departure and arrival at bus stops.

With regard to MRT3 operation along EDSA corridor, majority of passengers, both of aircon and non-aircon bus, were still willing to avail of bus services depending on their destination.

6.3 Preferred Number of Bus Operators

Overall, 71.65% of bus-riders said they could identify at least 10 different bus companies in Metro Manila. About 14.43% of these were passengers who chose specific buses, 56.46% were passengers who do not choose and 0.76% were passengers with no comment. For aircon bus riders, 73.68% of those who do not choose specific buses can identify up to 10 buses of different companies, while for those who choose specific buses, 50% can identify up to 5 bus companies (Fig. 12). For non-aircon bus riders, 68.79% of those who said no and 78.57% of those who said yes can identify up to 10 bus companies.

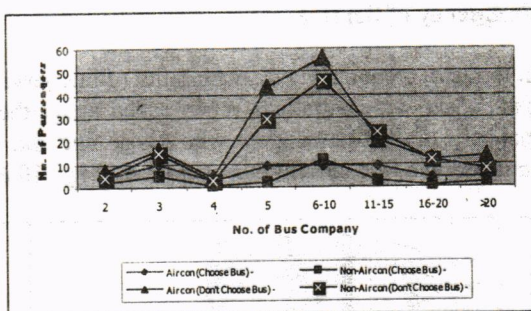


Figure 12. Number of Bus Company Passengers Can Identify

The number of bus companies preferred by bus passengers ranges from 3 to 4 companies. Cumulatively, about 76% of aircon bus passengers who do not choose specific buses to ride prefer only 4 bus companies to operate in Metro Manila, while those who choose specific buses to ride 53.85% favor 3 bus companies only. Likewise, 64.95% of non-aircon bus riders prefer also 4 bus companies. Survey results show that 58.82% of those who choose specific buses and 65.82% of those who do not choose said 4 bus companies were preferable to make a rational choice (Fig. 13).

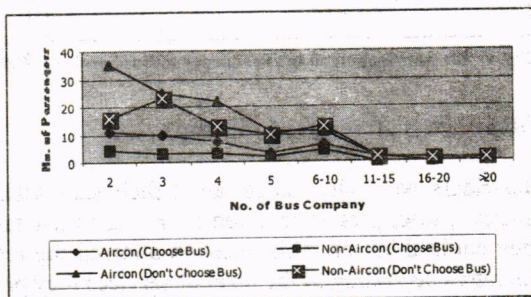


Figure 13. Number of Bus Companies Preferred by Bus Passengers

7. DISCUSSION OF RESULTS

Based on the analysis, the profitability of bus operation was not significantly influenced by the fleet size. Likewise the cost of operation showed minimal relationship with fleet size. The graphs showed little indication that economies of scale exist in bus operation in Metro Manila, but no clear conclusion can be made that the performance of big and small bus operators was influenced by the number of their units.

The entrepreneurial character of Filipinos to do business on their own was carried over in the operation of bus transport in Metro Manila. As shown in the Table 3, the characteristics of bus operators showed that operators with less than 10 units have less operating cost per bus than operators with more than 100 units. Most operators maintain their buses in their backyard and they usually take charge of all administrative work related to the operation, thus, reducing overhead cost. Most bus companies in Metro Manila were operating as family business enterprises. These were mostly companies with fleet sizes of more than 50 units. Such business is being bestowed to family members from generation to generation.

In terms of the utilization of buses, at the average 75% of the number of buses were being utilized by bus operators regardless of the number of buses they have. This may mean that conditioning of buses by bus operators, regardless of the size of fleet they have were almost at the same level.

In the past, bus consortia did not work because of the following : a) difficulty in merging the assets and liabilities of each company; b) inadequate fare structure to cover increasing costs; c) stiff competition with the jeepneys; d) maintenance cost being charged by the government accredited contractors continuously siphoned out the finances of bus operators; e) absence of a comprehensive operating guidelines in the implementation of bus consortia; f) severe transportation crisis in 1989 brought by rapid increase in passenger demand; g) the entrepreneurial character of Filipinos to do business on their own particularly in the transport sector; and h) although bus operators were grouped into consortia, member-operators operate their buses on their own.

Most bus operators, however, particularly those with fewer number of units, were willing to consolidate their companies provided that a comprehensive, well organized, and balance proposal is presented. Bus-operators would like to have a manageable corporation that would secure their investments in the long run.

Most bus-riders do not choose specific buses to ride in going to their destination because they do not want to prolong their waiting time, thus avoiding being late in their destination. Generally, the average actual waiting time during survey was acceptable to majority of bus-riders. This was regardless of whether they choose a specific bus company or not. There was however, a desire from bus-riders for a much shorter waiting time. It can be noted that they actually have no choice but to take whatever bus comes along the way as long as it serves their destination. The preferred waiting time of less than the actual waiting time indicates the desire of bus-riders for more improved services. Bus-riders were also satisfied with the frequency and availability of bus service along their route. In addition, majority of bus-riders were also satisfied with the current operation of bus transit. This situation clearly illustrates that most bus-riders have to render themselves to the current situation because they feel that it is not necessary to choose specific buses, thus avoiding waste of time during travel.

Most passengers said that the present fares were just right. However, they also desire for more quality service and majority of them signified that they were willing to pay for improved services. Passengers wanted improvement in the loading capacity of buses for this to be limited into seating capacity to prevent overcrowding; comfort and safety of passengers; the driving behavior of bus drivers; shorter travel time; and, regularity and promptness of arrival and departure at bus stops.

It can be seen that although most bus-riders do not choose specific buses they indicate desire in exercising their preferences on what services fit them. As shown in the survey on bus-riders perception on the operation of MRT3 along EDSA, majority indicated that the choice of riding a bus and MRT3 depends on their destination. This result illustrated that given a situation that calls for better service, bus-riders were willing to pay more for better services, such as MRT3.

With so many bus companies operating plying along EDSA, only 10 different bus companies can be identified by bus-riders. Majority of these were bus-riders who do not choose specific buses to ride. The perception that although they do not choose specific buses, majority of bus-riders were still in favor of limiting the number of bus companies. In general, the number of bus companies preferred by more than 50% of bus-riders was between 3 to 4 bus companies only. With limited number of choices, consumers can then exercise his preferences based on his socio-economic characteristics.

Bus consortium is a regulatory policy aimed at improving the level of service and profitability of bus operations. It was tried in the past during the Marcos administration but failed mainly because of the enormous cost it entailed, stiff competition with other public transport modes, notably the jeepney, and the absence of comprehensive guidelines and social acceptability. In determining the soundness, effectiveness and acceptability of bus consortium/consolidation as a public transport policy, a collaborative effort of three key players are involved in bus operations, namely the riding public, operator and the government. The riding public naturally demands a high level of service. They would prefer a door to door service to minimize walking; on demand in order not to wait long; and comfortable service. They would like to have these at low fares. On the other hand, the operator would like to maximize profit, which would run counter to the demands of the passengers. Operators would want a route structure that would maximize revenues at the same time minimize operating costs. The role of the government is to strike a balance between the two competing demands to optimize the use of scarce resources and serve public interest.

8. CONCLUSIONS

Based on the results of the study, there is no strong basis to consolidate bus companies operating in Metro Manila. The findings on the relationship between operating cost and fleet size are not conclusive. The small sample sizes and lack of verification of data provided by the operators affect the reliability of the results. There is a need to consider further study on this, using large sample sizes of data.

A strong case for consolidation would have been level of service. It was expected that riders would not be satisfied with service inasmuch as there is no market differentiation, i.e. passenger is compelled to ride the first available bus that comes along. However, this was not the case. Passengers are generally satisfied with the level of service. This attitude is common even between those who select a specific bus company and those who do not.

A Study into the Viability of Consolidating Bus Companies Operating in Metro Manila

Should the government pursue its fare liberalization policy, then the issue of consolidation becomes highly relevant as the existence of too many operators preclude workable market differentiation. Further study is however necessary to look into factors involved in consolidating bus companies operating in Metro Manila.

9. RECOMMENDATIONS

It is recommended that the current operation of bus companies in Metro Manila should remain status quo. However, further study on bus consortia as strategy in improving bus operation in Metro Manila is suggested focusing on issues and mechanics of implementation. It is further suggested that economic modeling be used as an analytical tool in determining the optimum number of bus companies, both from the operators and passengers' perspective.

REFERENCES

- NASH, C.A. (1982), **Economics of Public Transportaion**, Longman Group Ltd., U.K.
- U.P. LAW CENTER (1982), **Land Transportation : Proceedings of the First Institute on Transportation** (1980), Phoenix Press, Quezon City
- DODGSON, J.S. and KATSOUACOS, Y. (1988), **Models of Competition and the Effect of Bus Service Deregulation, Bus Deregulation and Privatization**, Gower Publishing Group, U.K.
- RIMMER, P.J. (1988), **Buses in Southeast Asian Cities: Privatization Without Deregulation, Bus Deregulation and Privatization**, Gower Publishing Group, U.K.
- TALLEY, W.K. (1986), An Economic Theory of the Public Transit Firm, **Transportation Research Journal**, Vol. 22B, No. 1
- TYSON, W.J. (1995), Bus Deregulation – the Planning Dilemma, **Transport Reviews**, Vol. 5, No. 4, pp. 307-313
- GWILLIAM, K.M. (1987), Setting the Market Free: Deregulation of the Bus Industry, **Journal of Transport Economics and Policy**, January 1989
- WILLIAMS, H.C.W.L. and ABDULAAL, J. (1992), Public Transport Services Under Market Arrangements, Part 1: A Model of Competition Between Independent Operators, **Transport Reviews**, Vol. 27B, No. 5, pp. 369-387, 1993
- WILLIAMS, H.C.W.L. and MARTIN, D. (1992), Public Transport Services Under Market Arrangements, Part 2: A Model of Competition Between Groups of Services, **Transport Reviews**, Vol. 27B, No. 5, pp. 389-399, 1993
- BAYAN, J.M., (1995), **Cost Characteristics of Bus and Jeepney Transport Systems in Metro Manila** (A Master's Thesis)
- MONTALBO, C and ISHIDA, H., **Assessment of Costs of Bus Transit Operations in Metro Manila**

LIM, M. (1999), **The Impacts of the MRT III on the Buses along EDSA Corridor** (A Master's Thesis), UP-NCTS, Philippines

LABASTILLA, G.L. (1999), **Empirical Analysis of Route Operating Characteristics Level of Service and Profitability: A Case of Jeepneys in the City of Manila** (A Master's Thesis), UP-NCTS, Philippines

Metro Manila Urban Transportation Integration Study (1998), Philippines