

# philippine studies

Ateneo de Manila University • Loyola Heights, Quezon City • 1108 Philippines

---

## Provincial Public Transport

Michael W. Roschlau

*Philippine Studies* vol. 33, no. 4 (1985) 431–458

Copyright © Ateneo de Manila University

---

Philippine Studies is published by the Ateneo de Manila University. Contents may not be copied or sent via email or other means to multiple sites and posted to a listserv without the copyright holder's written permission. Users may download and print articles for individual, noncommercial use only. However, unless prior permission has been obtained, you may not download an entire issue of a journal, or download multiple copies of articles.

Please contact the publisher for any further use of this work at [philstudies@admu.edu.ph](mailto:philstudies@admu.edu.ph).

<http://www.philippinestudies.net>  
Fri June 27 13:30:20 2008

## Provincial Public Transport

MICHAEL W. ROSCHLAU

The completion of Manila's first *Metrorail* line in May 1985 marked the arrival of modern rail rapid transit in Southeast Asia. It was the culmination of a large number of transport studies, proposals and plans dating back to the 1960s. The influence of study recommendations and mass transit promotion on Philippine government policy since then has resulted in programs forcing jeepney operators to group themselves into cooperatives, the establishment of a government-owned bus company, and the subsidization of private bus operators. The arrival of *Metrorail*, however, has firmly implanted mass transit in the Philippines. These trends seem to indicate that urban transport policy in Metro Manila has been decided. In contrast, the future course of public transport in Philippine provincial areas remains unclear.

Nevertheless, pressures to spread capital-city policies to provincial areas have already been felt in the form of transport studies conducted by overseas consultants.<sup>1</sup> Frequently, the emphasis has been on a gradual transition from intermediate technology and organization to full-sized buses and corporate management. Inherent in proposals of this nature is the implication that existing public transport is inadequate and deficient in meeting the needs of local residents. In order to evaluate that notion, this article examines selected aspects of the structure, conduct and performance of the

1. Examples of this are: *Public Transport Requirements in Intermediate Size Cities* (Tokyo: Mitsui Consultants Co. Ltd., 1977); *Metro Cebu Land Use and Transport Study* (Manila: Government of the Republic of the Philippines; Government of Australia, 1980); *Davao City Urban Transport cum Land Use Study* (Manila: Government of the Republic of the Philippines; Japan International Cooperation Agency, 1981).

public transport industry on Cebu island.<sup>2</sup> As the country's most populous province and containing the largest provincial urban center, Cebu is at the forefront of provincial diffusion. It can therefore serve as an important example for other provincial areas.

### ORGANIZATIONAL STRUCTURE

Public transport in Cebu<sup>3</sup> consists of three intramunicipal and two regional modes that connect different municipalities on major trunk routes. The main line-haul mode, as in most Philippine provinces, is the jeepney, providing corridor service in urban and suburban areas. In most communities, the motorized tricycle serves as a local distributor and as a feeder to the jeepney, offering neighborhood transport. Bicycle-powered pedicabs dominate local public transport in Danao City and, in a designated part of central Cebu City, as well as in the municipalities of Balamban and Tuburan, horse-drawn conveyances called *tartanillas* are still in use. Large buses are used on long-distance runs linking the provincial capital with towns and villages throughout the province. This is the only instance where full-sized buses are employed for public transport. They do not carry passengers locally within urbanized areas.

Responsibility for the registration of motor vehicles rests with the Bureau of Land Transportation (BLT) and franchises for public transport service — certificates of public convenience — are issued by the Board of Transportation (BOT).<sup>4</sup> Nonmotorized vehicles are exclusively under local control and tend to be outside BLT and BOT jurisdiction. Because it is rare for accurate and consistent records to be available, estimates of the number of vehicles in operation (Table 1) needed to be supplemented by street counts, interviews with operators, local government officials and detachments

2. This approach is based on a framework employed by F.M. Scherer, *Industrial Market Structure and Economic Performance*, 2nd ed. (Chicago: Rand McNally, 1980). Most of the data presented in this article are based on extensive interviews and observation of the systems in practice from June to October 1983.

3. Camotes Islands and Bantayan Island, although administratively part of Cebu province, are excluded for the purpose of this study.

4. The BOT and BLT were merged into a re-created Land Transportation Commission in March 1985 (*Business Day*, 21 March 1985). A previous Land Transportation Commission had been set up in 1964, replacing the Motor Vehicle Office, but was renamed Bureau of Land Transportation in 1979.

Table 1: Breakdown of Public Transport Vehicles,  
Province of Cebu 1983

Mode	V e h i c l e s				Seating capacity	
	Estimated number Registered	In Service	Percent	Average	Total	Percent
Jeepneys	2109	3770	39.2	16	60,320	61.1
Tricycles	335	4630	48.1	4	20,000	20.3
Tartanillas	454	555	5.8	4	2,220	2.2
Pedicabs	391	400	4.1	2	800	0.8
Large Buses	187	270	2.8	57	15,390	15.6
Total	3476	9625	100.0		98,730	100.0

of the national police.<sup>5</sup> As part of the industry's structure, attention is now focused on relations between individuals providing the service, conditions of entry and profitability.

#### INTERPERSONAL RELATIONS

Participants in the industry who are directly involved in day-to-day operations can be grouped into three categories: owners, operators and drivers. Owners are those who have actually invested capital in a vehicle and are its rightful owner. Operators are those in possession of a legal franchise to operate a public utility vehicle for hire on a specific route or in a certain area, and drivers are the individuals who actually drive the units on a regular basis.

The size distribution of these three types of participants and relations between them varies according to the mode in question. The owner, operator and driver may be the same individual or could be three different people. The relationship is most complex for jeepneys, where owner-drivers are relatively rare, and operator-drivers rarer still (Table 2). In most cases, the owner of a unit will hire one or two drivers, who rent the vehicle for a fixed "boundary" fee per twenty-four-hour period. While owners are usually responsible for maintenance expenses such as oil changes, tires and other repairs, drivers pay the daily cost of fuel from their income. Under the "boundary" system, the excess of income

5. Another source was *Metro Cebu Bus Terminals Feasibility Study* (Cebu City: Metro Cebu Land Use and Transport Systems Project, 1983).

(from fares collected) over the daily rental, cost of fuel and other expenses such as dispatcher's fees and *tong* (bribes), constitutes the driver's net earning.

An owner may apply for his own operating franchise from the BOT but that is usually a time-consuming process which can involve hiring attorneys and undergoing substantial hearings and deliberations, both in Cebu and Manila. The usual practice for those who wish to avoid this inconvenience is to attach their jeepney to someone else's franchise through the *kabit* system. This is normally a professional operator who has obtained franchises for more units than he actually owns. The *kabit* relationship involves a one-time entrance fee, an annual payment for licensing, registration and insurance, as well as the monthly *kabit* fee. The influence of the five largest *kabit* operators in Cebu has become so pervasive that in 1983 they controlled about 2,500 jeepney units (almost 70 percent of the provincial total). In addition, there is one jeepney cooperative composed of owners who are not satisfied with the *kabit* system and want to benefit from the government's transport cooperative promotion program. It has grown very slowly, however, from five jeepneys in 1974 to 148 in 1983, amounting to less than 5 percent of the Metro Cebu total.

The major problem encountered by jeepney owners who attach their units to the franchise of a *kabit* operator is that, in the eyes of the law, ownership of the unit is in the franchise holder's name. Hence, the actual owner loses legal title to his vehicle, since all papers are made out in the operator's name, the only proof of ownership being the original bill of sale. The operators, however, do hold the owners responsible in case of an accident or insurance claim and do not have any physical dealings with the vehicle, as the owner is fully responsible for maintenance and hiring of drivers. The operator only collects fees for the use of his franchise. Operators have no capital invested in the *kabit* units and are only required to make necessary arrangements with the BOT and other relevant agencies.

Organizational relationships for tricycles, pedicabs and *tartanillas* are similar, except that there are no enforced franchises and therefore no operators. Owners usually employ a driver or drive themselves. Motorized tricycles must be registered with the BLT and *tartanillas* or pedicabs with local government agencies. For these vehicles there is a much higher incidence of owner-drivers

than for jeepneys, as outlined in Table 2. This is probably due largely to the smaller amount of capital required for these vehicles.

In the case of tartanillas, some drivers (*cocheros*) own one or two horses but rent the cart, others rent both but feed the horses themselves, while still others pay the owner to feed the horses. Since five to six hours are effectively the limit of a horse's endurance in pulling a tartanilla, drivers who have access to only one animal are restricted in the hours they can work, otherwise having to rent a second horse to work a full day. Unlike jeepney operations, there are no very large fleets of either tricycles, pedicabs or tartanillas controlled by one individual (Table 2).

Although, as depicted in Figure 1, long-distance services operate throughout the island, they all terminate their runs in Cebu City and there are no such services operating exclusively between provincial communities. While there are some kabit operators in

Table 2: Control of Public Transport Vehicles by Mode,  
Cebu Province 1983

Mode	Approximate total number of vehicles	Largest Fleet size	Percent of total		
OWNERS					
Jeepney (Metro Cebu)	3600	73	2.0		
Bus (Province of Cebu)	270	31	11.5		
Tricycle (Mandaue City)	1000	26	2.6		
Pedicab (Danao City)	400	26	6.5		
Tartanilla (Cebu City)	530	17	3.2		
OPERATORS					
Jeepney (Province)	3725	1100	29.5		
Bus (Province)	270	90	33.3		
OWNER-DRIVERS AND OWNER-OPERATORS					
	Jeepney	Bus	Tricycle	Pedicab	Tartanilla
Percent of drivers who own the vehicle they drive	0.03	0.00	16.25	10.0	18.03
Percent of owners who operate the vehicle they own	33.2	75.9	100.0	100.0	100.0

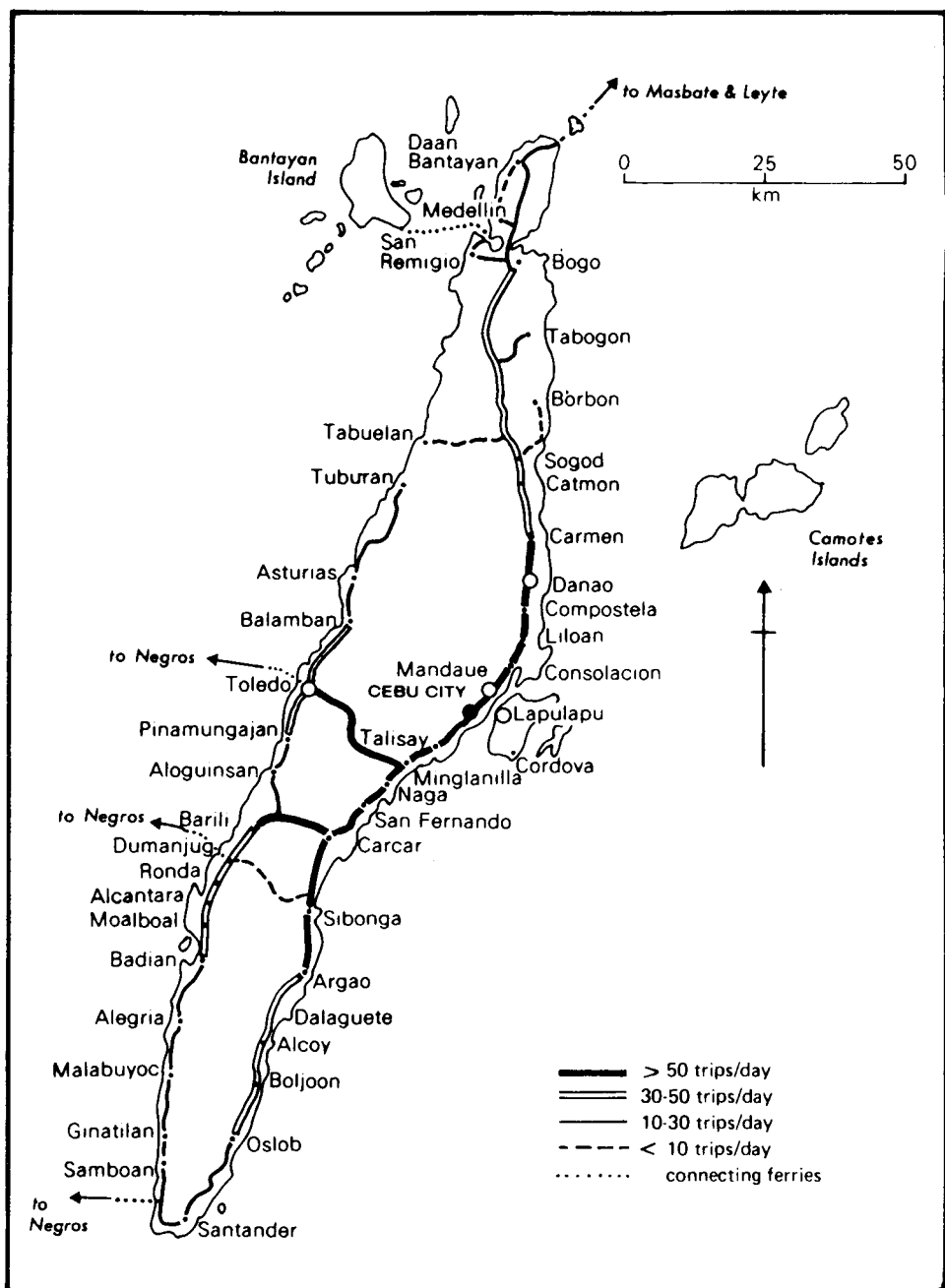


Figure 1. Long-distance public transport services, Cebu island, 1983

the bus industry, the great majority are owner-operators, hiring drivers and conductors as employees. Be they owners, drivers or conductors, the ability of individuals to enter the industry is also an important factor underpinning the structure of public transport.

#### CONDITIONS OF ENTRY

For individuals wishing to enter the public transport industry as owners, the primary requirement is capital for the purchase of a vehicle. This might involve sufficient funds for a downpayment, connected with the required credit rating for acceptance by a financing company. Whereas jeepney and bus franchises are difficult to obtain, there are no restrictions on entering any of the smaller vehicles into service, except for a nominal fee for *tartanilla* and pedicab registrations. In the case of buses and jeepneys, it is easy to enter into a *kabit* arrangement with a professional operator, provided the required cash can be raised to pay the entrance fee.

Financing for vehicle purchases is available for buses and jeepneys when purchased new through the manufacturers' dealerships. Requirements usually involve a 25 percent downpayment,<sup>6</sup> and interest rates vary according to the terms as portrayed in Table 3. Until the vehicle is completely amortized,<sup>7</sup> no return on original investment can be earned, as the monthly income collected from operation barely covers financing instalments and cost of running maintenance (Table 4). Financing is usually arranged through the dealership where the vehicle is purchased, so the client has no need to directly approach the financing company himself. *Kabit* operators also have agreements with salesmen who can arrange registration, insurance and legal requirements for an owner as part of the purchase package. In some cases, tremendous success has been achieved by cooperative strategies and aggressive marketing. An example of this is automotive dealerships offering preferential credit terms to clients. This can range as far as dropping the downpayment to ₱10,000 (13 percent), split over six months,<sup>8</sup> with the first instalments on financing delayed until after the downpay-

6. Approximately ₱16,000 for a new jeepney in 1983.

7. Two or three years, depending on the terms of financing.

8. ₱5,000 payable on delivery, and the other ₱5,000 payable after six months.



ment is complete. These are very attractive terms, as they substantially reduce the cash outlay required.

As is evident from Table 4, the capital required for investing in smaller public transport modes is much lower. This also explains why there is a much higher preponderance of owner-drivers among tricycles, pedicabs and tartanillas. Although large financing companies refuse to handle tricycles or nonmotorized public transport vehicles, motorcycle manufacturers themselves offer financing on tricycles with similar terms. Pedicabs and tartanillas, however, must be purchased on a cash basis, since the builders are small local businesses without the capacity to offer credit.

There are no deliberate barriers to entry in the public transport industry for any of the five modes or three types of participants. The only major restrictions are the starting capital required for owners and the natural element of competition imposed by market forces when supply begins to exceed demand and saturation is approached. Since very few jeepney routes and none of the other modes have any kind of drivers' representation or route associations, there is no knowledge about or control over the entry of new drivers, owners or operators. Incentives to entry exist only insofar as there is a potential profit or income to be earned from investment of capital or effort.

#### PROFITABILITY

The capital required for owners wishing to enter the bus or jeepney industry is clearly the greatest barrier, meaning that another

Table 3: Financing Options for Jeepney  
Ownership, Cebu 1983

Term of financing	Total interest (percent)	Interest per annum (percent)	Monthly instalments (₱)	Total cost (₱)
24 months	46	23	2981	87,540
30 months	60	24	2613	94,400
36 months	75	25	2382	101,750

Based on a purchase price of ₱65,000, with a 25 percent (₱16,000) downpayment; i.e., amount financed ₱49,000.

fairly substantial source of income or savings is a prerequisite that cannot be avoided. In most cases, jeepney owners have other businesses on which they depend for their livelihood, the transport investment acting as a side line, occasionally allowing other family members to be employed as drivers. Discussions with loan officers and investment counsellors have revealed that the public transport industry can be a good investment, but it is quite risky, especially if only one unit is involved and the driver is not a family member. Trading businesses, such as import houses or wholesale distribution enterprises, were frequently identified as offering the highest and fastest return on investment, far superior to transport. This kind of business requires experience in marketing and sales, however, and is only suited to individuals who are able to devote a large proportion of their time to the enterprise. In transport, profitability varies greatly according to the terms of financing, reliability and conscientiousness of drivers, and number of units in service.

The economics of vehicle ownership summarized in Table 4 indicate that all three of the motorized modes provide a similar return on investment per year. The difference is primarily in terms of initial capital involved and scale of operations to follow. Actual expenses and revenues can vary greatly depending on the make, age or condition of vehicle purchased, terms of the financing, quality of maintenance and ability of the driver to minimize wear and tear on the vehicle. The figures in Table 4 are intended to be typical for a new vehicle, and are presented only as an approximate guide. With special financial incentives offered by some dealerships on purchases of several units, as outlined previously, a split downpayment of ₱10,000 could lower the cash outlay for one new diesel jeepney to ₱11,260.<sup>9</sup> Thus six months of income can be earned before the second half of the downpayment is due, with monthly instalments on the remainder of the purchase price commencing in the seventh month. If a twenty-four-month financing term is chosen, then a total net profit of ₱85,256 could be earned on two jeepneys over five years on an equivalent cash outlay (₱22,500) to that shown in Table 4. This equates to a 379 percent return on investment, or about 75 percent per year. Very few other businesses can compete with this kind of profit, making jeepneys a potentially very attractive investment.

9. ₱5,000 downpayment plus other capital and initial annual costs.

Table 4: Economics of Vehicle Ownership, Estimates for Cebu Province 1983

Mode	Bus	Jeepney	Tricycle	Pedicab	Tartanilla
Retail price	P 340,000	P65,000	P15,800	P 2,100	P 7,000*
<b>CAPITAL COSTS</b>					
Downpayment	119,000(35%)	16,250(25%)	3,950(25%)	2,100	7,000
<i>Kabit</i> entrance		2,000			
Chattel mortgage	650	650			
<b>TOTAL CAPITAL</b>	119,650	18,900	3,950	2,100	7,000
<b>ANNUAL COSTS</b>					
Insurance	11,200	2,800	)		
Registration	3,200	800	) 850	20	21
<b>TOTAL ANNUAL</b>	14,400	3,600	850	20	21
<b>TOTAL CASH OUTLAY</b>	134,050	22,500	4,800	2,120	7,021
<b>MONTHLY COSTS</b>					
Financial Instalment (months)	13,352(24)	2,600(30)	477(36)		
<i>Kabit</i> tee		52			
Maintenance	8,667	450	125	12	62
Food for horses					608
Diesel fuel	8,910				
Salaries	4,050				

TOTAL MONTHLY(a)	34,979	3,102	602		
TOTAL MONTHLY(b)	21,627	502	125	12	670
Vehicle life (years)	5	5	7	6	10
Total expenditure over vehicle life	1,809,718	145,020	37,572	3,084	87,610
INCOME per month	35,316	3,240	609	150	875
Total income over vehicle life	2,118,970	194,400	51,156	10,800	105,000
Gross profit over vehicle life	309,242	49,380	13,584	7,716	17,390
Net profit over vehicle life	175,192	26,880	8,784	5,596	10,369
Net profit/month	2,920	448	105	78	86
Return on investment over vehicle life (%)	130.7	119.5	183.0	264.0	147.7
Return on investment per year(%)	26.1	23.9	26.1	44.0	14.8

(a) including instalments on financing

(b) after vehicle is fully paid

\* ₱3000 for rig and ₱2000 for each of two horses.

Perhaps somewhat surprisingly, under normal conditions pedicabs offer a remarkably high return on investment. At 44 percent per year, it is almost double that of the motorized modes, although the amounts involved are much lower than for buses or jeepneys. In comparison to tricycles, however, pedicabs seem to be a much healthier financial proposition, helping to explain their success in Danao City, where physical conditions are favorable for pedal-powered vehicles.<sup>10</sup>

The economics of *tartanilla* ownership are decidedly inferior to any of the other modes, owing primarily to recent shortages of horses and resultant high prices. In addition, the costs in Table 4 were surveyed shortly after a prolonged drought had adversely affected agricultural production by virtually negating one entire growing season on the island of Cebu. The result is that the price quoted for feeding the horses may be somewhat higher than usual. These factors, coupled with extremely low fares charged for *tartanilla* travel,<sup>11</sup> help to explain why horse-drawn vehicles are not a very attractive investment. If the owner is able to collect the horse manure and sell it in dried form as fertilizer, an additional ₱40 per month can be earned, substantially improving the otherwise marginal profit.

The industry's structure alone is not sufficient to satisfactorily evaluate the ability of existing public transport in meeting the mobility needs of provincial residents. Attention therefore turns to conduct as a second major characteristic.

## CONDUCT

Because the public transport industry of Cebu is operated by private sector enterprise, the profit motive is its underlying determining force. The search for a return on investment forms the basis of the industry's structure and, to a large degree, determines many aspects of its conduct. Most participants in the industry have become involved because some monetary benefits are expected to be derived, as no artificial subsidies are available from outside. Both

10. In 1963, when Danao was given city status, the tight grid pattern of streets in the city center was concreted, and most of the small motor-tricycles converted to pedal power. Thereafter, pedicabs proceeded to become popular in Danao City because of their low cost, the short distances involved, flat terrain and smooth surface of the concrete streets.

11. ₱0.40, versus ₱0.75 for a ride of equal distance on a jeepney or tricycle in 1983.

the way in which technology is employed and the determination of fare structures are important characteristics of the industry's conduct. They reflect the interface between private enterprise considerations and the needs of the provincial population.

#### USE OF TECHNOLOGY

The degree to which capital is being invested in the public transport industry varies considerably from one mode to another. There has recently been a heavy investment in the replacement of old jeepneys as well as an overall fleet expansion through the addition of new units, involving a total investment of some ₱15 million. The situation is similar for pedicabs in Danao City, the average age for both types of vehicle being less than three years. In the case of tricycles and tartanillas, however, vehicles are, on average, almost twice as old.

In most cases, attempts are made to avoid heavy capital expenditures where possible by extending the life of old vehicles through reconditioning or replacement of major components such as engines, bodies, transmissions and sidecars. A vehicle can usually be totally rebuilt in a local shop for about half the cost of a new one, resulting in a product that looks and performs almost as well as new. This practice is particularly popular with tartanillas and tricycles, whereas jeepneys are more frequently replaced, due at least in part to the current trend toward diesel-powered units. This changeover allows owners to charge double the "boundary" fee, in exchange for a lower fuel cost and better fuel economy. The proportion of diesel jeepneys in Cebu has risen from almost zero in 1978 to over 50 percent in 1983.

The great majority of vehicles available on the local market for use as jeepneys are versions of Asian Utility Vehicles (AUV), offered by participants in the national government's Progressive Car Manufacturing Program. Vehicle manufacturing, parts production and assembly are largely concentrated in Metro Manila, although some of the work is performed in Cebu. There is one local manufacturer who builds jeepneys from scratch and seventeen major tricycle sidecar manufacturers, producing units for the local market as well as for use in Mindanao, Bohol, Leyte, Negros and Luzon. Three of the tricycle enterprises are also engaged in building pedicabs in Danao City. Approximately five different designs of tricycle sidecar are used in Cebu, with seating configurations

and appearances varying from place to place according to local preferences and traditions. About five tartanilla manufacturers remain in Cebu City, most of whom are more concerned with repair and rebuilding than with actual manufacturing of new units. Some of the shops have also been engaged in a substantial export production, supplying rigs to customers in West Germany and the United States. Buses used for provincial services in Cebu are without exception purchased as chassis units from overseas, upon which a local body is installed by one of a handful of bus body builders. This allows for easy rebuilding of the body when necessary, without replacing the entire unit.

On average, the proportion of the retail price of new public transport vehicles ultimately remaining in the Philippines – and hence their contribution to the national economy – varies from about 39 percent for buses to 65 percent for jeepneys and tri-cycles, 70 percent for pedicabs and 98 percent for tartanillas. Clearly, the larger the vehicle and the more sophisticated the technology, the greater the dependence on imported components. Further technological evolution has the potential of narrowing the gap between buses and jeepneys, however, and the development of a twenty-six-passenger model in 1983 is a major step in this direction. But technological considerations cannot fully account for the industry's conduct. Pricing policies are equally central to an examination of Cebu's public transport service.

#### PRICING POLICIES

Although public transport fares, as regulated by government agencies, are rigid and unresponsive to conditions of affordability and productivity, in practice the industry has developed a sensitive pricing mechanism. Fares are adjusted according to the ability of passengers to pay, the level of competition on a particular route and the underlying costs of operation, resulting in high mobility at a relatively low cost to the users.

Fares for the three motorized modes are fixed and regulated by the BOT, and are enforced by the riding public, which is constantly on guard to avoid being overcharged. Within the urbanized area of Metro Cebu,<sup>1 2</sup> authorized fares are usually strictly observed by jeepney drivers. On the longer-distance provincial routes, however,

12. As far as Talisay in the south, Mandaue and Lapu Lapu in the north (Fig. 2).

as well as on all provincial buses, actual fares are substantially below official rates. This is primarily due to strong competition and the need for a full load in order to make a long trip worthwhile. The ability of the riding public to pay the authorized distance-related fares also declines considerably outside the Metro Cebu area. In order to attract customers, public transport services cannot charge rates in excess of what the market will bear, even if sanctioned by government authorities.

Regionally within the province of Cebu, distinct variations in terms of the deviation of actual fares from authorized ones are apparent. For example, fares to Cebu City from five settlements in the northern part of the island are, on average, 60 percent of the level authorized by the BOT. In the southern part of the province, however, fares from eight towns for which data are available average only 42 percent of the authorized level. This seems to be a direct reflection of local incomes and affordability, as southern Cebu is recognized as an area of greater poverty than the north. In southern Cebu, particularly in the barrios, "one discovers a measure of destitution and economic stagnation not to be met with anywhere else in the Philippines."<sup>13</sup> "No other part of the country has been plunged into such an extreme and protracted state of economic stagnation."<sup>14</sup> Thus it is clear that the public transport industry does adjust its fare structure to conform directly to the ability of people to pay, regardless of official rates, which are based solely and directly on distance travelled. Such a practice is very important as the great majority of provincial passengers consists of rural residents travelling to and from the city, thereby substantially enhancing the mobility of individuals who may not be able to afford public transport travel at the prescribed rates.

Whereas tricycle fares are officially controlled by the BOT, they have not been revised for several years. This is because responsibility for tricycle registration, regulation and control is scheduled to be transferred to municipal governments, and has therefore been neglected by the BOT. As a result, in practice there are no franchises for tricycle operation, meaning that most units are officially operating outside the law, and fares are mutually set by drivers and passengers on each route according to supply and demand.

13. Ramon Echevarria, *Rediscovery in Southern Cebu* (Cebu City: Historical Conservation Society, 1974), p. 81.

14. *Ibid.*, p. 87.



They usually approximate jeepney fares for an equivalent distance, as tricycle drivers often cite official jeepney fares as a tacit statement of policy for tricycle fare levels.

Pedicabs in Danao City have the lowest fares of any public transport mode in the province, offering a ride between the public market and anywhere in the central area in 1983 for ₱0.25. This fare is determined and regulated by the local city government, which is in close contact with economic conditions affecting pedicab operations. Such low fares are possible only because the distances involved are very short and, with the exception of the driver's food, no fuel costs are incurred.

The Cebu City local government is responsible for regulating the fares charged by *tartanillas* within their area of operation. These were specified by ordinance in 1945 at ₱0.10 per passenger within the city limits, but the ordinance has not been amended to take into account the rising costs of operation and general cost of living.<sup>15</sup> *Cocheros* are therefore charging fares that exceed the authorized level, and are subject to a penalty of ₱200 or six months imprisonment for overcharging. The police understand their position, however, and do not apprehend *cocheros* who have moderately increased their fares in unison. During the thirty-eight years since the ordinance was originally approved, fares have gradually risen from ten to forty centavos. This is a rate which in 1983 was uniformly observed and accepted by passengers, and almost half the equivalent-distance jeepney fare. As the price of motor fuel and lubricants has increased, the differential between jeepney and *tartanilla* fares has consistently widened.

In summary, public transport fares in the province of Cebu are uniformly fixed and set at a level that has been reached depending on the amount of demand and affordability of customers, competition among supply elements, and base levels approved by regulatory authorities. Bargaining occurs only in the event of special trips that can be negotiated outside the regular service. Only within urbanized areas do actual jeepney fares conform to those specified by government. Elsewhere, all modes charge fares above or below the official tariff, depending on local conditions. Long-distance buses tend to have fares substantially below those authorized, due to extreme poverty in the rural areas; *tartanillas* and tri-

15. Percy R. Jamin, "A Study of the *Tartanilla* Industry in Cebu City" (M.A. Thesis, Faculty of the Graduate School, University of San Carlos, 1974).

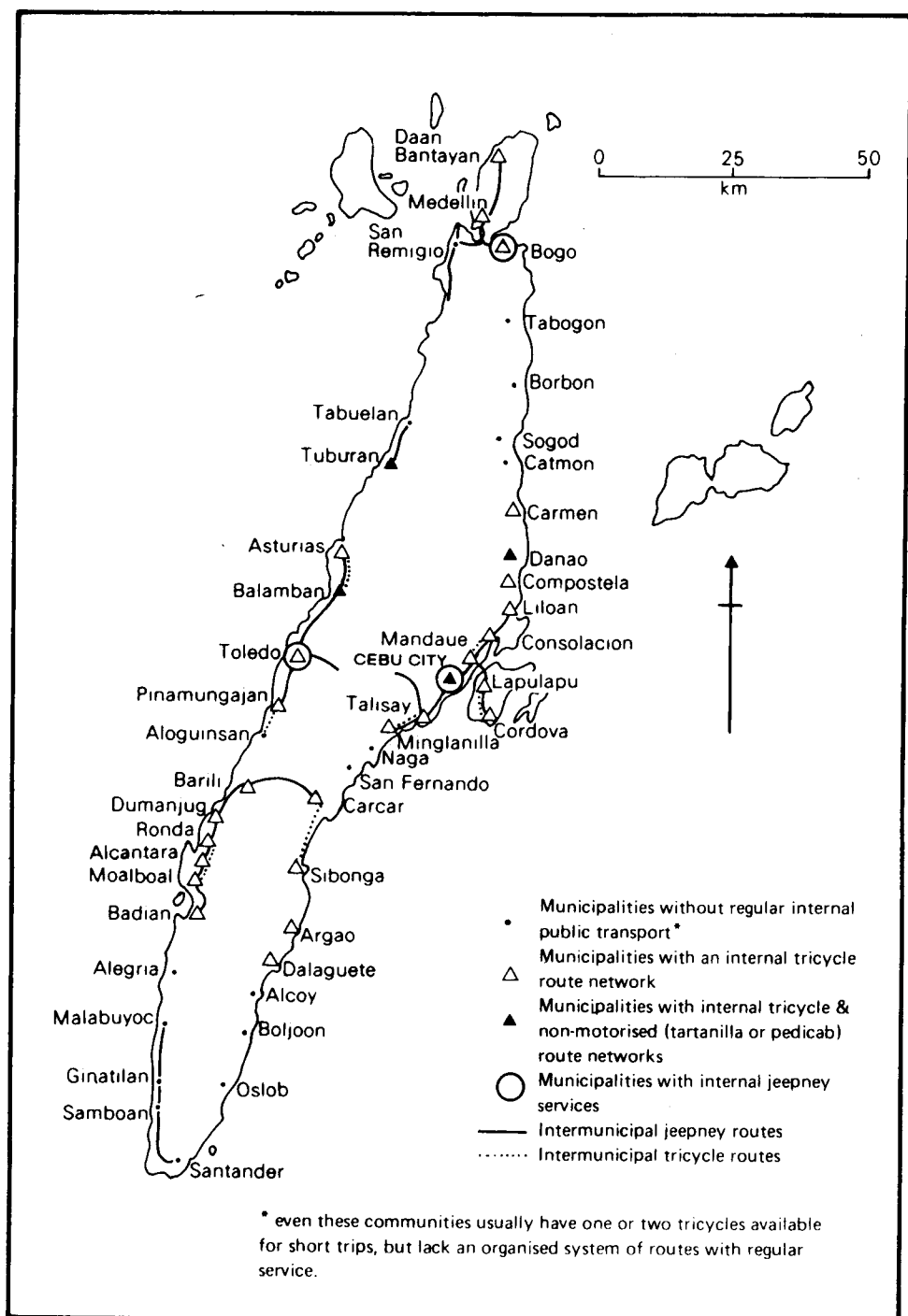


Figure 2: Short distance and local public transport, Cebu island, 1983

cycles charge fares significantly in excess of published rates because of a refusal of the government to update them. In general, pricing policies are sufficiently sensitive to take into account most economic and political relationships.

Structure and conduct have, by themselves, revealed many useful insights, but fall short of completely explaining the adequacy or deficiency of provincial public transport. A third element, the industry's final performance, is also important. Indeed, good performance is essential to good public transport.

### INDUSTRY PERFORMANCE

Geographical and economic performance can include many variables, perhaps the most relevant for the public transport industry being efficiency. While it is virtually impossible to measure efficiency by a single parameter, it basically involves the interrelationship between level of service provided and the cost of offering that service. Level of service can be measured by many indicators, such as comfort, reliability, frequency of service and availability of service. Although a high level of service may imply efficiency because the users enjoy a great degree of satisfaction, it may be inefficient from a total community viewpoint if resources are being used to provide excess capacity. It may also be inefficient if the operator could improve performance by either providing a higher level of service at the same cost, or the same service at a lower cost.

There are three basic types of efficiency that need to be considered: (a) *industry productivity*, which depends on behavioral factors such as investment policy, operating procedures and responsiveness to technological and operational changes, and is reflected in profit margins and output ratios; (b) *quality of service*, dealing primarily with user satisfaction, which can be measured by quantitative indicators such as waiting time, in-vehicle time or speed of operation, structure of the route network and resultant spatial coverage, or by qualitative ones like comfort and demand responsiveness of operation; and (c) the *general efficiency* with which the public transport industry performs from a broad community perspective. This final level of efficiency includes effects such as the industry's contribution towards full employment, equitable income distribution and geographical performance.

## PRODUCTIVITY

By virtue of continuing investment in all modes of the public transport industry, be they drivers, owners or operators, it can be concluded that profit margins and earnings are sufficient to attract private enterprise. The re-equipment of Cebu's jeepney fleet between 1981 and 1983, for example, has involved a total investment of some ₱15 million, all from private sources. Buses and tri-cycles are being replaced or rebuilt as and when considered necessary by the owners, and the pedicab fleet in Danao City has also recently been modernized. Cebu City's tartanillas, the oldest of all existing modes, are kept running through constant repair and rebuilding.

Public transport drivers are earning amounts that are comparable to average incomes in Cebu, except for pedicab drivers, who earn only 57 percent of the average, and jeepney drivers, who tend to earn more than double the average. Most important, however, is that over 70 percent of drivers in all five modes appear to be satisfied with their income.

Owners who are unable to pay cash for their vehicle are rarely able to earn a significant rate of return on investment until payments have been completed. In most cases, owners consider their investment in public transport as a secondary source of income, supplementing their main profession or business. This is ensured by virtue of the capital required for a downpayment as well as the collateral needed for approval of instalment financing of the purchase. Only with relatively large fleets of vehicles are owners able to concentrate entirely on public transport and depend on this as their exclusive or primary source of family income. In such cases, however, owners have customarily invested in support services, such as repair and maintenance facilities for their fleet of vehicles. Owners with only a small number of vehicles can rarely rely on this income alone, unless they are also driving one of the units at least three or four days per week.

Profit margins are highest for the large kabit operators, who, unless they also own some of the units, have very little capital invested, yet are collecting substantial fees from owners in exchange for the use of their franchise. For instance, an operator in control of one hundred units could in 1983 collect about ₱200,000 in one-time entrance fees plus ₱65,000 per year in monthly fees. It is

these professional operators who are earning the greatest profit in the industry, and who are therefore able to exert the greatest control over the industry's structure and conduct.

Efficiency of operation in quantitative terms is outlined in Table 5, classified by the five different modes. Jeepneys clearly carry the largest number of passengers per day, but this is qualified by the short distances traversed when compared to provincial buses, which are by far the most productive when passenger-kilometers are considered. Of the motorized modes, jeepneys are the most efficient in terms of productivity per unit of fuel consumed (passenger-kms per liter), the only non-size-related measure. Average occupancy is highest for the two nonmotorized modes, partly as a result of the very short average trip distances, which allow for a higher level of occupancy per vehicle. Furthermore, the smaller the vehicle's passenger capacity, the easier it is to achieve a full load more frequently.

Additional productivity measures are presented in Table 6, again clearly demonstrating the effect of distances travelled on

Table 5: Estimated Measures of Productivity and Efficiency by Mode, Cebu 1983

Average per vehicle	Tar-				
	Jeepney	Bus	Tricycle	tanilla	Pedicab
Passengers/day	348	162	100	152	92
Passenger-kms/day <sup>a</sup>	2688	10327	186	150	35
Passenger-kms/km <sup>a</sup>	10.9	38.7	2.6	3.3	1.7
Kilometers/day	247	267	72	45	20
Liters of fuel/day <sup>b</sup>	27	130	5	—	—
Liters/100 kms <sup>b</sup>	10.9	48.7	6.9	—	—
Cost of fuel per					
passenger-km (centavos)	3.4	4.2	14.8	13.3c	—
Passenger-kms/liter <sup>a</sup>	100	79	37	—	—
Average occupancy (percent) <sup>d</sup>	68	60	65	83	85

a. assumes 75 percent of route distance as average kms/passenger

b. diesel fuel for jeepneys and buses; petrol-oil mixture for tricycles

c. cost of food for the horses

d. passenger-kms/km divided by seating capacity (see Table 1)

market share, especially with respect to the relative position of tricycles and provincial buses, which is virtually reversed when distance is taken into account. The contribution of tartanillas and pedicabs, while fairly substantial from a point of view of total passengers carried per day, becomes negligible when distance is included. This is understandable if the local nature and slow speed of the nonmotorized modes are considered. The real performance of Cebu's public transport industry cannot be appreciated, however, without realizing that the total number of passengers carried per day (1,852,980 — see Table 6) is almost equivalent to the island's entire population (1,941,979 in 1980).<sup>16</sup> Whereas this ridership is certainly not evenly distributed throughout the island, being largely concentrated around the urbanized area of Metro Cebu, it does indicate a high overall level of mobility.

Table 6: Estimated Market Share of Public Transport Modes,  
Province of Cebu 1983

Mode	Passengers carried per day	Per cent	Passenger-kms per day	Per cent
Jeepney	1,304,440	70.4	8,498,600	70.8
Bus	43,740	2.4	2,788,290	23.2
Tricycle	386,040	20.8	619,850	5.2
Tartanilla	81,960	4.4	82,450	0.7
Pedicab	36,800	1.9	14,000	0.1
Total	1,852,980	100.0	12,003,190	100.0

Total cost of providing public transport service is understandably higher for those modes with the lowest passenger capacity. Because it rarely carries more than one or two passengers at once, the pedicab has the highest unit cost, with tricycles and tartanillas not far behind. The latter's cost is almost as great as for its motorized counterpart because of the need to purchase, maintain and feed two horses for each rig even though only one is in use at any

16. 1980 *Integrated Census of the Population and its Economic Activities* (Manila: Republic of the Philippines, National Economic and Development Authority, National Census and Statistics Office, 1980).

time. The jeepney emerges as the most efficient of all five modes, with a cost per passenger-kilometer slightly less than the bus. This is partly due to the extra expense of formally employing conductors, dispatchers and maintenance personnel, and partly to the inferior fuel economy per passenger of buses (Table 5). While the average provincial bus has a seating capacity 3.6 times that of the average jeepney, fuel consumption is 4.5 times greater. The proportion of unit cost composed of labor (mainly the earnings of drivers and conductors) is affected primarily by vehicle size and the source of motive power. The larger the vehicle, the lower the proportion of cost composed of labor (buses and jeepneys), and the lower the expenditure on fuels, the higher the labor component (pedicabs and tartanillas).

The ability of the industry to take advantage of opportunities to improve productivity is evident from the trend towards diesalization of Cebu's jeepney fleet as well as from experiments with liquid petroleum gas (LPG) as an alternative fuel, conducted by some jeepney owners. *Cocheros* and rig owners have been trying to extend the productivity of the tartanilla business by carefully collecting horse manure, drying it in the sun and selling it for fertilizer as a by-product of the transport function. Tricycle owners are well known for attaching various extra seats onto the inside and outside of their vehicles, thereby increasing potential seating capacity by as much as 100 percent, to a total of eight passengers. The average seating capacity of jeepneys has also been increasing, as investors take advantage of the availability of models with two additional places. Concurrently, small twelve-seater models are slowly being phased out in favor of units with a capacity of sixteen or eighteen passengers.

Actual road space occupied by the various types of public transport vehicles is shown in Table 7. When the average passenger load is taken into account,<sup>17</sup> it appears that both configurations of provincial buses and jeepneys are the most efficient users of road space. There is a negligible difference between the two sizes of bus and the jeepney, suggesting that buses would have great difficulty in replacing jeepneys and reducing road congestion in the process. It needs to be borne in mind that jeepneys are far more maneuverable and can accelerate and stop far more easily than buses, making them more suitable for the urban environment.

17. Derived by multiplying average occupancy by passenger capacity.

Table 7: Approximate Road Space Occupied by Public Transport Vehicles, Province of Cebu

	Tartanilla	Pedicab	Tricycle	Jeepney	Small bus	Large bus
Passenger capacity	4	2	4	16	40	75
Average occupancy(%)	83	85	65	68	60	60
Average passenger load	3.3	1.7	2.6	10.9	24	45
Overall vehicle length (m)	2.95	1.49	1.90	4.53	7.08	11.98
Overall vehicle width (m)	1.55	1.03	1.37	1.60	2.02	2.49
Road space occupied (m <sup>2</sup> )	4.6	1.5	2.6	7.2	14.3	29.8
Road space per passenger (m <sup>2</sup> )	1.39	0.88	1.00	0.66	0.60	0.66

These factors, combined with the ability of jeepneys to provide a higher frequency of service for the same level of demand due to their lower passenger capacity, have made them increasingly attractive for the shorter rural services as well. On the longer runs, however, buses have prevailed because of their advantages in terms of comfort, and since the drawbacks of a large vehicle are minimized in areas of low traffic where few stops are made.

The tartanilla is the least efficient user of road space, mainly because of the large amount of room occupied by the horse itself. It is also very slow and therefore frequently obstructs the flow of motorized traffic, as many of its routes operate on streets that are frequented by cars and trucks. On average, pedicabs are even slower than tartanillas, but their operation is generally restricted to streets with very little motorized traffic in the city of Danao. On the few occasions that pedicabs do operate on main thoroughfares, they are not very obtrusive because they are the narrowest of all vehicles and do not need to block an entire lane. Pedicabs occupy only 1.5 square meters of area, less than one-third of the space consumed by tartanillas.

Aside from productivity, which has largely been concerned with the ability of Cebu's public transport industry to satisfac-



torily provide attractive returns to its providers, the users are equally if not more important. In order to evaluate how well the industry performs in meeting their needs, service quality is a crucial consideration.

#### QUALITY OF SERVICE

Quality of service offered by the various modes is very good, especially considering that none of them accommodates standing passengers. Comfort is assured by providing a seat for everyone, usually well padded with extra back- or head-rests, handholds and steps. Many of the motorized vehicles are equipped with stereo music, and cleanliness of the interiors is usually well maintained. The primary difference between levels of comfort on buses and jeepneys is the seating configuration. Jeepney passengers sit facing inward, the low roof and cramped conditions preventing a good view outside. It is not possible to stand up in a jeepney; boarding and alighting require a crouched position. Comfort declines considerably when more than seven passengers are required to sit abreast on each side in the rear section of jeepneys. These factors make jeepneys unsuitable for the longest distances, whereas buses provide a more appropriate style of accommodation. Buses also have a much more extensive capacity for carrying luggage than jeepneys, explaining why they are preferred for the longest-distance routes.

Conditions of comfort are highest in pedicabs, whose capacity is limited by the driver's pedalling ability to a maximum of two passengers. Tricycles are prone to greater crowding at certain times, and provide a less comfortable ride because they frequently operate over rough roads with a loose or broken surface. Tartanillas are the least comfortable, due to the lack of pneumatic tires and extremely rudimentary suspension. Rig seats are also rarely padded, composed simply of two wooden benches, possibly covered with a layer of vinyl or plastic. But since the average tartanilla trip is less than one kilometer in length, the lower level of comfort in horse-drawn vehicles can be tolerated, and it is more than compensated for by low fares.

Frequency of service among Cebu's public transport modes is very high, providing a negligible waiting time for passengers, except in remote areas or late at night. For example, average service

frequency on most major jeepney routes in Metro Cebu is better than one vehicle per minute. On some routes, vehicle flows exceed 400 per hour, which translates to an average frequency of less than ten seconds.<sup>18</sup>

Tricycles, *tartanillas* and pedicabs offer service frequencies generally equivalent to or better than jeepneys, as they are usually waiting for passengers in a queue at terminals. Waiting time is rarely greater than the time it takes to fill the vehicle (two to four passengers). As many riders only travel on these modes for very short distances, vacant seats are not difficult to find, making it easy for people to board en route. Buses, due to their large capacity and long distance travelled, have the lowest frequency of service, ranging from about every half hour on runs to Toledo City, to about three or four trips per day to outlying towns and villages in the provincial hinterland (Figure 1). A relatively frequent service to the farthest reaches of the island is maintained because of the demand generated by connecting ferry passengers from Negros in the south and Leyte, Masbate or Bantayan Island in the north.

Vehicles of all sizes tend to proceed along their respective routes as fast as permitted by their motive power or by traffic flow, usually ensuring a rapid ride and minimizing in-vehicle time. Traffic delays due to congestion are relatively infrequent. What bottlenecks do occur are concentrated around public markets, road construction projects and major central shopping areas during the height of peak hours. Because of their predictability, these delays can be avoided by regular travellers who are familiar with traffic conditions.

If there are inhabited areas in Cebu that are not served by public transport, it is because roads are either nonexistent or impassable. Figures 1 and 2 depict the penetration of bus, jeepney and tricycle services into the provincial hinterland. All municipalities have regular services to the provincial capital as well as to neighboring towns. Most places with a population exceeding 20,000 have an internal network of tricycle routes, in some cases augmented by nonmotorized vehicles. Whereas smaller communities usually have several tricycles available for local trips, places with fewer than 20,000 inhabitants are clustered very close to the national highway and lack an organized system of routes with regular ser-

18. As these figures refer to an average, peak period services are more frequent.

vice.<sup>19</sup> Many neighborhoods, even within the cities, do not have facilities for vehicular access and can only be penetrated on foot.

No single area of significant population can be identified as having a deficiency in public transport service. But because of the high concentration of services to and from Cebu City's downtown area, it is sometimes difficult for people to travel between different parts of the metropolitan area without having to transfer in the city center. This lack of cross-radial services, both on a provincial and metropolitan scale, is inconvenient, but human activities are very strongly oriented towards Cebu City. The province's largest and most popular open-air market, shopping centers, financial institutions, universities, wholesalers and port activities are all located in the central area of Cebu City.

Flexibility of operation allows most public transport modes to be very demand-responsive. Vehicles occasionally deviate from their usual routes to bring passengers closer to their destination, or can alter the route to allow for shifts in demand patterns at different times of the day, days of the week or seasons of the year. They are thereby also able to circumvent accidents, traffic bottlenecks or other temporary problems. Because drivers are most familiar with the precise nature of passenger demand, they are able to adjust their service to suit changes very rapidly, although the recent jeepney re-routing program makes this much more difficult than in the past.<sup>20</sup> Due to the competitive nature of operation, drivers are often willing to go out of their way to attract passengers and to please them, thereby providing a higher degree of availability and accessibility. A final component of the industry's performance concerns general efficiency from a broad community point of view.

#### GENERAL EFFICIENCY

Considering the performance of public transport from a geographical viewpoint, spatial variations are clearly apparent. Some areas have more frequent service than others, some have a denser

19. The one major exception is the towns of Ronda, Alcantara and Moalboal, each of which has a population under 20,000. These three communities are very close together (four kilometers between each town center) and share a common pool of tricycles providing inter- and intramunicipal service. Their combined population of 37,241 is therefore a more meaningful figure.

20. A Metro Cebu Jeepney Rerouting Program was implemented in September 1983, specifying precisely which streets could be traversed by certain routes. Although intended

network of routes, and some are served by a greater variety of modes. These differences can almost always be explained by variations in demand, being a direct reflection of absolute population, population densities, levels of economic activity, or the presence of a major trip generator such as a ferry terminal or public market. In spite of these variations, over 97 percent of the population of Cebu island lives in municipalities that have ten or more direct bus trips per day linking them to the provincial capital.<sup>21</sup> While similar measures are difficult to quantify within the metropolitan area, there are very few people who live, work or attend educational institutions greater than 300 meters from the nearest public transport service.

Because of the relatively small size of Cebu's public transport vehicles, the industry is very labor-intensive, directly employing drivers, conductors, luggage boys, dispatchers, mechanics, wash boys, and drivers' companions. Each tricycle, pedicab, tartanilla and urban jeepney normally has one full-time or two part-time drivers. Small buses and provincial jeepneys require a driver and a conductor, with large buses often employing a driver, conductor and luggage boy. Aside from this there is a large contingent of young boys who wash the units, and companions who act as de-facto conductors by assisting the drivers, who in turn pay for their food while together. While this is in part the symptom of a more fundamental problem of underemployment, it also underlines the public transport industry's ability to absorb surplus labor in a useful and productive way. It has made a substantial contribution to the creation of permanent employment opportunities, including approximately 20,000 drivers, 4,000 conductors and helpers, 100 owners and operators, and 10,000 or more in ancillary services and industries. When families and dependants are included, this accounts for some 150,000 individuals, or between 7 and 10 percent of the provincial population.

On first observation, it might appear that an unreasonable proportion of income derived from the industry is claimed by vehicle owners, but after closer examination it becomes clear that financial obligations and maintenance requirements consume

to improve service and reduce travel times, the scheme unnecessarily restricted the flexibility of jeepney services, resulting in large-scale strikes and protests (*Metro Manila Times*, 24 September 1983).

21. Over 80 percent lives in municipalities that have thirty or more direct trips per day (Fig. 1).

most of the daily "boundary" fee, such that a significant return on initial investment cannot be earned until after the vehicles are fully amortized. As individuals, it is only the large kabit operators who are collecting substantial sums of money from the public transport industry. Furthermore, financing companies, motor vehicle dealerships, oil companies, parts suppliers, wholesalers and retailers, manufacturers, insurance agents and the government<sup>22</sup> collect monetary benefits. Thus, while income distribution within the industry is far from optimally equitable, it reaches a substantial cross-section of the provincial population.

#### ADEQUACY OR DEFICIENCY

From the foregoing analysis it is apparent that existing public transport in Cebu province is, in general, providing a satisfactory service that adequately meets the mobility needs of island inhabitants. The entire province is well served by five modes, catering to demands at neighborhood, metropolitan and provincial scales. Because of their flexibility, operations are sensitive to shifts in demand, and fares are tailored to the ability of users to pay. The industry is owned and operated entirely by private sector enterprise. Due to its profitable nature, it makes few demands on public resources, contributing to government revenue through a variety of federal taxes. Ownership and employment are scattered throughout the province among local residents, directly supporting the livelihood of close to one-tenth of the provincial population.

The major deficiencies of the public transport industry include the lack of cross-radial services, both within Metro Cebu and across the island, with most services concentrated on downtown Cebu City; the inability of bus drivers to exercise control over their earnings;<sup>23</sup> and the inequities of the kabit system. Nevertheless, these drawbacks are not of a sufficient magnitude to require a fundamental restructuring of the industry. They can be effectively addressed at a practical level without disrupting what is essentially an efficient industry providing a high level of service at low cost to the taxpayer. In this light, it is extremely difficult to justify the extension of Metrorail-style capital-city policies to the public transport systems of provincial areas.

22. Through fuel taxes, license fees and traffic fines.

23. They receive a fixed daily wage as opposed to renting a vehicle and retaining the excess of income over expenditures as their earnings.