

Chapter 17.  
**METRO MANILA TRAVEL DEMAND  
CHARACTERISTICS**

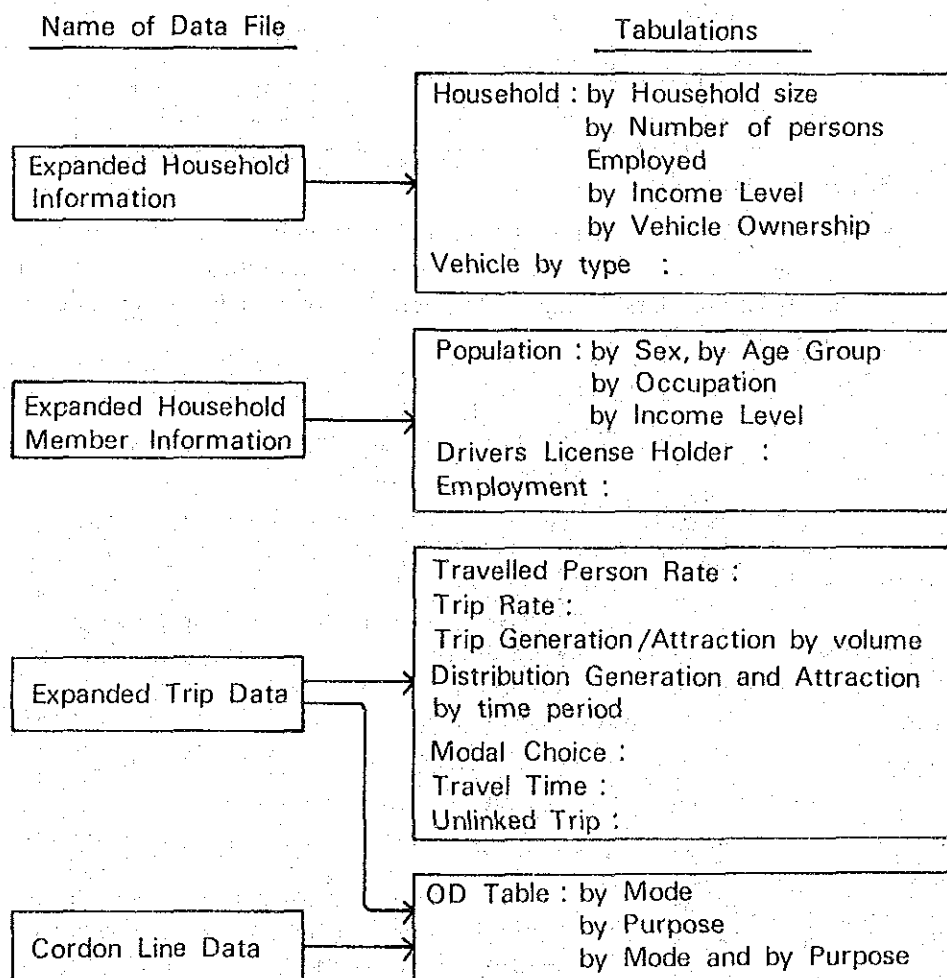


## CHAPTER 17 METRO MANILA TRAVEL DEMAND CHARACTERISTICS

### 17.1 INTRODUCTION

- This chapter summarizes the socio-economic and travel demand characteristics of Metro Manila based on the results of the completed 1980 HIS and other relevant data available.
- The completed 1980 HIS data are composed of the following:
  - a) Expanded Household Information
  - b) Expanded Household Member Information
  - c) Expanded Trip Data
  - d) Cordonline Data
- Further analysis and tabulations were made and presented in this report considering the above basic data files as shown in Figure 17.1.

Figure 17.1  
Data File and Processed Information



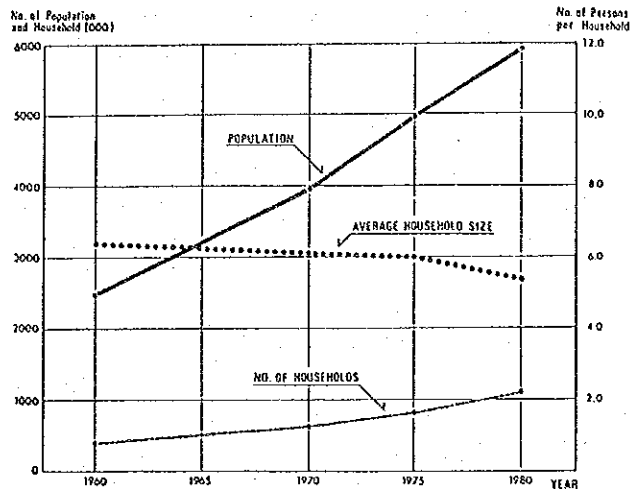
## 17.2 SOCIO-ECONOMIC CHARACTERISTICS OF METRO MANILA

### 17.2.1 Population and Household

#### 1) Historical Trend

- According to the NCSO Census, the population of Metro Manila increased from 1,567,000 in 1948 to 5,927,000 in 1980, as indicated in Figure 17.2. On the other hand, the rate of increase in the number of households is slow. This led to the gradual decrease in the average size from 6.4 in 1960 to 5.4 in 1980.

Figure 17.2  
Historical Trend of  
Population and Household



#### 2) Population Structure

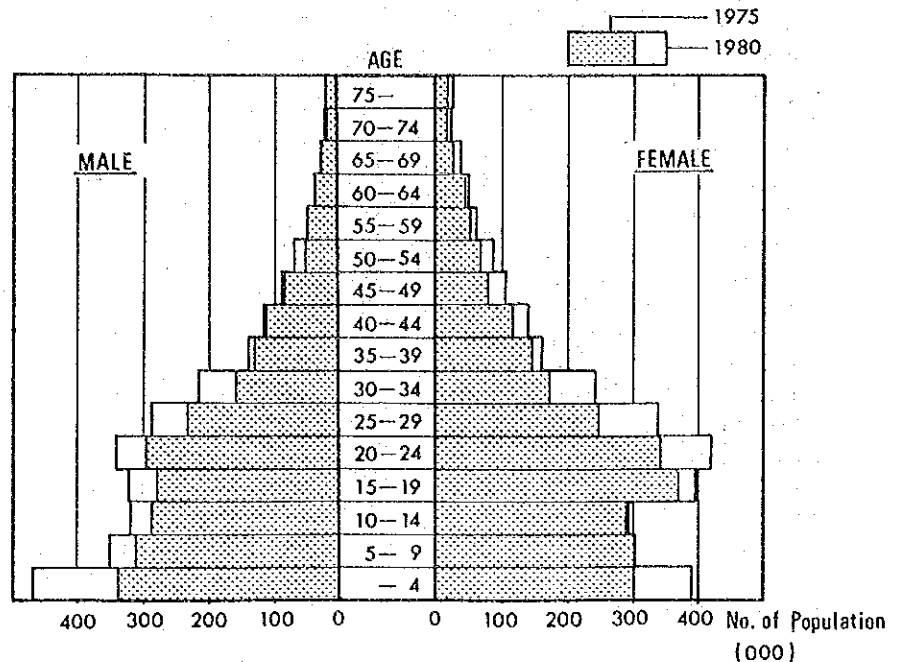
- Table 17.1 shows the population composition by age group and sex, while Figure 17.3, its age structure. It is significant that the percentage of the young and working population is considerably high. The number of females is generally larger than that of males.

Table 17.1  
Population by Age Group and Sex, 1980

Age Group	Male	(%)	Female	(%)	Total	(%)	M/F
Under 1	114,661	4.0	96,287	3.1	210,948	3.6	1.19
1 - 4	351,616	12.3	293,465	9.6	645,081	10.9	1.20
5 - 9	350,828	12.3	302,105	9.8	652,933	11.0	1.16
10 - 14	319,389	11.2	294,638	9.6	614,027	10.4	1.08
15 - 19	322,487	11.3	397,731	13.0	720,218	12.2	0.81
20 - 24	341,823	12.0	419,732	13.7	761,555	12.9	0.81
25 - 29	288,483	10.1	338,229	11.0	626,712	10.6	0.85
30 - 34	216,205	7.6	242,244	7.9	458,449	7.7	0.90
35 - 39	140,249	5.0	160,010	5.2	300,259	5.1	0.88
40 - 44	116,669	4.1	138,602	4.5	255,271	4.3	0.84
45 - 49	86,051	3.0	104,878	3.4	190,929	3.2	0.82
50 - 54	68,760	2.4	85,667	2.8	154,427	2.1	0.80
55 - 59	47,083	1.6	63,986	2.1	111,069	1.9	0.74
60 - 64	34,505	1.2	49,048	1.6	83,553	1.4	0.70
65 - 69	25,303	0.9	37,997	1.2	63,300	1.7	0.67
70 - 74	16,513	0.6	22,595	0.7	39,108	0.7	0.73
75 - over	15,087	0.5	22,958	0.8	38,045	0.6	0.66
<b>Total</b>	<b>2,855,712</b>	<b>100.0</b>	<b>3,070,172</b>	<b>100.0</b>	<b>5,925,884</b>	<b>100.0</b>	<b>0.93</b>

Source: NCSO Census

Figure 17.3  
Age Structure of Population



### 3) Population by Municipality

- Population by municipality is shown in Tables 17.2, 17.3, 17.4, and 17.5 and Figures 17.4, 17.5 and 17.6. Based on these, the following findings were derived:
  - a) Since 1948, the population in every municipality has increased continuously at the rate of 1.2 to 12.6 percent per annum. Prior to 1960, increases were significant in Makati, Quezon City, Mandaluyong, Caloocan, and Valenzuela, while during the '60s Marikina, Muntinlupa, Las Pinas, Taguig, Pasig, Makati, and Valenzuela show a relatively faster growth rate. During the '70s, fast-growing areas were observed in the south.
  - b) The share of the City of Manila to the total Metro Manila population has been continuously decreasing, from 62.8% in 1948, 33.6% in 1970 and to 27.5% by 1980; that of Quezon City remains more or less the same. The municipalities outside EDSA show larger increases. However, the increase in the absolute number of population in the City of Manila remains the largest.
  - c) Population density by municipality ranges widely from 30 persons per hectare to more than 400 persons per hectare. The municipalities with high density levels are the City of Manila, San Juan, Pasay City, and Mandaluyong. The population density progressively decreases for areas away from the center of the City of Manila. Figure 17.7 shows more detailed distribution of population density.

Table 17.2  
Historical Population Trend by Municipality

City/ Municipality	Population (000)									
	1948	(%)	1960	(%)	1970	(%)	1975	(%)	1980	(%)
Manila	984	(62.8)	1,139	(46.2)	1,331	(33.6)	1,479	(29.8)	1,630	(27.5)
Pasay	89	( 5.7)	133	( 5.4)	206	( 5.2)	255	( 5.1)	288	( 4.9)
Makati	41	( 2.6)	115	( 4.7)	265	( 6.7)	334	( 6.7)	373	( 6.3)
Mandaluyong	26	( 1.7)	72	( 2.9)	149	( 3.8)	182	( 3.7)	205	( 3.5)
San Juan	31	( 2.0)	57	( 2.3)	105	( 2.6)	122	( 2.5)	130	( 2.2)
Quezon City	111	( 7.1)	398	(16.2)	754	(19.0)	957	(19.3)	1,166	(19.7)
Caloocan	55	( 3.5)	146	( 5.9)	274	( 6.9)	397	( 8.0)	468	( 7.9)
Valenzuela	17	( 1.1)	42	( 1.7)	98	( 2.5)	151	( 3.0)	212	( 3.6)
Malabon	46	( 2.9)	76	( 3.1)	142	( 3.6)	175	( 3.5)	191	( 3.2)
Navotas	29	( 1.9)	49	( 2.0)	83	( 2.1)	97	( 2.0)	126	( 2.1)
Marikina	24	( 1.5)	40	( 1.6)	113	( 2.9)	168	( 3.4)	212	( 3.6)
Pasig	35	( 2.2)	62	( 2.5)	156	( 3.9)	210	( 4.2)	269	( 4.5)
Pateros	8	( 0.5)	13	( 0.5)	25	( 0.6)	33	( 0.7)	40	( 0.7)
Taguig	15	( 1.0)	22	( 0.9)	55	( 1.4)	74	( 1.5)	134	( 2.3)
Parañaque	29	( 1.9)	62	( 2.5)	97	( 2.4)	159	( 3.2)	209	( 2.5)
Muntinlupa	18	( 1.1)	22	( 0.9)	65	( 1.6)	95	( 1.9)	137	( 2.3)
Las Pinas	9	( 0.6)	16	( 0.7)	46	( 1.2)	82	( 1.6)	137	( 2.3)
Total	1,567	( 100)	2,464	( 100)	3,964	( 100)	4,970	( 100)	5,927	( 100)

Source: NCSO Census

Table 17.3  
Annual Growth of Population by Municipality

City/ Municipality	Average Annual Growth (%)			
	1948-60	1960-70	1970-75	1975-80
Manila	1.2	1.6	2.1	2.0
Pasay	3.4	4.5	4.4	2.5
Makati	8.9	8.7	4.7	2.2
Mandaluyong	8.7	7.7	4.1	2.4
San Juan	5.0	6.3	3.0	1.3
Quezon City	11.2	6.6	4.4	4.0
Caloocan	8.5	6.6	7.7	3.3
Valenzuela	7.8	9.0	9.0	7.0
Malabon	4.2	6.4	4.3	1.8
Navotas	4.5	5.4	3.2	5.4
Marikina	4.5	5.4	3.2	5.4
Marikina	4.5	10.9	8.3	4.8
Pasig	4.8	9.7	6.1	5.1
Pateros	3.8	6.8	5.7	3.9
Taguig	3.0	9.7	6.1	12.6
Parañaque	6.6	4.6	10.4	5.6
Muntinlupa	1.4	11.5	7.9	7.6
Las Piñas	4.7	11.0	12.3	10.8
Total	3.8	4.9	4.6	3.6

Source: NCSO Census

Table 17.4  
Population Increase by Municipality

City/ Municipality	Average Annual Increase (000)							
	1948-60 (%)		1960-70 (%)		1970-75 (%)		1975-80 (%)	
Manila	12.9	(17.3)	19.2	(12.8)	29.6	(14.6)	30.2	(15.9)
Pasay	3.7	( 4.9)	7.3	( 4.9)	9.8	( 4.8)	6.6	( 3.5)
Makati	6.2	( 8.2)	15.0	(10.0)	13.8	( 6.8)	7.8	( 4.1)
Manadluyong	3.8	( 5.1)	7.7	( 5.1)	6.6	( 3.3)	4.6	( 2.4)
San Juan	2.2	( 2.9)	4.8	( 3.2)	3.4	( 1.7)	1.6	( 0.8)
Quezon	23.9	(32.0)	35.6	(23.7)	40.6	(20.1)	4.8	(22.0)
Caloocan	7.6	(10.2)	12.8	( 8.5)	24.6	(12.2)	14.2	( 7.5)
Valenzuela	2.1	( 2.8)	5.6	( 3.7)	10.6	( 5.2)	12.2	( 6.4)
Malabon	2.5	( 3.3)	6.6	( 4.4)	6.6	( 3.3)	3.2	( 1.7)
Navotas	1.7	( 2.2)	3.4	( 2.3)	2.8	( 1.4)	5.8	( 3.0)
Marikina	1.3	( 1.8)	7.5	( 4.9)	11.0	( 5.4)	8.8	( 4.6)
Pasig	2.3	( 3.0)	9.4	( 6.3)	10.8	( 5.3)	11.8	( 6.2)
Pateros	0.4	( 0.6)	1.2	( 0.8)	1.6	( 0.8)	1.4	( 0.7)
Taguig	0.6	( 0.8)	3.3	( 2.2)	3.8	( 1.9)	12.0	( 6.3)
Parañaque	2.8	( 3.7)	3.5	( 2.3)	12.4	( 6.1)	10.0	( 5.3)
Muntinlupa	0.3	( 0.4)	4.3	( 2.9)	6.0	( 3.0)	8.4	( 4.4)
Las Piñas	0.6	( 0.8)	3.0	( 2.0)	7.2	( 3.6)	11.0	( 5.9)
Total	74.8	(100.0)	150.0	(100.0)	202.4	(100.0)	190.2	(100.0)

Source: NCSO Census

Table 17.5  
Population Density by Municipality

City/ Municipality	Area (ha.)	Population Density (Person/ha.)				
		1948	1960	1970	1975	1980
Manila	3,831	256.7	297.1	347.2	385.8	425.1
Pasay	1,397	63.7	95.2	147.5	182.5	206.6
Makati	2,980	13.8	38.6	88.9	112.1	125.2
Mandaluyong	1,110	23.4	64.9	134.2	164.0	184.7
San Juan	558	55.6	102.2	1988.2	218.6	233.0
Quezon City	16,617	6.7	24.0	45.4	57.6	70.2
Caloocan	5,578	9.9	26.2	49.1	71.1	83.9
Valenzuela	4,702	3.6	8.9	20.9	32.1	45.1
Malabon	2,334	19.7	32.6	60.8	75.0	81.8
Navotas	1,038	27.9	47.2	80.0	93.4	121.4
Marikina	3,892	6.2	10.3	29.0	43.2	54.5
Pasig	3,263	10.7	19.0	47.8	64.4	82.4
Pateros	260	30.8	50.0	96.2	126.9	153.8
Taguig	3,371	4.4	6.5	16.3	22.0	39.8
Parañaque	3,834	7.6	16.2	25.3	41.5	54.5
Muntinlupa	4,673	3.9	4.7	13.9	20.3	29.3
Las Piñas	4,154	2.2	3.9	11.1	19.7	33.0
Total	63,591	24.6	38.7	62.3	78.2	93.2

Source: NCSO Census

Figure 17.4

Average Annual Growth Rate of Population by Area

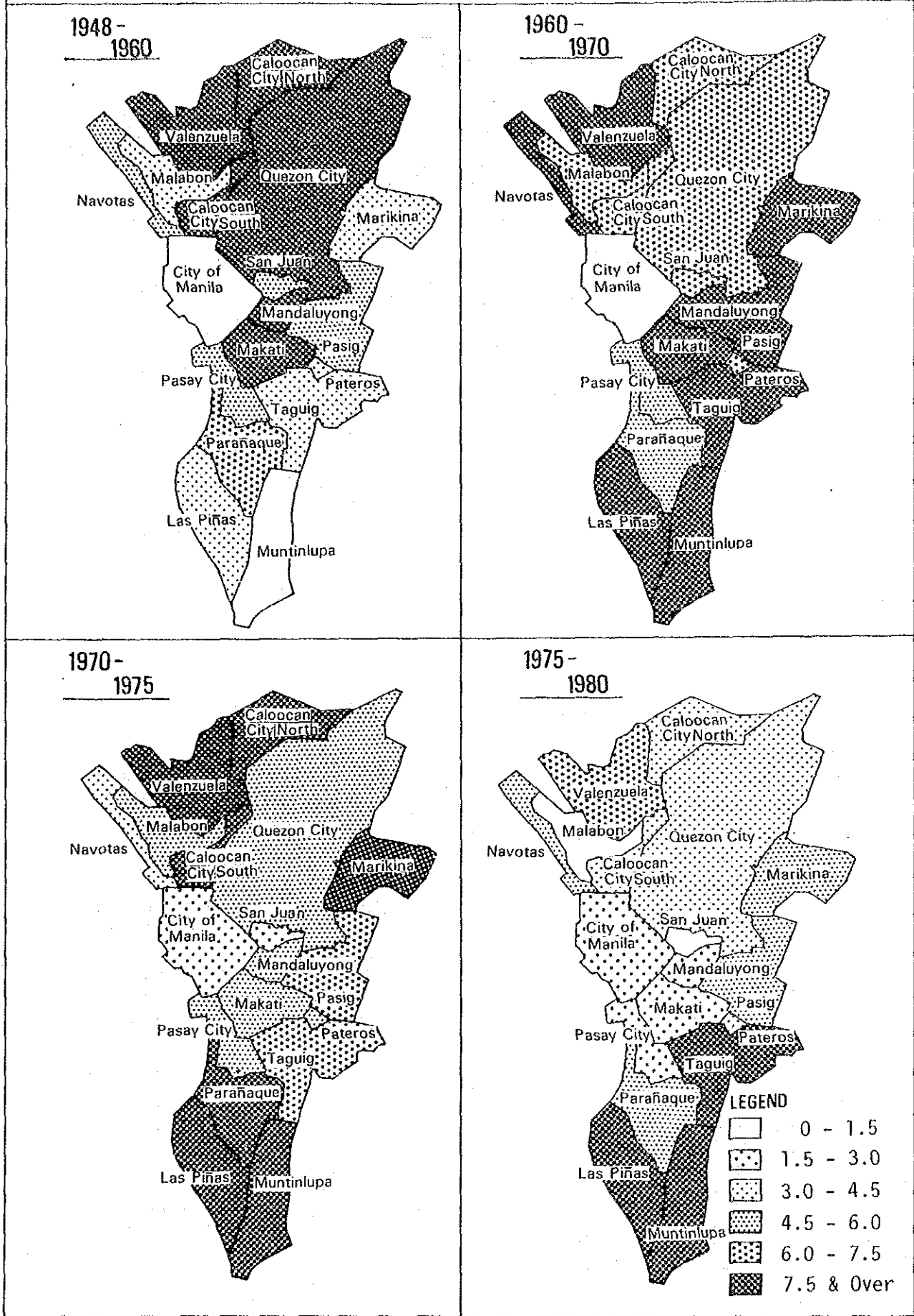




Figure 17.5 Average Annual Population Increase

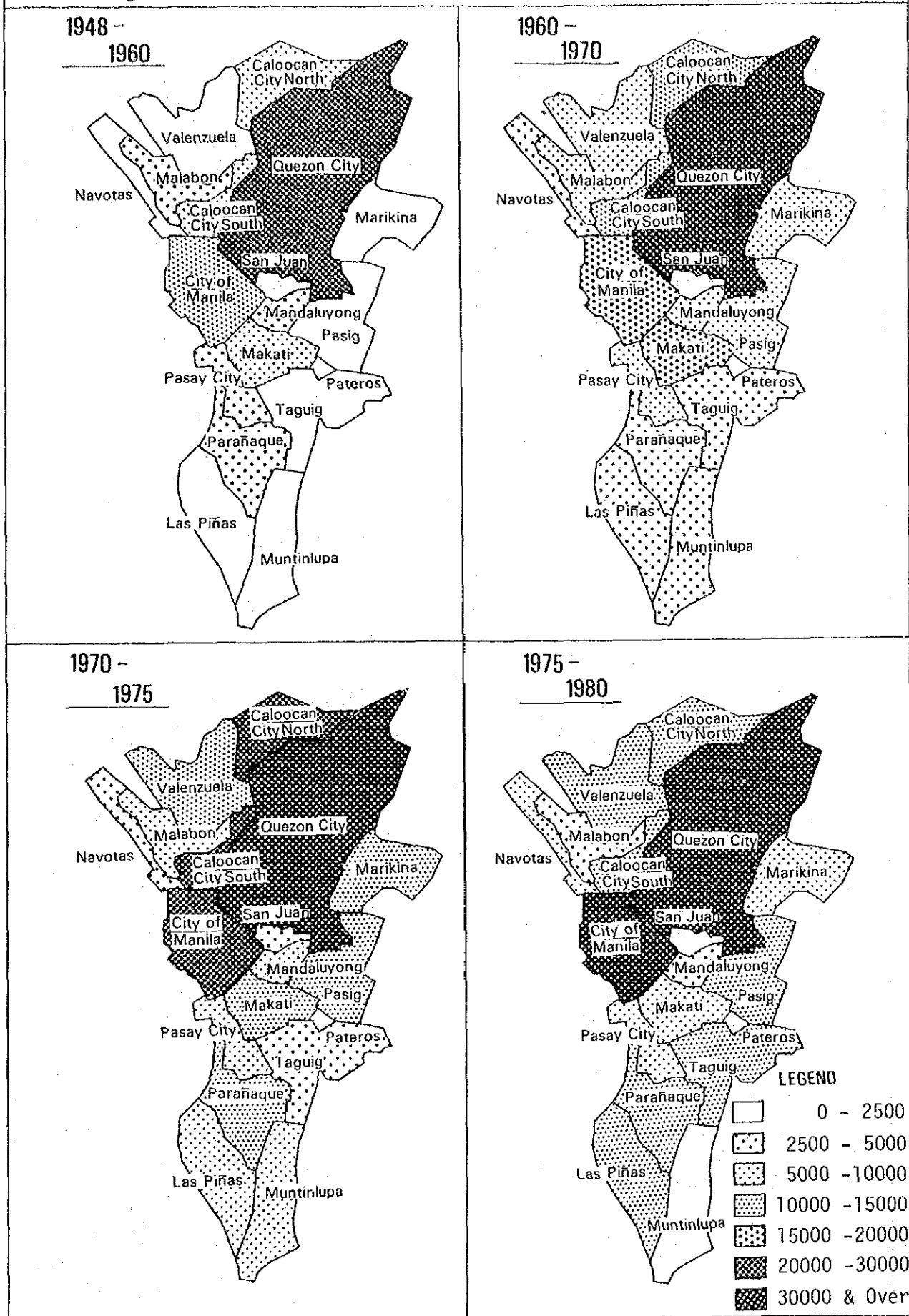


Figure 17.6 Population Density by Area

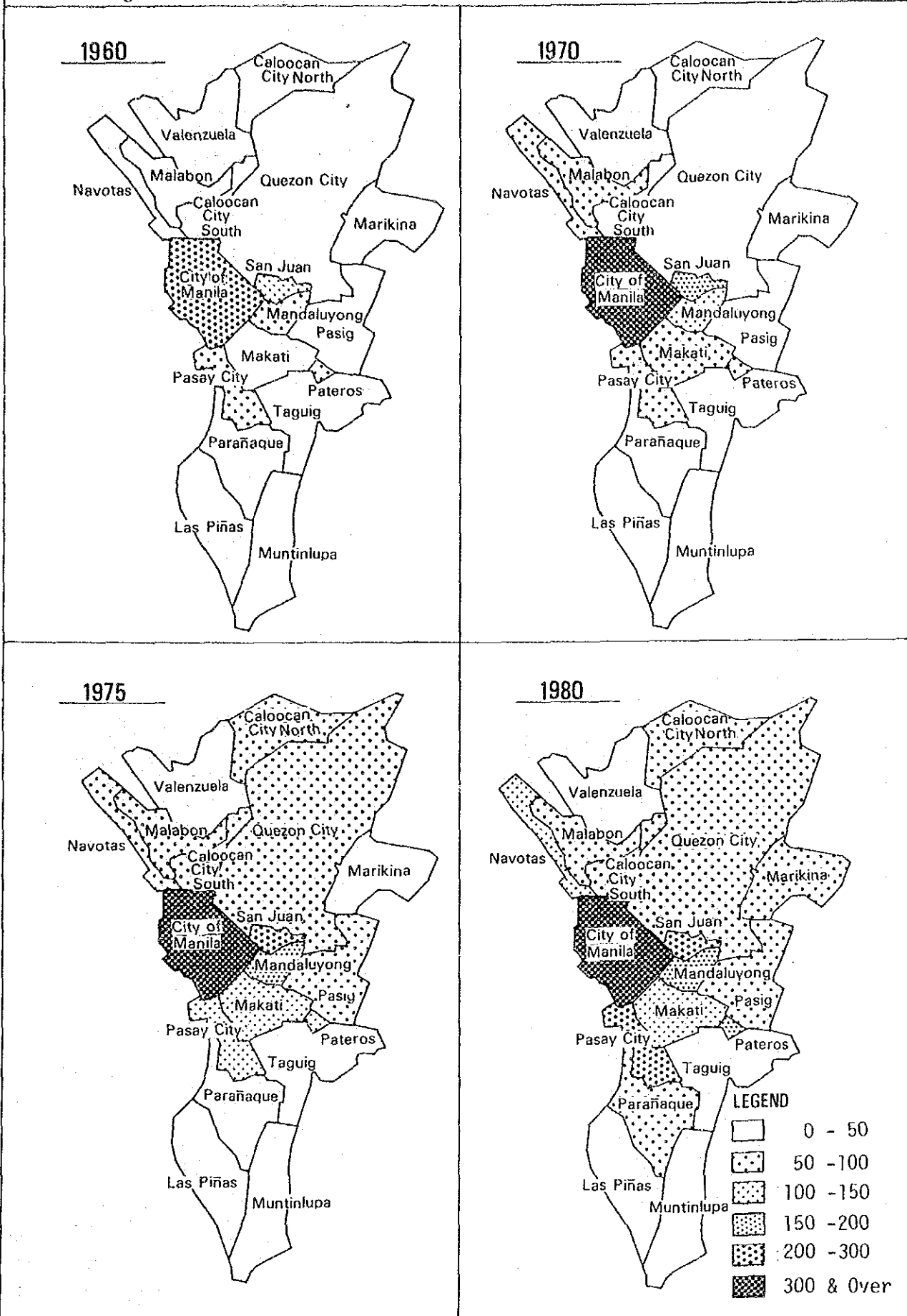
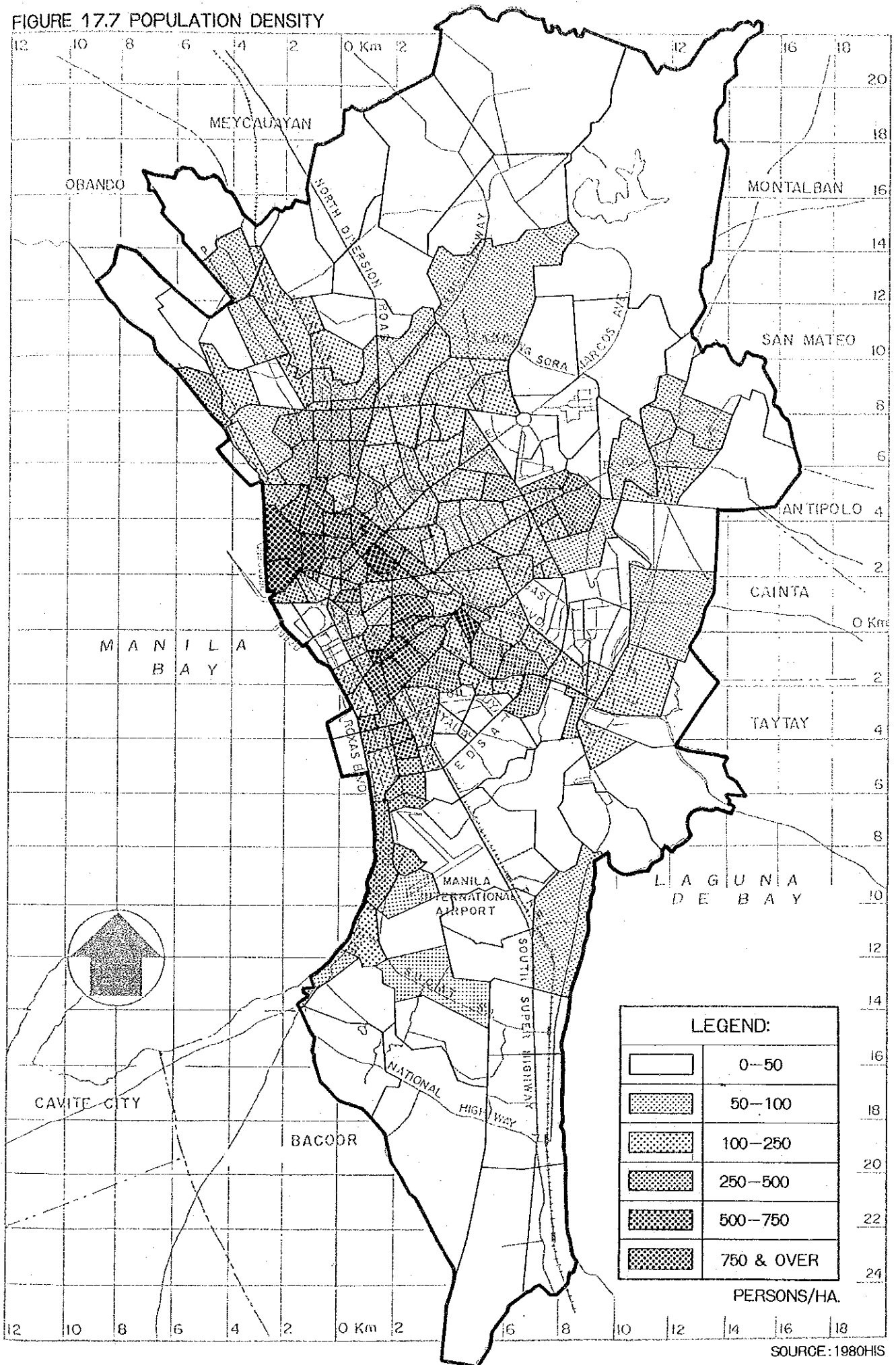


FIGURE 17.7 POPULATION DENSITY



SOURCE: 1980HS



## 17.2.2 Population by Occupation

### 1) Occupation Structure:

- The number of gainful workers (15 years old and over) in Metro Manila increased from 1,606,000 in 1975 to 2,007,000 in 1980. Also, the number of population (15 years old and over) in Metro Manila increased at the same rate as that of gainful workers. This is shown in Table 17.6. Therefore, the ratio of gainful workers against total population has not changed.

Table 17.6  
Population and Gainful Workers for  
the Years 1980 and 1975

	1980	1975	1980/1975
Population (15 years and over): A	3,802,895	3,126,313	1.22
Gainful Workers (15 years and over): B	2,006,784	1,606,263	1.25
B / A x 100	52.8%	51.4%	1.03

Source: NCSO Census

- The gainful workers by occupation for 1975 and 1980 is shown in Table 17.7. The main groups are the "Production and Related Workers", "Equipment Operators and Laborers", "Service Workers", "Sales Workers" and "Clerical and Related Workers".
- The 1980 occupation composition by sex is tabulated in Table 17.8. It shows that a major portion of the "Service Workers" is dominated by females and the "Production and Related Workers", by males.

Table 17.7  
Gainful Workers by Occupation  
(15 years old and above)

	1980		1975	
	No.	%	No.	%
1) Service Workers	395,077	19.7	321,138	20.0
2) Administrative, Executive and Managerial Workers	47,641	2.4	54,398	3.4
3) Sales Workers	252,276	12.6	206,593	12.9
4) Clerical and Related Workers	257,867	12.9	219,565	13.7
5) Production and Related Workers, Equipment Operators and Laborers	691,128	34.4	589,708	36.7
6) Professional, Technical and Related Workers	237,363	11.8	154,502	9.6
7) Agricultural, Animal Husbandry and Forestry Workers, Fishermen and Hunters	30,504	1.5	32,523	2.0
8) Others	94,928	4.7	27,838	1.7
<b>TOTAL</b>	<b>2,006,784</b>	<b>100.0</b>	<b>1,606,263</b>	<b>100.0</b>

Source: NCSO Census

Table 17.8  
Occupation Structure by Sex, 1980

Occupation	Male		Female		Total	
	No.	(%)	No.	(%)	No.	(%)
1) Service Workers	109,027	(10.8)	212,111	(35.4)	395,077	(19.7)
2) Administrative, Executive and Managerial Workers	36,370	( 4.3)	11,271	( 1.9)	47,641	( 2.4)
3) Sales Workers	115,363	(11.4)	91,230	(15.2)	252,276	(12.6)
4) Clerical and Related Workers	120,089	(11.9)	99,476	(16.6)	257,867	(12.8)
5) Production and Related Workers, Equipment Operators and Laborers	484,795	(48.1)	104,913	(17.5)	691,128	(34.4)
6) Profession and Technical Related Workers	79,605	( 7.9)	74,897	(12.5)	237,363	(11.8)
7) Agricultural, Animal Husbandry, and Forestry Workers, Fishermen and Hunters	31,046	( 3.1)	1,477	( 0.25)	30,504	( 1.5)
8) Others	25,031	( 2.5)	2,807	( 0.47)	94,928	( 4.7)
<b>TOTAL</b>	<b>1,007,889</b>		<b>598,476</b>		<b>2,006,784</b>	

Source: NCSO Census

- Table 17.9 shows the comparison of the number of gainful workers between NCSO Statistics and the HIS analysis. The total of HIS is about 90 percent of NCSO's. The difference of each figure by group, especially the discrepancy in "Production and Related Workers", is large.

Table 17.9  
Comparison of Gainful Workers in NCSO  
and in HIS, 1980 (000)

	NCSO <sup>1/</sup>		HIS <sup>2/</sup>	
	000	%	000	%
1) Service Workers	395	(19.7)	488	(27.3)
2) Administrative, Executive and Managerial Workers	48	( 2.4)	75	( 4.2)
3) Sales Workers	252	(12.6)	247	(13.8)
4) Clerical and Related Workers	258	(12.9)	163	( 9.1)
5) Production and Related Workers, Equipment Operators and Laborers	691	(34.4)	344	(19.3)
6) Professional, Technical and Related Workers	237	(11.8)	269	(15.1)
7) Professional, Technical and Related Workers	237	(11.8)	269	(15.1)
8) Others	125	( 6.2)	200	(11.2)
<b>Total</b>	<b>2,007</b>	<b>(100.0)</b>	<b>1,786</b>	<b>(100.0)</b>

<sup>1/</sup> NCSO Census

<sup>2/</sup> 80 HIS

- The occupation structure of the population in the whole Metro Manila was estimated from the results of the HIS analysis as shown in Table 17.10.

Table 17.10  
Estimated Occupation Structure  
in Metro Manila

Occupation	Population	
	000	%
Below 7 years old	1,130	19.1
Pupil (in the primary level)	809	13.6
Student (secondary level and above)	893	15.1
Gainful Workers	1,786	30.2
Housewife	803	13.5
Jobless and Others	506	8.5
<b>TOTAL</b>	<b>5,927</b>	<b>100.0</b>

Source: 80 HIS

2) Employment:

- The NCSO figures on "Gainful Workers" of Metro Manila (15 years old and above), are indicated by industry sector, as shown in Table 17.11.

Table 17.11  
Employment by Industry Sector

Industry Sector	1980		1975	
	No.	%	No.	%
Primary	117,783	5.9	32,581	2.0
Secondary	592,536	29.5	527,525	32.9
Tertiary	1,296,465	64.6	1,046,157	65.1
<b>TOTAL</b>	<b>2,006,784</b>	<b>100</b>	<b>1,606,263</b>	<b>100</b>

Source: NCSO Census

- There is a small discrepancy on the total number and industry sector composition of employment between NCSO statistics and '80 HIS result because the HIS results included area distribution features. Tables 17.12 and 17.13 show the industry sector compositions by area, by residence and by work place. The percentage composition of employment by work place reveals the following:
  - a) On the primary industry sector, the areas of Caloocan City North and Navotas has the highest employment share of 6.5 percent for each areas as among the other places.

- b) The secondary industry sector has high percentages of employment in the work areas of Marikina (54%), Taguig (51%), and Pasig (49%). On the other hand, the lowest employment percentages are in the work areas of the City of Manila (2nd, 3rd and 4th) with an approximate range of from 15 percent to 17 percent.
- c) On the other hand, the tertiary industry has high percentages of employment in the City of Manila (2nd, 3rd and 4th), Pasay City and Pateros.

Table 17.12  
Percentage Composition of Employment  
by Industry Sector by Work Place

Municipality/District	Primary	Secondary	Tertiary			Total
			Govern- mental	Others	Total	
City of Manila	0.2	18.5	15.9	65.4	81.3	100
1. City of Manila, 1st	0.3	29.8	6.2	63.7	69.9	100
2. City of Manila, 2nd	0.1	16.0	5.5	78.4	83.9	100
3. City of Manila, 3rd	0.1	16.8	11.1	71.9	83.1	100
4. City of Manila, 4th	0.2	16.0	30.4	53.4	83.8	100
5. Pasay City	0.3	17.1	15.0	67.6	82.6	100
6. Makati	0.4	22.3	9.5	67.8	77.3	100
7. Mandaluyong	0.3	40.8	6.7	52.2	58.9	100
8. San Juan del Monte	0.2	26.6	7.1	66.1	73.2	100
Quezon City	0.2	27.7	13.4	58.7	72.1	100
9. Quezon City, I	0.2	31.3	19.1	48.8	68.5	100
10. Quezon City, II	0.3	33.1	23.5	43.1	66.6	100
11. Quezon City, III	0.3	22.1	11.2	62.4	73.6	100
12. Quezon City, IV	0.3	23.0	17.7	59.0	76.7	100
Caloocan City	0.6	30.6	6.8	62.0	68.8	100
13. Caloocan City, South	0.1	29.9	6.1	63.9	69.0	100
14. Caloocan City, North	6.5	27.8	12.8	52.9	65.7	100
15. Valenzuela	2.6	47.1	2.8	47.5	50.3	100
16. Malabon	0.7	37.8	5.8	55.7	61.5	100
17. Navotas	6.5	26.1	4.2	63.2	67.4	100
18. Marikina	1.0	54.5	4.3	40.2	44.5	100
19. Pasig	0.7	49.2	8.8	41.3	50.1	100
20. Pateros	0.0	19.5	8.0	72.5	80.5	100
21. Taguig	0.7	50.6	9.5	39.2	48.7	100
22. Parañaque	0.1	41.9	4.3	53.7	58.0	100
23. Muntinlupa	0.6	46.9	5.4	47.1	52.5	100
24. Las Piñas	0.6	41.4	5.1	52.9	58.0	100
Metro Manila Total	0.5	29.1	11.8	58.6	70.4	100

Source: 1980 HIS



Table 17.13  
Percentage Composition of Employment by  
Industry Sector by Residence

Municipality/District	Primary	Secondary	Tertiary			Total
			Governmental	Others	Total	
City of Manila	0.4	24.0	12.1	63.5	75.6	100
1. City of Manila, 1st	0.3	27.6	9.4	62.7	72.1	100
2. City of Manila, 2nd	0.5	19.5	8.9	71.1	80.0	100
3. City of Manila, 3rd	0.4	20.2	15.1	64.2	79.3	100
4. City of Manila, 4th	0.3	25.4	14.5	59.8	74.3	100
5. Pasay City	0.2	19.0	11.4	69.5	80.9	100
6. Makati	0.1	24.3	14.8	60.8	75.6	100
7. Mandaluyong	0.4	33.6	10.4	55.6	66.0	100
8. San Juan del Monte	0	24.1	15.7	60.2	75.9	100
Quezon City	0.5	26.4	15.3	57.9	73.2	100
9. Quezon City, I	0.4	26.1	11.5	62.0	73.5	100
10. Quezon City, II	0.5	29.5	14.5	55.5	70.0	100
11. Quezon City, III	0.1	23.7	20.2	56.1	76.3	100
12. Quezon City, IV	0.8	22.6	17.5	59.1	76.6	100
Caloocan City	0.4	31.1	10.5	48.0	58.5	100
13. Caloocan City, South	0.1	28.9	10.2	60.8	71.0	100
14. Caloocan City, North	2.2	43.2	11.8	42.8	54.6	100
15. Valenzuela	2.2	37.4	4.9	55.5	60.4	100
16. Malabon	0.8	35.2	9.9	54.2	64.1	100
17. Navotas	4.1	22.1	7.1	66.8	73.9	100
18. Marikina	0.8	43.9	6.9	48.3	55.2	100
19. Pasig	0.9	43.2	9.2	46.7	55.9	100
20. Pateros	0	25.1	10.2	64.7	74.9	100
21. Taguig	0.9	41.9	9.3	47.8	57.1	100
22. Parañaque	0.2	31.4	9.7	58.7	68.4	100
23. Muntinlupa	0.5	44.5	7.4	47.7	57.1	100
24. Las Piñas	0.4	33.9	10.0	55.6	65.6	100
Metro Manila Total	0.5	29.1	11.8	58.6	70.4	100

Source: 1980 HIS

### 17.2.3 Daytime and Nighttime Population

- Table 17.14 shows the comparison between the population at night and that in daytime as estimated from the HIS analysis. The population at daytime is the total number of gainful workers by work place, attendants by school address and housewives/jobless by residence place. The figures on the last column are the rates of the population at daytime as against the one at night. These rates indicate one of the regional characteristics. For example, the rates of the City of Manila (2nd, 3rd and 4th) is high, while those in the City of Manila (1st), San Juan del Monte, Quezon City (I), Caloocan City (North), Navotas, Parañaque and Las Piñas are low. The former districts have the characteristics of a business and educational center and the latter, the characteristics of a residential district. They are all shown in Figure 17.8

Table 17.14  
Estimated Population at Night  
and in Daytime by Area<sup>1/</sup>

Municipality/ District	Population at Night: A	Population at Daytime: B <sup>2/</sup>	B/A
1. City of Manila, 1st	464,726	340,689	0.73
2. City of Manila, 2nd	179,491	351,400	1.96
3. City of Manila, 3rd	352,493	472,696	1.34
4. City of Manila, 4th	344,368	482,115	1.40
5. Pasay City	232,684	205,327	0.88
6. Makati	306,501	355,499	1.16
7. Mandaluyong	166,849	163,052	0.98
8. San Juan del Monte	105,247	80,390	0.76
9. Quezon City, I	223,195	175,730	0.79
10. Quezon City, II	387,858	357,238	0.92
11. Quezon City, III	145,447	147,014	1.01
12. Quezon City IV	191,625	176,425	0.92
13. Caloocan City, South	315,289	260,533	0.83
14. Caloocan City, North	57,994	38,773	0.67
15. Valenzuela	166,828	153,849	0.92
16. Malabon	152,386	133,093	0.87
17. Navotas	98,565	75,998	0.77
18. Marikina	168,552	142,982	0.85
19. Pasig	214,027	210,055	0.98
20. Patcos	31,718	27,673	0.87
21. Taguig	104,551	96,206	0.92
22. Parañaque	104,551	126,151	0.74
23. Muntinlupa	107,641	108,529	1.01
24. Las Piñas	106,892	82,929	0.78
Metro Manila Total	4,796,401	4,796,401 <sup>3/</sup>	1.00

<sup>1/</sup>Metro Manila residents only, 7 years and above

<sup>2/</sup>From work and school address

<sup>3/</sup>Including Unknown.

Source: 1980 HIS Analysis Results

- The NCSO Census cannot provide the data on occupation structure by municipality. However, HIS can present it per area in tabulation format. The following table shows the distribution of gainful workers by municipality. The number of gainful workers per population or household do not differ much from one municipality to another.

Figure 17.8  
Illustration of Daytime and Nighttime  
Population Ratio by Area

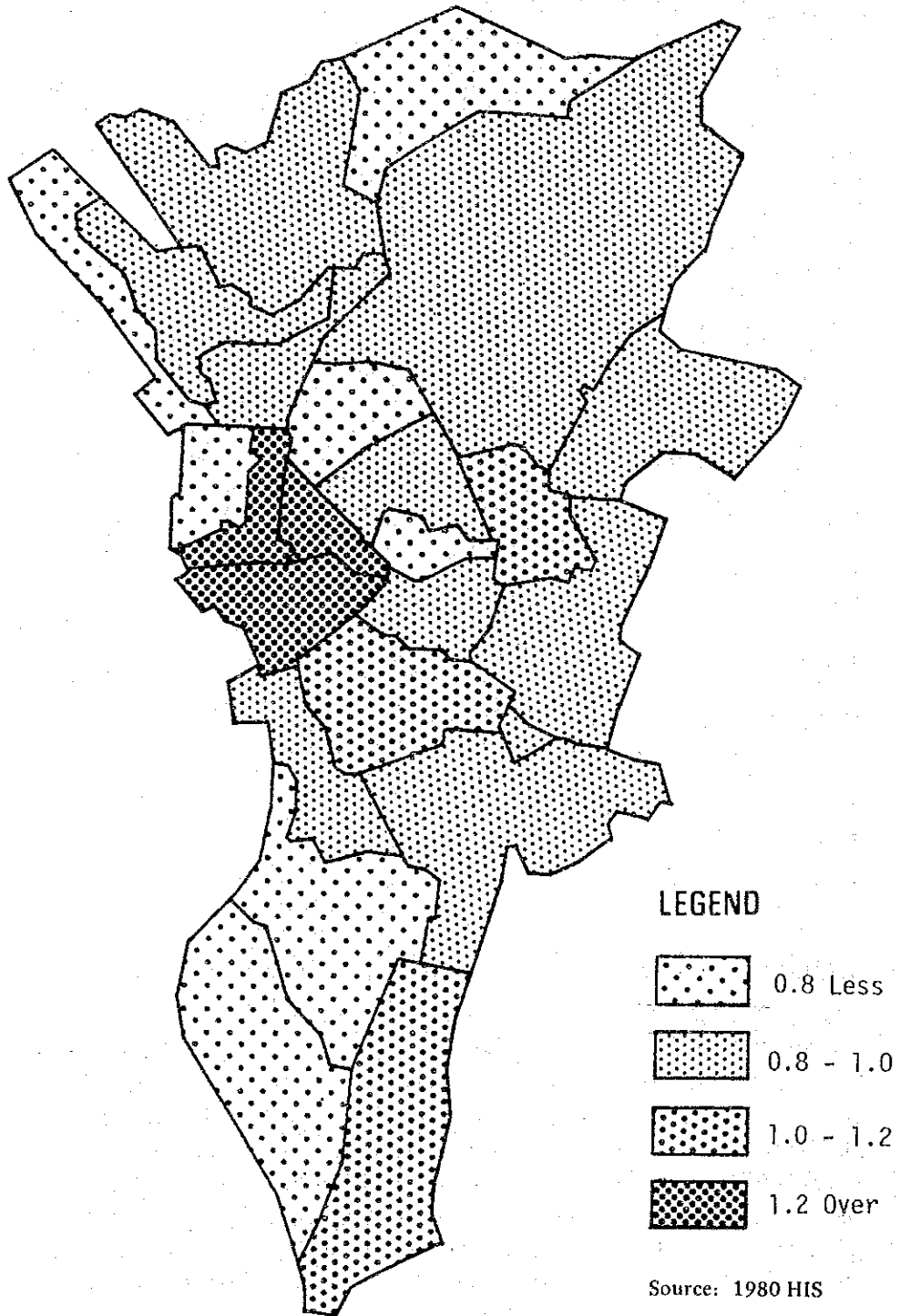


Table 17.15  
Gainful Workers and Jobless  
Persons by Area

Municipality/District	Gainful Workers			Jobless	
	Number	Per Population	Per Household	Number	Per Population
City of Manila	482,584	0.30	1.60	161,479	0.10
City of Manila, 1st	167,706	0.30	1.60	65,451	0.12
City of Manila, 2nd	68,539	0.31	1.89	17,616	0.08
City of Manila, 3rd	122,678	0.29	1.49	41,080	0.10
City of Manila, 4th	123,661	0.30	1.59	37,332	0.09
Pasay City	82,784	0.29	1.50	28,271	0.10
Makati	118,482	0.32	1.72	27,931	0.07
Mandaluyong	65,856	0.23	1.69	16,078	0.08
San Juan del Monte	39,392	0.30	1.63	13,717	0.11
Quezon City	360,467	0.31	1.65	93,167	0.08
Quezon City, I	86,876	0.32	1.69	22,129	0.08
Quezon City, II	144,071	0.31	1.62	41,780	0.09
Quezon City, III	58,977	0.31	1.75	11,900	0.06
Quezon City, IV	70,543	0.29	1.50	39,872	0.09
Caloocan City	134,154	0.29	1.50	39,872	0.09
Caloocan City, South	113,843	0.32	1.50	35,102	0.10
Caloocan City, North	20,311	0.28	1.49	4,770	0.07
Valenzuela	55,134	0.26	1.38	19,826	0.09
Malabon	54,305	0.28	1.49	13,858	0.07
Navotas	34,727	0.28	1.49	10,006	0.08
Marikina	65,370	0.31	1.68	13,138	0.06
Pasig	82,563	0.31	1.64	18,252	0.07
Pateros	12,096	0.30	1.66	3,520	0.09
Taguig	40,005	0.30	1.59	10,584	0.08
Parañaque	69,017	0.33	1.84	12,193	0.08
Muntinlupa	40,920	0.30	1.68	10,674	0.08
Las Piñas	42,991	0.31	1.74	9,127	0.07
<b>Metro Manila Total</b>	<b>1,780,861</b>	<b>0.30</b>	<b>1.61</b>	<b>505,692</b>	<b>0.09</b>

Source: 1980 HIS

- Tables 17.16 and 17.17 indicate the student distribution by area both according to residence place and school address.
- The distribution of daytime population is further shown, in detail, in Figures 17.9 and 17.10 and 17.11. Although the concentration of daytime population is within and along EDSA (particularly within C2), factors which attribute to this fact are interesting. Figure 17.10 shows that the ratio of gainful workers to daytime population is high not only in downtown areas but also even higher along EDSA and in the south. On the other hand, the ratio of students to daytime population is significantly high only in the university belt and a couple of other areas. This implies that the high daytime population density in the CBD of the City of Manila is largely due to the concentration of students.

Table 17.16  
Number of Pupils/Students  
by Residence Place

Municipality/District	Pupil <sup>1/</sup>		Student <sup>2/</sup>		Total	
	Number	Per Pop. (%)	Number	Per Pop. (%)	Number	Per Pop. (%)
City of Manila	217,373	13.3	268,901	16.5	486,374	29.8
City of Manila, 1st	77,469	13.7	81,203	14.4	158,672	28.1
City of Manila, 2nd	30,484	14.0	33,323	15.3	63,807	29.3
City of Manila, 3rd	52,821	12.3	83,900	19.6	136,721	31.9
City of Manila, 4th	56,599	13.5	70,475	16.8	127,074	30.3
Pasay City	38,490	13.4	41,972	14.6	80,462	28.0
Makati	49,879	13.4	55,692	14.9	105,571	28.3
Mandaluyong	29,746	14.5	27,763	13.5	57,509	28.0
San Juan del Monte	15,482	11.9	19,314	14.8	34,796	26.7
Quezon City	151,630	13.0	185,883	15.9	327,513	28.9
Quezon City, I	34,839	12.8	44,006	16.2	78,845	29.0
Quezon City, II	62,187	13.2	72,845	15.4	135,032	28.6
Quezon City, III	24,335	12.9	30,819	16.2	55,154	29.1
Quezon City, IV	30,269	13.0	38,213	16.4	68,482	29.4
Caloocan City	65,360	14.0	64,201	13.7	129,561	27.7
Caloocan City, South	55,481	14.0	55,274	14.0	110,755	28.0
Caloocan City, North	9,879	13.6	8,927	12.2	18,806	28.0
Valenzuela	20,440	14.3	30,023	14.1	60,463	28.4
Malabon	27,057	14.2	26,718	14.0	53,775	28.2
Navotas	19,897	15.8	16,769	13.3	36,666	29.1
Marikina	29,663	14.0	32,221	15.2	61,884	29.2
Pasig	39,241	14.6	38,659	14.4	77,900	29.0
Pateros	4,264	10.6	6,602	16.4	10,866	27.0
Taguig	21,289	15.9	14,203	10.6	35,492	26.5
Parañaque	29,044	13.9	31,071	14.9	60,115	28.8
Muntinlupa	20,063	14.7	16,481	12.1	36,544	26.8
Las Piñas	19,743	14.5	16,778	12.3	36,521	26.8
<b>Metro Manila Total</b>	<b>808,661</b>	<b>13.6</b>	<b>893,251</b>	<b>15.1</b>	<b>1,701,912</b>	<b>28.7</b>

<sup>1/</sup> School attendance of those in the primary levels.

<sup>2/</sup> School attendance of those in the secondary and above levels

Source: 1980 HIS Analysis Results

Table 17.17  
Attendants by  
School Address<sup>1/</sup>

Municipality/District	Pupil <sup>2/</sup>	Percent- age by Area		Percent- age by Area		Total	Percent- age by Area
		Pupil <sup>2/</sup>	Student <sup>3/</sup>	Pupil <sup>2/</sup>	Student <sup>3/</sup>		
City of Manila	241,041	29.9	510,534	57.4	751,575	44.3	
City of Manila, 1st	70,699		38,677		109,376		
City of Manila, 2nd	43,247		106,951		150,198		
City of Manila, 3rd	59,980		239,459		299,439		
City of Manila, 4th	67,115		125,447		192,562		
Pasay City	35,181	4.4	27,136	3.1	62,317	3.7	
Makati	44,971	5.6	25,376	2.9	70,347	4.1	
Mandaluyong	28,605	3.5	24,705	2.8	53,310	3.1	
San Juan del Monte	14,629	1.8	8,336	0.9	22,965	1.4	
Quezon City	148,290	18.4	117,387	13.2	265,677	15.7	
Quezon City, I	30,445		20,083		50,528		
Quezon City, II	64,060		47,383		111,443		
Quezon City, III	22,542		21,718		44,260		
Quezon City, IV	31,243		28,203		59,446		
Caloocan City	57,772	7.2	41,929	4.7	99,651	5.9	
Caloocan City, South	49,521		37,149		86,670		
Caloocan City, North	8,201		4,780		12,981		
Valenzuela	30,109	3.7	17,247	1.9	47,356	2.8	
Malabon	28,542	3.5	23,198	2.6	51,740	3.1	
Navotas	18,298	2.3	5,149	0.6	23,447	1.4	
Marikina	29,276	3.6	20,513	2.3	49,789	2.9	
Pasig	38,775	4.8	26,833	3.0	65,608	3.9	
Pateros	6,170	0.8	5,597	0.6	11,767	0.7	
Taguig	21,264	2.6	5,376	0.6	26,640	1.6	
Parañaque	23,149	2.9	10,312	1.2	33,461	2.0	
Muntinlupa	23,608	2.9	11,412	1.3	35,020	2.1	
Las Piñas	17,184	2.1	7,972	0.9	25,156	1.6	
<b>Metro Manila Total</b>	<b>806,814</b>	<b>100.0</b>	<b>889,012</b>	<b>100.0</b>	<b>1,695,826</b>	<b>100.0</b>	

<sup>1/</sup> Metro Manila residents only.

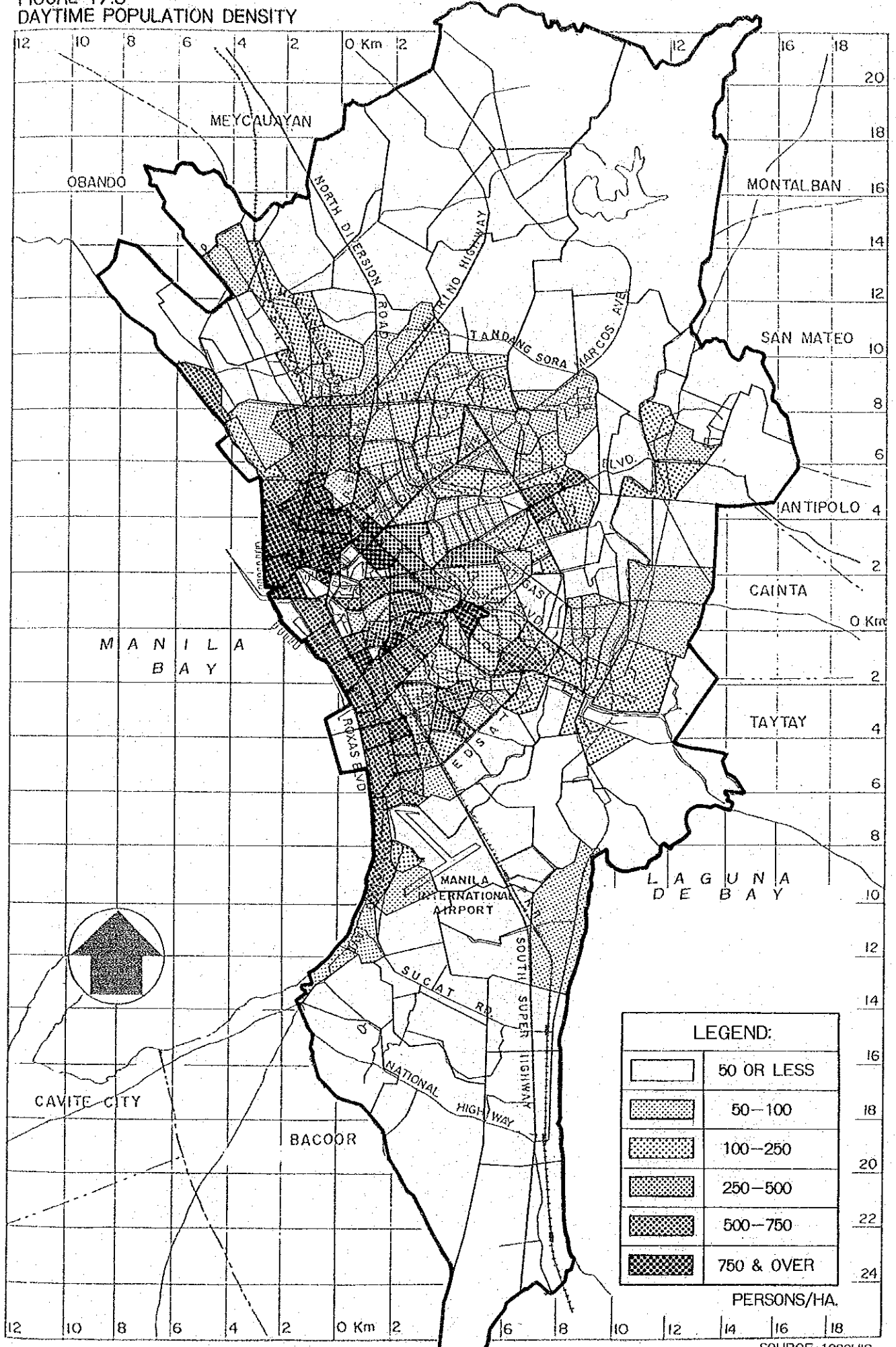
<sup>2/</sup> School attendance of those in the primary levels.

<sup>3/</sup> School attendance of those in the secondary and above levels.

Source: 1980 HIS Analysis Results



FIGURE 17.9  
DAYTIME POPULATION DENSITY



LEGEND:	
	50 OR LESS
	50-100
	100-250
	250-500
	500-750
	750 & OVER

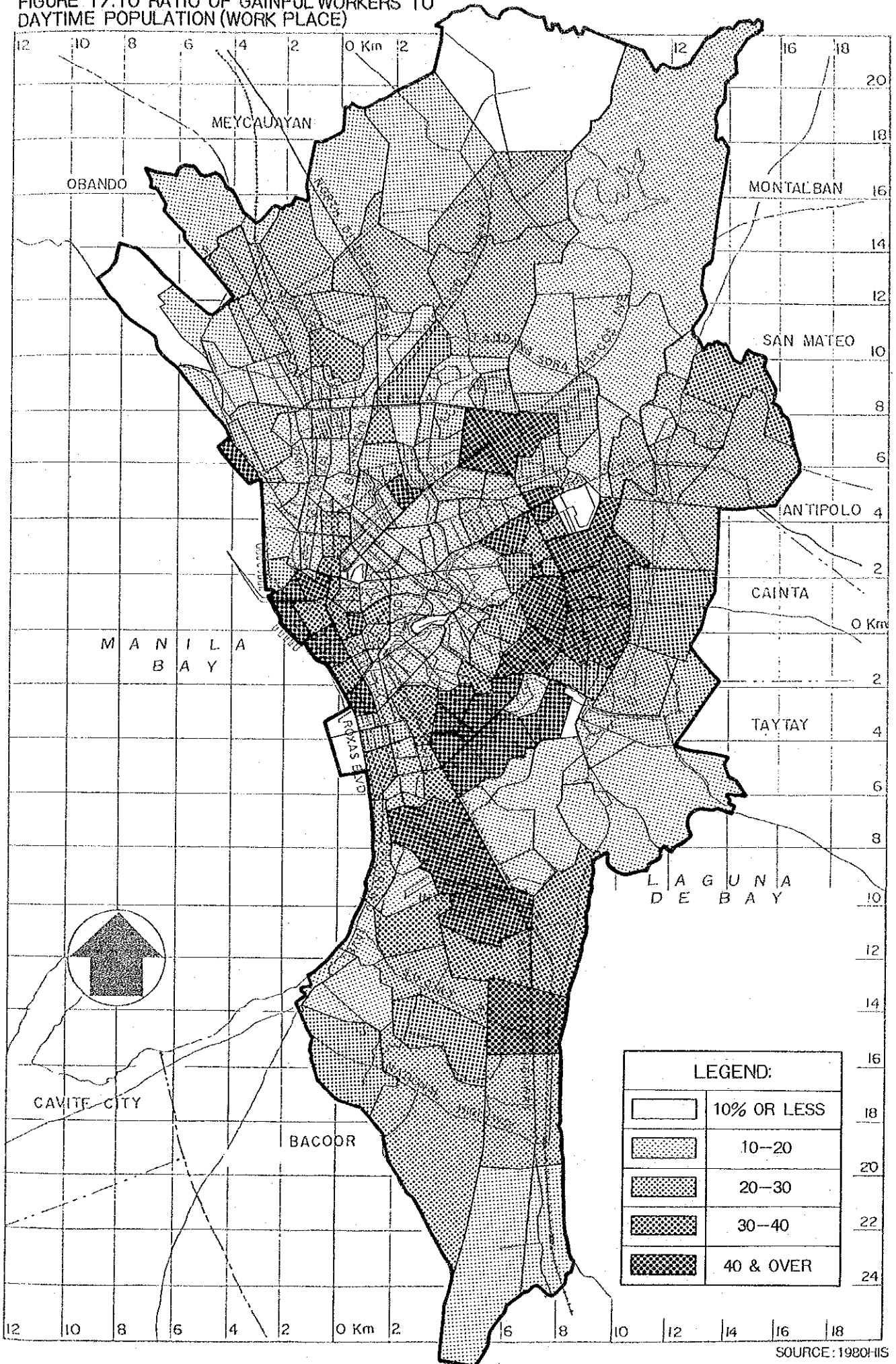
PERSONS/HA.

SOURCE: 1980HIS





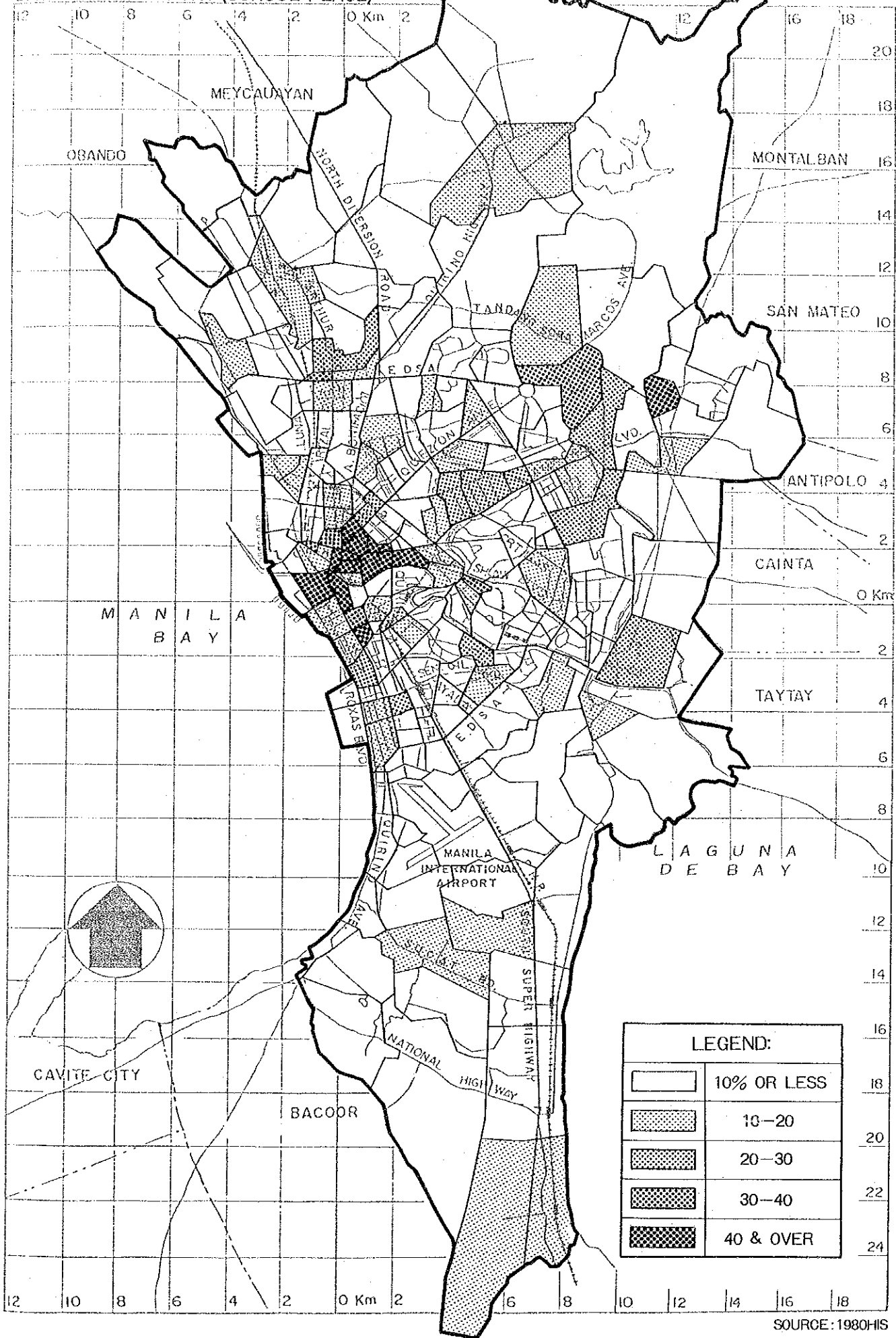
FIGURE 17.10 RATIO OF GAINFUL WORKERS TO DAYTIME POPULATION (WORK PLACE)



SOURCE: 1980HIS



FIGURE 17.11 RATIO OF STUDENTS TO DAYTIME POPULATION (SCHOOL PLACE)



SOURCE: 1980HIS



#### 17.2.4 Income Level and Distribution

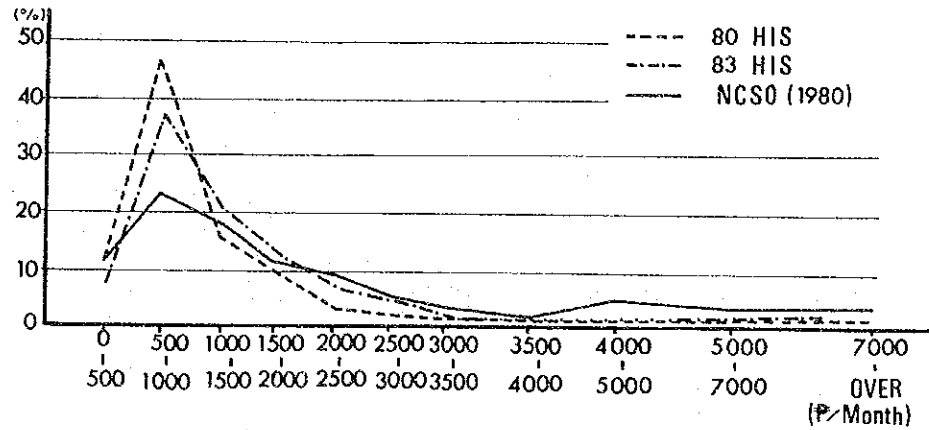
- There are two kinds of data on household income level in Metro Manila. Table 17.18 presents a comparison of the percentage distribution of households in Metro Manila by income level. This is based on the 1980 HIS, 1983 Supplemental HIS and the 1980 NCSO data. This is also shown geographically in Figure 17.12.
- The results of the 1980 HIS show that 48 percent of the total households in Metro Manila belong to the ₱500-₱1,000/month income level. The average income of Metro Manila households is ₱1,152/month. On the other hand, the NCSO reports that, based on 3,300 Metro Manila household samples, the average household income is ₱2,284/month. Majority or 23 percent of these households fall under the ₱500 to ₱1,000 per month income level. The 1983 HIS results present features different from the other two. The average income for the total households of Metro Manila is ₱1,601 per month. This figure falls somewhat between those of the 1980 HIS and 1980 NCSO data.
- Differences in distributions between the 1980 HIS and 1980 NCSO are very significant. The former shows a sharp peak for the income bracket of ₱500 – 1,000, while the latter shows a higher percentage for higher income levels. This may be due to the inclusion, by the NCSO Report, of all sources of income per household. With the HIS data, income is derived from gainful employment in terms of wages.

Table 17.18  
Household Income Level Distribution

Income Level (P/month)	1980 HIS		1980 NCSO %	1983 HIS	
	No. of Households	%		No. of Households	%
Less than 500	138,295	13.4	12.6	70,138	7.1
501 – 1,000	499,180	48.4	23.2	359,920	36.5
1,001 – 1,500	170,324	16.5	20.0	207,943	21.1
1,5001 – 2,000	108,292	10.5	11.6	129,900	13.2
2,001 – 2,500	44,269	4.3	9.5	72,796	7.4
2,501 – 3,000	27,715	2.7	5.6	50,694	5.1
3,001 – 3,500	14,739	1.4	3.8	19,557	1.9
3,501 – 4,000	9,575	0.9	2.1	16,975	1.7
4,001 – 5,000	7,991	0.8	4.9	17,370	1.8
5,001 – 7,000	5,758	9.5	3.5	19,326	2.0
7,001 and above	5,992	0.6	3.2	22,971	2.3
TOTAL <sup>1/</sup>	1,094,761	100.0	100.0	1,103,582	100.0
Average:	₱ 1,152		₱2.284	1,601	

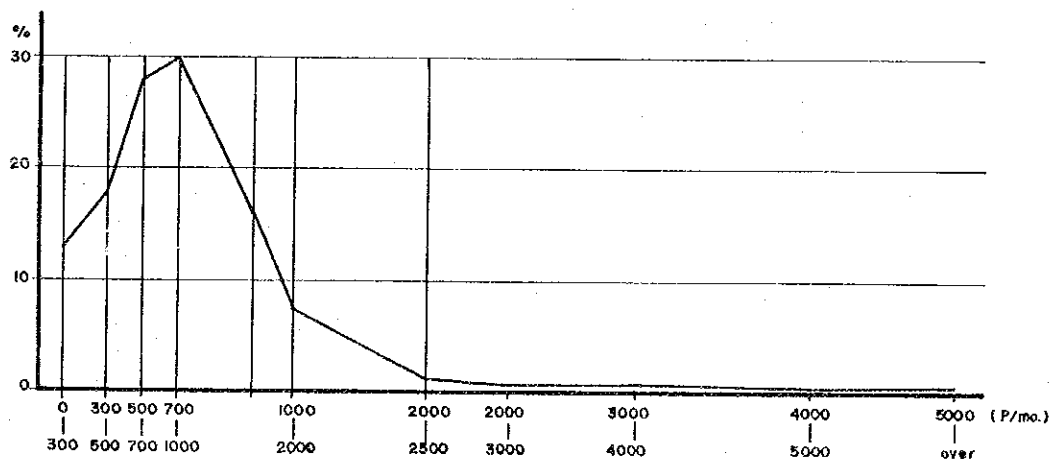
<sup>1/</sup>Includes unknown

Figure 17.12  
Graphical Illustration on the  
Distribution of Households by Income Level



- Figure 17.13 showing the percentage distribution of gainful population by income level based on the 1980 HIS indicates that around 90 percent of gainful population in Metro Manila have an income level that is below ₱1,000 a month. The largest share or 31 percent of this population fall under the ₱700 – 1,000 a month income level.

Figure 17.13  
Distribution of Gainful Population  
by Income Level



- The regional characteristics of household income distribution were obtained from both the results of the 1980 HIS and 1983 HIS. Table 17.19 shows the percentage composition by income level and average household income by municipality. The average income per household by municipality ranges widely from ₱870 in Muntinlupa to ₱1,740 in Paranaque in 1980, and from ₱970 in Valenzuela to ₱2,660 in Paranaque in 1983. As a result of the comparison to the Metro Manila total, low income and high income groups were categorized as follows:
  - a) lower average income municipalities: City of Manila, 1st, Pasay City, Caloocan North, Navotas and Muntinlupa
  - b) higher average income municipalities: Makati, Pateros, Paranaque, Las Pinas
- The spatial distribution of income level in Metro Manila is presented in detail, as shown in Figure 17.14.

Table 17.19  
Household Income Distribution by  
Municipality (%)

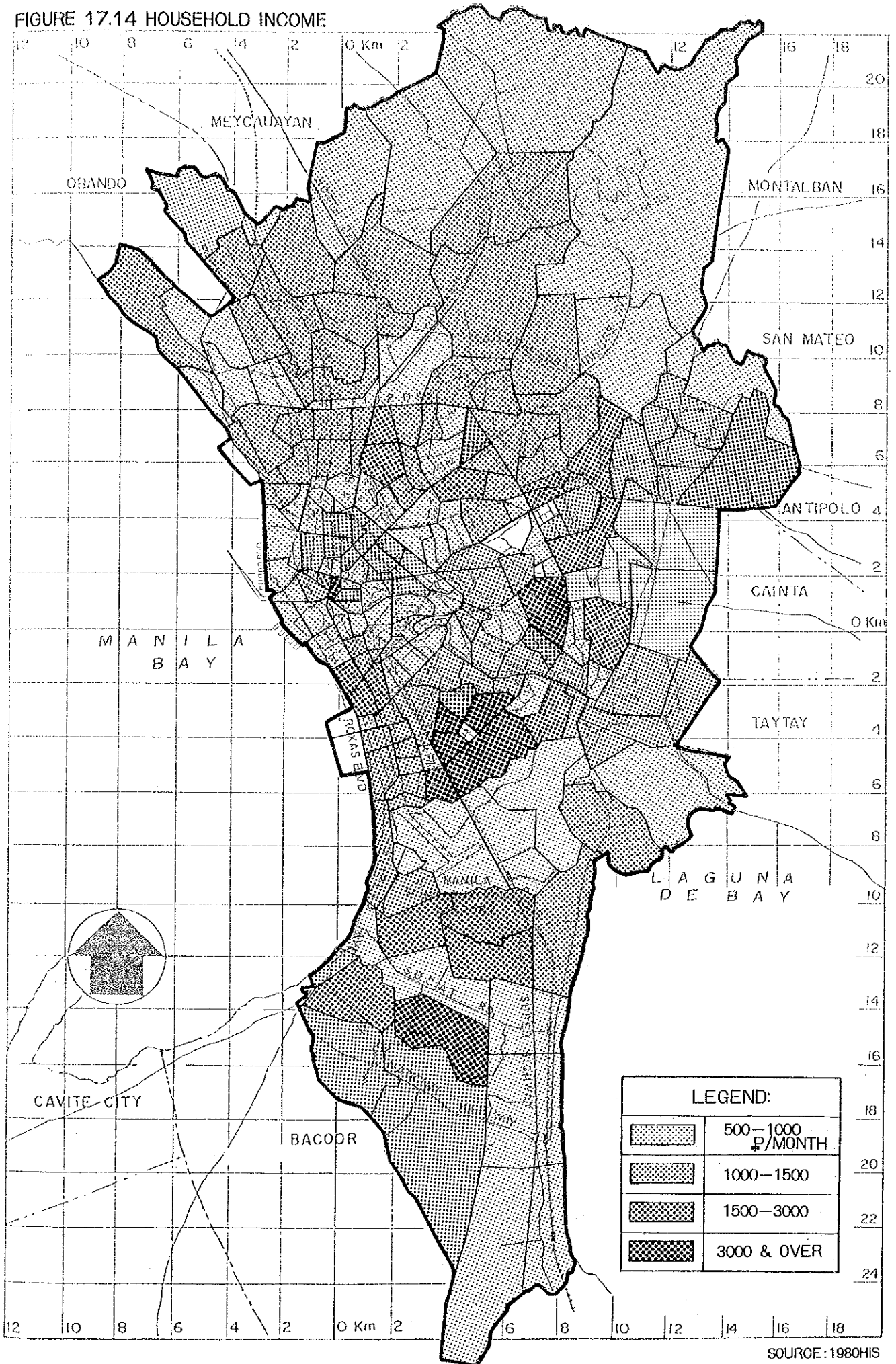
Municipality	1980 HIS							1983 HIS						
	Ave- rage	0- 500	501 1,000	1,001 2,000	2,001 3,000	3,001 5,000	5,000 above	Ave- rage	0- 500	500 1,000	1,001 2,000	2,001 3,000	3,001 5,000	5,000 above
1. City of Manila, 1st	₱ 881	29.2	46.0	18.5	4.3	1.6	0.4	₱1,419	6.1	34.5	41.0	14.1	2.7	1.6
2. City of Manila, 2nd	1,102	20.4	42.2	28.5	5.6	1.7	1.6	1,283	5.2	46.1	35.4	8.6	4.7	0.0
3. City of Manila, 3rd	1,109	16.6	44.7	27.8	7.7	2.7	0.6	1,735	3.6	23.3	46.0	16.8	7.7	2.4
4. City of Manila, 4th	1,025	15.2	52.5	24.1	5.5	2.2	0.5	1,584	5.5	32.0	39.9	14.0	6.2	2.3
5. Pasay City	1,090	11.4	51.9	27.6	5.5	3.1	0.5	1,179	14.0	47.5	23.9	9.6	4.0	0.9
6. Makati	1,341	9.7	48.7	27.9	7.0	3.0	3.6	2,313	8.9	29.5	26.3	13.6	6.6	15.0
7. Mandaluyong	1,315	12.6	40.4	31.7	9.8	3.8	1.6	1,799	11.5	30.2	33.9	11.5	4.3	8.6
8. San Juan del Monte	1,233	14.2	45.2	28.0	5.7	5.4	1.5	2,157	6.0	37.4	31.4	13.0	11.1	10.8
9. Quezon City, I	1,125	18.9	48.0	21.7	5.9	4.1	1.6	2,136	5.6	30.7	30.2	12.5	10.7	10.4
10. Quezon City, II	1,158	11.1	49.2	27.6	8.3	3.1	0.7	1,565	8.8	32.0	35.4	13.6	7.3	2.8
11. Quezon City, III	1,476	6.4	42.1	29.4	13.1	6.9	2.2	1,642	6.0	34.9	34.9	16.9	3.6	3.6
12. Quezon City, IV	1,128	10.0	55.0	25.5	5.7	2.8	1.1	1,936	9.4	26.1	28.4	14.5	14.8	6.7
13. Caloocan City, South	1,105	11.0	49.5	29.5	6.9	3.0	0.3	1,246	5.8	44.8	35.6	10.9	2.3	0.5
14. Caloocan City, North	976	11.2	57.9	26.1	4.5	0	0.4	1,267	6.7	46.7	30.0	12.3	3.3	0
15. Valenzuela	1,193	7.0	44.7	37.2	9.3	1.7	0.2	972	19.8	50.7	18.5	9.9	1.2	0
16. Malabon	1,048	10.8	52.9	28.1	6.4	1.4	0.3	1,291	5.0	42.5	37.5	11.3	3.8	0
17. Navotas	993	16.9	50.6	23.1	7.9	1.5	0	1,243	1.3	48.0	37.0	12.4	1.3	0
18. Marikina	1,246	5.8	43.4	39.9	7.3	2.8	0.8	1,432	5.4	30.6	45.9	9.9	7.2	0.9
19. Pasig	1,143	10.0	52.0	26.7	7.8	3.0	0.5	1,327	5.1	44.8	31.6	14.8	2.2	1.6
20. Pateros	1,449	11.5	48.1	23.7	8.4	3.1	5.3	2,053	5.3	26.6	47.8	5.3	5.3	10.6
21. Taguig	1,075	12.6	56.9	22.0	4.2	3.1	1.2	1,187	10.2	42.7	39.6	4.3	2.8	0
22. Paranaque	1,739	7.1	41.8	24.9	9.3	11.3	5.5	2,660	2.6	31.3	23.5	12.4	11.8	18.3
23. Muntinlupa	868	11.9	63.2	23.2	1.4	0.3	0	1,202	2.2	48.9	40.4	6.4	0	2.2
24. Las Piñas	1,471	5.2	42.2	31.5	12.9	5.9	2.3	2,098	4.4	45.6	24.0	8.8	4.4	13.0
TOTAL	1,152	13.4	48.4	27.0	7.0	3.1	1.1	1,601	7.2	36.5	34.2	12.3	5.4	4.4

Source: 1980 HIS and 1983 Supplemented HIS Analysis Results.





FIGURE 17.14 HOUSEHOLD INCOME



LEGEND:	
	500-1000 ₱/MONTH
	1000-1500
	1500-3000
	3000 & OVER

SOURCE: 1980HIS



### 17.2.5 Car Ownership

#### 1) Car Ownership Level:

- Based on the BLT (Board of Land Transportation) statistics, the number of motor vehicles registered in Metro Manila was summarized as shown in Table 17.20. As can be noted, between the years 1980 to 1981, the number of vehicles slightly decreased. This was due to changes in the inspection criteria for registration of vehicles. However, this number increased in 1981 and 1982 at the rate of 5.8 percent. The percentage share of Metro Manila to the whole country is almost stable at the rate of 40 to 44 percent.
- The overall level of ownership was also estimated as shown in Table 17.21.
- The breakdown of the number of registered vehicles can be seen in Table 17.22. Almost 65 percent of the cars or about 45 percent of the private cars are concentrated in Metro Manila.
- HIS also gives information on the car ownership structure. Table 17.23 shows the composition of the number of cars between HIS and BLT records. Some discrepancies seen between the two data sources could not clearly be explained. However, one of the reasons may be due to the BLT data's inclusion of all types of vehicles registered in Metro Manila: while the HIS data covers only those which are owned privately by households, and did not include those owned by enterprises and government agencies. It is considered that the HIS data maintains a certain level of accuracy.
- According to the HIS analysis results, 95 percent of households in Metro Manila own an average number of 1.4 passenger cars as shown in Table 17.24. Approximately 20 to 30 percent of car-owning households have more than two cars.
- Table 17.25 gives the car ownership level by occupation. Significantly, a high percentage of administrative and executive persons belong to car-owning households, followed by professionals and service workers.

#### 2) Car Ownership and Income Level

- As shown in Table 17.26, car ownership closely relates to household income level. Only 5 percent of the households who belong to the lowest income bracket of less than ₱1,000 own cars; while more than 60 to 80 percent of those who belong to the higher income group of more than ₱4,000 own cars.
- Table 17.27 shows that higher income households own more than one car at the same time.

#### 3) Distribution of Car-Owning Households

- The level of car ownership varies considerably by municipality as shown in Table 17.28. Low ownership areas are in Navotas, Malabon, City of Manila, Pasay City, and Caloocan City; while high ownership areas are in Paranaque, Pateros, Las Pinas, Quezon City, Makati, Mandaluyong, and San Juan del Monte. The average number of cars of car-owning households is relatively large in Makati, San Juan del Monte and Quezon City. The above distribution is more clearly shown in Figure 17.15.

Year:	No of Motor Vehicles <sup>1/</sup>		
	Metro Manila	% to Country	Whole Country
1979	432,115	40.4	1,069,139
1980	446,142	40.1	1,111,433
1981	445,064	44.2	1,006,030
1982	470,800	43.3	1,087,180
Growth Rate (% year):			
1979-80	3.2	--	3.9
1980-81	0.2	--	-9.5
1981-82	5.8	--	2.3

Source: BLT Statistics

<sup>1/</sup>Covers all types of vehicles including motorcycles.

	1979	1980	1981	1982
Metro Manila	75.6	75.3	72.5	74.0
Whole Country	29.9	23.2	20.5	21.5

<sup>1/</sup>Covers all types of vehicles including motorcycles.

Year	Type	Metro Manila	% to Country	Whole Country
1980	Car	208,191	65.3	318,740
	Jeep	36,770	34.8	105,618
	Motorcycle <sup>1/</sup>	36,570	20.8	175,509
	Total	281,531	46.9	599,867
1982	Car	210,123	65.9	318,975
	Jeep <sup>2/</sup>	122,999	38.7	317,718
	Motorcycle <sup>1/</sup>	35,188	17.3	203,492
	Total	368,310	43.8	840,185

Source: BLT Statistics

<sup>1/</sup>Including mopeds (24,600)

<sup>2/</sup>Including utility vehicles

Table 17.23  
Comparison of the HIS and BLT Data on the  
Number of Vehicles in Metro Manila

Items	1980 BLT vs. 1980 HIS			1982 BLT vs. 1983 HIS		
	Car	Jeep	Car & Jeep	Car	Jeep	Car & Jeep
HIS: A	117,640	29,990	147,630	167,868	422,911	210,779
BLT: B	208,191	36,770	244,961	210,123	122,999 <sup>1/</sup>	333,779 <sup>1/</sup>
A/B	0.57	0.82	0.60	0.80	--	0.63

Source: 1980 HIS and 1983 Supplemental HIS

<sup>1/</sup>Including Utility Vehicles (UV)

Table 17.24  
Car Ownership Level of Households

Item	1980	1983
1) Number of Passenger-Car-Owning Household:	104,480	145,265
2) Percentage of 1) car-Owning Household to total Number of Household:	9.5%	13.2%
3) Average Number of Passenger Cars owned by Car-owning Household <sup>1/</sup>	1.4	1.5

Source: 1980 HIS and 1983 Supplemental HIS

<sup>1/</sup>% distribution of number of passenger cars owned by car-owning household are

	1 car	2 cars	3 cars	4 and more
1980:	81.0%	13.7%	3.2%	2.1%
1983:	72.2%	18.8%	3.0%	6.0%

Table 17.25  
Car Ownership by Occupation

Occupation	% of Persons who belong to	
	Car-owning Household	Non Car-owning Household
1) Service Worker	22.6	77.4
2) Administrative	48.9	51.1
3) Sales	14.7	85.3
4) Clerical	11.8	88.2
5) Factory	3.4	96.6
6) Transportation & Communications	11.7	88.3
7) Professional	31.4	68.6
8) Pupil (Elementary)	11.5	88.5
9) Student (High School & College)	15.3	84.7
10) Wife	11.1	88.9
11) Jobless	10.4	89.6
12) Others	18.0	82.0

Source: 1980 HIS

Table 17.26  
Car Ownership by Income Level

Average Household Income (P/month)	% of Car-owning Household to total Households	
	1980 HIS	1983 HIS
Less than 500	1.2	2.5
500 - 1,000	3.6	5.5
1,000 - 1,500	10.4	9.1
1,500 - 2,000	17.7	14.4
2,000 - 2,500	27.7	18.2
2,500 - 3,000	33.5	25.4
3,000 - 3,500	42.1	36.8
3,500 - 4,000	40.5	39.4
4,000 - 5,000	59.8	45.9
5,000 - 7,000	61.1	60.7
7,000 & above	83.6	89.3
not known	5.1	5.1
Total	9.5	13.2

Source: 1980 HIS

Table 17.27  
Car Ownership by Income Level  
and Number of Cars Owned

Average Household Income (P/month)	% of Car-owning Household by No. of Cars owned/Car-owning Household					No. of Households
	0	1	2	3	4-more	
Less than 500	98.8	1.1	0.1	0.0	0.0	138,206
500 - 1,000	96.4	3.3	0.2	0.0	0.0	498,954
1,000 - 1,500	89.6	9.7	0.6	0.1	0.1	170,275
1,500 - 2,000	82.3	15.5	1.8	0.2	0.2	108,277
2,000 - 2,500	72.3	23.9	3.0	0.4	0.4	44,266
2,500 - 3,000	66.5	26.1	5.7	1.3	0.5	27,713
3,000 - 3,500	57.9	30.7	9.1	1.7	0.6	14,736
3,500 - 4,000	59.5	25.7	9.4	4.3	1.1	9,573
4,000 - 5,000	40.2	34.7	14.3	8.5	2.4	7,991
5,000 - 7,000	38.9	30.1	20.1	7.4	3.6	5,756
7,000 & above	16.4	25.9	37.9	10.2	9.6	5,991
Unknown	94.9	3.7	0.7	0.1	0.6	62,670
TOTAL	90.5	7.7	1.3	0.3	0.2	1,094,404

Source: 1980 HIS

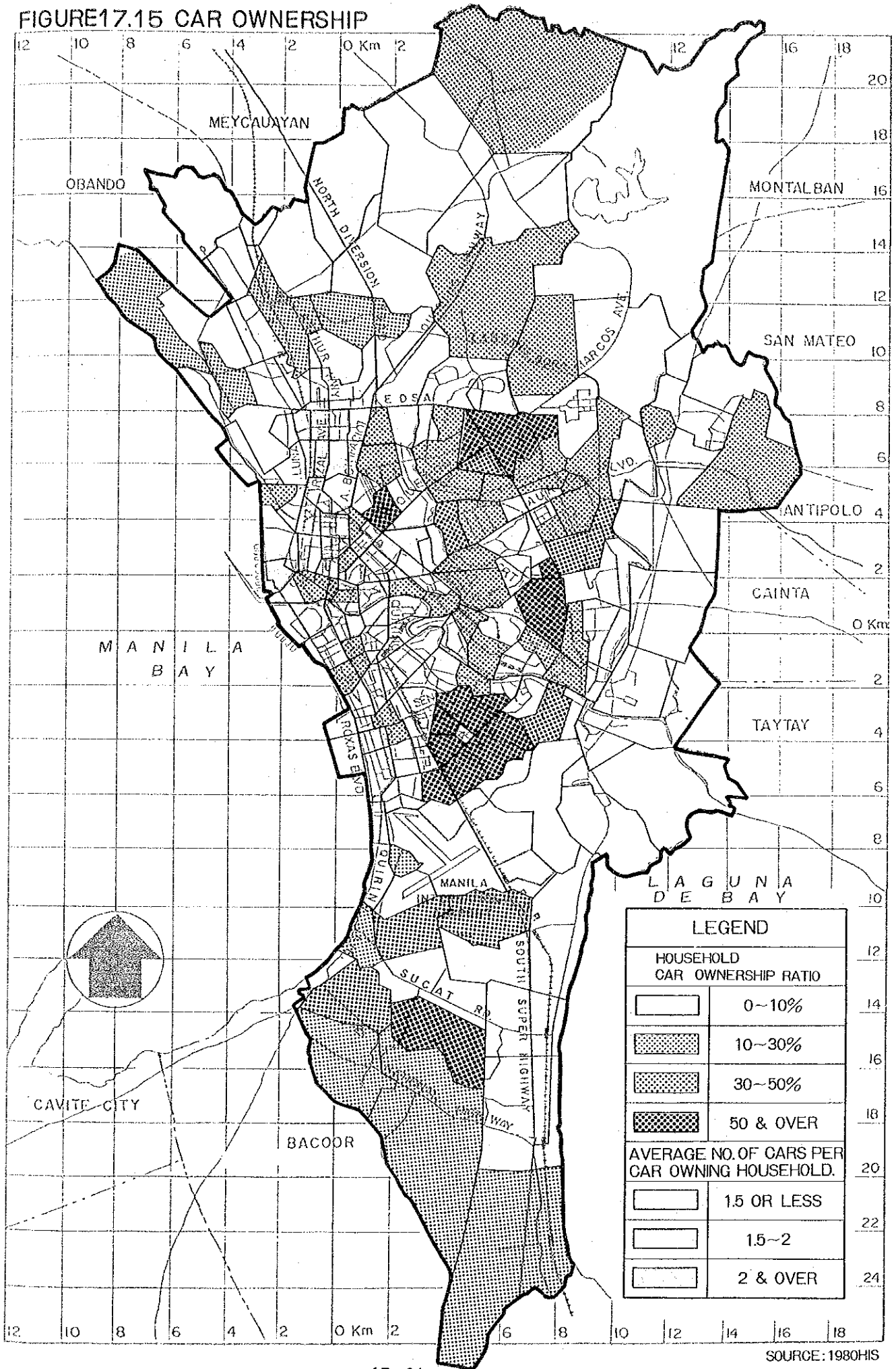
Table 17.28  
Car Ownership Level by Municipality

MUNICIPALITY/DISTRICT	1980 HIS			1983 HIS		
	No. of Car-Owning Households	Ratio to Total Household (%)	Ave. No. of Cars/ Car-Owning Household	No. of Car-Owning Households	Ratio to Total Household (%)	Ave. No. of Cars/ Car-Owning Household
City of Manila	18,163	6.0	1.3	21,971	7.3	1.3
1. City of Manila, 1st	5,608	5.4	1.8	7,021	5.7	1.3
2. City of Manila, 2nd	2,924	8.2	1.3	2,051	5.4	1.0
3. City of Manila, 3rd	5,356	6.6	1.1	9,012	11.3	1.2
4. City of Manila, 4th	4,275	5.6	1.1	4,887	6.4	1.9
5. Pasay City	3,801	6.9	1.1	5,433	9.8	1.5
6. Makati	8,725	12.7	1.7	15,811	22.9	1.4
7. Mandaluyong	5,059	13.0	1.3	6,042	15.5	1.7
8. San Juan del Monte	3,006	13.1	1.6	3,814	16.2	2.2
Quezon City	30,124	13.8	1.5	39,846	18.2	1.4
9. Quezon City, I	7,723	15.2	1.5	13,534	26.6	1.8
10. Quezon City, II	9,710	11.1	1.3	13,214	15.0	1.1
11. Quezon City, III	6,556	19.2	1.6	5,981	16.7	1.6
12. Quezon City, IV	6,135	14.1	1.6	7,117	16.3	1.4
Caloocan City	5,265	5.9	1.2	10,632	11.9	1.2
13. Caloocan City, South	3,907	5.2	1.6	8,818	11.6	1.1
14. Caloocan City, North	1,358	10.0	1.0	1,814	13.3	1.8
15. Valenzuela	3,217	8.1	1.1	1,816	4.5	1.0
16. Malabon	2,409	6.6	1.1	3,462	9.5	2.5
17. Navotas	715	3.1	1.0	3,191	13.7	1.1
18. Marikina	3,065	7.9	1.1	2,803	7.2	1.3
19. Pasig	3,120	6.2	1.1	5,994	11.9	1.3
20. Patros	1,045	14.4	1.1	1,454	20.0	1.8
21. Taguig	904	3.6	1.1	3,457	13.7	1.1
22. Parañaque	8,990	24.0	1.3	15,183	40.5	1.6
23. Muntinlupa	1,955	8.0	1.0	407	1.7	1.0
24. Las Piñas	4,917	19.8	1.2	3,949	15.9	1.6
Metro Manila Total	104,480	9.5	1.4	145,265	13.2	1.5





FIGURE 17.15 CAR OWNERSHIP





### 17.3 TRAVEL DEMAND CHARACTERISTICS OF METRO MANILA RESIDENTS

#### 17.3.1 Demand Level and Composition

##### 1) Trip Rate:

- Trip rate is defined as the number of trips made by a person per day. The trip rate, as of 1980, was estimated to be 2.22 trips per day per person of 7 years and above. Trip rate is dependent on the socio-economic characteristics of the people such as occupation, sex, age, car ownership and so on. Tables 17.29 and 17.30 show trip rates by occupation and by sex and car ownership, respectively.
- The average percentage of persons who make at least one trip per day is 76. As shown in Table 17.31, the percentage or trip maker ratio varies depending upon a person's occupation.

Table 17.29  
Trip Rate by Occupation, 1980

Occupation	Trips/person/day
Service Worker	2.23
Administrative	2.76
Sales	2.29
Clerical	2.61
Factory	2.45
Transport	2.62
Professional	2.51
Student (Elementary)	1.98
Student (High School/College)	2.18
Housewife	1.97
Jobless	1.92
Others	2.06
Total	2.22

Source: Estimated based on 1980 HIS and 1983 Supplemental HIS Analysis.

Table 17.31  
Trip Maker Ratio by Occupation

Occupation	Percent
Service Worker	68
Administrative	92
Sales	79
Clerical	94
Factory	94
Transport	81
Professional	94
Student (Elementary)	95
Student (High School/College)	96
Housewife	52
Jobless	30
Others	71
Total	76

Source: 1980 HIS and 1983 Supplemental HIS Analysis

Table 17.30  
Trip Rate by Sex and Car Ownership, 1980

Item	Trip Rate
Sex	
: Male	2.28
: Female	2.17
Car Ownership	
: Member of Car-Owning Household	2.33
: Member of Non-Car-Owning Household	2.19

Source: Estimated based on 1980 HIS and 1983 Supplemental HIS Analysis

- 2) **Total Number of Trips:**
  - The total number of person trips, in terms of linked trips, of Metro Manila residents is estimated to be 10,633,000, excluding walk trips per day.
- 3) **Demand by Mode**
  - Trips can be broken down into two; namely, by public mode and by private mode as shown in Table 17.32. The public mode consists of those by train, bus, jeepney and tricycle. The private mode are those by car, taxi, van/truck and others. As such, 7,911,000 (74%) of the total trips are made by public mode and 2,722,000 (26%) are by private mode.
- 4) **Demand by Purpose:**
  - Demand by trip purpose is shown in Table 17.33.
- 5) **Demand by Mode and Purpose:**
  - Tables 17.34, 17.35, 17.36 and 17.37 further show the details of the demand by mode and purpose. Table 17.35 indicates that the percentage share of "to work" and "to school" trip purposes are higher in the public mode than the private mode. In contrast, those of the "private" and "business" trip purposes are higher in the private mode than the public mode. Table 17.36 shows that trains and buses are relatively more used for "to work" and "to school" purposes, while tricycles, for "private" and "to school" purposes. Jeepneys are well – utilized for all purposes. On the other hand cars are often used for "to work", "private" and "business" purposes. Table 17.37 gives further the breakdown of "private" purpose trips by mode.
- 6) **Demand by Institution:**
  - The number of trips generated/attracted from/to various kinds of institutions is tabulated in Table 17.38. It indicates that almost half of the total trips are generated/attracted by residential institutions. Also, approximately 19 percent are generated/attracted by educational institutions, 12 percent, by offices and so on.

Table 17.32  
Demand by Mode

Mode	Sub-mode	No. of Person Trips/Day	% to Sub Total	% to Total
Public	Train	10,030	0.1	0.1
	Bus	1,674,229	21.2	15.8
	Jeepney	5,796,482	73.3	54.5
	Tricycle	430,041	5.4	4.0
	Sub Total	7,910,782	100.0	74.4
Private	Car	1,693,662	62.2	15.9
	Taxi	167,743	6.2	1.6
	Truck/ Others	860,832	31.6	8.1
	Sub Total	2,722,237	100.0	25.6
	Total		10,633,019	

Source: 1980 HIS

Table 17.33  
Demand by Trip Purpose

Purpose	No. of Person Trips/Day	% to Total
To Work	1,929,526	18.2
To School	1,728,460	16.3
Private	1,432,277	13.5
Business (at work)	445,883	4.2
To Home	5,096,893	47.9
<b>TOTAL</b>	<b>10,633,019</b>	<b>100.0</b>

Source: 1980 HIS

Table 17.34  
Trip Generation/Attraction by Purpose and Mode

Mode	to Work	to School	Private	Business	to Home	Total
<b>Public</b>	1,441,144	1,397,262	1,040,311	211,673	3,820,392	7,910,782
Train	1,894	1,542	875	225	5,494	10,030
Bus	443,566	190,417	184,882	50,429	804,935	1,674,229
Jeepney	954,476	1,116,867	776,560	148,744	2,799,835	5,796,482
Tricycle	41,208	88,436	77,994	12,275	210,128	430,041
<b>Private</b>	488,382	331,178	391,966	234,210	1,276,501	2,722,237
Car	349,013	148,000	260,838	176,933	758,878	1,693,662
Taxi	24,743	7,826	44,136	16,674	74,364	167,743
Truck/Others	114,626	175,352	86,992	40,603	443,259	860,832
<b>Total</b>	<b>1,929,526</b>	<b>1,728,440</b>	<b>1,432,277</b>	<b>445,883</b>	<b>5,096,893</b>	<b>10,633,019</b>

Source : 1980 HIS

Table 17.35  
Trip Mode Composition by  
Purpose

Mode	to Work	to School	Private	Business	to Home	Total
<b>Public</b>	74.7%	80.8%	72.6%	47.5%	75.0%	74.4%
Train	0.1	0.1	0.1	0.0	0.1	0.1
Bus	23.0	11.0	12.9	11.3	15.8	15.8
Jeepney	49.5	64.6	54.2	33.4	54.9	54.5
Tricycle	2.1	5.1	5.4	2.8	4.1	4.0
<b>Private</b>	25.3	19.2	27.4	52.5	25.0	25.6
Car	18.1	8.6	18.2	39.7	14.9	15.9
Taxi	1.3	0.5	3.1	3.7	1.4	1.6
Truck/Others	5.9	10.1	6.1	9.1	8.7	8.1
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source : 1980 HIS

Table 17.36  
Trip Purpose Composition by Mode

Mode	to Work	to School	Private	Business	to Home	Total
<b>Public</b>	18.2%	17.6%	13.2%	2.7%	48.3%	100.0%
Train	18.9	15.3	8.7	2.3	54.8	100.0
Bus	26.5	11.4	10.0	3.0	48.1	100.0
Jeepney	16.5	19.3	13.4	2.6	48.3	100.0
Tricycle	9.6	20.6	18.1	2.8	48.9	100.0
<b>Private</b>	17.9	12.2	14.4	8.6	46.9	100.0
Car	20.6	8.7	15.4	10.5	44.8	100.0
Taxi	14.8	4.7	26.3	9.9	44.3	100.0
Truck/Others	13.3	20.4	10.1	4.7	51.5	100.0
<b>Total</b>	18.2	16.3	13.5	4.2	47.9	100.0

Source : 1980 HIS

Table 17.37  
Trip Purpose Composition of "Private" Purpose Trips

Purpose	Public Mode		Private Mode		Total	
	No. of 000 Trips	%	No. of 000 Trips	%	No. of 000 Trips	%
a) Private buisness	109	10.5	118	30.0	227	15.9
b) Medical	42	4.0	11	2.8	53	3.7
c) Social	68	6.5	42	10.7	110	7.7
d) Eating	11	1.1	18	4.6	29	2.0
e) Shopping	508	48.9	66	16.8	574	40.1
f) Church	54	5.2	22	5.6	76	5.3
g) Others/Unknown	247	23.8	116	29.5	363	25.3
<b>TOTAL</b>	1,040	100.0	393	100.0	1,432	100.0

Source : 1980 HIS

Table 17.38  
Number of Trips Generated and  
Attracted from/to Institutions

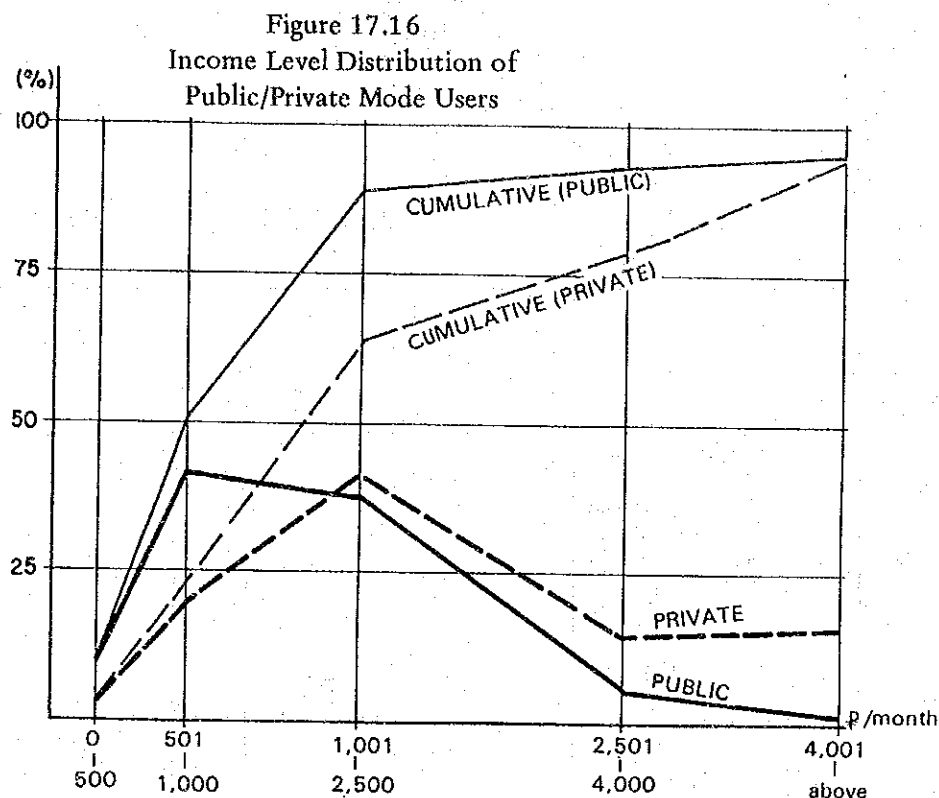
Type	Generation/Attractions (000)	%
a) Residential	10,335	48.6
b) Commercial/Amusement <sup>1/</sup>	1,912	9.0
c) Office	2,516	11.8
d) Factory	949	4.5
e) Educational	4,028	18.9
f) Medical	207	1.0
g) Religious	225	1.1
h) Others	1,093	5.1
<b>TOTAL</b>	21,265	100.0

Source : 1980 HIS

<sup>1/</sup>Includes restaurants, recreational and shopping institutions.

### 17.3.2 Demand by Income Level

- Demand by income level is shown in Figures 17.16, 17.17 and Table 17.39. Figure 17.16 shows that public transport users are mostly from the lower income level and that 80 percent of the users belong to the less than P1,000/month household income level. Eighty percent of the private mode users, on the other hand, fall on the less than P4,000/month income level. Table 17.39 further indicates the distribution of demand by mode.



Source : 1980 HIS

Table 17.39  
Percentage Distribution of Trips  
by Household Income Level

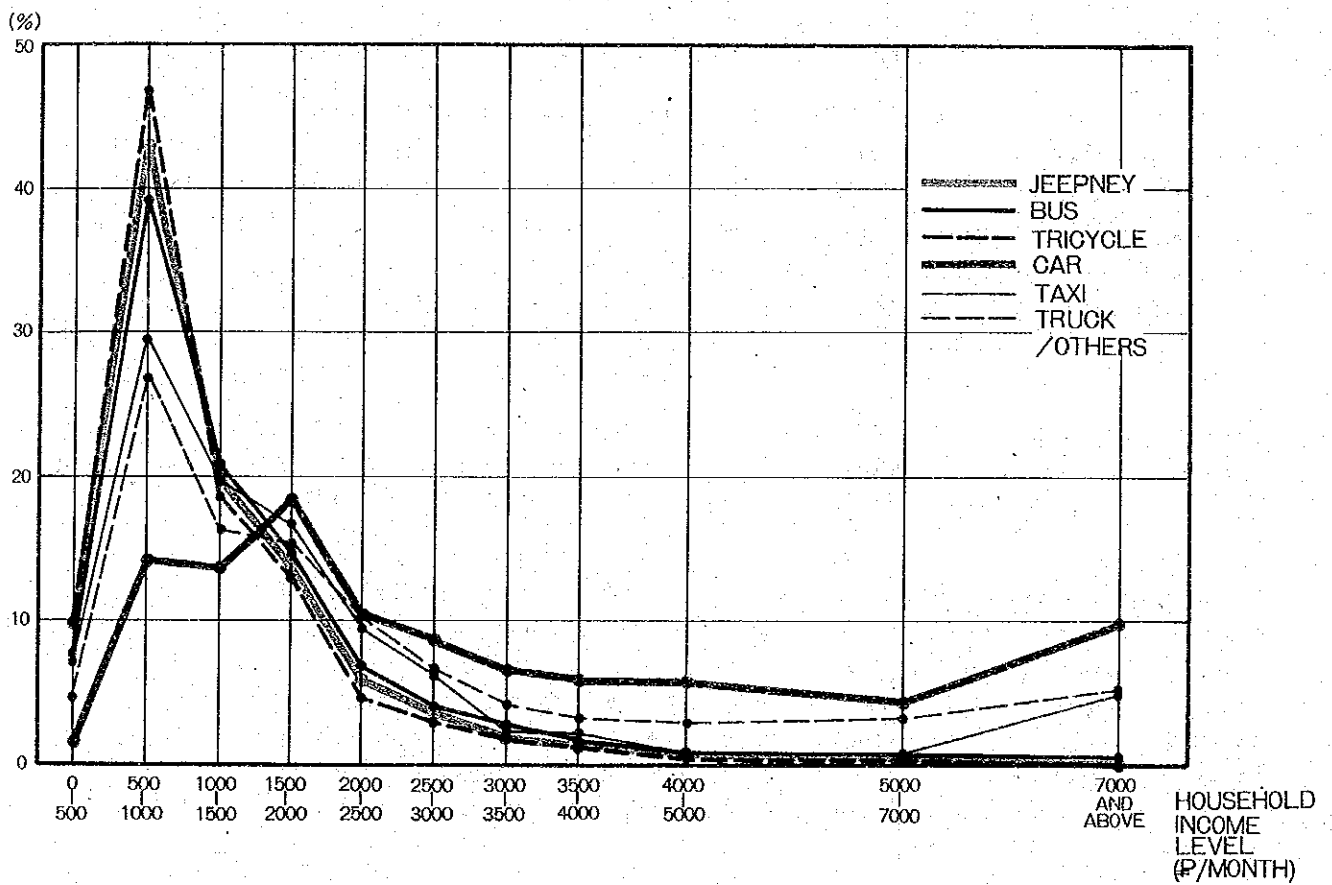
Income Level (P/month)	Public Mode			Private Mode		
	Tricycle	Jecpney	Bus	Car	Taxi	Truck/Others
Less than 500	9.8%	9.8%	7.7%	1.8%	7.1%	4.6%
501 - 1,000	46.7	42.8	39.0	14.3	29.5	27.2
1,001 - 1,500	18.6	19.4	20.8	13.8	19.8	16.6
1,501 - 2,000	13.2	13.8	14.7	18.4	16.7	15.4
2,001 - 2,500	4.8	6.0	6.9	10.5	9.5	10.2
2,501 - 3,000	3.0	3.5	4.1	8.7	6.2	6.8
3,001 - 3,500	1.7	1.8	2.9	6.6	2.4	4.2
3,501 - 4,000	1.2	1.2	1.6	5.9	2.3	3.3
4,001 - 5,000	0.5	0.9	0.9	5.9	0.8	3.0
5,001 - 7,000	0.4	0.5	0.9	4.3	0.8	3.4
7,001 and above	0.1	0.3	0.5	9.8	4.9	5.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Average (P/month)	1,182	1,256	1,388	2,825	1,804	2,130

Source : 1980 HIS





FIGURE 17.17 HOUSEHOLD INCOME LEVEL DISTRIBUTION BY MODE



SOURCE: 1980HIS



### 17.3.3 Modal Split

- Modal split is the share between transport modes. It is generally affected by factors on passenger and trip characteristics. Examples of passenger factors are car ownership, income level, occupation and age. For the latter, they are in the form of trip purpose, travel time and trip length. Modal split can also be dependent on the public transport service condition by area.

#### 1) Modal Split by Car Ownership:

- Table 17.40 shows the demand by car ownership. Ninety percent of the trips by public mode are made by non car-owning household members, while 60 percent of the private mode trips are made by those who belong to car-owning households. It is to be noted that almost 40 percent of the private mode demand are still made by those who belong to non car-owning households.
- Figures 17.18 and 17.19 indicate modal split by income level. The higher the income level, the more the private mode is relied. However, no significant modal split by income level is seen between bus and jeepney.
- Table 17.41 shows by mode the average household income of persons who made trips. Persons travelling by car belong to the highest average household income of P2,825, while those by tricycle, to the lowest of P1,182. The average income level of private mode travellers is almost double that of private ones.

#### 2) Modal Split by Occupation:

- Table 17.42 shows that most of the public transport users are factory workers, students (high school and university), housewives and jobless persons. The private mode users are mostly from the administrative level.

#### 3) Modal Split by Trip Length:

- Modal split by trip length is seen in Figures 17.20 and 17.21. Figure 17.20 indicates (though not so significant) that the shorter the trip length is, the larger the share of public mode. However for the range of trip length between 15 and 40 kms. the share between the modes remains more or less constant. On the other hand, the share between bus and jeepney shown in Figure 17.21, is very different. Ninety-five percent of the demand met by jeepney for the trip length of up to 2.5 kms. decreases quickly to 12 percent for the trip length of 25 kms.

Figure 17.18  
 Modal Split by Household Income Level,  
 Public v.s. Private

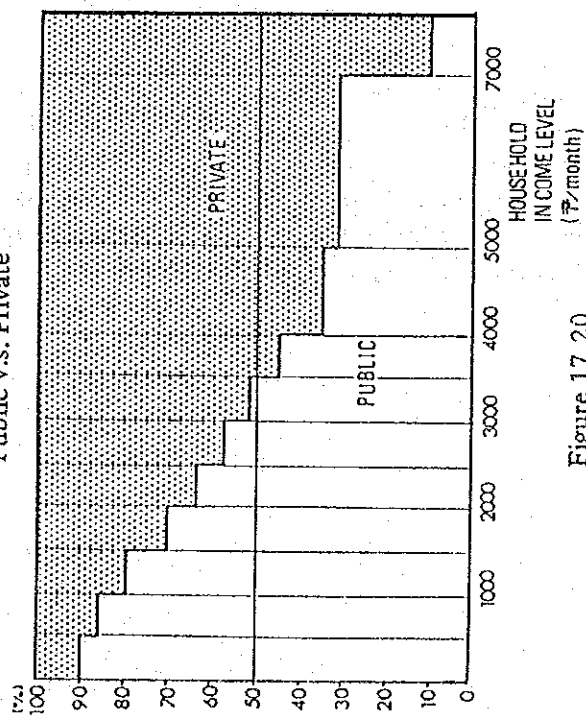


Figure 17.19  
 Modal Split by Household Income Level,  
 Jeepney v.s. Bus

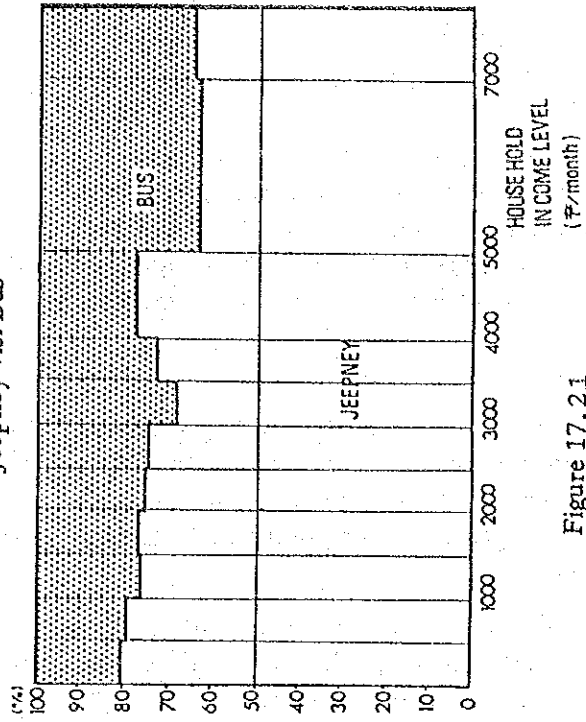


Figure 17.20  
 Modal Split by Trip Length  
 Public v.s. Private

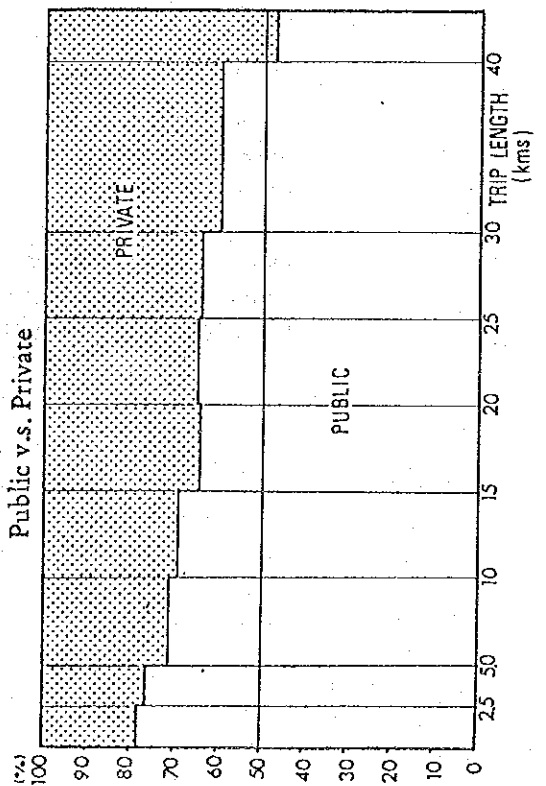


Figure 17.21  
 Modal Split by Trip Length  
 Jeepney v.s. Bus

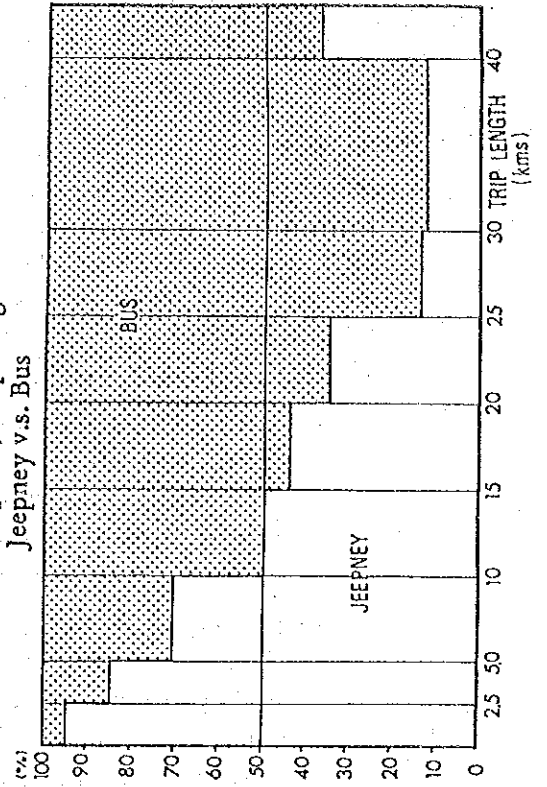


Table 17.40  
Demand by Car Ownership

Mode	Car-Owning	Non Car-Owning
Public : Jeepney	9.9%	90.1%
Bus	9.0	91.0
<u>Tricycle</u>	<u>11.4</u>	<u>88.6</u>
Subtotal	9.8	90.2
Private : Car	74.8	25.2
Taxi	22.6	77.4
<u>Truck/Others</u>	<u>39.2</u>	<u>60.8</u>
Subtotal	60.4	39.6
<b>TOTAL</b>	<b>22.9</b>	<b>77.1</b>

Source : 1980 HIS

Table 17.41  
Average Household Income  
of Demand by Mode

Mode	Average Household Income (₱/month)
Public : Jeepney	1,255
Bus	1,388
<u>Tricycle</u>	<u>1,182</u>
Public Total	1,279
Private : Car	2,825
Taxi	1,804
<u>Truck/Others</u>	<u>2,130</u>
Private Total	2,544

All Mode  
Source : 1980 Supplemental HIS

Table 17.42  
Modal Split by Occupation

Mode	Service	Admi- nistrative	Sales	Clerical	Factory	Transport- ation	Profes- sional	Pupil	High School and University Student	Housewife	Jobless	Others	Total
Public	78.4	27.3	71.2	77.7	88.5	61.0	56.5	60.1	87.1	87.0	83.8	67.9	74.1
Jeepney	52.6	15.9	53.5	48.4	61.4	44.8	35.7	44.1	71.4	66.8	59.4	49.9	54.5
Bus	23.3	11.1	14.5	27.8	21.4	12.3	19.4	4.2	13.0	9.9	21.4	15.6	15.7
Tricycle	2.6	0.4	3.4	1.6	3.1	3.9	1.5	11.8	2.8	10.4	3.0	2.4	4.0
Private	21.7	72.8	28.8	22.4	11.6	39.0	43.6	40.0	13.0	13.1	16.3	32.2	26.0
Car	11.5	65.5	18.0	16.1	3.8	18.5	36.8	12.5	7.2	9.3	10.1	22.0	16.2
Taxi	1.7	3.2	1.0	2.5	0.1	5.1	2.6	0.6	0.8	2.5	2.1	2.9	1.7
Truck/Others	8.6	4.2	9.9	3.8	7.7	15.5	4.3	27.0	5.1	1.3	4.2	7.4	8.2
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

### 17.3.4 Unlinked Trips

- The level of demand in terms of unlinked trips is shown in Tables 17.43 and 17.44. The public mode shares 80 percent of the total trips, of which jeepney provides 77 percent of the public mode trips or 61 percent of the total trips. Higher unlinked/linked trip ratio of tricycle and jeepney indicates that they are well-used also as feeder modes.

Table 17.43  
Unlinked Trips by Mode

	Unlinked Trips		Unlinked/ Linked Ratio
	No. in 000	%	
Public :			
Train	10	0.0	1.00
Bus	1,755	12.4	1.05
Jeepney	8,631	61.0	1.49
Tricycle	874	6.2	2.03
Subtotal	11,270	79.6	1.42
Private :			
Car	1,711	12.1	1.01
Taxi	183	1.3	1.09
Truck/Others	994	7.0	1.16
Subtotal	2,888	20.4	1.06
<b>TOTAL</b>	<b>14,158</b>	<b>100</b>	<b>1.33</b>

Source: 1980 HIS

Table 17.44  
Trip Purpose Composition

Trip Purpose	Unlinked Trips	
	No. in 000	%
a) to work (to working place) :	1,930	18.1
b) to school :	1,728	16.3
c) private :	1,432	13.5
d) business (at work) :	446	4.2
e) to home :	5,097	47.9
<b>Total</b>	<b>10,633</b>	<b>100</b>

### 17.3.5 Demand By Hour

#### 1) Hourly Distribution of Demand:

- The hourly distribution of demand both for public and private modes is shown in Figure 17.22. The breakdown by trip purpose is further shown in Figure 17.23. The data are based on the 1983 HIS results due to the inconsistent data among trip purposes of the 1980 HIS. The distribution pattern was estimated from the analysis of departure/arrival time of each trip.
- As shown in Figure 17.22, peak hour ratio is approximately 12 percent for public mode and 14 percent for private mode. Peak hour is between 5 and 6 p.m. for public mode, while it is between 7 and 8 a.m. for private mode. The third highest peak is seen between 12 and 1 p.m. for public and private modes.
- Figure 17.23 shows considerable difference on the distribution of demand by trip purpose.

Figure 17.22  
Hourly Distribution of Demand

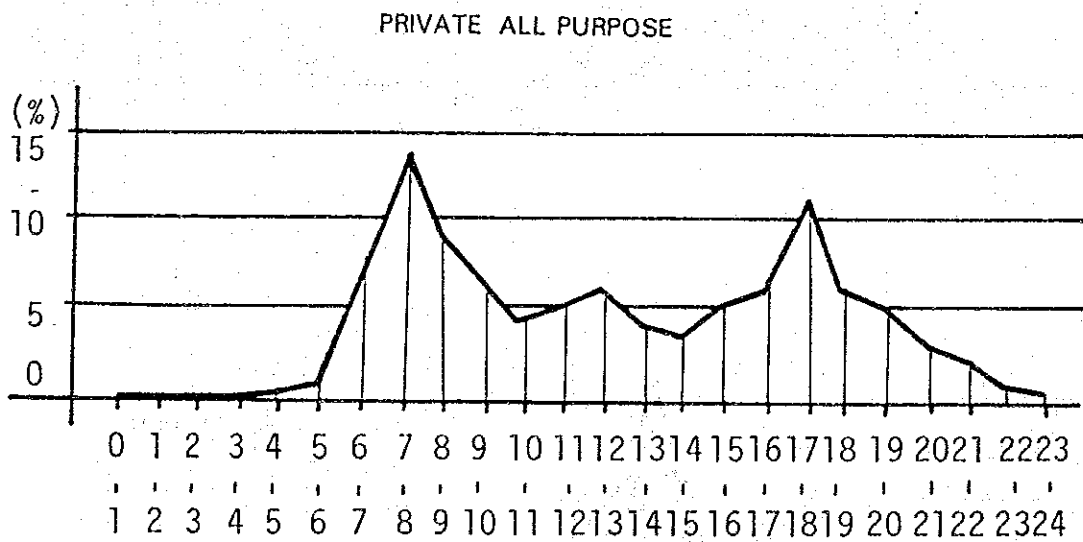
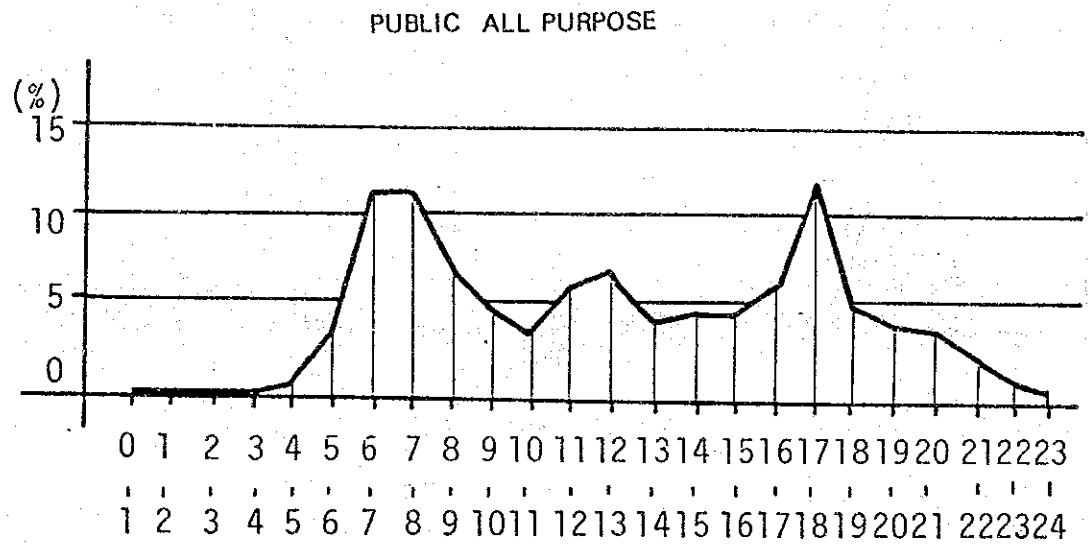
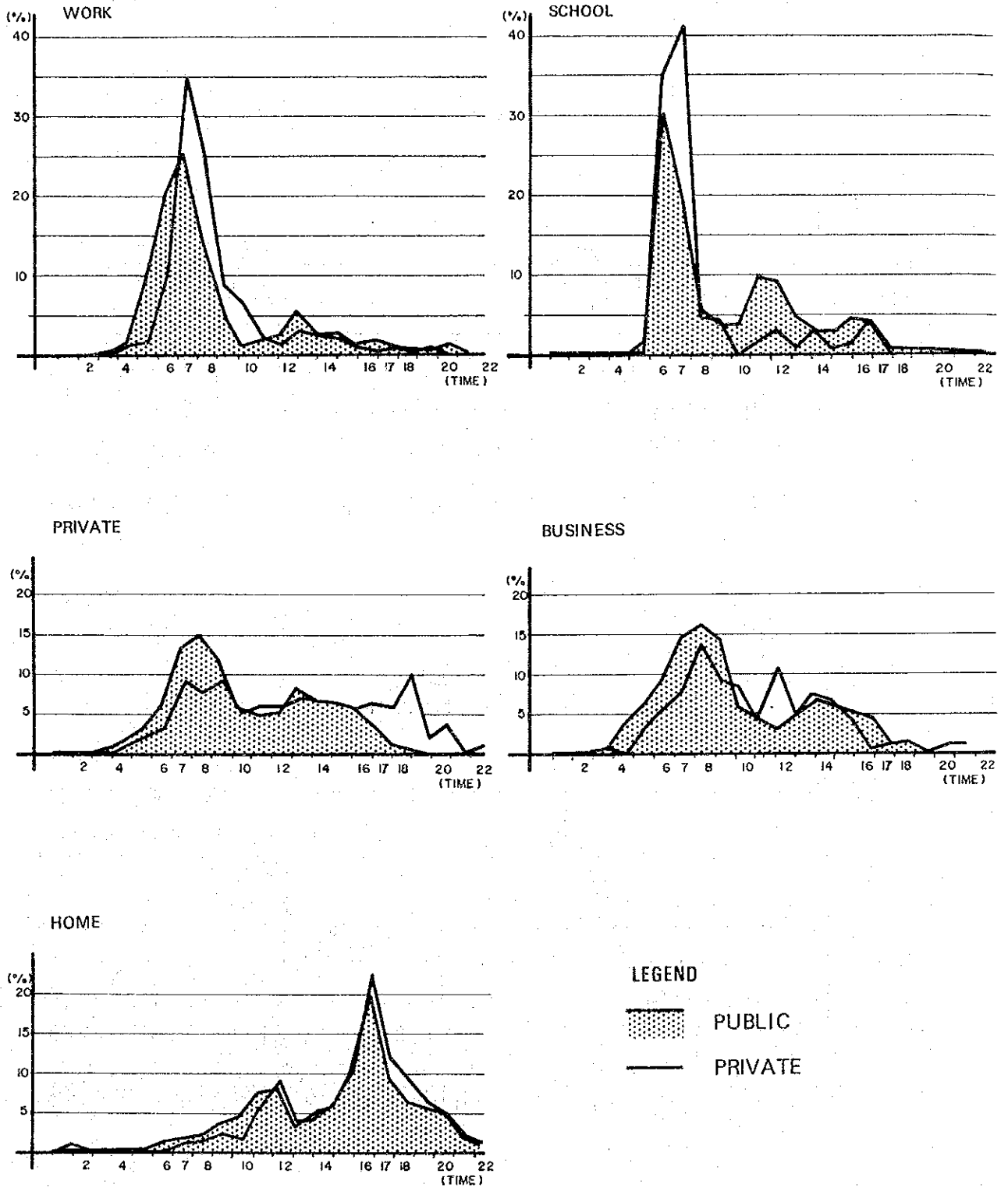


Figure 17.23

Hourly Distribution of Demand  
by Mode and Trip Purpose





2) Trip Purpose Composition by Time Period:

- Trip Purpose by Time Period is seen in Table 17.45. During the morning peak hours (6:00-9:00), approximately 75 percent is composed predominantly of trips made for "to school" and "to work" in both the private and public modes. In contrast, "to home" trips dominate the evening peak hours (1500-1800 hours). For the daytime, the trip purpose composition shows quite a difference between the public and the private modes. The public mode for "to school" and "private" trips have a considerably larger percentage share than the private mode for "to work", "business", and "private" trips during the time period between 9 a.m. to 3 p.m.

Table 17.45  
Trip Purpose Composition by Time Period and Mode<sup>1/</sup>

Hours	Public Mode (% to Total)					Private Mode (% to Total)				
	To Work	To School	Pri- vate	Busi- ness	To Home	To Work	To School	Pri- vate	Busi- ness	To Home
0:00 - 3:00	14.5	0.0	20.7	0.0	64.8	0.0	0.0	19.4	0.0	0.0
3:00 - 6:00	58.1	10.7	16.8	8.1	6.3	37.8	0.0	28.9	21.9	11.4
6:00 - 9:00	39.9	35.4	15.5	3.8	5.4	51.2	25.6	10.7	8.6	3.9
9:00 - 12:00	7.8	22.8	18.5	4.5	46.4	24.5	4.4	22.4	18.7	30.0
12:00 - 15:00	8.4	21.1	17.0	2.7	50.8	10.9	5.2	24.1	13.5	46.3
15:00 - 18:00	2.1	7.2	10.7	1.1	78.9	3.8	2.0	13.1	6.9	74.2
18:00 - 21:00	1.4	0.7	5.4	0.6	91.9	1.7	0.0	17.8	2.0	78.5
21:00 - 24:00	5.0	0.2	0.7	0.0	94.1	3.3	0.0	14.4	2.8	79.5
TOTAL	18.2	17.6	13.2	27	48.3	17.9	12.2	14.4	8.6	46.9

Source : 1980 IHS

<sup>1/</sup>Based on Trip Generation

### 17.3.6 Travel Time by Mode

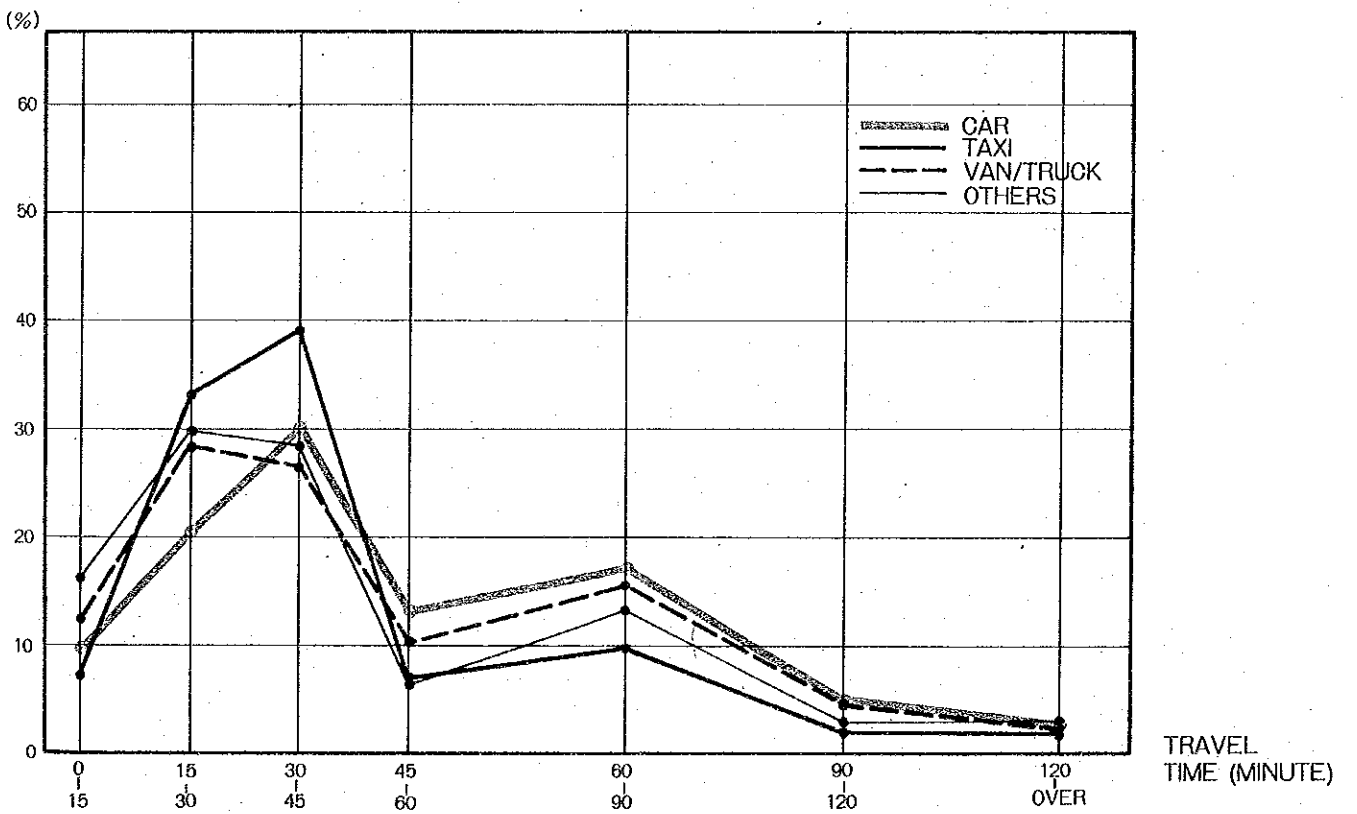
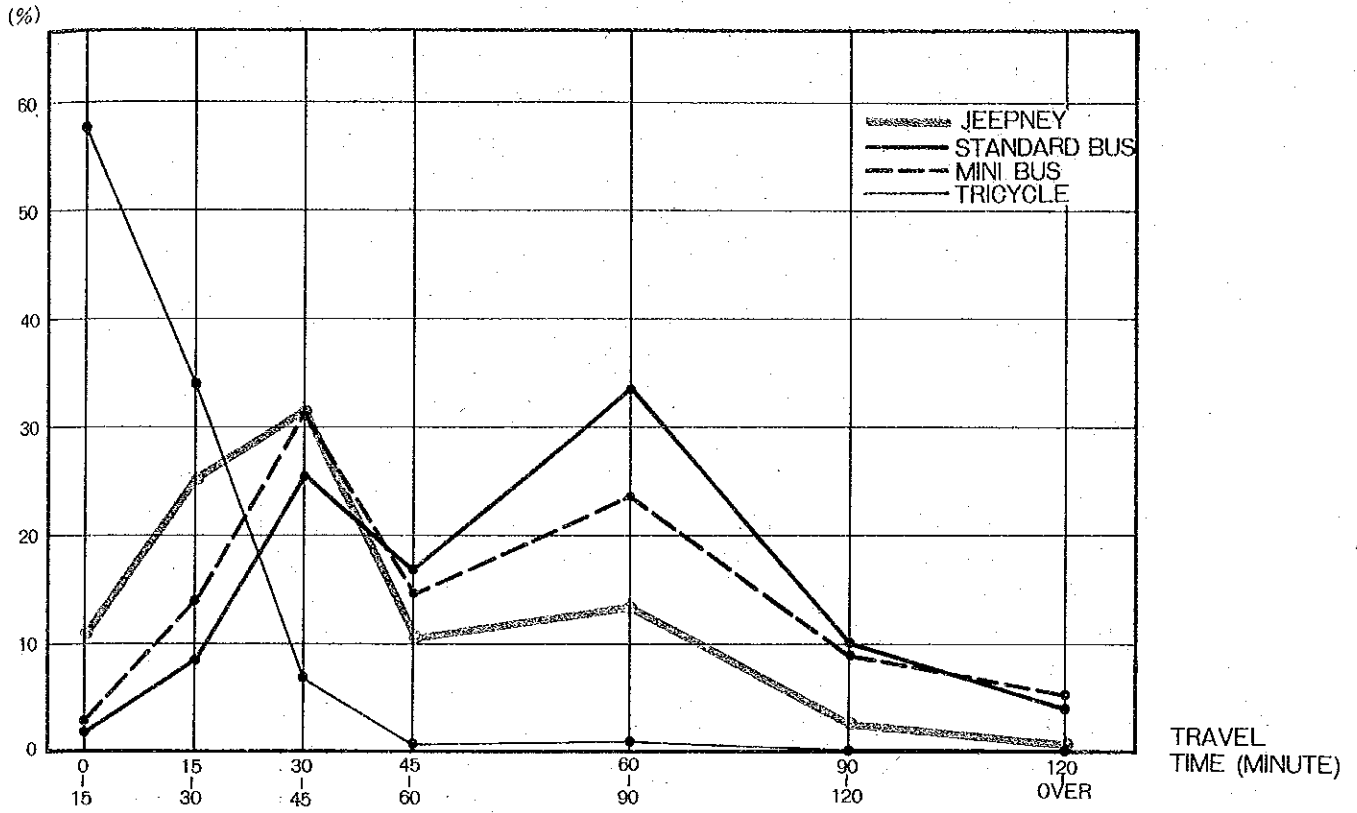
- The average travel time of linked trips by mode is shown in Table 17.46 and Figure 17.24. For the public mode, the average travel times are 13.6 minutes for the tricycle, 34.7 minutes for the jeepney, 52.9 minutes for the mini bus and 56.3 minutes for the standard bus. Likewise, for the private mode, the average times are 34.4 minutes for the taxi, 34.9 minutes for other modes, 38.3 for the van/truck and 42.8 for the car.

Table 17.46  
Distribution of Travel Time by Mode

Representative Mode	% by Travel Time Range (minutes)							Average: Minutes
	15 & less	16-30	31-45	46-60	61-90	91-120	121 & more	
<b>Public</b>								
Tricycle	57.7	34.0	6.7	0.6	0.9	0.1	0.0	13.6
Jeepney	11.3	28.8	31.7	10.5	13.7	3.0	1.0	34.7
Minibus	2.6	13.7	30.9	15.0	23.5	9.0	5.3	52.9
Standard Bus	1.7	8.4	24.9	16.7	33.4	10.2	4.7	56.3
<b>Private</b>								
Car	9.9	20.7	30.2	13.4	17.6	5.3	2.9	42.8
Taxi	7.3	32.7	39.1	7.1	9.8	2.0	2.0	34.4
Van/Truck	12.2	28.4	26.6	10.3	15.6	4.6	2.3	38.3
Others	16.3	29.5	28.4	6.4	13.3	2.9	3.2	34.9

Source: 1983 Supplemental HIS

FIGURE 17.24 TRAVEL TIME DISTRIBUTION BY MODE



SOURCE: 1983 Supplemental HIS



### 17.3.7 Trip Length by Mode

- Trip length by mode is shown in Table 17.47 and Figure 17.25. The trip length of linked trips was calculated per OD pair trip volume by each representative mode based on the distance of EDP road network. The characteristics are as follows:
  - a) The tricycle has the shortest average trip length of 1.7 kms. Eighty-five percent of the trips are shorter than 2.5 kms. and 97 percent are within 5 kms. On the other hand, the tricycle has the largest average trip length of 16.3 kms.
  - b) The average trip length of the jeepney is 4.8 kms., while that of the bus is approximately 10 to 12 kms.
  - c) The average trip length of the car is 8.5 kms., while that of the Taxi is 4.8 kms., which is similar to that of the jeepney.

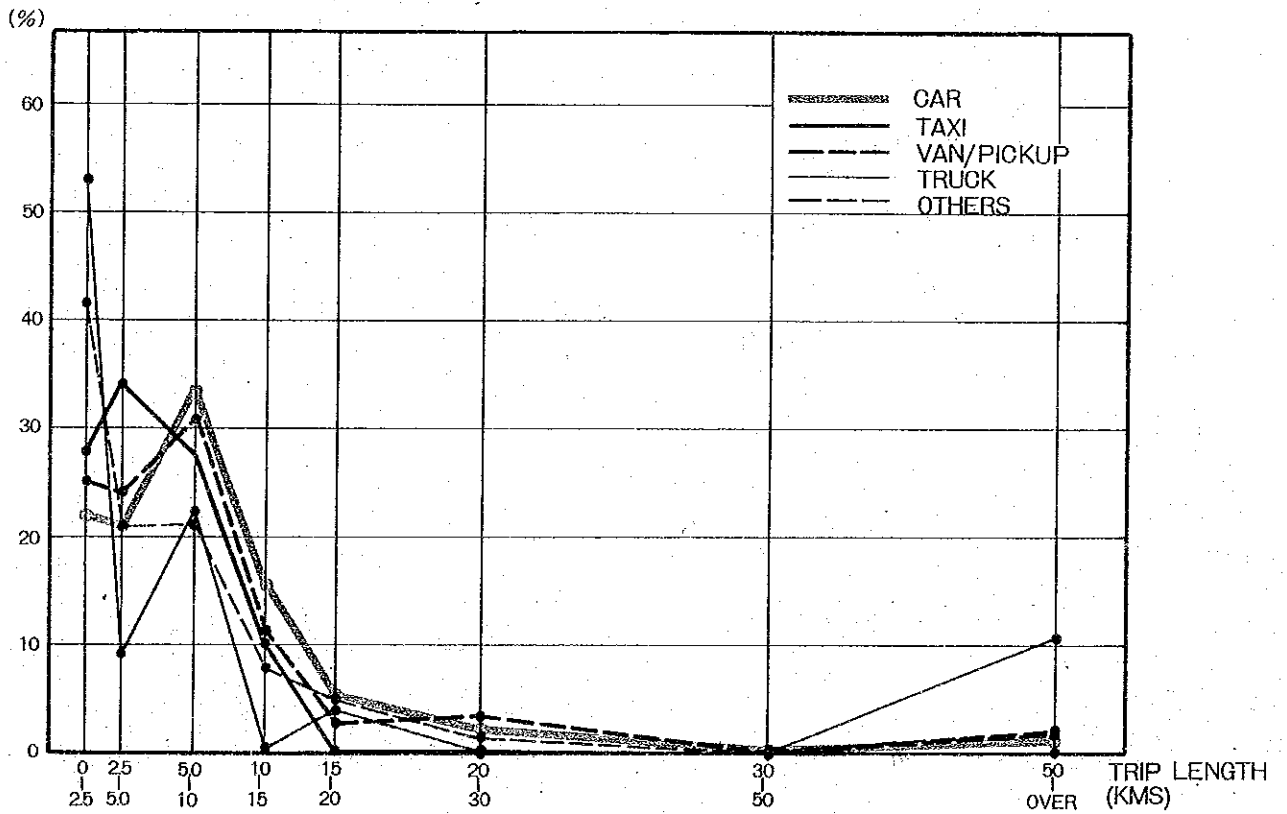
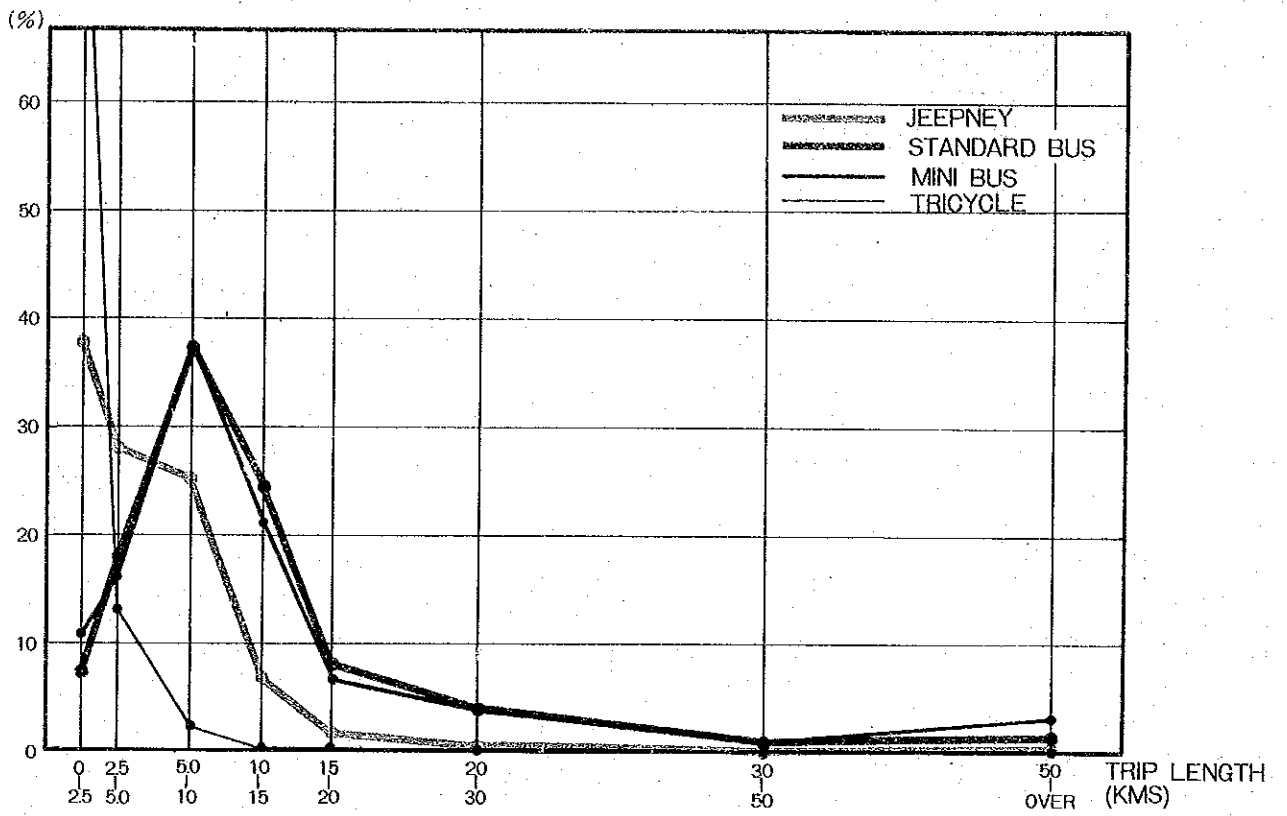
Table 17.47  
Distribution of Trip Length by Mode

Representative Mode	% by Trip Length Range (km)								Ave. Trip Length (Kms)
	0-2.5	2.5-5.0	5-10	10-15	15-20	20-30	30-50	50 & over	
<b>Public</b>									
Tricycle	86.2	13.1	2.0	0.4	0.3	0	0	0	1.7
Jeepney	37.8	27.9	25.1	6.8	1.7	0.5	0	0.2	4.8
Mini-bus	11.1	16.1	37.5	21.1	6.5	3.7	0.9	3.1	11.7
Standaard Bus	7.2	17.9	36.9	24.3	8.0	3.9	0.5	1.3	10.4
<b>Private</b>									
Car	21.7	20.8	33.3	15.3	5.3	2.0	0.3	1.3	8.5
Taxi	27.9	34.2	27.5	9.9	0.2	0.3	0	0	4.8
Van/Pick-up	25.1	24.1	31.0	11.5	3.0	3.5	0	1.8	8.2
Truck	52.9	9.4	22.5	0.3	4.1	0	0	10.8	16.3
Others	41.4	21.0	21.2	7.8	4.9	1.4	0.3	2.0	7.5

Source : 1983 Supplemental HIS



FIGURE 17.25 DISTRIBUTION OF TRIP LENGTH BY MODE



SOURCE: 1983 Supplemental HIS





## 17.4 DEMAND CHARACTERISTICS BY AREA

### 1) Trip Generation and Attraction:

- The total trip demand of 10,633,000 trips of Metro Manila residents is distributed by area, as shown in Tables 17.48 and 17.49. A large volume of the trip, for both public and private modes, is concentrated in the City of Manila, Quezon City, and Makati. About 10 percent of the total public trip demand is generated and attracted by the City of Manila (3rd), while over 12 percent of the private demand is generated and attracted by Makati.

### 2) Trips Generated and Attracted by Trip Purpose:

- Trip generation and attraction by trip purpose and mode is shown in Figures 17.26, 17.27, and 17.28, was worked out based on Table 17.50 to Table 17.55.

Trip attraction by purpose reflects the urban activity potential of each area. A great amount of "to work" and "business" trip attraction would suggest that a number of offices and factory institutions are located in the area. They are more specifically explained as follows:

'to work' trip: There is a large demand of trips exceeding 100,000 trips in Makati, City of Manila 4th and 2nd, Quezon City II and Pasig.

'to school' trip: The City of Manila 3rd has a tremendous demand for 'to school' trips as compared to others. Similarly, the same can be said for the City of Manila 2nd and 4th as well as Quezon City II. This can be accounted for by the numerous educational facilities in these areas.

'private' trip: The private trip attraction is not as simple as the other purposes. It is dependent on various complex urban functions. It is pointed out that the concentration of commercial functions, those having over 100,000 trip attraction, is in the areas of City of Manila 2nd, 4th, Makati and Quezon City III.

'business' trip: The same tendency for business trips, such as 'to work' trips, is observed for the same areas mentioned above in private trip.

'to home' trip: The attraction of 'to home' trip is directly affected by the "night population" per area.

- The above demand, in terms of density, was estimated. The intensely-concentrated areas of the demand are as follows:

'to work' trip: City of Manila 2nd and 4th

'to school' trip: City of Manila 3rd, 2nd and 4th

'private' trip: City of Manila 2nd

'business' trip: City of Manila 2nd

'to home' trip: City of Manila, Caloocan South San Juan and Quezon City I

- Likewise, the distribution of trip demand was further analyzed with regards to the volumes of trip attraction and density per area. The results reveal the following:

'to work' trips: The area of Quezon City II, Pasig, Quezon I, Pasay City, San Juan del Monte, Makati and the City of Manila 4th have a high trip attraction. However, their area density per hectare is quite low as compared to other areas.

'to school' trips: The trip attraction for 'to school' and the density per area seems to be closely related to each other. It is observed that as the attraction increases, the density also increases. Exceptions lie in the areas of Quezon City II and the City of Manila 4th. These areas have a relatively low density per area but a high trip attraction.

'private' trips: Most of the areas in Metro Manila have a density that corresponds to the 'private' trip attraction. It is only the areas of Makati and Quezon City II that have a low density per hectare despite their high trip attraction.

'business' trips: Only the areas of the City of Manila 2nd and 4th show a slight variance from the other areas. The former has a high density but a low trip attraction while the latter has a low density compared to its attraction.

'to home' trips: The observed discrepancies can be categorized into two; namely, 1) those with high area density but low attraction, 2) those areas with low density but high attraction. Areas belonging to the first category are Pateros, City of Manila 2nd and 1st. Those belonging in the second category are Las Pinas, Valenzuela, Malabon, Marikina, Paranaque, Pasig, Makati, Quezon City III, IV, I, City of Manila 4th and San Juan.

Table 17.48  
Trip Generation and Attraction by Area<sup>1/</sup>

Zone No.	Municipality	Generation			Attraction		
		Public	Private	Total	Public	Private	Total
1.	City of Manila, 1st	579,207	123,824	703,031	553,822	187,023	670,845
2.	City of Manila, 2nd	686,451	165,819	852,270	745,020	156,637	901,657
3.	City of Manila, 3rd	846,954	236,334	1,083,212	818,212	248,029	1,066,241
4.	City of Manila, 4th	658,332	254,810	913,142	709,217	247,455	956,672
5.	Pasay City	286,799	103,190	389,990	270,833	107,606	378,439
6.	Makati	441,862	334,690	776,552	439,908	341,704	781,612
7.	Mandaluyong	287,736	108,910	396,646	277,034	106,381	383,415
8.	San Juan del Monte	138,829	103,692	242,521	127,773	96,459	224,622
9.	Quezon City, I	353,869	192,176	546,045	335,691	215,847	551,538
10.	Quezon City, II	599,258	201,733	800,991	602,442	177,465	779,907
11.	Quezon City, III	398,963	141,727	540,690	393,722	133,667	516,789
12.	Quezon City, IV	254,030	129,926	383,956	274,734	126,949	401,683
13.	Caloocan City, South	555,394	95,872	651,266	534,143	111,055	645,198
14.	Caloocan City, North	68,018	16,429	84,447	65,196	16,779	80,975
15.	Valenzuela	157,270	57,786	215,056	173,523	45,521	219,044
16.	Malabon	197,094	29,588	226,682	193,115	40,438	223,553
17.	Navotas	150,238	24,787	175,025	154,583	30,973	185,556
18.	Marikina	239,840	57,242	297,082	244,608	47,563	292,171
19.	Pasig	391,395	58,913	450,308	407,208	66,757	473,965
20.	Pateros	34,691	11,010	45,701	47,457	13,306	50,763
21.	Taguig	130,781	15,438	146,219	137,502	22,781	160,283
22.	Paranaque	180,890	130,131	311,021	153,088	57,879	310,967
23.	Muntinlupa	161,793	39,879	201,672	166,357	30,179	196,531
24.	Las Piñas	99,738	81,610	181,348	99,270	70,670	169,940
TOTAL		7,910,782	2,781,181	10,633,019	7,910,782	2,722,058	10,633,020

Source : 1980 HIS

<sup>1/</sup>including trips between Metro Manila and external zones

Table 17.49  
Generation/Attraction Distribution  
by Area (%)<sup>1/</sup>

Zone No.	Municipality	Generation			Attraction		
		Public	Private	Total	Public	Private	Total
1.	City of Manila, 1st	7.3	4.5	6.6	7.0	6.9	6.3
2.	City of Manila, 2nd	8.7	6.1	8.0	9.4	5.8	8.5
3.	City of Manila, 3rd	10.7	8.7	10.2	10.3	9.1	10.0
4.	City of Manila, 4th	8.3	9.4	8.6	9.0	9.2	9.0
5.	Pasay City	3.6	3.8	3.6	3.4	4.0	3.6
6.	Makati	5.6	12.3	7.3	5.6	12.6	7.4
7.	Mandaluyong	3.6	4.0	3.7	3.5	3.9	3.6
8.	San Juan del Monte	1.7	3.8	2.3	1.6	3.6	2.1
9.	Quezon City, I	4.5	7.1	5.1	4.2	7.9	5.2
10.	Quezon City, II	7.8	7.4	7.5	7.6	6.5	7.3
11.	Quezon City, III	5.0	5.2	5.1	4.9	4.9	4.9
12.	Quezon City, IV	3.2	4.8	3.6	3.5	4.7	3.8
13.	Caloocan City, South	7.0	3.5	6.1	6.7	4.2	6.1
14.	Caloocan City, North	0.9	0.6	0.8	0.8	0.6	0.8
15.	Valenzuela	2.0	2.1	2.0	2.2	1.7	2.1
16.	Malabon	2.5	1.1	2.1	2.4	1.5	2.1
17.	Navotas	1.9	0.9	1.6	2.0	1.2	1.7
18.	Marikina	3.0	2.1	2.8	3.1	1.7	2.7
19.	Pasig	4.9	2.2	4.2	5.1	2.6	4.5
20.	Pateros	0.4	0.4	0.4	0.6	0.5	0.5
21.	Taguig	1.7	0.6	1.4	1.7	0.8	1.5
22.	Parañaque	2.3	4.8	2.9	1.9	2.1	2.9
23.	Muntinlupa	2.0	1.5	1.9	2.1	1.1	1.8
24.	Las Piñas	1.3	2.9	1.7	1.3	2.6	1.6
	External	0.1	0.2	0.2	0.1	0.2	0.1
TOTAL		100.0	100.0	100.0	100.0	100.0	100.0

Source : 1980 HIS

<sup>1/</sup>% is calculated based on Table 17.44

Table 17.50  
Trip Generation by Zone: Public + Private Modes

Municipality Zone	To Work	To School	Private	Business	To Home	All Purpose
1. City of Manila, 1st	174,287	133,256	149,890	48,009	197,589	703,031
2. City of Manila, 2nd	66,528	72,036	61,436	20,488	631,782	852,270
3. City of Manila, 3rd	163,899	134,674	80,006	16,603	688,106	1,083,288
4. City of Manila, 4th	122,574	122,877	100,974	41,009	535,708	913,142
5. Pasay City	71,136	55,461	58,269	14,976	182,148	389,990
6. Makati	116,608	94,214	117,288	35,998	412,444	776,552
7. Mandaluyong	75,019	77,759	57,388	20,020	166,460	396,646
8. San Juan del Monte	47,857	38,710	47,570	12,142	96,242	242,521
9. Quezon City, I	112,905	107,695	83,405	28,992	213,048	546,045
10. Quezon City, II	173,212	158,882	111,950	29,142	327,805	800,991
11. Quezon City, III	69,548	79,271	66,995	16,996	307,880	540,690
12. Quezon City, IV	79,656	78,180	61,729	15,503	148,888	383,956
13. Caloocan City, South	117,468	97,112	125,125	30,172	281,389	651,266
14. Caloocan City, North	30,301	15,603	23,507	4,801	10,235	84,447
15. Valenzuela	47,293	56,286	10,653	3,796	97,028	215,056
16. Malabon	66,288	41,974	20,216	675	97,529	226,682
17. Navotas	35,691	40,300	32,715	16,559	49,760	175,025
18. Marikina	70,062	72,338	47,588	12,338	94,756	297,082
19. Pasig	88,402	81,620	43,534	23,473	213,279	450,308
20. Pateros	10,903	5,094	9,228	3,829	16,647	45,701
21. Taguig	33,677	27,902	29,626	7,311	47,703	146,219
22. Parañaque	69,267	75,842	46,699	20,762	98,461	311,021
23. Muntinlupa	34,808	23,430	18,835	7,865	116,734	201,672
24. Las Piñas	44,147	37,803	27,651	13,502	58,245	181,348
<b>TOTAL<sup>1/</sup></b>	<b>1,929,526</b>	<b>1,728,440</b>	<b>1,432,277</b>	<b>445,883</b>	<b>5,096,893</b>	<b>10,633,019</b>

Source : 1980 HIS

<sup>1/</sup>Including external zone.

Table 17.51  
Trip Attraction by Zone: Public + Private Modes

Municipality Zone	To Work	To School	Private	Business	To Home	All Purpose
1. City of Manila, 1st	66,389	60,484	53,670	24,061	466,241	670,845
2. City of Manila, 2nd	214,041	204,017	258,891	66,491	158,217	901,657
3. City of Manila, 3rd	91,878	456,443	92,239	18,370	407,311	1,066,241
4. City of Manila, 4th	252,403	207,730	107,833	67,935	320,771	956,672
5. Pasay City	66,881	36,375	71,733	21,322	182,128	378,439
6. Makati	265,323	52,815	126,873	43,685	292,916	781,612
7. Mandaluyong	78,630	60,140	41,192	16,831	186,622	383,415
8. San Juan del Monte	23,756	21,216	37,906	6,983	134,761	224,622
9. Quezon City, I	69,557	50,412	73,857	21,047	336,664	551,538
10. Quezon City, II	167,762	117,146	73,587	19,928	401,484	779,907
11. Quezon City, III	90,566	46,251	152,015	26,186	201,771	516,789
12. Quezon City, IV	78,651	61,165	31,317	13,654	216,896	401,683
13. Caloocan City, South	67,522	64,073	91,396	22,543	399,664	645,198
14. Caloocan City, North	2,579	3,919	5,273	0	69,204	80,975
15. Valenzuela	48,517	32,974	5,780	9,877	121,896	219,044
16. Malabon	31,545	35,870	18,737	6,417	130,984	223,553
17. Navotas	19,487	17,282	17,367	7,165	124,225	185,556
18. Marikina	46,174	47,797	25,775	6,609	165,816	292,171
19. Pasig	108,824	59,576	51,371	13,348	240,846	473,965
20. Pateros	2,879	6,638	1,708	1,863	37,675	50,763
21. Taguig	34,503	13,688	9,394	4,599	98,099	160,283
22. Parañaque	38,503	24,506	41,563	10,214	196,181	310,967
23. Muntinlupa	38,926	28,572	26,708	8,464	93,861	196,531
24. Las Piñas	21,012	17,319	12,674	6,813	112,122	169,940
<b>TOTAL<sup>1/</sup></b>	<b>1,929,526</b>	<b>1,728,437</b>	<b>1,432,277</b>	<b>445,803</b>	<b>5,096,894</b>	<b>10,633,020</b>

Source : 1980 HIS

<sup>1/</sup>Including external zone

Table 17.52  
Trip Generation by Zone: Public Mode

Municipality Zone	To Work	To School	Private	Business	To Home	All Purpose
1. City of Manila, 1st	143,707	116,503	129,436	261,168	163,393	579,207
2. City of Manila, 2nd	49,792	54,792	46,566	6,962	528,652	686,451
3. City of Manila, 3rd	128,811	114,423	53,619	6,707	543,394	846,954
4. City of Manila, 4th	97,378	108,442	74,921	16,728	360,863	638,332
5. Pasay City	55,475	50,795	40,630	8,648	131,251	286,799
6. Makati	80,855	67,371	46,916	8,781	237,939	441,862
7. Mandaluyong	53,837	59,650	35,929	6,544	131,776	287,736
8. San Juan del Monte	33,570	26,510	27,231	2,670	48,848	138,829
9. Quezon City, I	69,471	78,488	55,439	7,657	142,814	353,869
10. Quezon City, II	128,897	126,855	87,791	22,849	232,866	599,258
11. Quezon City, III	50,391	54,058	51,462	10,513	232,539	398,963
12. Quezon City, IV	56,320	62,905	41,558	1,811	91,436	254,030
13. Caloocan City, South	97,434	88,110	107,160	20,124	242,566	555,394
14. Caloocan City, North	21,829	11,861	19,831	4,801	9,696	68,018
15. Valenzuela	34,590	44,685	7,660	0	70,335	157,270
16. Malabon	52,831	40,166	18,241	675	85,181	197,094
17. Navotas	29,982	36,909	31,707	10,332	41,308	150,238
18. Marikina	57,022	60,726	40,655	8,384	73,053	239,840
19. Pasig	76,805	73,210	35,412	15,603	190,365	391,395
20. Pateros	7,685	4,079	6,187	1,407	15,333	34,691
21. Taguig	29,923	26,696	26,242	5,337	42,583	130,781
22. Parañaque	36,307	43,878	20,407	5,087	75,211	160,890
23. Muntinlupa	27,419	21,549	16,872	7,865	88,088	161,793
24. Las Piñas	21,126	24,480	18,439	5,278	30,415	99,738
<b>TOTAL<sup>1/</sup></b>	<b>1,441,144</b>	<b>1,397,262</b>	<b>1,040,311</b>	<b>211,673</b>	<b>3,820,392</b>	<b>7,910,782</b>

<sup>1/</sup>Including external zone.

Table 17.53  
Trip Attraction by Zone: Public Mode

Municipality Zone	To Work	To School	Private	Business	To Home	All Purpose
1. City of Manila, 1st	49,778	45,074	46,305	9,750	402,915	553,822
2. City of Manila, 2nd	164,147	183,378	222,943	36,919	137,633	745,020
3. City of Manila, 3rd	65,459	390,772	60,037	10,908	291,036	818,212
4. City of Manila, 4th	185,307	171,751	77,607	26,896	248,656	709,217
5. Pasay City	47,815	32,201	43,117	11,438	136,262	270,833
6. Makati	166,272	33,114	55,841	18,885	165,796	439,908
7. Mandaluyong	61,389	47,846	32,126	5,220	130,453	277,034
8. San Juan del Monte	17,132	9,895	15,363	2,088	83,295	127,773
9. Quezon City, I	52,763	33,573	48,427	6,198	194,730	335,691
10. Quezon City, II	128,087	74,597	54,609	13,949	331,200	602,442
11. Quezon City, III	72,539	36,815	112,215	13,883	158,276	393,722
12. Quezon City, IV	59,431	40,491	19,308	3,648	151,856	274,734
13. Caloocan City, South	53,071	55,855	76,091	9,244	339,882	534,143
14. Caloocan City, North	2,980	3,859	5,273	0	53,084	65,196
15. Valenzuela	36,464	25,186	4,263	1,580	106,030	173,523
16. Malabon	25,709	34,383	17,184	4,369	111,470	193,115
17. Navotas	16,092	14,569	16,308	3,806	103,808	154,583
18. Marikina	40,517	39,777	21,587	3,894	138,833	244,608
19. Pasig	92,325	54,136	42,661	10,531	207,555	407,208
20. Pateros	2,414	5,807	11,580	0	27,656	47,457
21. Taguig	28,088	13,118	6,935	3,557	85,784	137,502
22. Parañaque	26,570	17,110	27,240	5,489	76,679	153,088
23. Muntinlupa	30,165	18,924	24,891	7,735	84,642	166,357
24. Las Piñas	15,791	13,415	5,676	2,029	62,359	99,270
<b>TOTAL<sup>1/</sup></b>	<b>1,441,144</b>	<b>1,397,262</b>	<b>1,040,311</b>	<b>211,673</b>	<b>3,820,392</b>	<b>7,910,782</b>

<sup>1/</sup>Including external zone.

Table 17.54  
Trip Generation by Zone: Private

Municipality Zone	To Work	To School	Private	Business	To Home	All Purpose
1. City of Manila, 1st	30,580	16,753	20,454	21,841	34,196	123,824
2. City of Manila, 2nd	17,049	17,244	14,870	13,526	103,130	165,819
3. City of Manila, 3rd	35,088	20,251	26,387	9,896	144,712	236,334
4. City of Manila, 4th	25,196	14,435	26,053	24,281	164,845	254,810
5. Pasay City	23,660	4,666	17,639	6,328	50,897	103,190
6. Makati	35,753	26,843	70,372	27,217	174,505	334,690
7. Mandaluyong	21,182	18,109	21,459	13,476	84,684	108,910
8. San Juan del Monte	14,287	12,200	20,339	9,472	47,394	103,692
9. Quezon City, I	43,434	29,207	27,966	21,335	70,234	192,176
10. Quezon City, II	44,315	32,027	24,159	6,293	94,939	201,733
11. Quezon City, III	19,157	25,213	15,533	6,483	75,341	141,727
12. Quezon City, IV	23,226	15,275	20,171	13,692	57,452	129,926
13. Caloocan City, South	20,034	9,002	17,965	10,048	38,823	95,872
14. Caloocan City, North	8,472	3,742	3,676	0	539	16,429
15. Valenzuela	12,703	11,601	2,993	3,796	26,693	57,786
16. Malabon	13,457	1,808	1,975	0	12,348	29,588
17. Navotas	5,709	3,391	1,008	6,227	8,452	24,787
18. Marikina	13,040	11,612	6,933	3,954	21,703	57,242
19. Pasig	11,597	8,410	8,122	7,870	22,914	58,913
20. Pateros	3,218	1,015	3,041	2,422	1,314	11,010
21. Taguig	3,754	1,206	3,384	1,974	5,120	15,438
22. Parañaque	32,950	31,964	26,292	15,675	23,250	130,131
23. Muntinlupa	7,289	1,881	1,963	0	28,646	39,879
24. Las Piñas	23,021	13,323	9,212	8,224	27,830	81,610
<b>TOTAL<sup>1/</sup></b>	<b>488,381</b>	<b>331,178</b>	<b>234,030</b>	<b>234,030</b>	<b>1,275,626</b>	<b>2,721,181</b>

<sup>1/</sup>Including external zone.

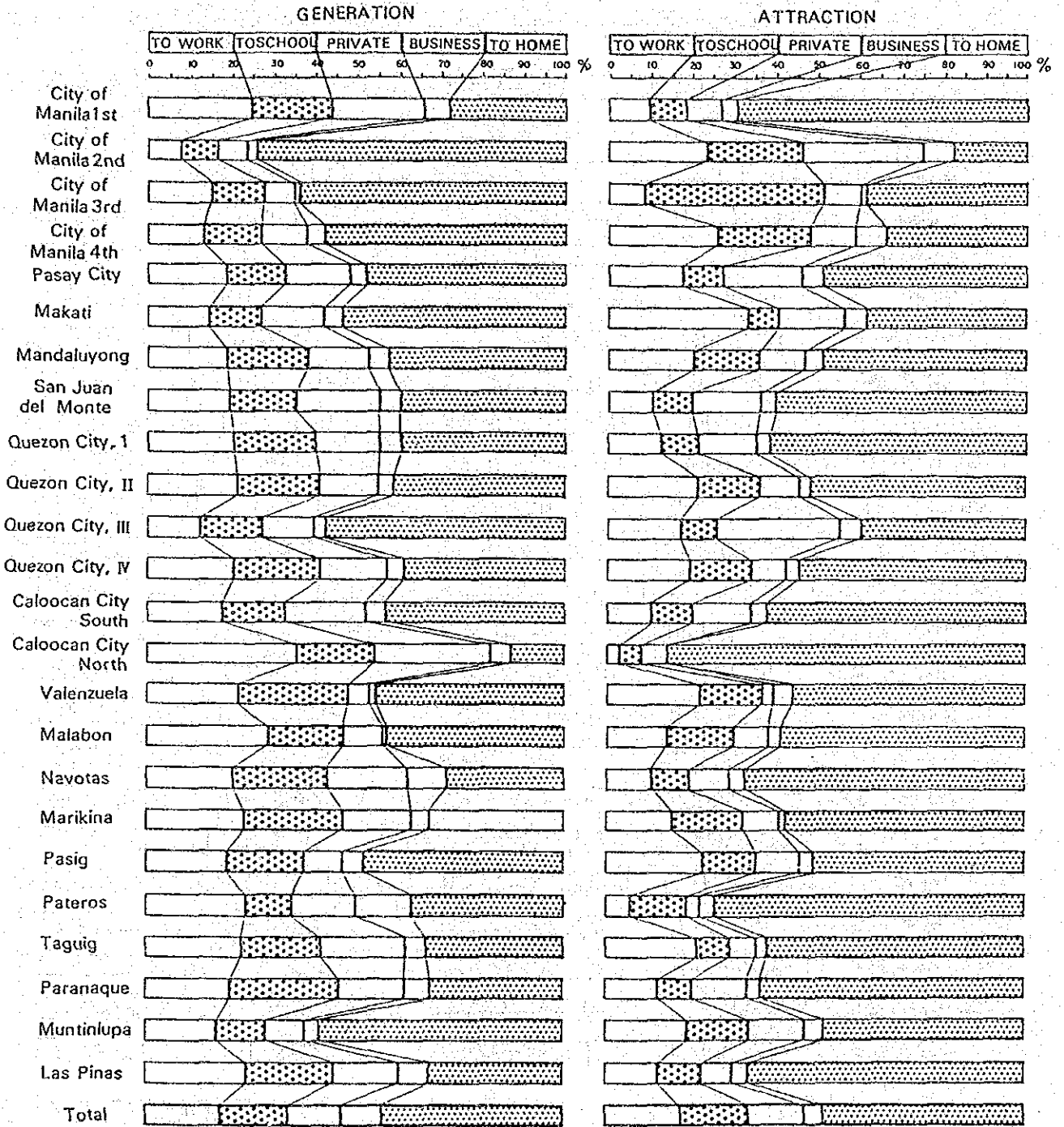
Table 17.55  
Trip Attraction by Zone: Private

Municipality Zone	To Work	To School	Private	Business	To Home	All Purpose
1. City of Manila, 1st	16,611	15,410	77,365	14,311	63,326	187,023
2. City of Manila, 2nd	49,894	20,634	35,948	29,572	20,584	156,637
3. City of Manila, 3rd	26,419	65,671	32,202	7,462	116,275	248,029
4. City of Manila, 4th	67,096	35,979	30,226	42,039	72,115	247,455
5. Pasay City	19,066	4,174	28,616	9,884	45,866	107,606
6. Makati	99,051	19,701	71,032	24,800	127,120	341,704
7. Mandaluyong	17,241	12,294	9,066	11,611	56,169	106,381
8. San Juan del Monte	6,624	11,321	22,543	4,875	51,466	96,459
9. Quezon City, I	16,794	16,839	25,430	14,849	141,935	215,847
10. Quezon City, II	39,675	42,549	18,978	5,979	40,284	177,465
11. Quezon City, III	18,027	94,36	39,800	12,303	53,501	133,667
12. Quezon City, IV	19,220	20,674	12,009	10,006	65,040	126,949
13. Caloocan City, South	14,451	8,218	15,305	13,299	59,782	111,055
14. Caloocan City, North	599	60	0	0	16,120	16,779
15. Valenzuela	12,053	7,788	1,517	8,297	15,866	45,521
16. Malabon	5,836	11,487	1,553	2,048	19,514	40,438
17. Navotas	3,395	2,713	1,059	3,359	20,447	30,973
18. Marikina	6,657	8,020	4,188	2,715	26,983	47,563
19. Pasig	16,499	5,440	8,710	2,817	33,291	66,757
20. Pateros	465	831	128	1,863	10,019	13,306
21. Taguig	6,415	570	2,459	1,022	12,315	22,781
22. Parañaque	11,933	7,396	14,323	4,725	19,502	57,879
23. Muntinlupa	8,761	9,648	1,817	729	9,219	30,179
24. Las Piñas	5,221	3,904	6,998	4,784	49,763	70,670
<b>TOTAL<sup>1/</sup></b>	<b>488,382</b>	<b>331,178</b>	<b>391,966</b>	<b>234,210</b>	<b>1,276,502</b>	<b>2,722,058</b>

<sup>1/</sup>Including external zone.

Figure 17.26

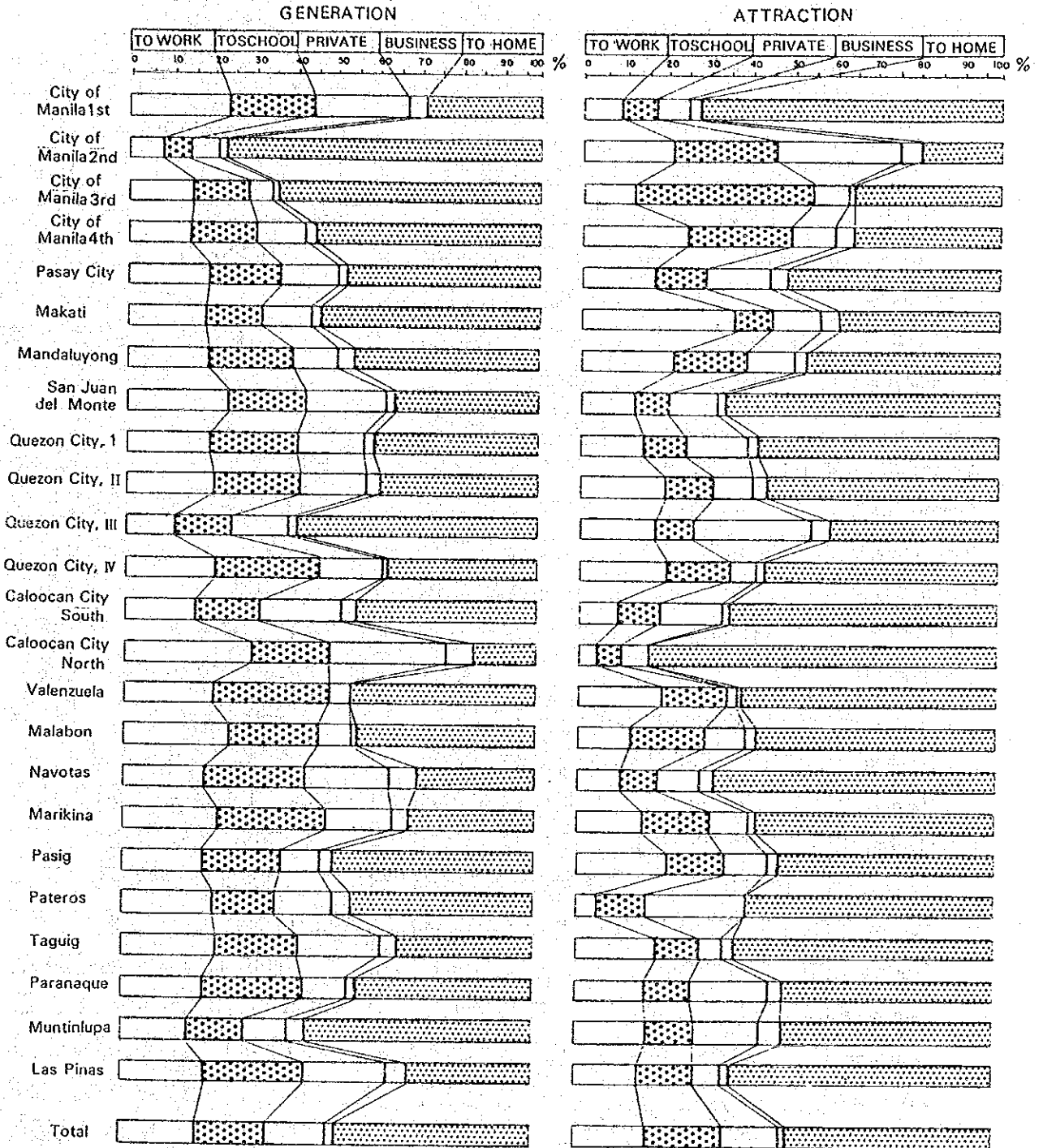
Trip Purpose Composition  
Public + Private Modes



Source: 1980 HIS

Figure 17.27

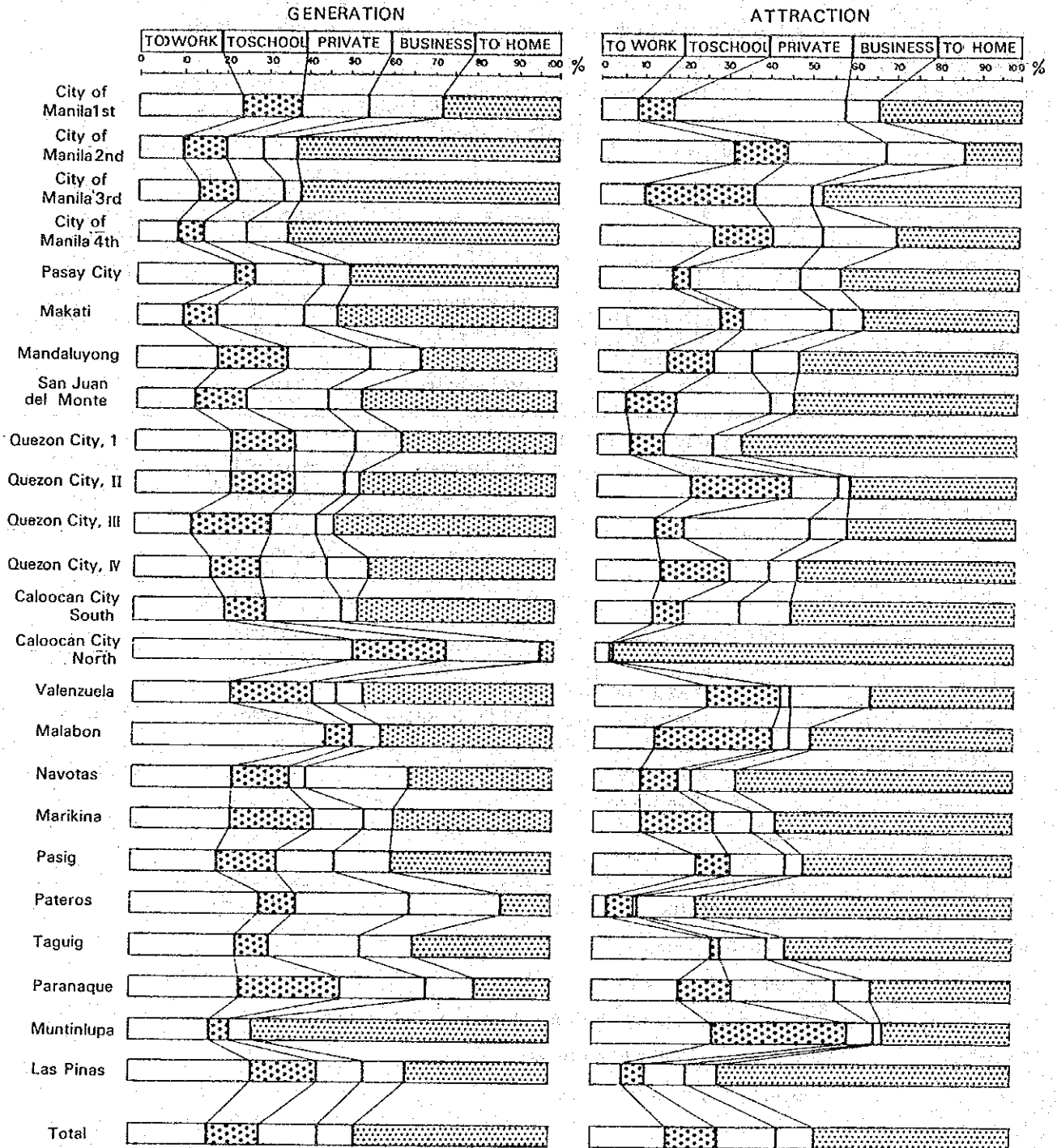
Trip Purpose Composition  
Public Mode



Source : 1980 HIS



Figure 17.28  
 Trip Purpose Composition  
 Private Mode



Source : 1980 HIS