8. TRIP DISTRIBUTION

8.1 Trip Distribution by Trip Purpose

Figures 8.1 show desire lines by trip purpose.

< To Work >

Quezon (II) and Makati form large centers for " to Work" trips. Manila also attracts a number of trips of this purpose, although its relative weight has considerably decreased since 1983 (JUMSUT).

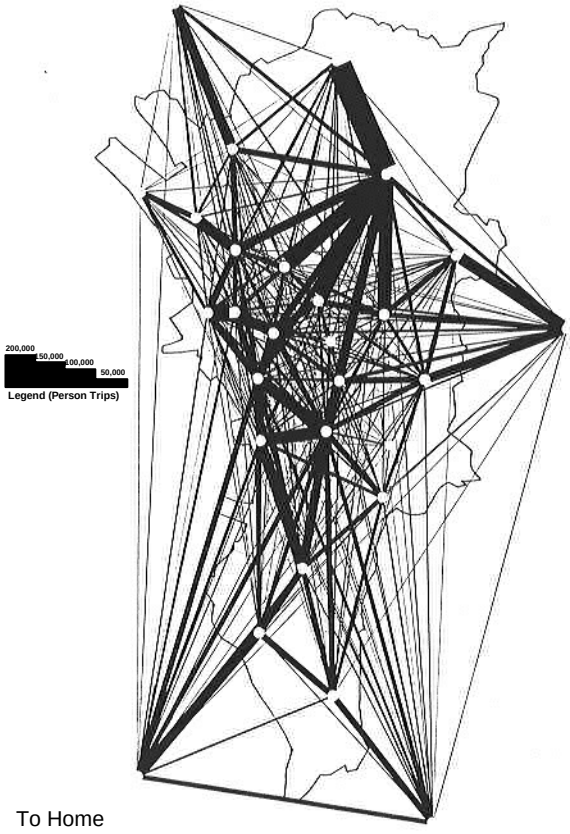
< To School >

Quezon (II) and Manila attract a number of "to School" trips. Between Rizal Province and Marikina, and between Bulacan Province and Valenzuela, the volume of trips is also outstanding.

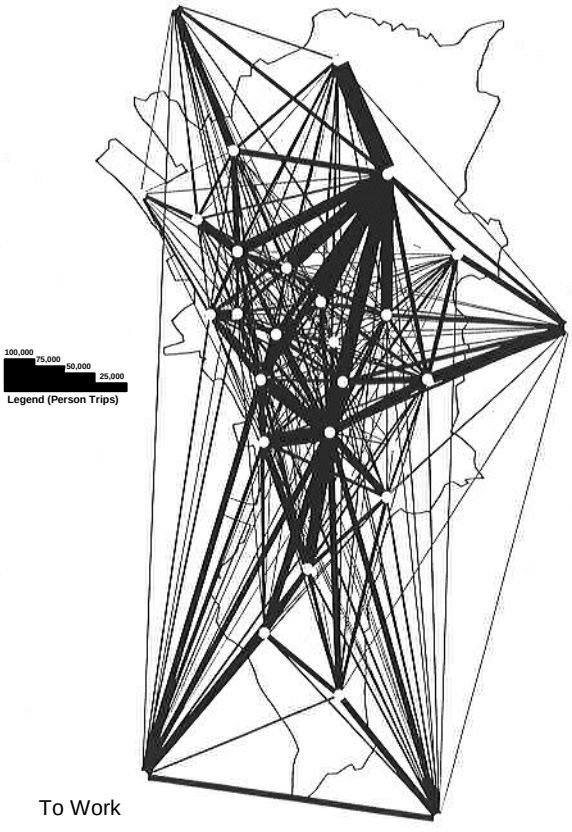
< Business >

Quezon (II), Makati, Manila and Quezon (III) attract a number of trips from the adjacent zones. Long-distance trips are relatively fewer than other purposes.

FIGURE 8.1
DESIRE LINES BY TRIP PURPOSE

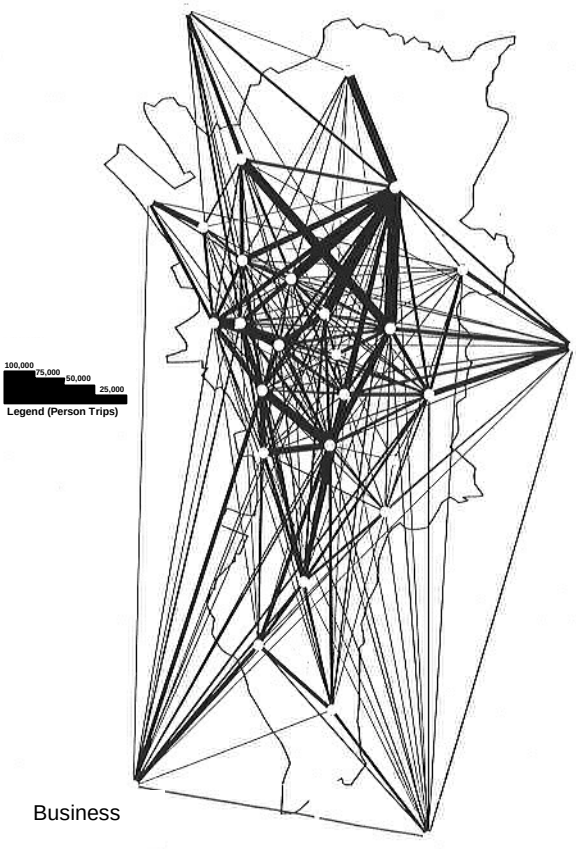


To Home



To Work

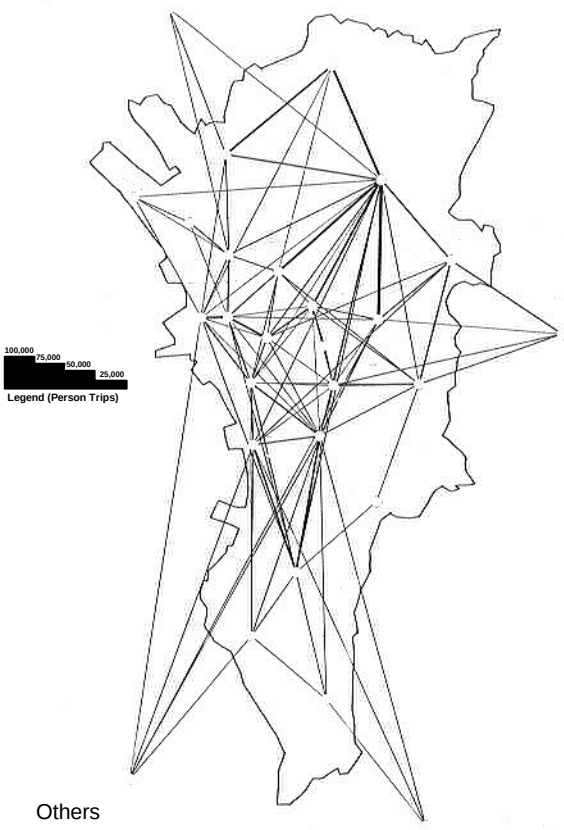
To School



Business

Cont. Figure 8.1

Private



Others

8.2 Trip Distribution by Travel Mode

Figures 8.2 shows desire lines by travel mode.

< Bus >

Bus trips have two large centers at Quezon (II) and Makati. Zones along EDSA and South Super Highway show large generations/attractions. Trip length is generally long.

< Jeepney >

Jeepney trips are relatively short, working as a feeder to buses. The trips have large centers at Manila, Quezon (II), Rizal Province and so on.

<Tricycle >

Since the role of tricycles is mainly intra-zonal movement, only a small number of trips are indicated on the map. The long trips indicated on the map are those who traveled by car or by taxi actually but used tricycle for a part.

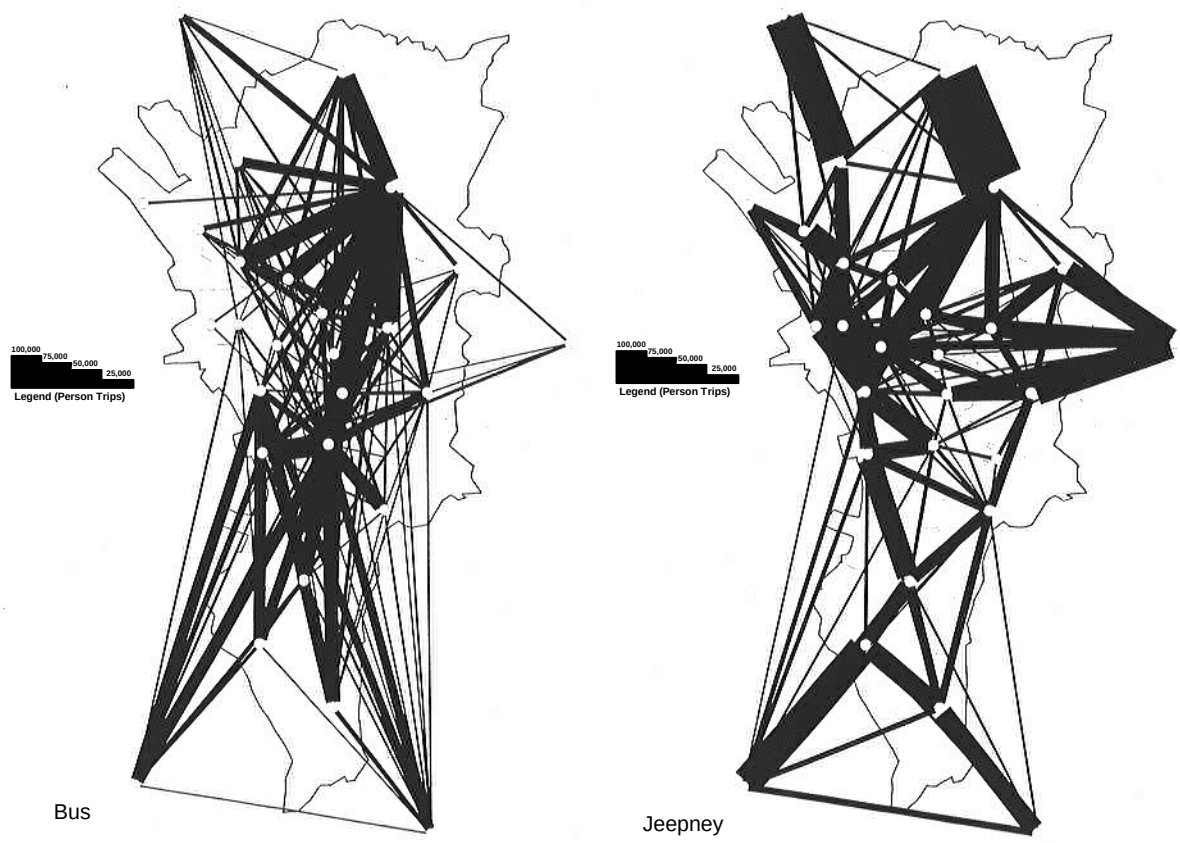
<Car>

Car trips are concentrated in Quezon (II), Makati, Parañaque, etc. The pattern is similar to “To Work” trips.

< Train >

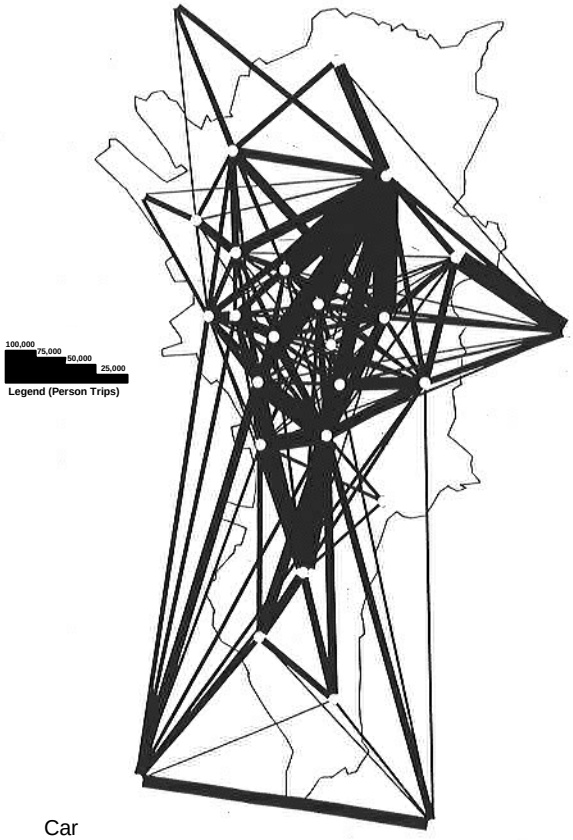
Train trips are concentrated in the LRT No. 1 Corridor. It has three centers at Caloocan (S), Manila (IV) and Pasay.

FIGURE 8.2
TRIP DISTRIBUTION BY TRAVEL MODE

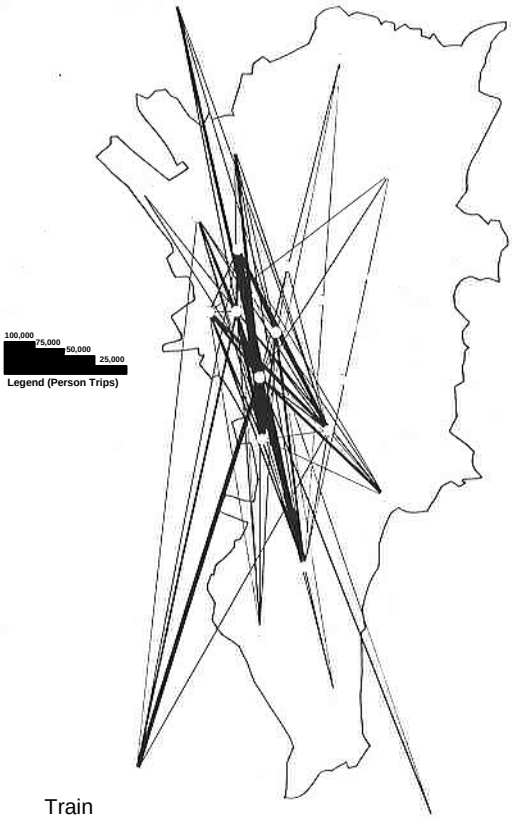


Cont. Figure 8.2

Tricycle



Car



Train

9. MODAL CHOICE

9.1 Modal Choice by Trip Purpose

Tables 9.1 and 9.2 and Figures 9.1 and 9.2 present the modal choice by trip purpose. In "to Work" trips, the jeepney has the highest share at 32 percent, followed by bus at 19 percent and car, 16 percent. The share of "Walk" is high at 31 percent in "to School" trips. In "Business" trips, the share of car is 23 percent, while that of jeepney's, 25 percent.

TABLE 9.1
NUMBER OF TRIPS BY TRIP PURPOSE AND BY TRAVEL MODE

Mode	to Home		to Work		to School		Business		Private		Others		Total	
	No. (000)	%	No. (000)	%	No. (000)	%	No. (000)	%	No. (000)	%	No. (000)	%	No. (000)	%
Train	215	1.5	101	2.0	79	1.6	23	0.9	28	0.9	8	0.9	453	1.5
Bus	1,751	12.5	955	19.4	456	9.1	210	7.8	233	7.8	69	7.9	3,674	12.0
Jeepney	4,552	32.5	1,566	31.8	1,589	31.8	664	24.6	1,021	34.1	195	22.5	9,587	31.4
Tricycle	2,034	14.5	380	7.7	990	19.8	366	13.6	430	14.4	87	10.0	4,288	14.1
Car	1,717	12.2	797	16.2	302	6.0	630	23.3	416	13.9	277	31.9	4,139	13.6
Taxi	503	3.6	166	3.4	39	0.8	266	9.8	126	4.2	49	5.6	1,149	3.8
Truck	137	1.0	164	3.3	3	0.1	288	10.6	18	0.6	12	1.3	621	2.0
Others	32	0.2	18	0.4	5	0.1	6	0.2	5	0.2	2	0.2	69	0.2
Walking	3,074	21.9	773	15.7	1,529	30.6	249	9.2	715	23.9	170	19.6	6,511	21.4
Total	**14,017**	**100.0**	**4,921**	**100.0**	**4991**	**100.0**	**2,702**	**100.0**	**2,991**	**100.0**	**868**	**100.0**	**30,491**	**100.0**

FIGURE 9.1
MODAL SHARE BY TRIP PURPOSE

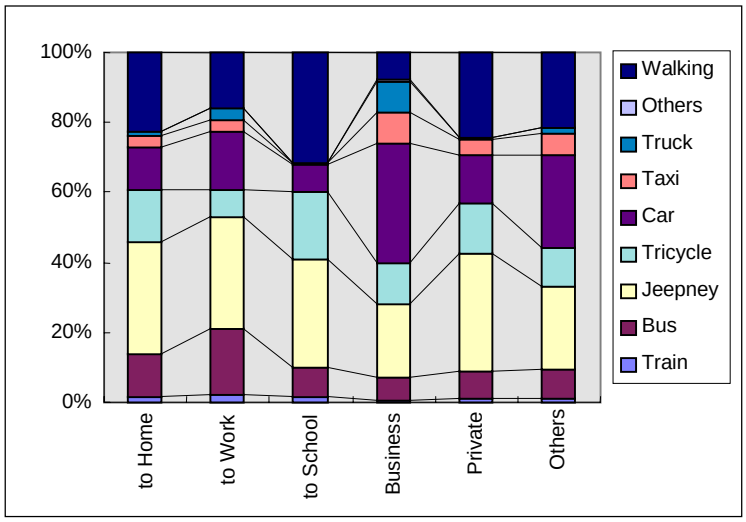
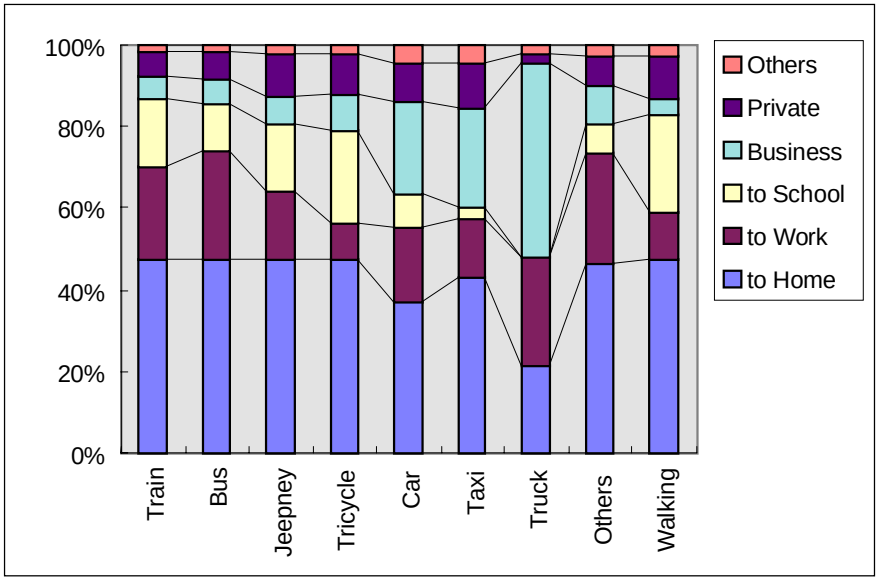


TABLE 9.2
MODAL SHARE BY TRIP PURPOSE

Mode	to Home	to Work	to School	Business	Private	Others	Total
Train	47.4	22.2	17.4	5.1	6.1	1.7	100.0
Bus	47.7	26.0	12.4	5.7	6.3	1.9	100.0
Jeepney	47.5	16.3	16.6	6.9	10.7	2.0	100.0
Tricycle	47.4	8.9	23.1	8.5	10.0	2.0	100.0
Car	41.5	19.3	7.3	15.2	10.0	6.7	100.0
Taxi	43.8	14.5	3.4	23.1	11.0	4.2	100.0
Truck	22.1	26.4	0.4	46.3	2.8	1.9	100.0
Others	46.6	26.7	7.1	9.4	7.2	3.0	100.0
Walking	47.2	11.9	23.5	3.8	11.0	2.6	100.0
Total	**46.0**	**16.1**	**16.4**	**8.9**	**9.8**	**2.8**	**100.0**

FIGURE 9.2
TRIP PURPOSE COMPOSITION BY MODE



9.2 Modal Choice vs. Socioeconomic Characteristics

(1) By Car Ownership

For non-car-owning households, public transportation shares the highest at 66 percent followed by "Walk" at 25 percent. Excluding "Walk," public transportation shares about 87 percent. For car-owning households, private mode shares 52 percent, while public mode shares a little less at 38 percent. The percentage of "Walk" is only 10 percent.

TABLE 9.3
NUMBER OF TRIPS BY TRAVEL MODE AND BY CAR OWNERSHIP

Mode	Non-Car Owner		Car Owner		Total	
	No. (000)	%	No. (000)	%	No. (000)	%
Public Mode	15,327	65.5	2,675	37.7	18,002	59.0
Train	360	1.5	93	1.3	453	1.5
Bus	2,988	12.8	686	9.7	3,674	12.0
Jeepney	8,241	35.2	1,346	19.0	9,587	31.4
Tricycle	3,738	16.0	550	7.8	4,288	14.1
Private Mode	2,284	9.8	3,695	52.1	5,978	19.6
Car	801	3.4	3,338	47.1	4,139	13.6
Taxi	870	3.7	279	3.9	1,149	3.8
Truck	548	2.3	73	1.0	621	2.0
Others	64	0.3	4	0.1	69	0.2
Walking	5,788	24.7	723	10.2	6,511	21.4
Total	**23,398**	**100.0**	**7,093**	**100.0**	**30,491**	**100.0**

FIGURE 9.3
MODAL SHARE BY CAR OWNERSHIP
(PRIVATE/PUBLIC)

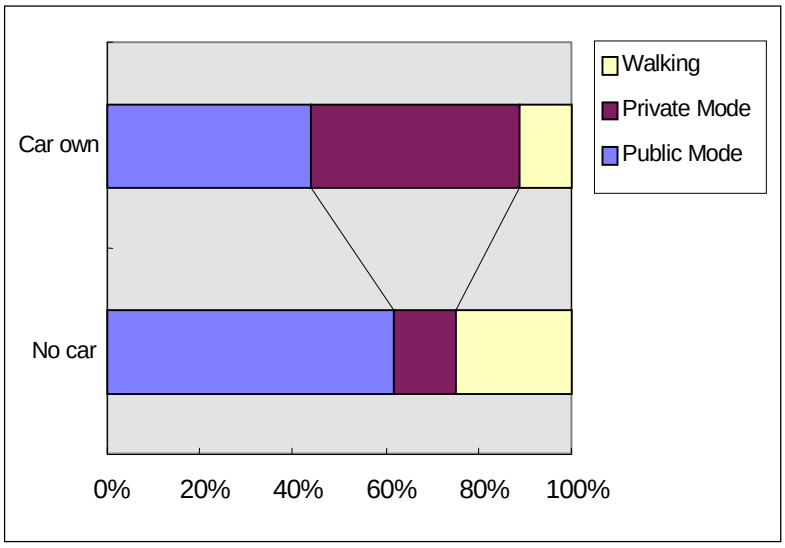


FIGURE 9.4
MODAL SHARE BY CAR OWNERSHIP
(BY TRAVEL MODE)

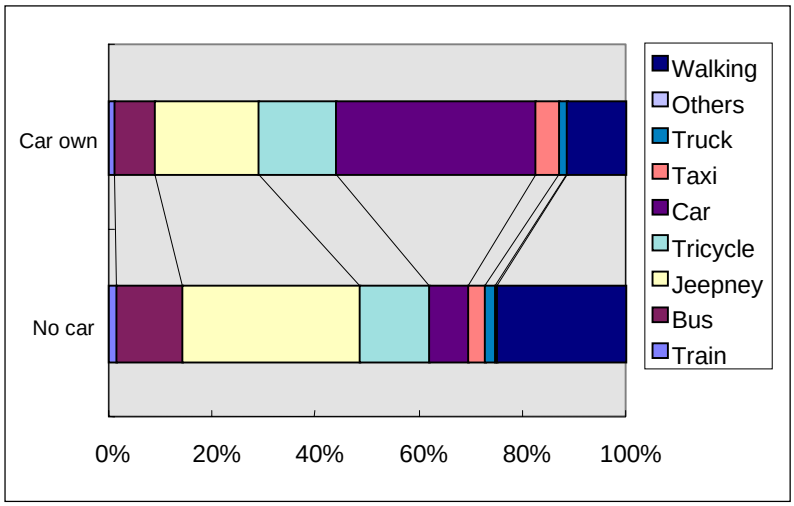
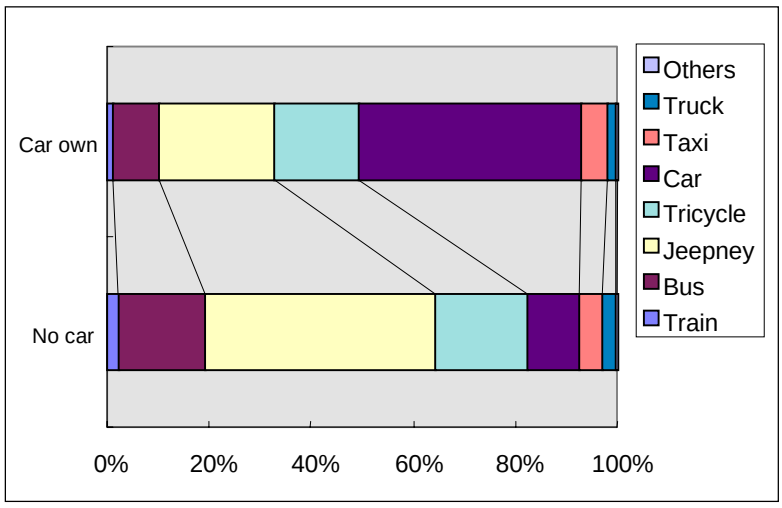


FIGURE 9.5
MODAL SHARE BY CAR OWNERSHIP EXCLUDING WALK TRIPS
(BY TRAVEL MODE)



(2) By Occupation

Figure 9.6 shows the modal share by occupation. Table 9.4 reveals that the jeepney is widely used by all types of occupation, with shares of 30 percent and above. A far second is the bus, which is used mostly by workers (15 percent) and the jobless (14 percent). Students and housewives favor tricycles at shares of 19 percent and 20 percent, respectively. Students also have a high share for "Walk" at about 31 percent, followed by housewives (24 percent), jobless (21 percent), and workers (15 percent).

FIGURE 9.6
MODAL SHARE BY OCCUPATION

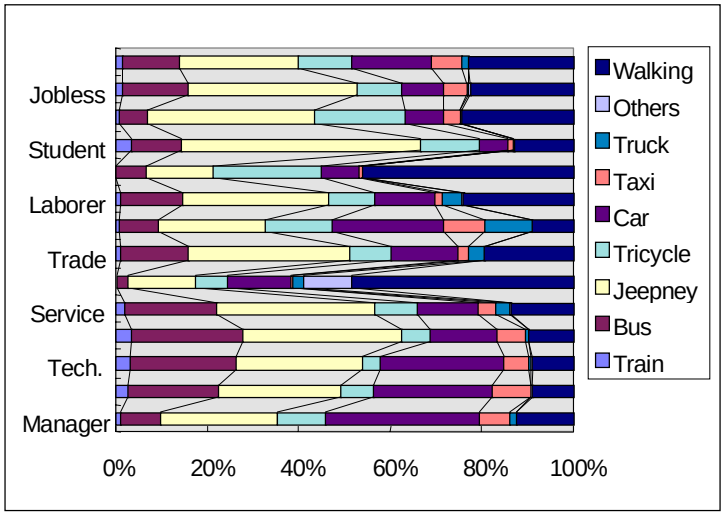
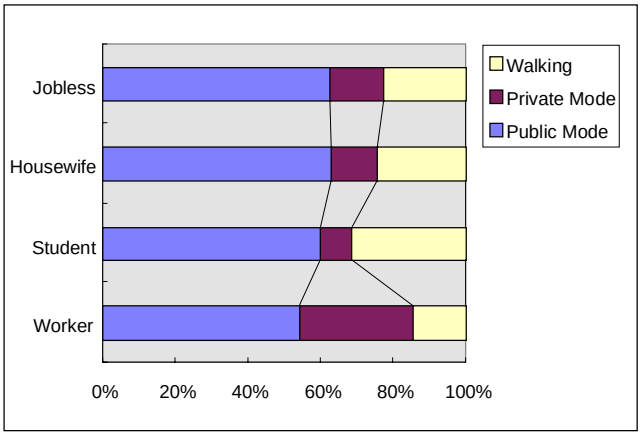


TABLE 9.4
NUMBER OF TRIPS BY MODE AND BY EMPLOYMENT STATUS

Mode	Worker & Others		Student		Housewife		Jobless		Total	
	No. (000)	%	No. (000)	%	No. (000)	%	No. (000)	%	No. (000)	%
Public Mode	8,749	55.9	6,447	62.2	1,906	63.8	900	60.8	18,002	59.0
Train	243	1.6	165	1.6	21	0.7	25	1.7	453	1.5
Bus	2,313	14.8	959	9.3	194	6.5	208	14.0	3,674	12.0
Jeepney	4,636	29.6	3,334	32.1	1,090	36.5	527	35.6	9,587	31.4
Tricycle	1,557	9.9	1,990	19.2	600	20.1	141	9.5	4,288	14.1
Private Mode	4,595	29.4	751	7.2	366	12.2	266	17.9	5,978	19.6
Car	3,079	19.7	629	6.1	245	8.2	186	12.5	4,139	13.6
Taxi	861	5.5	108	1.0	111	3.7	69	4.7	1,149	3.8
Truck	604	3.9	4	0.0	4	0.1	9	0.6	621	2.0
Others	51	0.3	10	0.1	5	0.2	3	0.2	69	0.2
Walking	2,306	14.7	3,172	30.6	717	24.0	315	21.3	6,511	21.4
Total	**15,650**	**100.0**	**10,371**	**100.0**	**2,988**	**100.0**	**1,481**	**100.0**	**30,491**	**100.0**

FIGURE 9.7
MODAL SHARE BY EMPLOYMENT STATUS



(3) By Household Income

Figure 9.8 shows the modal choice by household income class. The following tendency can be observed:

(a) The share of car increases as income level becomes higher.
(b) The share of tricycle and "walk" decreases as income level becomes higher.
(c) The share of bus is the highest in the income bracket of P15,000 - P40,000.
(d) The share of jeepney is large at about 30% for the income bracket below P30,000.

FIGURE 9.8
MODAL SHARE BY HOUSEHOLD INCOME

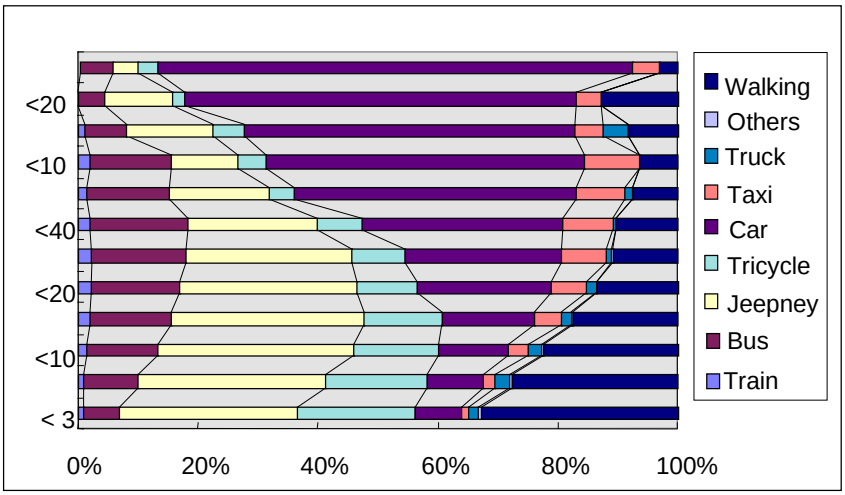


TABLE 9.5
NUMBER OF TRIPS BY TRAVEL MODE AND BY HOUSEHOLD INCOME

Per 1,000 trips

Household Income	Train	Bus	Jeepney	Tricycle	Car	Taxi	Truck	Others	Walking	Total
under P3,000	16	133	640	416	109	25	32	12	694	2,077
P3,000 - P5,999	73	720	2,495	1,310	377	155	197	17	2,150	7,494
P6,000 - P9,999	123	1,032	2,862	1,244	788	287	200	15	1,929	8,480
P10,000 - P14,999	105	769	1,822	737	832	238	100	15	970	5,588
P15,000 - P19,999	62	431	876	295	578	163	48	4	394	2,852
P20,000 - P29,999	47	352	596	190	612	149	23	4	231	2,205
P30,000 - P39,999	14	124	159	55	327	62	5	0	76	821
P40,000 - P59,999	9	77	94	23	240	45	8	1	41	538
P60,000 - P99,999	4	25	22	10	120	17	0	0	13	210
P100,000 - P149,999	1	8	15	5	78	5	7	0	8	128
P150,000 - P199,999	0	1	2	1	20	1	0	0	3	27
P200,000 & over	0	3	3	2	56	4	0	0	2	71
Total	**453**	**3,6674**	**9,587**	**4,288**	**4,139**	**1,149**	**621**	**69**	**6,511**	**30,491**

TABLE 9.6
MODAL SHARE BY HOUSEHOLD INCOME

%

Household Income	Train	Bus	Jeepney	Tricycle	Car	Taxi	Truck	Others	Walking	Total
under P3,000	0.8	6.4	30.8	20.0	5.3	1.2	1.5	0.6	33.4	100.0
P3,000 - P5,999	1.0	9.6	33.3	17.5	5.0	2.1	2.6	0.2	28.7	100.0
P6,000 - P9,999	1.4	12.2	33.7	14.7	9.3	3.4	2.4	0.2	22.7	100.0
P10,000 - P14,999	1.9	13.8	32.6	13.2	14.9	4.3	1.8	0.3	17.4	100.0
P15,000 - P19,999	2.2	15.1	30.7	10.3	20.3	5.7	1.7	0.1	13.8	100.0
P20,000 - P29,999	2.1	15.9	27.1	8.6	27.8	6.8	1.1	0.2	10.5	100.0
P30,000 - P39,999	1.6	15.1	19.4	6.7	39.9	7.5	0.6	0.0	9.2	100.0
P40,000 - P59,999	1.7	14.3	17.5	4.4	44.6	8.3	1.5	0.1	7.6	100.0
P60,000 - P99,999	1.9	11.8	10.5	4.8	57.1	7.9	0.0	0.0	6.0	100.0
P100,000 - P149,99	0.8	6.2	11.8	4.2	61.3	3.7	5.3	0.0	6.6	100.0
P150,000 - P199,999	0.0	3.0	8.6	1.9	73.2	2.6	0.0	0.0	10.7	100.0
P200,000 & over	0.4	4.9	4.3	2.7	79.5	5.0	0.0	0.0	3.2	100.0
Total	**1.5**	**12.0**	**31.4**	**14.1**	**13.6**	**3.8**	**2.0**	**0.2**	**21.4**	**100.0**

FIGURE 9.9
MODAL SHARE BY HOUSEHOLD INCOME
(NON-CAR-OWNING HOUSEHOLDS)

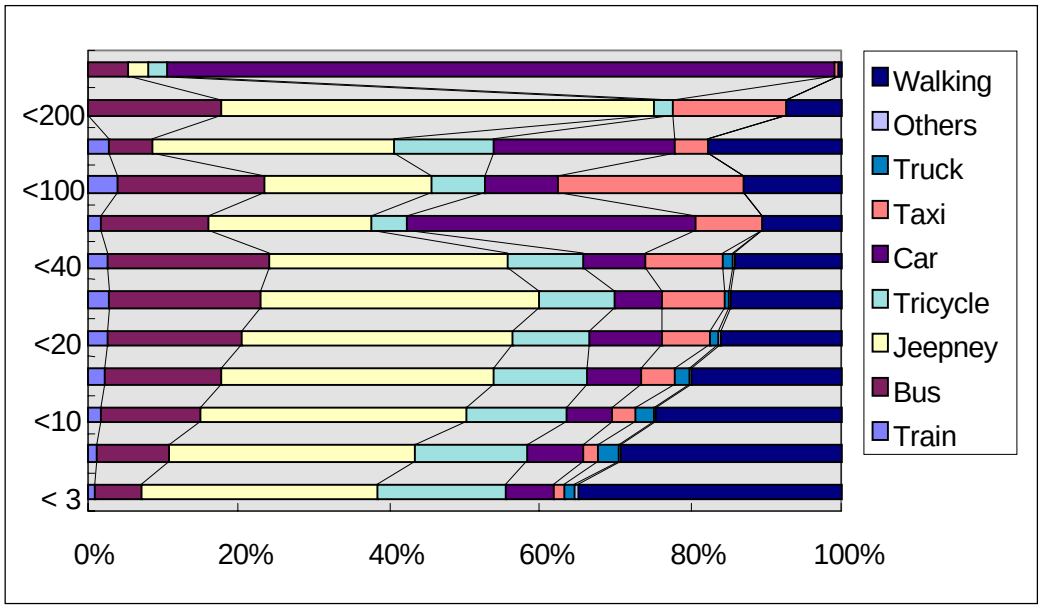
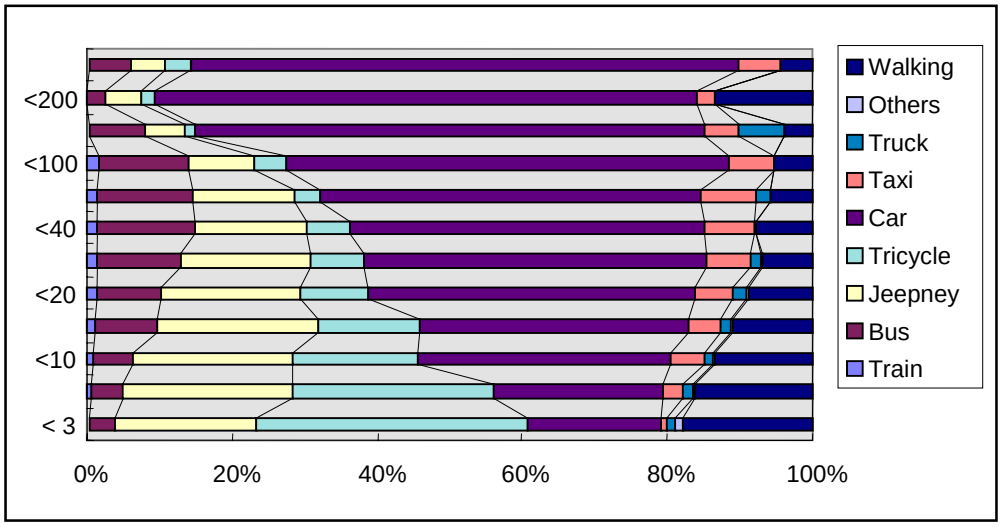


FIGURE 9.10
MODAL SHARE BY HOUSEHOLD INCOME
(CAR-OWNING HOUSEHOLDS)



9.3 Modal Choice by Zone

Table 9.7 presents the modal choice by zone.

(a) The share of jeepney is high at 27-40 percent in most zones.

(b) The share of bus is high in the zones along EDSA and South Super Highway. Particularly in Makati and Mandaluyong, the share exceeds 25 percent.

(c) The share of car is high in Mandaluyong, Parañaque, Makati, so on.

(d) The share of jeepney and tricycle is generally higher in the provinces than in Metro Manila.

TABLE 9.7
MODAL SHARE BY ZONE

%

Municipality	Pulic Mode				Private Mode				Walk	Total
	Train	Bus	Jeepney	Tricycle	Car	Taxi	Truck	Others		
City of Manila	4.2	6.8	39.0	3.7	11.7	6.3	2.8	0.2	25.3	100.0
1st	2.7	2.9	37.9	4.3	8.6	3.8	3.9	0.1	35.8	100.0
2nd	5.0	5.1	42.2	4.0	12.8	5.9	2.4	0.1	22.5	100.0
3rd	2.4	7.2	43.8	4.1	11.2	6.7	1.1	0.4	23.2	100.0
4th	6.2	10.3	34.5	2.7	13.8	8.1	3.5	0.2	20.7	100.0
Pasay	5.3	15.0	30.6	7.9	17.1	6.5	1.0	0.1	16.5	100.0
Makati	1.8	26.0	19.5	5.1	23.3	9.3	0.9	0.2	13.9	100.0
Mandaluyong	0.1	25.2	27.5	7.8	15.7	6.8	1.2	0.3	15.4	100.0
San Juan	0.2	15.3	27.0	4.6	28.1	7.3	1.7	0.2	15.7	100.0
Quezon City	0.2	18.0	29.1	10.9	16.3	5.8	1.9	0.0	17.8	100.0
I	0.6	16.3	26.4	13.6	17.0	6.1	3.7	0.0	16.3	100.0
II	0.2	17.7	30.4	11.7	14.8	4.6	1.8	0.0	18.9	100.0
III	0.0	21.7	28.5	6.9	19.7	8.4	1.4	0.1	13.3	100.0
IV	0.1	17.3	26.6	9.4	18.8	7.6	1.3	0.0	18.9	100.0
Caloocan City	2.3	13.5	31.5	14.3	9.8	2.2	1.5	0.0	24.8	100.0
South	3.8	12.3	34.3	13.4	11.0	3.1	2.4	0.0	19.5	100.0
North	0.4	15.1	27.8	15.4	8.1	0.9	0.4	0.0	31.9	100.0
Valenzuela	1.8	7.7	31.2	18.7	11.5	1.2	2.2	0.0	25.5	100.0
Malabon	2.3	6.8	30.2	22.1	8.5	1.0	1.8	0.1	27.1	100.0
Navotas	1.4	5.0	25.8	19.0	8.3	0.5	2.7	0.9	36.5	100.0
Marikina	0.0	9.4	32.8	15.5	16.9	3.6	2.0	0.0	19.7	100.0
Pasig City	0.0	11.3	31.4	18.6	13.4	3.4	2.8	0.5	18.6	100.0
Pateros	0.2	14.4	24.0	31.5	10.1	1.6	2.0	0.1	16.1	100.0
Taguig	1.9	12.1	28.3	21.0	6.5	1.6	2.1	0.5	26.1	100.0
Paranaque	3.7	13.1	29.3	8.6	24.9	5.3	1.5	0.1	13.5	100.0
Muntinlupa	0.6	15.9	37.2	14.7	16.1	1.7	1.4	0.2	12.1	100.0
Las Pinas	1.1	13.3	39.1	10.3	15.5	3.0	0.9	0.0	16.9	100.0
Metro Manila Total	1.9	14.0	31.4	10.7	14.9	4.9	1.9	0.1	20.2	100.0
Bulacan	0.6	3.7	27.9	25.6	8.5	0.2	2.5	0.6	30.4	100.0
Cavite	0.7	9.3	37.8	16.9	10.2	0.6	1.4	0.3	22.7	100.0
Laguna	0.4	8.4	31.3	24.9	12.1	0.2	1.5	0.1	21.2	100.0
Rizal	0.0	4.9	30.3	26.1	8.9	1.8	3.0	0.7	24.2	100.0
Provinces Total	0.4	6.5	31.8	23.3	9.8	0.7	2.1	0.4	24.8	100.0
Survey Area Total	**1.5**	**11.9**	**31.5**	**14.1**	**13.5**	**3.8**	**2.0**	**0.2**	**21.5**	**100.0**

FIGURE 9.11
SHARE OF PUBLIC TRANSPORTATION BY TRAFFIC ZONE

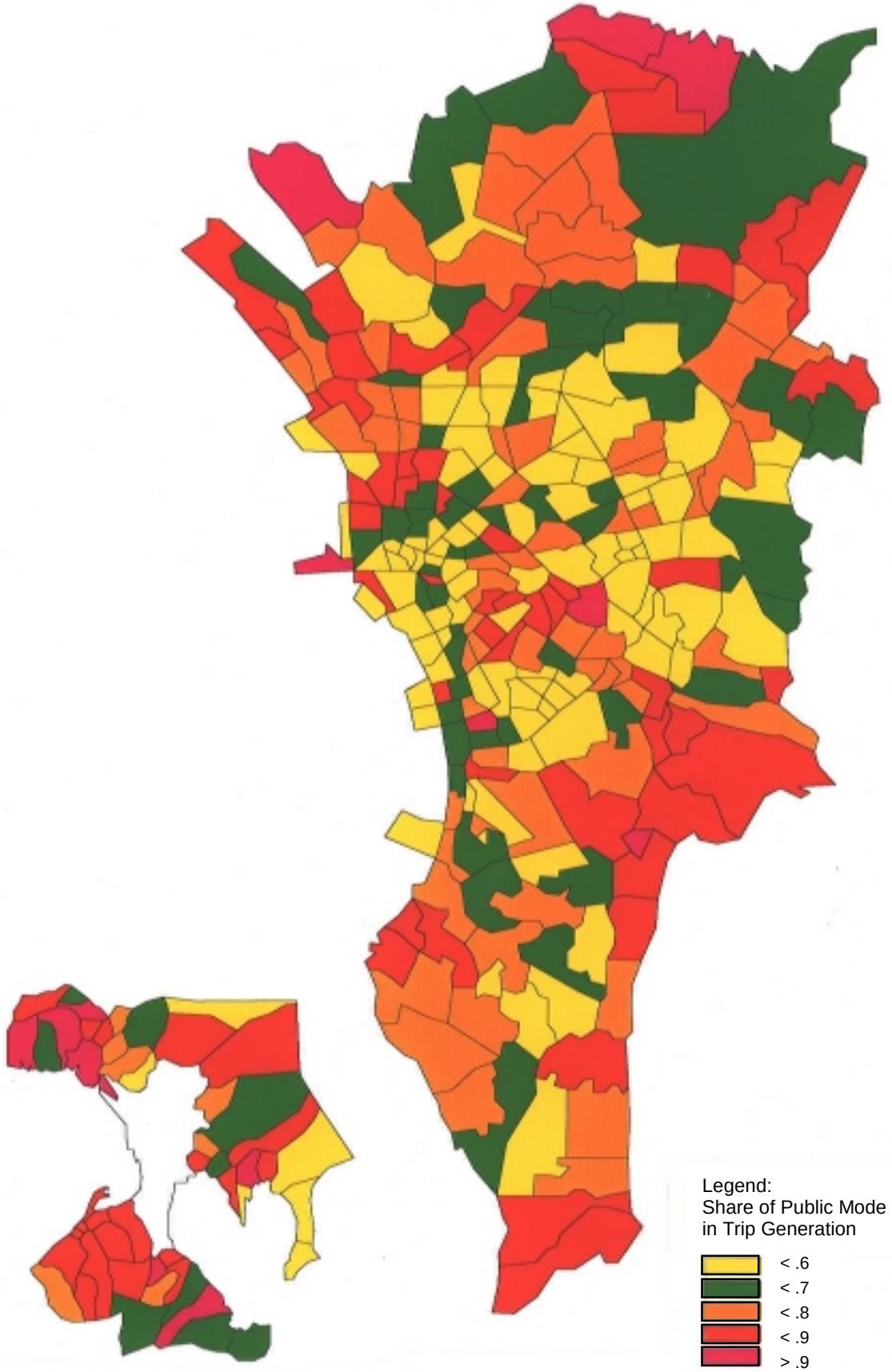
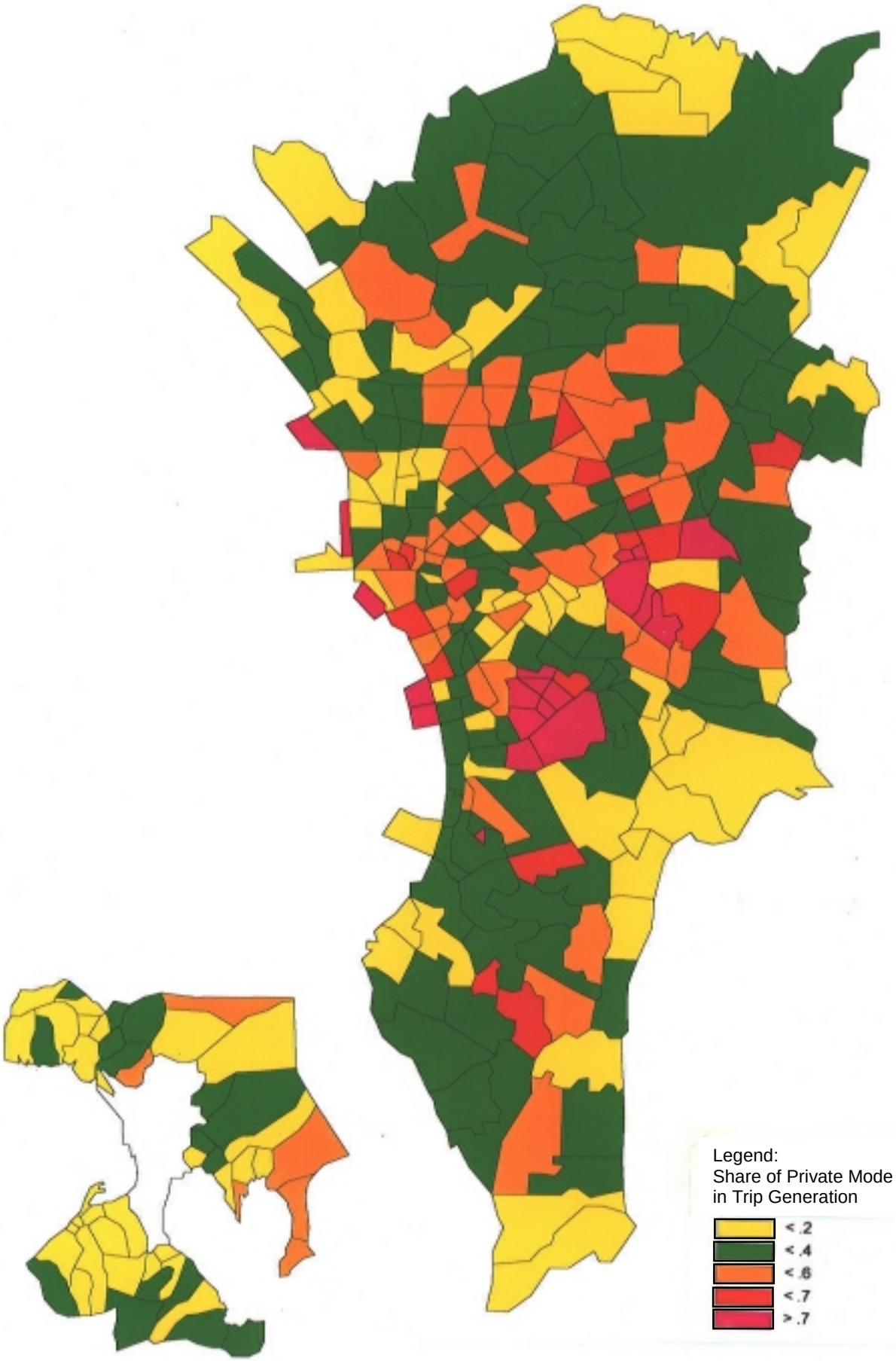


FIGURE 9.12
SHARE OF PRIVATE TRANSPORTATION BY TRAFFIC ZONE



9.4 Travel Time by Mode

Figure 9.13 and Table 9.8 shows the distribution of travel time by mode. Train and bus have the longest travel time at about 80 minutes. Tricycle trips are generally shorter at about 17 minutes.

FIGURE 9.13
TRAVEL TIME DISTRIBUTION BY MODE

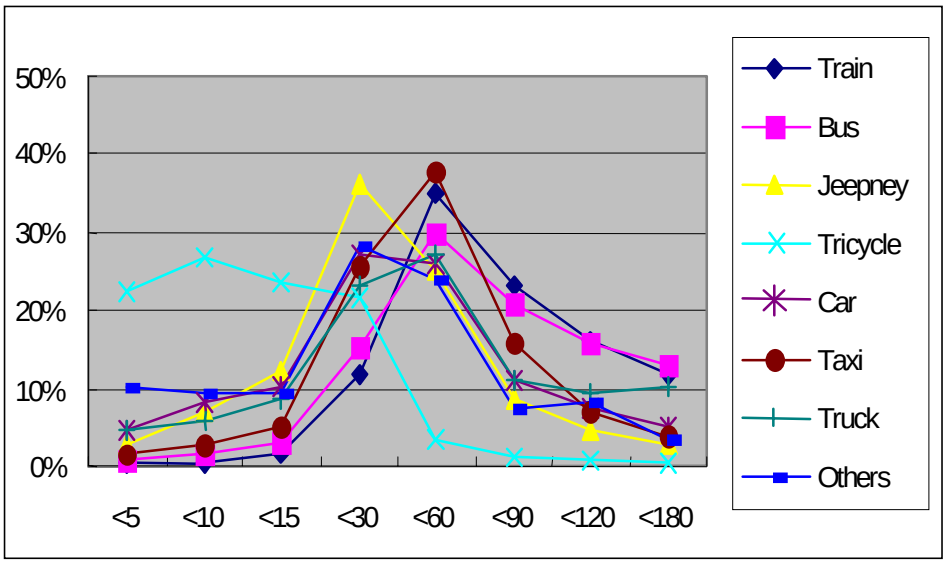


TABLE 9.8
NUMBER OF TRIPS BY TRAVEL TIME AND BY MODE

Per 000 trips

Mode	Travel Time (minutes)									Total	Average Trip Time
	0-5	5-10	10-15	15-30	30-45	45-60	60-90	90-120	120-180		
Train	1	2	6	51	41	114	102	73	52	**442**	81.2
Bus	23	55	117	542	309	739	733	556	459	**3,534**	78.8
Jeepney	272	666	1,171	3,444	974	1,430	835	442	246	**9,480**	43.0
Tricycle	962	1,138	994	934	76	70	42	20	15	**4,252**	16.6
Car	197	275	360	1,015	417	729	543	322	210	**4,069**	52.8
Taxi	19	30	58	290	163	261	181	81	4647	**1,129**	56.3
Truck	28	33	51	136	54	108	62	52	58	**582**	60.1
Others	7	6	6	19	6	10	5	6	2	**67**	45.4
Walk	2,716	1,764	1,103	699	62	62	37	11	0	**6,453**	11.5
Total	**4,225**	**3,968**	**3,868**	**7,129**	**2,103**	**3,523**	**2,539**	**1,562**	**1,089**	**30,007**	**-**

9.5 Transfer between Modes of Travel

(1) Round Trip, Linked Trip and Unlinked Trip

"Round Trip" is defined as a series of trips in a day made by a person. It is therefore a combination of some trips with various purposes. In other words, a round trip is composed of some single-purpose trips. Each of these single-purpose trips is called a "linked trip" as it may include some single-mode trips each of which is called an "unlinked trip".

Table 9.9 shows the relationship between the number of round trips and the number of linked trips. Eighty-six (86) percent of round trips are composed of two trips (e.g. "to Work" and "to Home").

TABLE 9.9
NUMBER OF ROUND TRIPS BY NUMBER OF LINKED TRIPS PER ROUND TRIP

No. of Linked Trips	Trips	%
1 trip	53	0.4
2 trips	11,354	85.5
3 trips	507	3.8
4 trips	1,031	7.8
5 trips and more	336	2.5
Total	**13,281**	**100.0**

Table 9.10 compares the number of linked and unlinked trips. Since the linked trip chooses a representative mode of travel, as explained in Chapter 1, the difference between the two means that mode has been used as a feeder to other modes of travel.

(2) Transfer between Modes of Travel

Table 9.11 and 9.12 show the number of transfers between travel modes and its relative shares, respectively. The most frequent transfer is seen between jeepney and tricycle, between jeepney and jeepney follows and then between jeepney and bus. The jeepney seems to play a central role in the public transportation system.

TABLE 9.10
NUMBER OF LINKED AND UNLINKED TRIPS BY TRAVEL MODE

Mode	No. of Trips	
	Linked Trip	Unlinked Trip
Walking	5,905	19,400
Pedicab	180	522
Bicycle	240	247
Motorcycle	186	192
Tricycle	4,288	8,513
Jeepney	9,587	16,054
Minibus	121	151
Standard Bus	2,947	3,118
Taxi	890	975
HOV Taxi	260	428
Car/Jeep	4,139	4,197
Private Bus	607	609
Truck	581	586
Trailer	40	41
LRT	446	448
PNR	7	7
Water Transport	62	62
Others	7	14
Total	**30,491**	**55,566**

TABLE 9.11
NUMBER OF TRANSFERS BETWEEN TRAVEL MODES

Per 000 trips

Mode	LRT/ PNR	Tricycle	Jeepney	Bus	Taxi	Car/ Truck	Others	Total
LRT/PNR	1	19	172	30	2	1	0	225
Tricycle	15	93	1,542	358	30	4	6	2,048
Jeepney	165	1,532	2,923	1,097	55	20	8	5,800
Bus	31	359	1,116	108	24	11	0	1,651
Taxi	4	48	67	30	11	4	1	163
Car/Truck	0	4	12	4	1	1	0	22
Others	0	6	8	1	0	1	0	16
Total	**217**	**2,061**	**5,840**	**1,627**	**122**	**42**	**16**	**9,925**

TABLE 9.12
RELATIVE SHARE OF TRANSFERS BETWEEN TRAVEL MODES

%

Mode	LRT/ PNR	Tricycle	Jeepney	Bus	Taxi	Car/ Truck	Others
LRT/PNR	0.4	8.4	76.2	13.5	1.0	0.4	0.1
Tricycle	0.8	4.5	75.3	17.5	1.5	0.2	0.3
Jeepney	2.8	26.4	50.4	18.9	0.9	0.3	0.1
Bus	1.9	21.8	67.6	6.6	1.4	0.7	0.0
Taxi	2.4	29.1	41.1	18.1	6.5	2.5	0.3
Car/Truck	1.0	18.9	56.3	16.2	3.1	2.4	2.1
Others	1.7	38.8	47.8	4.5	2.2	3.3	1.8

FIGURE 9.14
NUMBER OF TRANSFERS BY ZONE BETWEEN JEEPNEY

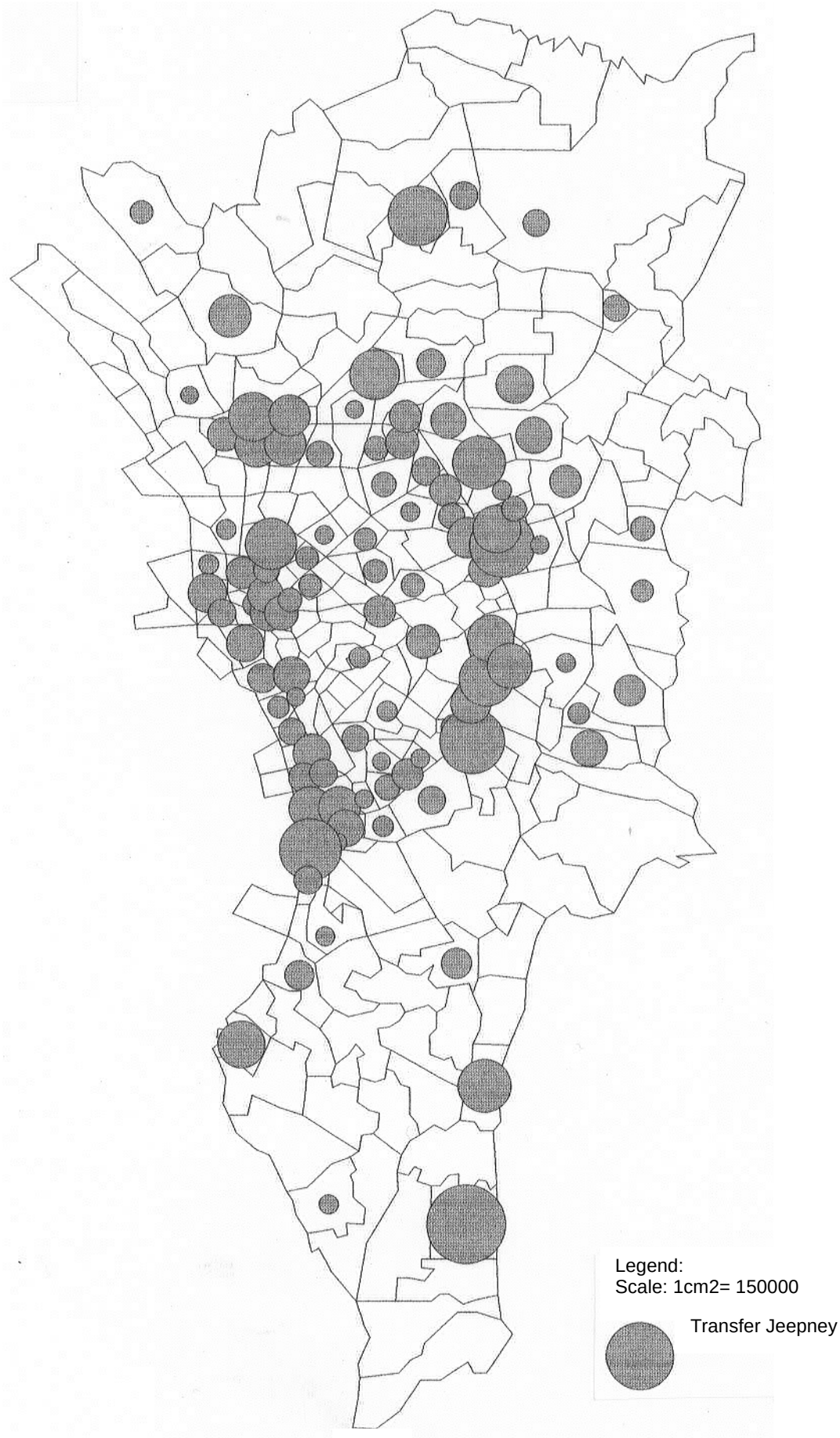
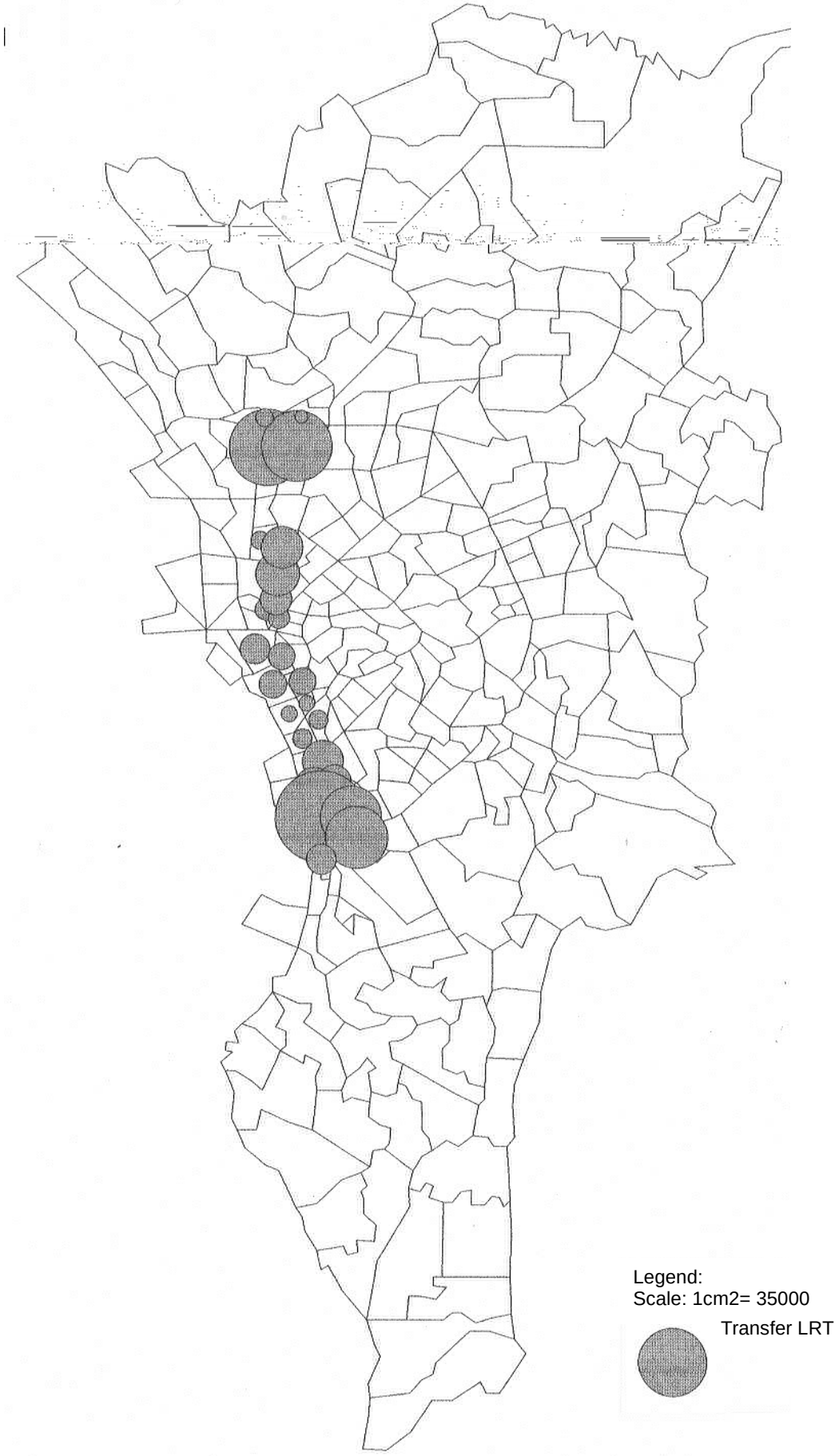


FIGURE 9.15

NUMBER OF TRANSFERS BY ZONE BETWEEN TRAIN AND JEEPNEY/BUS



10. CHANGE OF TRAVEL CHARACTERISTICS

This chapter presents a comparison of the socioeconomic parameters and travel characteristics revealed by the MMUTIS Person Trip Survey with those obtained by JUMSUT in 1980. In order to attain a common basis for comparison, all MMUTIS data were recompiled for the Metro Manila residents of seven (7) years old and above.

10.1 Socioeconomic Parameters

In 1980, Metro Manila had a population of 4.8 million with 1.1 million households. As of 1996, however, the population of Metro Manila has increased to 8.4 million with 2.1 million households. Labor force and the number of gainful workers have also increased at a higher rate than population.

TABLE 10.1
METRO MANILA POPULATION AND NUMBER OF HOUSEHOLDS, 1980 AND 1996

Item	JUMSUT 1980	MMUTIS 1996
No. of HHs	1,100	2,095
Population	4,797	8,355
Average Household Size	4.36	3.99

TABLE 10.2
METRO MANILA LABOR FORCE AND NUMBER OF GAINFUL WORKERS, 1980 AND 1996

Item	NCSO 1980	MMUTIS 1996	Increase Rate
Aged 15 yrs. and over	3,802,895	6,698,824	1.76
Gainful workers	2,006,784	3,731,237	1.86
% of Gainful workers	52.8%	55.7%	

The car ownership was 9.5 percent in 1980, and has increased to 19.7 percent in 1996. The number of car-owning households has increased from 104 thousand households to 412 thousand during the same period. The car ownership in Metro Manila has been increasing at a much higher rate than population.

TABLE 10.3
METRO MANILA CAR OWNERSHIP, 1980 AND 1996

Item	JUMSUT 1980	MMUTIS 1996
No. of Car-owning HHs	104,480	412,219
Ratio of Car-owning HHs	9.5%	19.7%
No. of Cars Owned	147,630	694,406
Average No. of Cars	1.41	1.68

10.2 Trip Production

The total number of trips in Metro Manila has increased by 1.64 times during the period 1980 to 1996. The growth rate is slightly lower than that of population. By trip purpose, the share of "to School" has decreased from 16.3 percent to 12.3 percent, while the share of "Business" has grown from 4.2 percent to 11.3 percent.

TABLE 10.4
TRIP PRODUCTION BY TRIP PURPOSE, 1980 AND 1996

Purpose	JUMSUT		MMUTIS	
	(000)	%	(000)	%
to Home	5,097	47.9	7,805	44.9
to Work	1,930	18.2	3,173	18.2
to School	1,728	16.3	2,138	12.3
Business	446	4.2	1,972	11.3
Private	1,432	13.5	2,305	13.3
Total	**10,633**	**100.0**	**17,394**	**100.0**

TABLE 10.5
BREAKDOWN OF "PRIVATE" TRIPS, 1980 AND 1996

Purpose	JUMSUT		MMUTIS	
	No. (000)	%	No. (000)	%
Private Business	227	15.9	457	16.5
Medical	53	3.7	86	3.1
Social	110	7.7	394	14.3
Eating	29	2.0	171	6.2
Shopping	574	40.1	975	35.3
Church	76	5.3	106	3.9
Others	363	25.3	573	20.8
Total	**1,432**	**100.0**	**2,762**	**100.0**

The trip production rate has decreased from 2.22 in 1980 to 2.08 in 1996. By sex, the rate of male has increased, while that of female has decreased. The difference between the two sexes has widened. Similarly, the difference between car-owning households has become larger.

TABLE 10.6
TRIP PRODUCTION RATE BY SEX AND BY CAR OWNERSHIP, 1980 AND 1996

Item	Category	JUMSUT 1980	MMUTIS 1996	Growth Rate (%)
Total		**2.22**	**2.08**	**0.94**
Sex	Male	2.28	2.40	1.05
	Female	2.17	1.78	0.82
Car Ownership	No car	2.19	1.92	0.88
	Own Car	2.33	2.68	1.15

10.3 Trip Generation and Attraction

Table 10.7 shows the trip generation and attraction by type of facility in 1980 and 1996.

TABLE 10.7
TRIP GENERATION/ATTRACTION BY TYPE OF FACILITY, 1980 AND 1996

Facility Type	JUMSUT		MMUTIS	
	No. (000)	%	No. (000)	%
Residence	10,335	48.6	15,854	45.6
Commercial	1,912	9.0	4,147	11.9
Office	2,516	11.8	4,461	12.8
Factory	949	4.5	1,413	4.1
Educational	4,028	18.9	5,008	14.4
Medical	207	1.0	457	1.3
Social	225	1.1	473	1.4
Others	1,093	5.1	2,976	8.6
Total	**21,265**	**100.0**	**34,788**	**100.0**

Trip generation and attraction figures in 1980 and 1996 are compared in Table 10.8.

(a) In 1980, trip generation/attraction was largest in the city of Manila. However, in 1996, the distribution is no longer concentrated in Manila but it has spread to Quezon (II) and Makati. Other areas have also registered increased generation/attraction figures.

(b) Makati City shows the highest percentage of private modes both in 1980 and 1996. Parañaque recorded significant increases in generation/attraction of private modes in 1996. On the other hand, the share of public modes rose tremendously in Caloocan (S) in 1996. Significant increases were also seen in Malabon, Taguig and Muntinlupa.

(c) Overall, generation/attraction of public and private modes rose in almost all areas except in San Juan, Quezon (I), and Manila (IV).

TABLE 10.8
TRIP GENERATION / ATTRACTION BY ZONE, 1980 AND 1996

Municipality	JUMSUT (1980)						MMUTIS (1996)					
	Generation			Attraction			Generation			Attraction		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Manila (1st)	579,207	123,824	703,031	553,822	187,023	740,845	478,208	162,068	640,276	480,175	161,072	641,247
Manila (2nd)	686,451	165,819	852,270	745,020	156,637	901,657	428,432	157,030	585,462	433,144	149,757	582,901
Manila (3rd)	846,954	236,334	1,083,288	818,212	248,029	1,066,241	533,890	188,397	722,287	535,338	199,457	734,795
Manila (4th)	658,332	254,810	913,142	709,217	247,455	956,672	667,058	296,220	963,278	674,509	288,285	962,794
Pasay	286,799	103,190	389,989	270,833	107,606	378,439	517,955	185,027	702,982	514,495	186,419	700,914
Makati	441,862	334,690	776,552	439,908	341,704	781,612	804,786	474,891	1,279,677	810,382	463,654	1,274,036
Mandaluyong	287,736	108,910	396,646	277,034	106,381	383,415	451,882	169,308	621,190	448,586	157,830	606,416
San Juan	138,829	103,692	242,521	127,773	96,459	224,232	118,930	70,968	189,898	116,865	73,748	190,613
Quezon (I)	353,869	192,176	546,045	335,691	215,847	551,538	361,954	188,173	550,127	364,370	185,274	549,644
Quezon (II)	599,258	201,733	800,991	602,442	177,465	779,907	1,773,982	677,882	2,451,864	1,768,260	676,274	2,444,534
Quezon (III)	398,963	141,727	540,690	393,722	133,667	527,389	372,371	187,563	559,934	376,191	189,271	565,462
Quezon (IV)	254,030	129,926	383,956	274,734	126,949	401,683	398,273	185,830	584,103	403,746	174,682	578,428
Caloocan (S)	555,394	95,872	651,266	534,143	111,055	645,198	656,401	176,882	833,283	653,511	171,530	825,041
Caloocan (N)	68,018	16,429	84,447	65,196	16,779	81,975	463,306	72,725	536,031	462,914	74,278	537,192
Valenzuela	157,270	57,786	215,056	173,523	45,521	219,044	496,615	243,127	739,742	493,927	241,251	735,178
Malabon	197,094	29,588	226,682	193,115	40,438	233,553	365,452	84,032	449,484	362,822	89,222	452,044
Navotas	150,238	24,787	175,025	154,583	30,973	185,556	192,807	50,049	242,856	188,634	52,295	240,929
Marikina	239,840	57,242	297,082	244,608	47,563	292,171	349,082	146,314	495,396	346,093	150,925	497,018
Pasig City	391,395	58,913	450,308	407,208	66,757	473,965	568,051	282,966	851,017	567,986	286,429	854,415
Pateros	34,691	11,010	45,701	47,457	13,306	60,763	65,940	8,884	74,824	65,012	12,069	77,081
Taguig	130,781	15,438	146,219	137,502	22,781	160,283	394,253	60,536	454,789	400,295	61,093	461,388
Parañaque	180,890	130,131	311,021	153,088	57,879	210,967	483,152	269,687	752,839	478,343	285,485	763,828
Muntinlupa	161,793	39,879	201,672	166,357	30,179	196,536	544,349	117,259	661,608	539,842	122,818	662,660
Las Piñas	99,738	81,610	181,348	99,270	70,670	169,940	473,072	128,461	601,533	468,587	128,523	597,110
Total	**7,899,432**	**2,715,516**	**10,614,948**	**7,924,458**	**2,699,123**	**10,623,581**	**11,960,201**	**4,584,279**	**16,544,480**	**11,954,027**	**4,581,641**	**16,535,668**

10.4 Modal Choice

Table 10.9 and Figure 10.1 compare the modal choice of Metro Manila residents between 1980 and 1996. The share of public transportation slightly decreased from 74 percent to 73 percent during this period. Among public modes, the share of jeepney decreased considerably while the share of all other public modes, particularly tricycle, increased.

FIGURE 10.1
MODAL SHARE, 1980 AND 1996

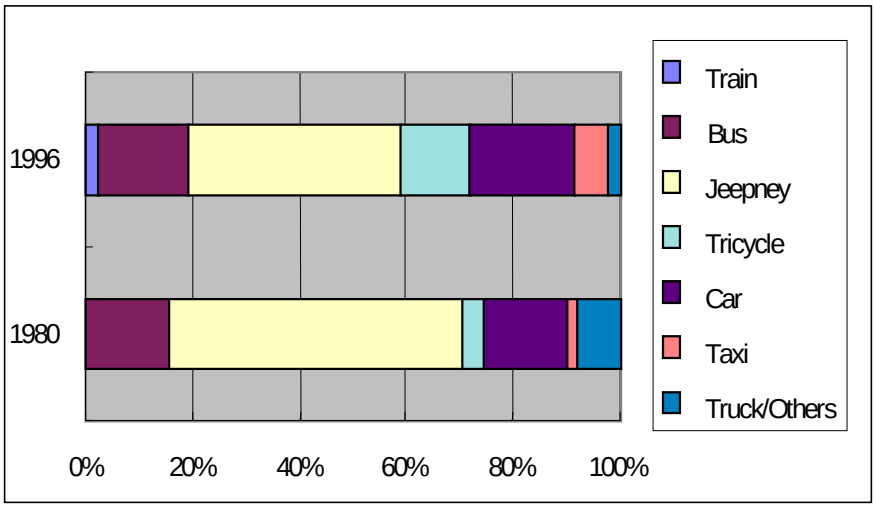


TABLE 10.9
NUMBER OF TRIPS BY MODE, 1980 AND 1996

Mode	JUMSUT (1980)			MMUTIS (1996)		
	No. of Trips (000)	% to Mode	% to Total	No. of Trips (000)	% to Mode	% to Total
Public Mode	7,910	100.0	74.4	12,281	100.0	72.5
Train	10	0.1	0.1	385	3.1	2.3
Bus	1,674	21.2	15.7	2,937	23.9	17.3
Jeepney	5,796	73.3	54.5	6,758	55.0	39.9
Tricycle	430	5.4	4.0	2,201	17.9	13.0
Private Mode	2,723	100.0	25.6	4,669	100.0	27.5
Car	1,694	62.2	15.9	3,189	68.3	18.8
Taxi	168	6.2	1.6	1,046	22.4	6.2
Truck/Others	861	31.6	8.1	434	9.3	2.6
Total	**10,633**		**100.0**	**16,950**		**100.0**

10.5 Travel Time

Figure 10.2 and Table 10.10 compare travel time by mode between 1980 and 1996. During this period, the average travel time increased in all travel modes by 1.2 to 1.6 times. Bus has the longest travel time at 78 minutes in 1996. This can be attributed to the worsening traffic congestion and the expansion of urban area.

FIGURE 10.2
AVERAGE TRAVEL TIME BY MODE, 1980 AND 1996

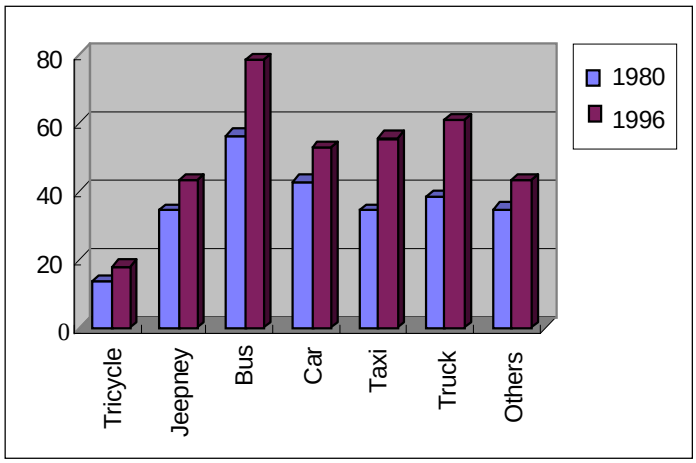


TABLE 10.10
DISTRIBUTION OF TRAVEL TIME BY MODE, 1980 AND 1996

Mode	Travel Time Range (minutes)							Average Travel Time (min.)	Growth Rate (%)
	15 & less	16-30	31-45	46-60	61-90	91-120	120 more		
Public: %									
Tricycle	57.7	34.0	6.7	0.6	0.9	0.1	0.0	13.6	
	70.2	23.4	2.0	2.0	1.4	0.6	0.4	17.7	1.30
Jeepney	11.3	28.8	31.7	10.5	13.7	3.0	1.0	34.7	
	20.3	36.5	11.0	16.2	9.2	4.5	2.3	43.4	1.25
Bus	1.7	8.4	24.9	16.7	33.4	10.2	4.7	56.3	
	4.4	14.6	9.3	22.8	21.8	15.4	11.7	78.1	1.39
Private: %									
Car	9.9	20.7	30.2	13.4	17.6	5.3	2.9	42.8	
	17.9	24.4	11.3	19.2	14.7	7.8	4.6	53.8	1.26
Taxi	7.3	32.7	39.1	7.1	9.8	2.0	2.0	34.4	
	8.9	26.2	14.9	23.6	15.8	6.7	3.8	55.7	1.62
Truck	12.2	28.4	26.6	10.3	15.6	4.6	2.3	38.3	
	17.9	21.9	10.3	20.4	12.3	8.6	8.7	59.8	1.56
Others	16.3	29.5	28.4	6.4	13.3	2.9	3.2	34.9	
	30.7	26.5	10.2	15.3	6.9	6.9	3.5	43.7	1.25