FIGURE 4.12
RELATIONSHIP BETWEEN AVERAGE SPEED, LOAD FACTOR AND FINANCIAL VIABILITY – JEEPNEY

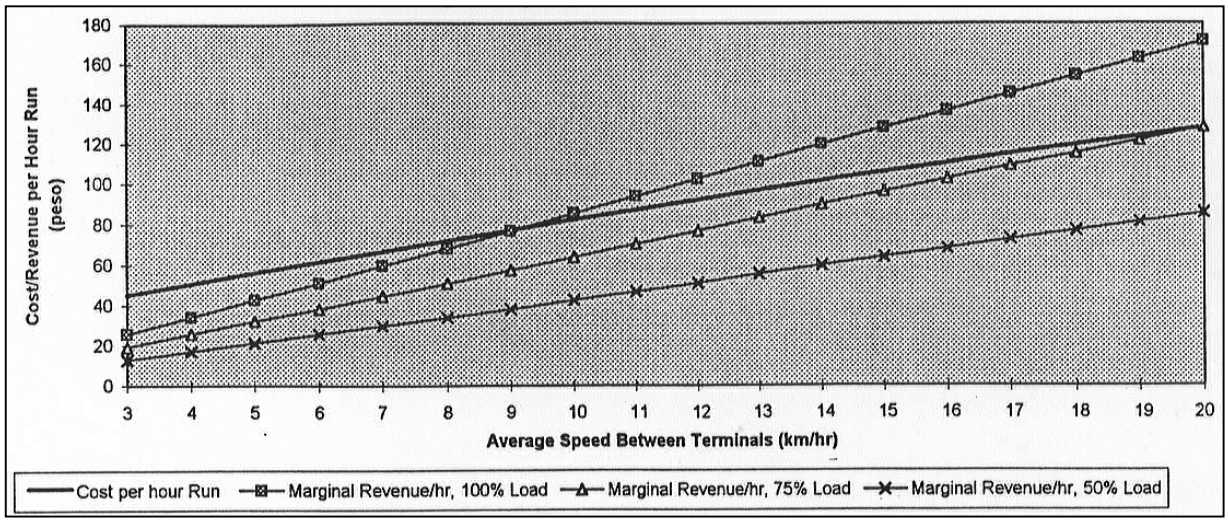


FIGURE 4.13
RELATIONSHIP BETWEEN AVERAGE SPEED, LOAD FACTOR AND FINANCIAL VIABILITY – BUS

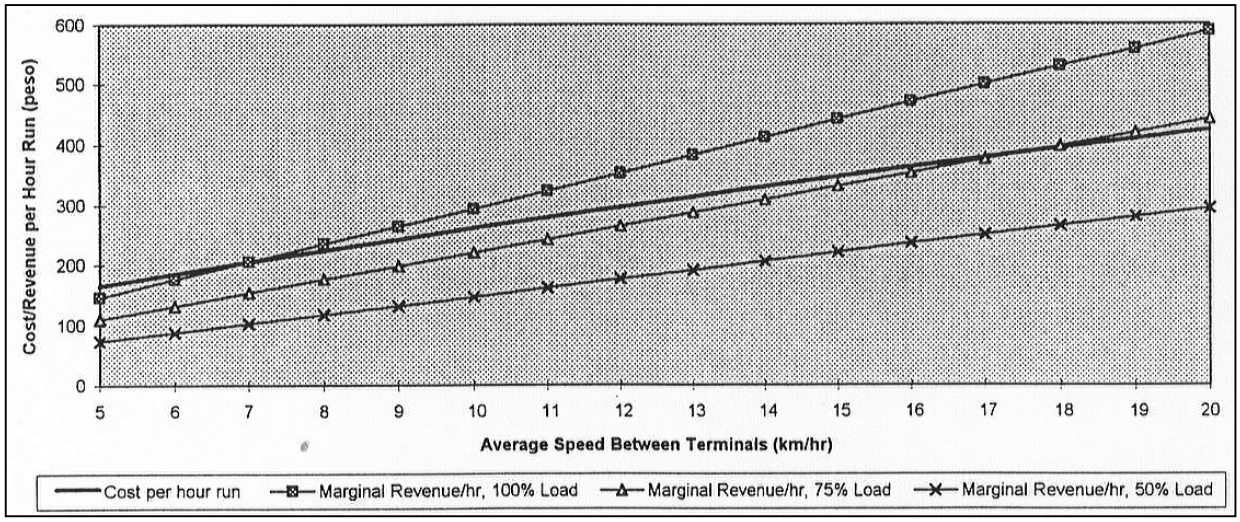
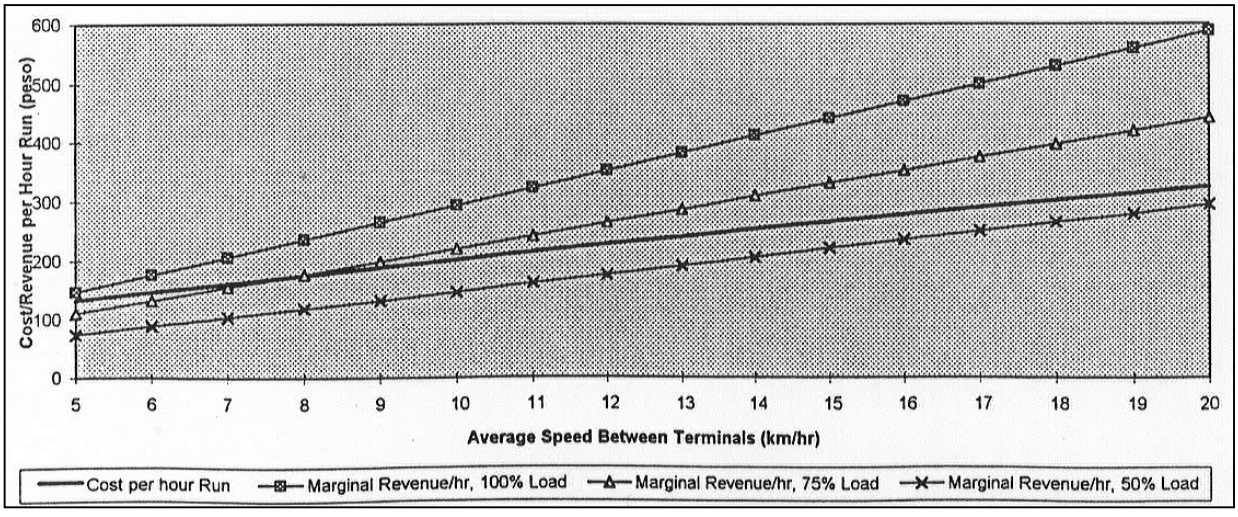


FIGURE 4.14
RELATIONSHIP BETWEEN AVERAGE SPEED, LOAD FACTOR AND FINANCIAL VIABILITY – RECONDITIONED BUS



AC transport services have great profit potential, as AC buses do not cost much more than ordinary buses to buy or to run, but are currently required to charge a MINUMUM fare of 7 pesos for the first 6 km. Beyond this distance, operators are effectively free to set their own fares, and there is evidence of price competition developing in some corridors, e.g., AC buses carrying placards advertising "Ordinary" fares[1].

Revenue per passenger km. is, thus, harder to calculate than it is for the (highly regulated) ordinary bus. AC bus operations are estimated here to average 1 peso per passenger km.

There are currently few express services in Manila, as traffic conditions prevent this style of service from moving much faster than "City Operations" routes. Furthermore, operators and on-board crew appear to prefer to stop at all permitted stops (and a number of non-permitted ones) to maximize vehicle loading. Their introduction has been proposed for C-5 (ultimately on a segregated busway), and will be possible along expressways as the network of tolled, limited access roads expands (such services, both AC and Ordinary, are common in other Asian cities with extensive expressway network, e.g., Bangkok and Hong Kong).

Jeepney operators can offer little value added to increase revenue (their traditional hi-fi systems having been banned several years ago), but can increase revenue by high load factors (factors in excess of 100% have been observed) and by operating short routes. If these are less than 4 km., the minimum fare of ₱2.50 still applies, so fare per passenger km. is higher than the marginal rate. In fact, passengers seem quite happy to pay a higher rate per km., MMUTIS surveys showing the average trip length being less than 4 km. on many jeepney routes which are longer than 4 km..

Evidence exists, both in the current route networks, that bus operations are now being restricted to a few major corridors inside EDSA, and from analysis of the correlation between average trip length on a route and the average speed of the route, that there are a number of distinct travel markets in the Study Area, each of which is predominantly served by a different type of vehicle and style of operation.

Figures 4.15 (Jeepney), 4.16 (Ordinary Bus) and 4.17 (AC Bus) show the trip length-speed correlation. Lines have been added to indicate the length of trips taking 30 minutes and 60 minutes at each speed.

It can be seen in Figure 4.15 that there are almost no jeepney routes, even the higher speed inter-urban ones at the periphery of the MMUTIS Study Area, on which the average passenger trip takes longer than one hour. Indeed, there are only a few routes on which average trip time exceed 30 minutes. Jeepney travel, even on the higher speed suburban and inter-urban routes, is thus essentially on a short distance. Further analysis of jeepney trip length and route length is presented below.

For both ordinary bus and AC bus, the data indicate two distinct markets:

- Shorter trips undertaken on slow(er) routes – typically trips of less than 15 km. made on buses averaging less than 16km./hr., i.e., less than 1 hour travel time; and

[1] Presumably charging the 0.5 per.km. Ordinary Bus marginal rate after the "boarding charge" distance.

FIGURE 4.15
CORRELATION BETWEEN TRIP LENGTH AND AVERAGE SPEED JEEPNEY

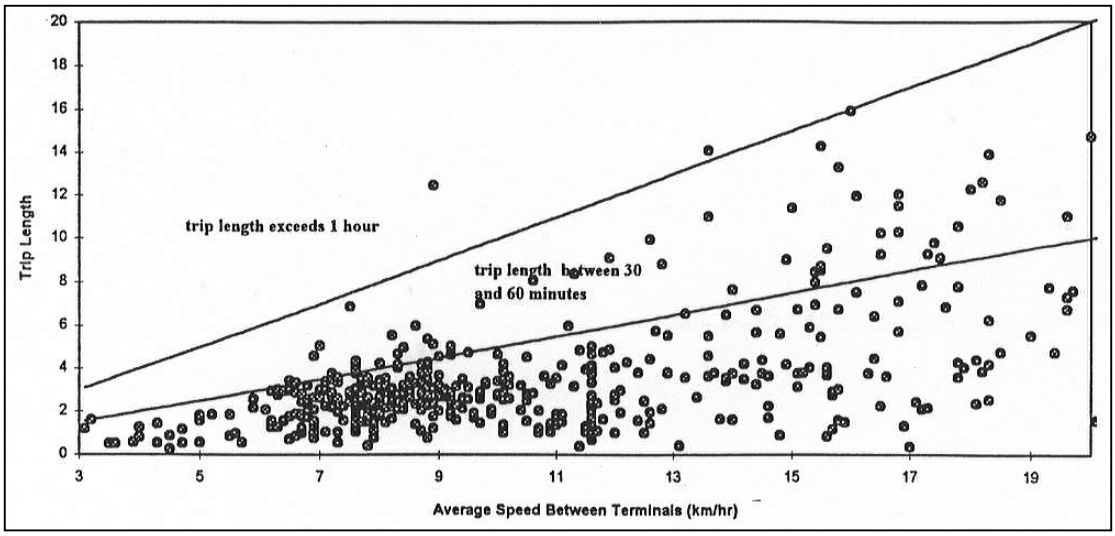


FIGURE 4.16
CORRELATION BETWEEN TRIP LENGTH AND AVERAGE ORDINARY BUS

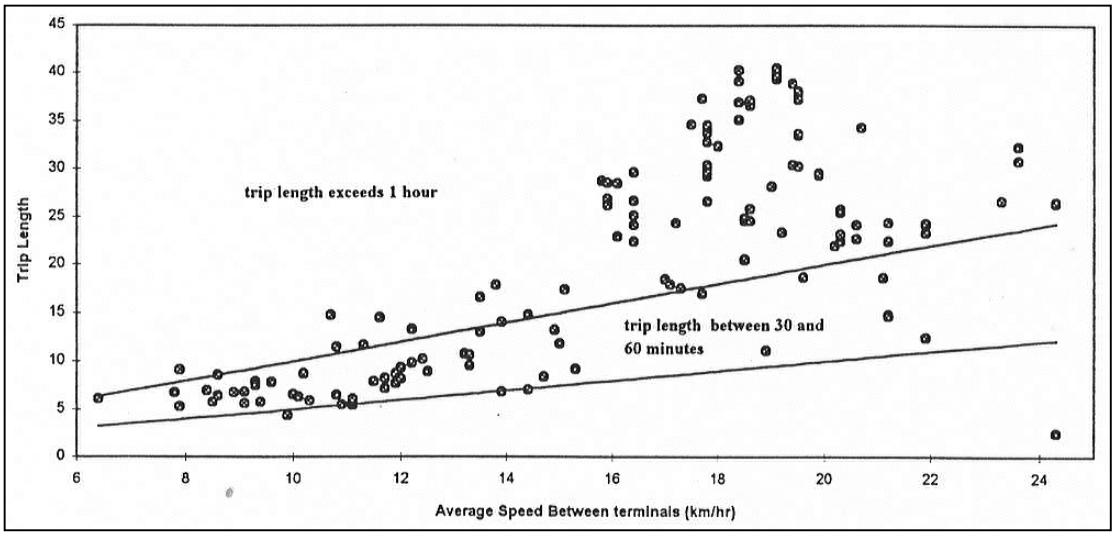
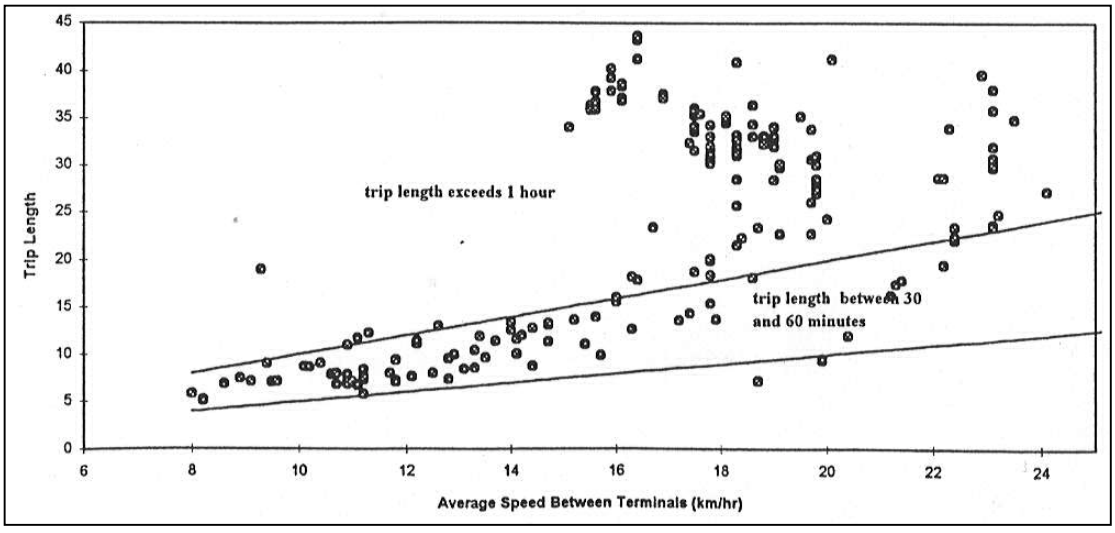


FIGURE 4.17
CORRELATION BETWEEN TRIP LENGTH AND AVERAGE SPEED AC BUS



- Longer trips undertaken on fast(er) routes – typically over 30 km. on buses averaging over 15km./hr., i.e., 2 hours plus travel time.

At the time of this analysis, the MMUTIS bus route database had not been separated into services defined as:

- "City Operation" – routes operating wholly within NCR and serving all (permitted) stops on their route; and
- "Provincial Operation" – routes between central terminals (most of which are along EDSA) and destinations outside NCR, stopping at fewer points within the Study Area and with most of the distance traveled within the Study Area on the North or South Luzon Expressways. Outside the Study Area, some of these routes use ferries between Luzon and adjacent islands and are involved in trips of 3 days or more.

However, it is highly likely that the two clusters of data in both Figures 4.16 and 4.17 represent City (lower left, low speeds, shorter trips) and Provincial (upper right, higher speeds, longer trips).

Comparing the data points in Figures 4.15 and 4.16 with the theoretical conditions for financial viability indicated in Figures 4.12 to 4.14, it can be seen that there are a great number of jeepney routes that average more than 9 km./hr. This means that these could be viable provided load factors are high enough, even at the marginal tariff rate per passenger km. It is indicated that the bulk of "Provincial" Ordinary Bus routes are operating above the speed at which a 75% load factor would be adequate for financial viability even with a new bus. The cluster of "City" data points would, however, require load factors in excess of 80% for New Bus operation to be viable. Conversely, only a handful of bus routes are so slow that reconditioned bus operations would not be viable at a 75% load factor.

Combining observations from Figures 4.13 and 4.17, it can be seen that, with revenue per AC passenger km. estimated at double that of ordinary bus, even the slowest AC routes would require only a 50% load factor to achieve viability with a new bus, while AC operations with a reconditioned bus would be profitable with a load factor of only 40% at an average speed as low as 8 km./hr..

However, each of these data points only represents a route, and gives no indication of the level of activity (frequency, trip length, load factor etc.) on that route. Before considering viability on a route-by-route basis, alternative analysis of the MMUTIS route database was undertaken.

The results are presented in Figures 4.18 to 4.23.

In the database supporting these charts, the routes of each vehicle type have been ranked in rising average speed order and the level of activity on the route summed, from slowest route to fastest route. The charts show the cumulative percentage of activity at each speed, for example (from Figure 4.18) 50% of all jeepney vehicle trips are at average speed of 9 km./hr. or less.

FIGURE 4.18
CUMULATIVE VEHICLE TRIPS AND VEHICLE KM. BY AVERAGE SPEED – JEEPNEY

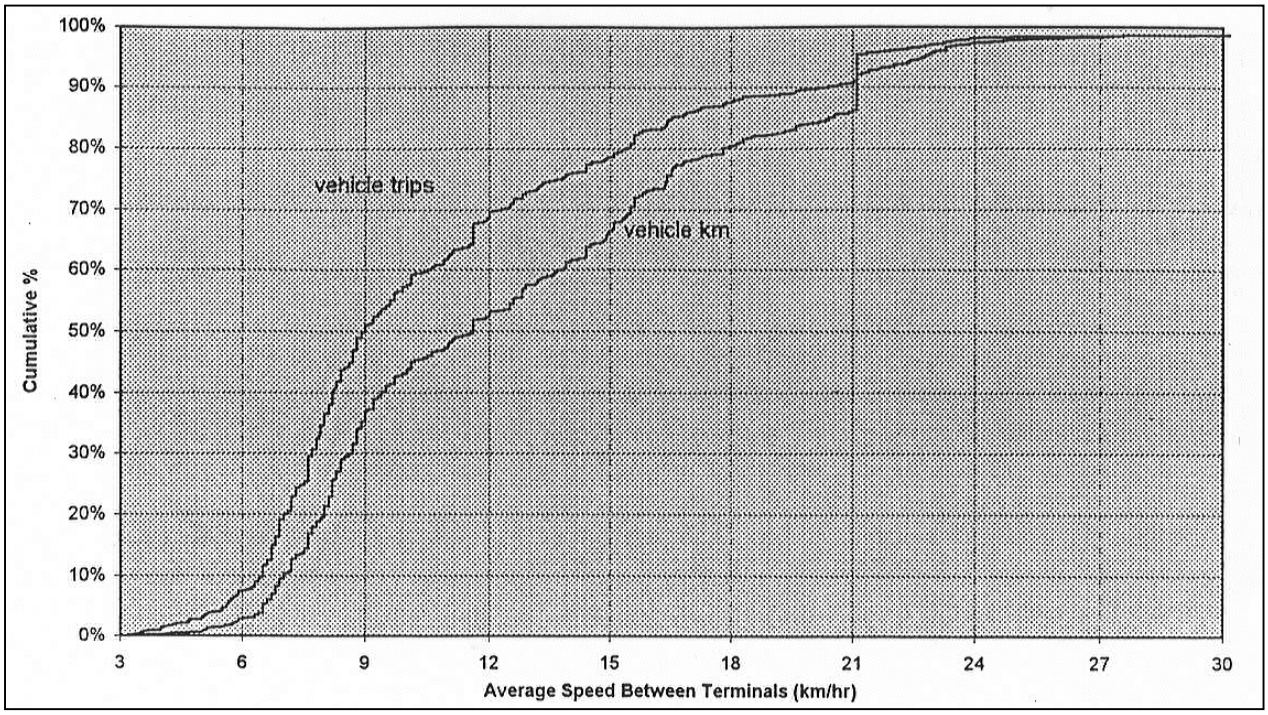


FIGURE 4.19
CUMULATIVE PERSON TRIPS AND PASSENGER KM. BY AVERAGE SPEED – JEEPNEY