CHAPTER 3

SOCIO-DEMOGRAPHIC DIFFERENTIALS OF DOMESTIC TOURISM IN MALAYSIA

3.1 Introduction

This chapter begins with a description of the patterns of domestic travelling for vacation as well as for all other purposes, including visiting relatives, followed by a more detailed analysis of the patterns of domestic tourism in terms of the socio-economic and demographic differentials in the proportion that has gone on vacation, the number of vacations during the referenced period (August 1997-July 1998), the number of days per vacation, travel arrangement and expenditure incurred in domestic tours. The analysis will be confined to respondents aged 20 years and older. Logistic regression and Analysis of Variance will be conducted to determine the independent and combined effects of the various factors affecting domestic tourism. Scheffe's multiple comparison tests will also be carried out to determine the significant group differences in the mean number of vacations during the study period.

3.2 Monthly differences in the proportion that travel for vacation and all purposes

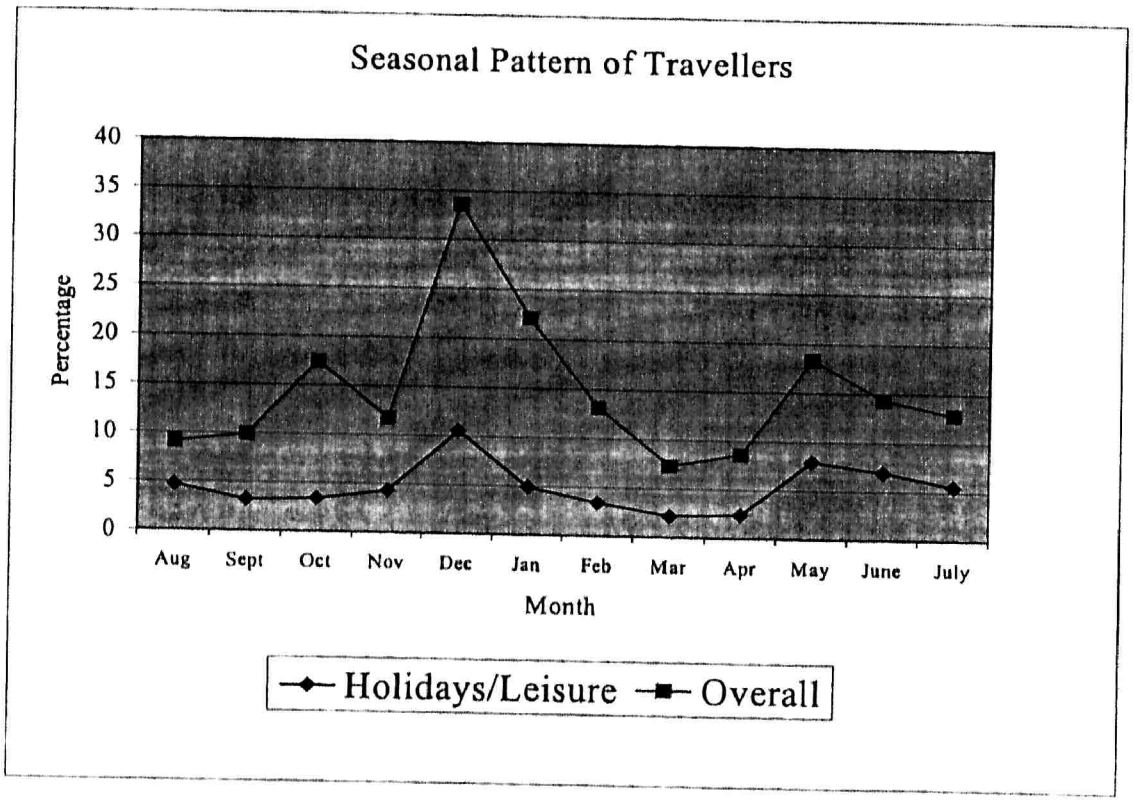
As expected, the peak seasons for travelling coincided with school holidays and festivities such as Kongxi Raya and Deepavali. Data show that the propensity to travel varies widely by month. Over the 12-month study period between August 1997 and July 1998, the proportion of respondents that travelled ranges from 7.3% in March 1998 to 33.6% in December 1997. A higher proportion of the respondents were also found to be travelling in the month of January, May and October as compared to other months.

Table 3.1 and Figure 3.1 show that the monthly differences in the proportion that travelled for vacation and leisure followed a rather similar pattern as those travelling for all purposes. In this survey, about 10.5% of the respondents had gone on vacation in December 1997, and this was the highest proportion recorded in the year. The relatively high proportion of domestic tourists in the month of December can be explained by school holidays when many workers had also taken their annual leaves towards end of the year. May and June were the other "peak" seasons for domestic tourism (7.9% and 6.9% respectively). The findings from this survey show that the proportion of urban population that has gone on vacation is still rather low, even during the "peak" seasons. More efforts should be made to develop and promote domestic tourism.

Table 3.1: Percentage of respondents that has travelled for vacation and all purposes by month (n=12,476)

Month	Vacation	All purposes
August 97	4.7	9.1
September 97	3.2	9.9
October 97	3.4	17.4
November 97	4.3	11.7
December 97	10.5	33.6
January 98	4.9	22.1
February 98	3.4	13.1
March 98	2.2	7.3
April 98	2.4	8.6
May 98	7.9	18.3
June 98	6.9	14.3
July 98	5.5	12.8

Figure 3.1: Seasonal pattern of domestic travellers for all purposes and vacation



3.3 Differentials in the frequency of domestic tours

This section analyses the differentials in the number vacations within Malaysia between August 1997 and July 1998, according to selected socio-demographic characteristics of the respondents (see Table 3.2). Overall, 62.4% of the respondents had not gone on vacation within the country during the referenced period, 23.5% had gone on vacation once while 14.1% had gone on vacation more than once. The number of trips for vacations in Malaysia is significantly associated with socio-economic and demographic variables, with the exception of the gender variable.

Looking at the number of visits for vacation by age group, it appears that those in the prime working age group 25-44 were relatively more likely than those from other age groups to go for domestic tours. Data show that these groups had the lowest proportion that has not gone for vacation. They were also more likely to go for multiple trips. In terms of marital status, those who were currently married were found to be more likely to take a vacation within the country as compared to the single or widowed/divorced persons. Part of the differentials across the marital categories, however, could be attributed to differences in their age structure, which have an effect on the propensity to travel, as alluded to above.

Although statistically significant, the ethnic differentials in the propensity for domestic tours are not very pronounced. Among the main ethnic groups, the proportion that had taken a domestic tour is highest among the Malay respondents.

However, the proportion that had taken four or more domestic tours is highest amongst the "Others", followed by the Chinese.

In terms of educational level, the proportion that had gone on domestic tours tended to increase with educational level. Those with higher education were also more likely to have multiple trips for vacation. This may be attributed to the fact that they are generally better off economically and hence could afford to travel.

Taking a vacation may be regarded as a luxury for some. Hence, it is imperative that the propensity to travel will depend on the economic status of the individuals. Higher income respondents were found to be more likely to travel as compared to those from the lower income group.

The analysis on the mean number of vacations is confined to the 4,687 persons who have taken at least one domestic vacation between August 1997 and July 1998. Table 3.3 shows that these people had on average taken 1.58 vacations during the referenced period. The frequency of vacations did not vary much between the males and the females or across the age groups. However, those who were widowed or divorced tend to travel more frequently, especially as compared to those who were single.

In terms of ethnicity, Malay respondents were found to be more likely than those from other ethnic groups to take a domestic vacation. However, the frequency of domestic tours among those that travelled was highest among the "Others",

followed by the Chinese. The variability in the frequency of domestic tours (as shown by the standard deviations) is quite uniform among the various ethnic groups.

Tourists from Sabah and Sarawak tended to travel more frequently as compared to their counterparts from Peninsular Malaysia. The educational and income effects on the frequency of vacation shown above are again manifested in Table 3.3.

3.4 Differentials in Domestic Tours by Month

Table 3.4 shows the socio-demographic differentials in the percentage of respondents that had gone on domestic tour in each month from August 1997 until July 1998. The month of December registered the highest percentage of tourists, followed by May. There was little variation in the proportion taking a vacation between the males and females for all the months.

Among the ethnic groups, Malays were more likely than those of other ethnic groups to go on domestic vacations for eight months in the year, except January, February, March and April. The higher proportion of Chinese and Indian domestic tourists during these four months could be explained by the long festive holidays.

3.2: Percentage distribution of respondents by number of visits for vacation by selected characteristics

Characteristics		Number of Visits for Vacation (%)						
		0	1	2	3	4+	Total (n)	Pearson χ^2
	Total	62.4	23.5	9.1	3.2	1.8	12476	
:r	Male	62.1	23.5	9.2	3.2	2.0	6095	2.479
	Female	62.7	23.5	9.0	3.2	1.6	6381	P=0.648
	20-24	63.5	22.6	9.6	3.5	0.9	2330	44.085
	25-34	61.4	24.7	9.2	3.0	1.8	2113	P=0.000
	35-44	60.4	25.0	9.3	3.2	2.2	4122	
	45-54	63.7	22.1	8.7	3.5	1.9	3053	
	55+	67.5	20.9	7.7	1.9	2.1	858	
l	Married	61.9	23.8	9.1	3.1	2.0	9468	28.844
**	Single	64.0	22.6	9.1	3.4	0.9	2834	P=0.000
	Others	66.7	19.0	5.7	5.7	2.9	174	
ity	Malay	60.1	25.4	9.6	3.3	1.5	7189	87.516
	Chinese	64.8	21.0	9.0	3.2	2.1	3195	P=0.000
	Indian	65.4	23.1	7.5	2.6	1.4	1490	
	Others	70.1	15.3	7.5	3.0	4.2	602	
ional	No Formal Education	70.4	19.0	6.4	2.9	1.3	686	137.352
*	Primary Education	67.9	21.4	7.9	1.8	1.0	2262	P=0.000
	Secondary Education	61.7	24.1	9.4	3.2	1.5	6134	
	Tertiary Education	56.6	24.7	10.9	4.5	3.3	2776	
lual	No Income	64.8	21.9	8.7	3.1	1.4	3917	198.199
:**	<RM1,001	64.2	23.7	8.4	2.6	1.1	5328	P=0.000
	RM1,001-2,000	56.9	24.9	11.3	4.0	2.8	2037	
	RM2,001-3,000	51.4	28.8	9.8	5.8	4.3	469	
	>RM3,000	50.6	21.3	13.7	7.0	7.3	314	
iold	<RM1,001	66.3	22.0	8.5	1.8	1.4	3025	177.280
:**	RM1,001-2,000	64.1	23.2	8.7	2.6	1.4	3946	P=0.000
	RM2,001-3000	61.6	26.0	8.5	2.6	1.3	2237	
	RM3,001-4,000	56.0	23.9	10.9	6.2	2.9	1362	
	>RM4,000	57.9	22.8	10.5	5.4	3.4	1761	

**Excluding not disclosed cases

Table 3.3: Mean number of time travelled for vacation

Characteristics	n	Mean Number of Vacations	Standard Deviation
Total	4687	1.58	0.92
Gender			
Male	2307	1.59	0.94
Female	2380	1.56	0.90
Age			
20-24	851	1.53	0.79
25-34	816	1.55	0.91
35-44	1634	1.59	0.96
45-54	1107	1.61	0.93
>54	279	1.58	1.02
Marital Status			
Married	3608	1.59	0.95
Single	1021	1.52	0.81
Others	58	1.79	1.07
Ethnicity			
Malay	2866	1.54	0.89
Chinese	1125	1.64	0.98
Indian	516	1.50	0.85
Others	180	1.89	1.13
Region**			
Central	2444	1.48	0.76
North	763	1.62	1.09
South	507	1.44	0.84
East	540	1.51	0.85
Sabah & Sarawak	432	2.25	1.26
Educational Level**			
No Formal Education	203	1.56	0.90
Primary Education	725	1.46	0.80
Secondary Education	2350	1.56	0.89
Tertiary Education	1204	1.72	1.04
Household Income**			
LE RM1,000	1020	1.51	0.89
RM1,001 - 2,000	1413	1.52	0.85
RM2,001 - 3,000	861	1.47	0.81
RM3,001 - 4,000	597	1.74	0.98
RM4,001 - 5,000	309	1.67	1.04
GT RM5,000	427	1.89	1.15

**Excluding not disclosed cases

In terms of educational level, the pattern of domestic tour amongst those with primary education seemed to be different from their better-educated counterparts. Unlike the other groups, those with primary education were most likely to travel in the month of May, followed by June and January.

Table 3.4:Percentage who went on domestic tour by month by selected characteristics

	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	n
	4.7	3.0	3.4	4.2	10.6	5.0	3.6	2.3	2.6	8.1	6.9	5.8	6095
	4.7	3.3	3.3	4.3	10.5	4.9	3.3	2.0	2.2	7.7	6.8	5.1	6381
	4.4	2.3	3.9	2.7	8.9	4.2	3.0	1.7	2.8	9.0	7.5	5.5	2330
	4.3	3.9	3.4	4.9	10.4	4.7	3.4	2.9	2.9	7.1	7.0	4.9	2113
	5.2	3.4	3.4	5.3	12.3	5.3	3.6	2.3	2.1	8.0	6.3	5.7	4122
	4.7	3.3	3.2	4.1	10.0	5.4	3.4	1.8	2.2	7.6	7.2	5.5	3053
	3.8	2.3	2.1	2.6	9.1	3.7	3.6	2.1	2.8	7.5	6.3	5.6	858
Status**													
l	5.0	3.4	3.5	4.7	11.0	5.0	3.5	2.3	2.3	7.6	6.7	5.5	9468
	3.9	2.3	3.0	2.9	9.0	4.7	2.8	1.8	2.8	8.9	7.6	5.2	2834
	3.4	4.6	1.7	3.4	12.1	3.4	6.3	2.3	2.3	8.6	4.0	7.5	174
	4.4	3.5	3.6	4.6	11.2	2.9	2.8	2.1	2.5	9.5	8.1	6.2	7189
	4.2	2.9	3.1	3.9	9.9	8.0	4.8	2.6	2.8	6.1	5.3	4.2	3195
	3.7	1.9	2.6	4.2	10.6	7.0	2.8	1.4	1.3	6.1	5.3	5.1	1490
	12.6	3.7	3.5	2.0	5.8	7.8	5.3	2.7	1.3	3.2	4.5	4.2	602
ɔnal Level**													
ıal													
ɔn	2.9	1.3	1.5	3.4	7.3	4.5	2.3	1.3	3.2	7.6	6.0	5.0	686
	2.7	2.3	1.6	2.8	4.5	5.0	3.4	1.6	1.6	7.5	6.3	4.8	2262
ın													
ry	4.8	3.3	3.6	4.3	11.0	4.7	3.3	2.0	2.3	8.0	6.6	5.6	6134
n													
	6.3	4.3	4.7	6.1	13.1	6.2	4.4	3.6	3.4	8.6	7.7	5.9	2776
n													
l Income**													
ıe	3.9	2.8	3.3	3.9	10.0	4.7	3.5	1.8	2.1	7.1	6.5	5.3	3917
)0	4.2	2.4	2.7	3.8	9.3	4.3	2.8	1.9	2.1	7.7	6.8	5.2	5328
-2,000	5.6	5.0	4.8	5.9	12.8	5.7	3.3	3.2	3.3	8.6	7.2	6.4	2037
-3,000	9.8	4.5	4.9	6.4	15.4	7.5	8.1	3.4	3.8	8.5	6.4	5.3	469
000	11.8	8.3	6.4	6.4	17.5	10.8	8.6	3.8	4.5	10.8	8.3	6.1	314
d Income**													
000	3.3	2.8	2.3	4.2	9.7	4.6	3.3	1.5	1.5	6.8	6.0	4.9	3025
-2,000	4.9	2.8	3.5	4.2	10.2	3.8	2.6	2.5	2.0	7.5	5.0	5.7	3946
-3,000	3.5	3.6	3.1	3.7	9.7	4.9	2.7	2.2	2.3	7.5	7.2	6.2	2237
-4,000	7.2	3.1	4.1	5.8	12.6	6.3	4.1	2.6	4.2	10.6	10.4	5.7	1362
000	6.7	4.2	4.9	4.4	12.3	7.1	6.0	2.4	3.9	9.1	9.4	5.1	1761

ing cases with incomplete information

3.5 Travel Arrangement of Domestic Tourists

Domestic tourists may travel individually, with family members or join a tour group that comes with a package for transportation and boarding. In the following discussion, travel arrangement is divided into three categories, i.e. without package tour, full board/half-board packages, and a combination of the two. Table 3.5 shows that as many as 87.4% of the respondents went on vacation on their own, without the package tour services. This may be attributed to the fact that most tourists prefer the freedom to move around, rather than stay in a group. Some had also taken the opportunity during such trips to visit friends or relatives in other parts of the country. Table 3.5 also shows that such arrangement was preferred by all sub-groups, regardless of gender, age, marital status, ethnicity, region, educational level and income. The sharpest differential in the travelling arrangement can be observed between tourists from the central and northern regions of Peninsular Malaysia; the latter were much more likely than the former to join package tours. In terms of educational level, those with no formal education were least likely to join package tours.

Data show that as many as 86% of the domestic tourists had gone on vacation with their family members (see Figure 3.2). In contrast, only a small proportion had travelled alone (6%) or in a group tour (8%).

Table 3.6 shows the percentage distribution of respondents who went on vacation with family, individually or in a group by selected characteristics. Most male and female respondents had gone on vacation with their families rather than travelling individually or in a group. Respondents aged 20-24 was more likely to go on tour with family (86.9%).

Figure 3.2: Percentage distribution of domestic tourists travelling with family, individually or in-group

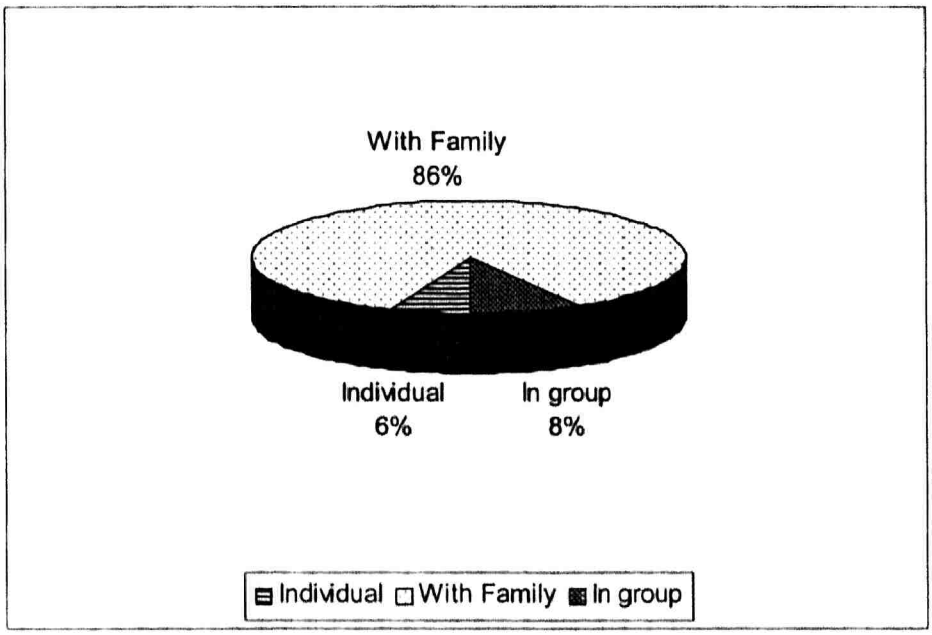


Table 3.5: Percentage distribution of domestic tourists joining or not joining package tours by selected characteristics

Characteristics			Without Package	Full board/ half-board Package	A combination with and without Package	Total (n)
Total		100.0	87.4	2.8	9.8	4687
Gender	Male	100.0	86.8	2.6	10.6	2307
	Female	100.0	88.0	3.1	8.9	2380
Age	20-24	100.0	88.8	3.9	7.3	851
	25-34	100.0	87.1	2.3	10.5	816
	35-44	100.0	87.6	1.9	10.5	1634
	45-54	100.0	86.2	3.3	10.5	1107
	>54	100.0	87.8	4.7	7.5	279
Marital Status	Married	100.0	87.2	2.5	10.3	3608
	Single	100.0	88.1	3.8	8.0	1021
	Others	100.0	86.2	5.2	8.6	58
Ethnicity	Malay	100.0	89.0	1.6	9.4	2866
	Chinese	100.0	84.4	5.2	10.4	1125
	Indian	100.0	86.8	3.7	9.5	516
	Others	100.0	82.2	5.6	12.2	180
Region of Origin	Central	100.0	94.1	1.0	4.3	2444
	North	100.0	74.0	6.0	20.0	764
	South	100.0	81.7	5.1	13.2	507
	East	100.0	83.0	3.1	13.9	540
	Sabah & Sarawak	100.0	82.4	4.6	13.0	432
Educational Level**	No Formal Education	100.0	95.6	1.5	3.0	203
	Primary Education	100.0	87.2	4.8	8.0	725
	Secondary Education	100.0	88.0	2.9	9.2	2350
	Tertiary Education	100.0	84.6	2.2	13.3	1204
Household Income**	LE RM1,000	100.0	89.2	2.3	8.4	1022
	RM1,001 - 2,000	100.0	88.1	3.7	8.2	1413
	RM2,001 - 3,000	100.0	86.4	2.0	11.6	861
	RM3,001 - 4,000	100.0	86.1	3.9	10.1	597
	RM4,001 - 5,000	100.0	86.4	2.6	11.0	309
	GT RM5,000	100.0	85.2	1.9	12.9	427

**Excluding cases with incomplete information

Table 3.6: Percentage distribution of domestic tourists travelling with family, individually or in-group by selected characteristics

Characteristics			With family	Individually	In Group	Total (n)
Total		100.0	85.6	6.1	8.3	4687
Gender	Male	100.0	86.0	5.8	8.2	2307
	Female	100.0	85.3	6.4	8.3	2380
Age	20-24	100.0	86.9	4.1	9.0	851
	25-34	100.0	85.1	6.9	8.0	816
	35-44	100.0	85.3	6.5	8.2	1634
	45-54	100.0	86.0	6.4	7.7	1107
	>54	100.0	83.8	5.5	10.6	279
Marital Status	Married	100.0	85.2	6.3	8.5	3608
	Single	100.0	87.0	5.0	8.0	1021
	Others	100.0	86.3	5.9	7.8	58
Ethnicity	Malay	100.0	86.1	5.8	8.1	2866
	Chinese	100.0	84.3	7.7	8.0	1125
	Indian	100.0	83.6	5.5	10.9	516
	Others	100.0	91.2	2.9	5.9	180
Region of Origin	Central	100.0	82.0	6.4	11.6	2444
	North	100.0	82.3	12.6	5.1	764
	South	100.0	93.5	2.6	3.9	507
	East	100.0	89.5	3.3	7.2	540
	Sabah & Sarawak	100.0	95.5	1.4	3.1	432
Educational Level**	No Formal Education	100.0	83.5	3.6	12.9	203
	Primary Education	100.0	84.4	6.7	8.9	725
	Secondary Education	100.0	85.5	6.0	8.5	2350
	Tertiary Education	100.0	86.7	6.3	7.0	1204
Household Income**	LE RM1,000	100.0	86.4	5.6	8.0	1022
	RM1,001 - 2,000	100.0	85.9	5.6	8.5	1413
	RM2,001 - 3,000	100.0	84.7	7.0	8.3	861
	RM3,001 - 4,000	100.0	86.9	5.8	7.3	597
	GT RM4,000	100.0	84.9	6.4	8.7	309

**Excluding cases with incomplete information

Data show that there was not much difference in the proportion of married persons that travelled with family (85.2%) as compared to those who were single (87.0%). Among the ethnic groups, the "Others" were relatively more likely to travel with family. Chinese respondents were relatively more likely than those from other ethnic groups to travel individually while Indian respondents were more likely than others to join group tour.

Looking at region of origin, those from Sabah and Sarawak were relatively more likely than their counterparts from Peninsular Malaysia to go on vacation with family. Those from the North region had the highest propensity to travel alone, while those from the Central region seemed to be relatively more likely to join group tours. In terms of educational level, those with higher education tended to be relatively more likely to go on vacation with family, while those with no formal education tended to be more likely to join group tours (12.9%). Respondents with household monthly income of between RM3,001 and RM4,000 tended to have the highest propensity to travel for vacation with family.

3.6 Expenditure for Domestic Tourism

Domestic tourism contributes significantly to Gross Domestic Product and provides employment to a growing number of workers. The Eighth Malaysia Plan stated that a total of RM18,756.7 million was generated from the tourism industry. Unfortunately, these figures do not indicate the proportionate contribution of domestic tourism.

Table 3.7 shows the percentage distribution of the expenditure of the domestic tourists. Those spending less than RM100 or more than RM200 per trip were rather evenly split, at 45.9 percent and 41.3 percent respectively. Only a small proportion spent between RM100 to RM200 (12.8%).

There was relatively little variation in the expenditure per trip between male and female respondents. In terms of age groups, those in the prime working age group 25-44 were relatively more likely than those from other age groups to spend more than RM100. Those aged 45 and above were relatively more likely to spend less than RM100 per trip.

Among the main ethnic groups, the proportion that spent less than RM100 was highest among the Chinese respondents. On the other hand, the proportion that spent more than RM100 was highest amongst the Indians. As for educational level, the proportion that spent less than RM100 was highest among those with tertiary education. Paradoxically, the proportion that spent more than RM200 was highest

among those with no formal education. Data show that the proportion that spent more than RM100 was highest among those with average income of between RM1,001 and RM4,000 per month.

Table 3.7: Percentage distribution of the amount of expenditure (per trip) by domestic tourists

			Expenditure Per Trip			
			< RM100	RM100-RM200	> RM200	Total (n)
Total		100.0	45.9	12.8	41.3	4687
Gender	Male	100.0	46.3	13.2	40.5	2307
	Female	100.0	45.5	12.5	42.0	2380
Age	20-24	100.0	46.5	11.8	41.7	851
	25-34	100.0	45.2	14.7	40.1	816
	35-44	100.0	44.1	13.3	42.6	1634
	45-54	100.0	48.1	11.7	40.2	1107
	>54	100.0	48.0	12.2	39.8	279
Ethnic	Malay	100.0	44.3	13.3	42.4	2866
	Chinese	100.0	50.8	11.2	38.0	1125
	Indian	100.0	45.7	10.5	43.8	516
	Others	100.0	41.1	22.2	36.7	180
Educational Level**	No Formal Education	100.0	45.3	7.4	47.3	203
	Primary Education	100.0	45.5	11.2	43.3	725
	Secondary Education	100.0	45.2	13.4	41.4	2350
	Tertiary Education	100.0	47.9	13.5	38.6	1204
Household Income**	LT RM1,000	100.0	46.2	12.1	41.8	1020
	RM1,001-2,000	100.0	45.7	11.7	42.6	1415
	RM2,001-3,000	100.0	43.3	15.6	41.1	859
	RM3,001-4,000	100.0	46.7	12.9	40.4	599
	GT RM4,000	100.0	48.9	12.5	38.6	741

**Excluding cases with incomplete information

Among the 4,687 persons who had taken domestic vacation between August 1997 and July 1998, the median of the expenditure spent is RM130 during the reference period (Table 3.7). The median expenditure for vacation for Malay respondents was found to be higher than those from other ethnic groups. The median expenditure for

vacation was highest among those respondents aged 35-44, followed by those respondents aged 25-34. The educational and income effects on the expenditure shown above are again manifested in Table 3.8.

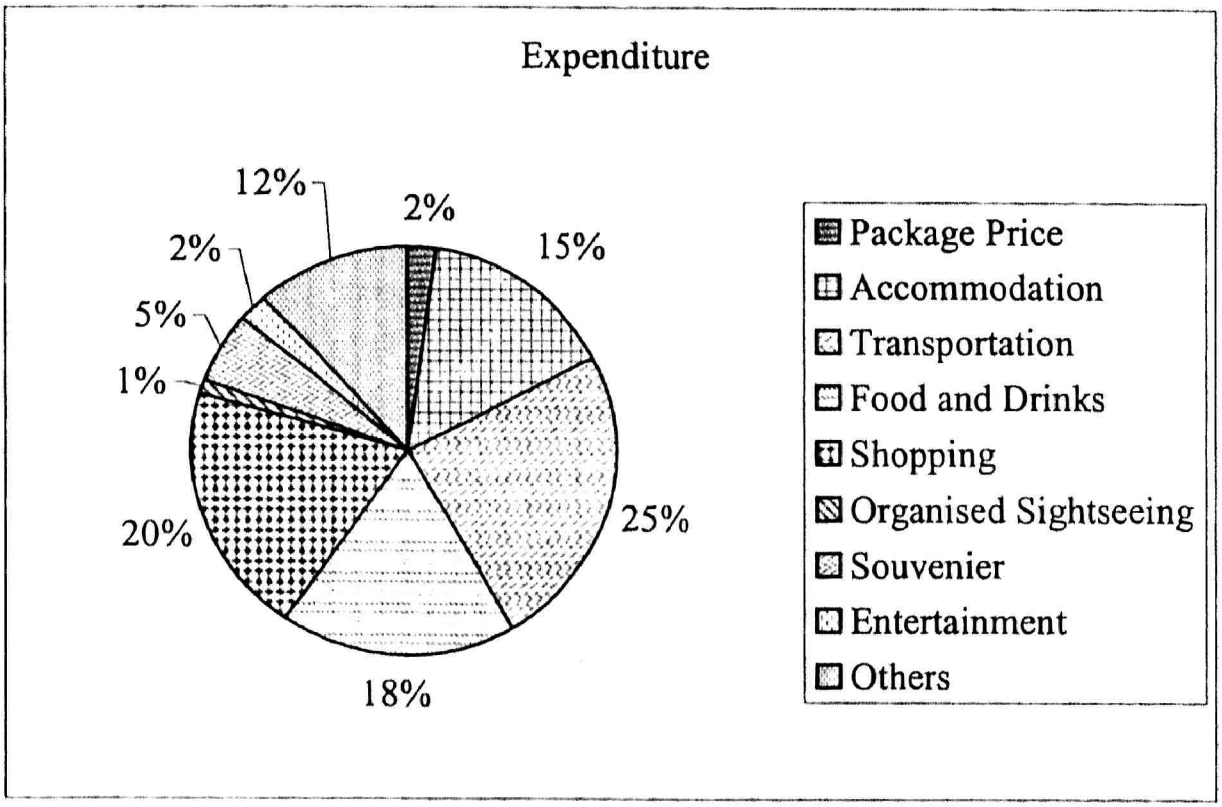
Table 3.8: Median expenditure for vacation

	N	Median (RM)
Total	4687	130.00
Gender		
Male	2307	120.00
Female	2380	133.33
Age		
20-24	851	125.00
25-34	816	140.00
35-44	1634	142.50
45-54	1107	100.00
>54	279	120.00
Ethnic		
Malay	2866	145.00
Chinese	1125	80.00
Indian	516	136.00
Others	180	142.50
Educational Level**		
No Formal Education	203	167.50
Primary Education	725	145.00
Secondary Education	2350	130.00
Tertiary Education	1204	100.00
Household Income**		
LT RM1,000	1020	125.00
RM1,001-2,000	1415	130.00
RM2,001-3,000	859	145.00
RM3,001-4,000	599	116.67
GT RM4,000	741	100.00

** Excluding cases with incomplete information

Figure 3.3 shows that domestic tourists spent a substantial portion of their travelling expenses on transportation (23.90%), shopping (19.87%), food and drinks (18.09%). The proportionate amount spent on accommodation was slightly lower (15.46%), as the majority of domestic tourists stayed with their friends or relatives during the trips. Malaysians spent a very small portion of their travelling expenses on full board package or half-board package locally and organized sightseeing, which accounted only 2.17% and 1.14% of the total expenditure respectively.

Figure 3.3: Percentage distribution of domestic tourists' expenditure by type of expenses



3.7 Logistic Regression Analysis of Domestic Tourism

In this analysis, the dependent variable is a binary variable that takes on a value of 1 if the respondent took a domestic tour, 0 if not. Use of a dichotomous dependent in OLS regression would violate the assumptions of normality and homoscedasticity as a normal distribution is impossible with only two values. Also, when the values can only take the value of 0 or 1, the residuals (error) will be low for the portions of the regression line near Y=0 and Y=1, but high in the middle. Hence the error term will violate the assumption of homoscedasticity (equal variances) when a dichotomy is used as a dependent variable. For a binary dependent variable, the regression model will allow estimates below 0 and above 1. In view of these limitations, Logistic Regression Analysis using Maximum-likelihood method is carried out to examine the effects of a set of independent variables on a dependent variable in multivariate context. The independent variables are ethnicity, respondent's age, educational level, household income and region of origin.

Logistic Regression is used to estimate the probability of an incidence occurring, with a value between 0 and 1. In this analysis, the probability of an individual taking a domestic tour is estimated within a multivariate context. The Logistic Regression Model can be written as follows:

$$Z = B_0 + B_1 \text{ CHINESE} + B_2 \text{ INDIAN} + B_3 \text{ OTHERS} + B_4 \text{ AGED 25-34} + \ldots + B_5 \text{ NO FORMAL EDUCATION} + \ldots + B_6 \text{ HOUSEHOLD INCOME OF RM1,001-2,000} + \ldots + B_7 \text{ HOUSEHOLD SIZE OF 6 -8} \ldots + B_8 \text{ NORTH REGION} + \ldots$$

The B_s in the equation above refers to the coefficients estimated from the data. The Z value represents the log of the odds that a respondent has taken a vacation in the country. We may say that when the independent variable increases one unit, the odds that the dependent = 1 increase by a factor of 10, when other variables are controlled. Once the logit has been transformed back into an odds ratio, it may be expressed, as a percent increase in odds or in terms of probabilities. In order to calculate the probability that a person will travel for vacation or not, we first calculate the predicted log odds using the logistic regression equation (which is the Z value obtained above), before converting it to natural odds.

Table 3.9: Dummy variables to be used in logistic regression and the corresponding reference categories

Dummy variables	Reference category
Gender	Male
Age	55 and above
Marital status	Married
Ethnicity	Malay
Educational level	Tertiary education
Region of origin	Central
Household size	9 person and above
Household income	RM4,000 and above

Table 3.10 shows the distribution of the observed and predicted number of respondents according to whether they had gone for vacation during the 12 months preceding the survey. The logistic regression model predicted 63.3 percent of the cases correctly. Model chi-square is a likelihood ratio test that reflects the difference between error not knowing the independents (initial chi-square) and error when the independents are included in the model (deviance). The chi-square value of 724.308 with 25 degree of freedom shows that the independent variables would improve significantly the prediction of the value of the dependent variable.

Table 3.10: Classification table on the actual and predicted number of respondents that had gone for vacation during the 12 months preceding the survey

	Predicted		
Actual	Do Not Go For Holiday	Go For Holidays	Percentage Correct
Do Not Go For Holiday	6390	908	87.6
Go For Holidays	3401	1038	23.4
	Overall Percentage		63.3

χ^2=724.308 (df=25)

The Nagelkerkel's R square is only 0.081. This means that the model only explains about 8.1 percent of the variance in the proportion of respondents taking a vacation. In other words, a large part of the variance in the dependent variable remains unexplained by the model.

Owing to the confounding effects of the variables, the proportion of respondents taking a domestic vacation in the multivariate context may show a reversal from the patterns observed in bivariate analyses. The results of Wald statistics in Table 3.11

show that six of the variables being studied (marital status, ethnicity, educational level, region of origin, household size and household income) have significant effects on the likelihood of respondents taking a domestic vacation. Within the multivariate context, the likelihood of a respondents taking a domestic vacation was higher among those who were married as compared to those who were not married, among the Malays, those with post secondary education, those from the central region, those with smaller family size and those with higher income, ceteris paribus. The probability of respondents taking a domestic vacation was highest among those with household size of 1-4 persons, followed by those with household size of 5 persons, household size of 6 persons, household size of 7-8 persons and lowest among those with household size more than 8 persons.

The insignificant variables are gender and age. Female respondents were slightly less likely than the male respondents to travel for vacation domestically. Those aged below 55 were slightly more likely than those aged above 55 to take a local vacation. The only significant difference was between those aged 35-55 and those aged 55 and older.

Table 3.11: Logistic regression analysis on the likelihood of respondents taking a domestic vacation

Variable	Coefficient B	Standard Error	Wald Statistics	Significance Level	Exp(B)
Constant	0.171	0.117	2.127	0.145	1.186
Gender					
Female	-0.005	0.040	0.013	0.911	0.995
Age					
Aged 20-24	0.104	0.117	0.785	0.376	1.110
Aged 25-34	0.097	0.103	0.886	0.347	1.102
Aged 35-44	0.199	0.092	4.671	0.031**	1.220
Aged 45-54	0.007	0.092	0.005	0.943	1.007
Marital Status					
Single	-0.168	0.074	5.091	0.024**	0.845
Other	-0.152	0.181	0.705	0.401	0.859
Ethnicity					
Chinese	-0.163	0.050	10.511	0.001**	0.850
Indian	-0.411	0.065	40.262	0.000**	0.663
Others	-0.234	0.120	3.807	0.051	0.791
Educational Level					
No Formal Education	-0.609	0.104	34.268	0.000**	0.544
Primary Education	-0.439	0.070	39.679	0.000**	0.644
Secondary Education	-0.142	0.051	7.873	0.005**	0.867
Region of Origin					
North Region	-0.776	0.057	184.998	0.000**	0.460
South Region	-0.987	0.063	242.963	0.000**	0.373
East Region	-0.975	0.068	207.350	0.000**	0.377
Sabah & Sarawak	-0.907	0.084	115.471	0.000**	0.404
Household Size					
1-4 persons	0.726	0.074	97.456	0.000**	2.067
5 persons	0.321	0.073	19.496	0.000**	1.379
6 persons	0.257	0.071	13.146	0.000**	1.293
7-8 persons	0.118	0.068	3.054	0.081	1.126
Household Income					
Less than RM1,000	-0.486	0.070	48.257	0.000**	0.615
RM1,001-RM2,000	-0.322	0.065	24.542	0.000**	0.725
RM2,001-RM3,000	-0.160	0.070	5.248	0.022	0.852
RM3,001-RM4,000	0.110	0.077	2.017	0.156	1.116

Model $\chi^2 = 724.308$
Degree of freedom = 25
Number of cases = 12476

**p<0.01

3.8 Analysis of Variance on The Number of Domestic Tours

Variations in the number of domestic tours are assessed using Analysis of Variance. The independent variables to be assessed include ethnicity, gender, age of respondent, household income, marital status, educational level and region of origin. Table 3.12 shows that these variables explain only 12.3 percent of variation in the number of domestic tours. Variations in the number of domestic tours by gender, age of respondent, and marital status is not statistically significant once the other factors are taken into account. Five of the two-way interaction terms are statistically significant in explaining the variations in the number of domestic tours and these are region with ethnicity, age and income, and income with ethnicity and education. This indicates that the differentials in the mean number of domestic tours for these variables are dependent on some other variables.

While the analysis of variance is useful in assessing the overall fit of the model, it does not show the significant differences between categories of a variable. Post-hoc Scheffe's tests are used to assess the pair-wise differences. Table 3.13 shows that quite a number of pair-wise differences in mean number of domestic vacations are statically insignificant at 95% or even 99% confidence level.

Table 3.12: Analysis of Variance on number of domestic vacations by selected variables

Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1135.528	223	5.092	6.703	0.000
Intercept	12.001	1	12.001	15.797	0.000
Ethnicity	9.548	3	3.183	4.189	0.006**
Gender	0.137	1	0.137	0.180	0.672
Age	1.153	4	0.288	0.379	0.823
Household Income	10.665	5	2.133	2.808	0.015
Marital Status	0.222	2	0.111	0.146	0.864
Educational Level	15.464	3	5.155	6.785	0.000**
Region Of Origin	12.833	4	3.208	4.223	0.002**
Ethnic * Gender	1.402	3	0.467	0.615	0.605
Ethnic * Age	9.633	12	0.803	1.057	0.393
Ethnic * Household Income	36.643	15	2.443	3.216	0.000
Ethnic *Marital Status	3.942	6	0.657	0.865	0.520
Ethnic *Educational Level	6.302	9	0.700	0.922	0.505
Ethnic * Region Of Origin	49.611	11	4.510	5.937	0.000**
Gender * Age	1.365	4	0.341	0.449	0.773
Gender * Household Income	0.702	5	0.140	0.185	0.968
Gender * Marital Status	0.815	2	0.408	0.537	0.585
Gender * Educational Level	0.479	3	0.160	0.210	0.890
Gender * Region Of Origin	3.280	4	0.820	1.079	0.365
Age * Household Income	21.478	20	1.074	1.414	0.103
Age *Marital Status	1.653	8	0.207	0.272	0.975
Age * Educational Level	8.917	12	0.743	0.978	0.467
Age * Region Of Origin	56.870	16	3.554	4.679	0.000**
Household Income * Marital Status	12.090	10	1.209	1.591	0.102
Household Income * Educational Level	20.784	15	1.386	1.824	0.026
Household Income * Region Of Origin	66.667	20	3.333	4.388	0.000**
Marital Status * Educational Level	4.654	6	0.776	1.021	0.409
Marital Status * Region Of Origin	7.421	8	0.928	1.221	0.282
Educational Level * Region Of Origin	131.973	12	10.998	14.476	0.000**
Error	6725.676	8853	0.760		
Corrected Total	7861.204	9076			

(a) R Squared = .144 (Adjusted R Squared = .123)

** Significant at the 0.01 level.

Table 3.13: Scheffe's Multiple Comparison tests on the mean number of vacation

		Mean Difference (I-J)	Standard Error	Sig.
(I) Ethnic	(J) Ethnic			
Malay	Chinese	0.04	0.02	0.317
	Indian	0.10*	0.03	0.006
	Others	0.05	0.04	0.660
Chinese	Malay	-0.04	0.02	0.317
	Indian	0.06	0.03	0.289
	Others	0.01	0.04	0.992
Indian	Malay	-0.10	0.03	0.006
	Chinese	-0.06	0.03	0.289
	Others	-0.04	0.05	0.813
Others	Malay	-0.05	0.04	0.660
	Chinese	-0.01	0.04	0.992
	Indian	0.04	0.05	0.813

		Mean Difference (I-J)	Standard Error	Sig.
(I) Marital Status	(J) Marital Status			
Married	Single	0.06	0.02	0.023
	Others	0.01	0.07	0.995
Single	Married	-0.06	0.02	0.023
	Others	-0.05	0.07	0.806
Others	Married	-0.01	0.07	0.995
	Single	0.05	0.07	0.806

		Mean Difference (I-J)	Standard Error	Sig.
(I) Age	(J) Age			
20-24	25-34	-0.04	0.03	0.759
	35-44	-0.07	0.02	0.087
	45-54	-0.03	0.03	0.921
	>54	0.04	0.04	0.852
25-34	20-24	0.04	0.03	0.759
	35-44	-0.03	0.03	0.826
	45-54	0.01	0.03	0.992
	>54	0.08	0.04	0.322
35-44	20-24	0.07	0.02	0.087
	25-34	0.03	0.03	0.826
	45-54	0.04	0.02	0.414
	>54	0.11	0.04	0.036
45-54	20-24	0.03	0.03	0.921
	25-34	-0.01	0.03	0.992
	35-44	-0.04	0.02	0.414
	>54	0.07	0.04	0.468

>54	20-24	-0.04	0.04	0.852
	25-34	-0.08	0.04	0.322
	35-44	-0.11	0.04	0.036
	45-54	-0.07	0.04	0.468

		Mean Difference (I-J)	Standard Error	Sig.
(I) Region of Origin	(J) Region of Origin			
Central	North	0.14*	0.02	0.000
	South	0.27*	0.03	0.000
	East	0.20*	0.03	0.000
	Sabah & Sarawak	-0.03	0.03	0.911
North	Central	-0.14*	0.02	0.000
	South	0.13*	0.03	0.000
	East	0.06	0.03	0.393
	Sabah & Sarawak	-0.17*	0.03	0.000
South	Central	-0.27*	0.03	0.000
	North	-0.13*	0.03	0.000
	East	-0.07	0.03	0.276
	Sabah & Sarawak	-0.30*	0.03	0.000
East	Central	-0.20*	0.03	0.000
	North	-0.06	0.03	0.393
	South	0.07	0.03	0.276
	Sabah & Sarawak	-0.23*	0.03	0.000
Sabah & Sarawak	Central	0.03	0.03	0.911
	North	0.17*	0.03	0.000
	South	0.30*	0.03	0.000
	East	0.23*	0.03	0.000

		Mean Difference (I-J)	Standard Error	Sig.
(I) Educational Level	(J) Educational Level			
No Formal Education	Primary Education	-0.01	0.04	0.999
	Secondary Education	-0.13*	0.04	0.007
	Tertiary Education	-0.28*	0.04	0.000
Primary Education	No Formal Education	0.01	0.04	0.999
	Secondary Education	-0.13*	0.02	0.000
	Tertiary Education	-0.28*	0.03	0.000
Secondary Education	No Formal Education	0.13*	0.04	0.007
	Primary Education	0.13*	0.02	0.000
	Tertiary Education	-0.15*	0.02	0.000
Tertiary Education	No Formal Education	0.28*	0.04	0.000
	Primary Education	0.28*	0.03	0.000
	Secondary Education	0.15*	0.02	0.000

		Mean Difference (I-J)	Standard Error	Sig.
(I) Household Income	(J) Household Income			
LT RM1,000	RM1,001-2,000	-0.04	0.02	0.666
	RM2,001-3,000	-0.05	0.03	0.378
	RM3,001-4,000	-0.26*	0.03	0.000
	GT RM4,000	-0.25*	0.03	0.000
RM1,001-2,000	LT RM1,000	0.04	0.02	0.666
	RM2,001-3,000	-0.02	0.03	0.966
	RM3,001-4,000	-0.22*	0.03	0.000
	GT RM4,000	-0.21*	0.03	0.000
RM2,001-3,000	LT RM1,000	0.05	0.03	0.378
	RM1,001-2,000	0.02	0.03	0.966
	RM3,001-4,000	-0.20*	0.03	0.000
	GT RM4,000	-0.19*	0.03	0.000
RM3,001-4,000	LT RM1,000	0.26*	0.03	0.000
	RM1,001-2,000	0.22*	0.03	0.000
	RM2,001-3,000	0.20*	0.03	0.000
	GT RM4,000	0.01	0.03	0.998
GT RM4,000	LT RM1,000	0.25*	0.03	0.000
	RM1,001-2,000	0.21*	0.03	0.000
	RM2,001-3,000	0.19*	0.03	0.000
	RM3,001-4,000	-0.01	0.03	0.998