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## **Research Report**

# **Malaysians' Travel Pattern During Chinese New Year 2013**



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**M.I.R.O.S**

MALAYSIAN INSTITUTE OF ROAD SAFETY RESEARCH

ASEAN ROAD SAFETY CENTRE

# Malaysians' Travel Pattern During Chinese New Year 2013

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## Abstract

Malaysians have a long tradition of *Balik kampung* or going back to hometowns during festive seasons. This tradition sees the multi-cultural Malaysians making an exodus to their respective hometowns. During these festive seasons, the number of vehicles on the roads increases by 20% to 30% which inevitably increases the risk of accidents. Numerous strategies including Ops Bersepadu have been implemented with the aim to reduce accidents. These strategies are somehow ineffective as the travel pattern of Malaysians varies due to the spatial geographical environment as well as the length of holiday. This study conducted a travel pattern survey using travel diaries to obtain Malaysian drivers' travel information. Respondents were asked to record their travel activity/trips for several days around the period of their long journey. A total of 300 travel diaries were distributed a week before the 2013 Chinese New Year (CNY) of which only 99 were returned (response rate of 33%). A general conclusion can be drawn based on the results of the survey that respondents travelled farther during festive seasons. The average length of *Balik Kampung* journey is about five times the length on normal days but with lesser trips. On CNY days, more local trips were recorded. Findings show that male drivers travelled farther during the two days of CNY and there is a significant difference between the distance travelled by male and female drivers on the eve of CNY. On other days, no significant difference in terms of travel distance across male and female respondents. The findings from this study suggest that enforcement and emergency response assistance should focus on inter-state travel before festive seasons and the focus of Ops programmes should target the local areas during festive seasons.

Keywords: Travel pattern, festive season.





## 1. Introduction

Malaysia's multi-racial population sees the country celebrating several annual festivals such as the Muslims' Eid Festival or *Hari Raya*, the Chinese New Year (CNY), and the Hindus' Deepavali. During the festive seasons, there will be a mass exodus of city dwellers to their hometowns (fondly known as *Balik Kampung*) or for vacations to other states in Malaysia. The tradition has inevitably generated high volume of road traffic with an additional 20% to 30% of vehicles expected to be on the main trunk expressway (the North-South Expressway). Figure 1 shows the total traffic volumes and accidents recorded on 25 expressways in Malaysia from January 19 through February 17, 2013 (the festive season of CNY in 2013 fell on February 10, 11 and 12). The volume of traffic during this period simultaneously increased the risk of accidents. The number of fatalities per day during the festive seasons surpasses the average number of annual daily fatality. For instance, an average of 19.2 deaths per day was reported during the 2011 Ops Raya compared to 18.8 average daily deaths in 2011 (MIROS, 2012).

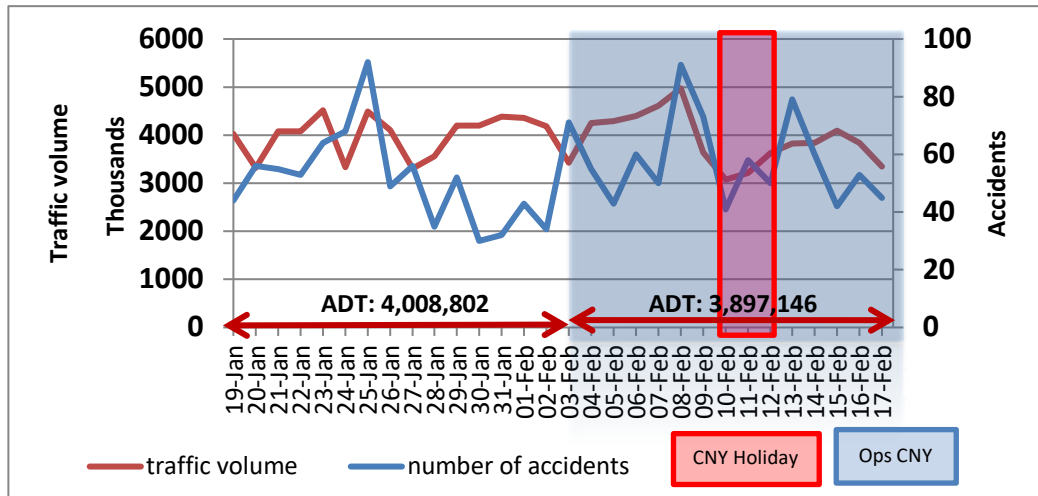


Figure 1 Traffic volumes and accidents on 25 expressways, Jan 19 to Feb 17, 2013

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Figure 2 illustrates the traffic accidents during the 2013 CNY festival.

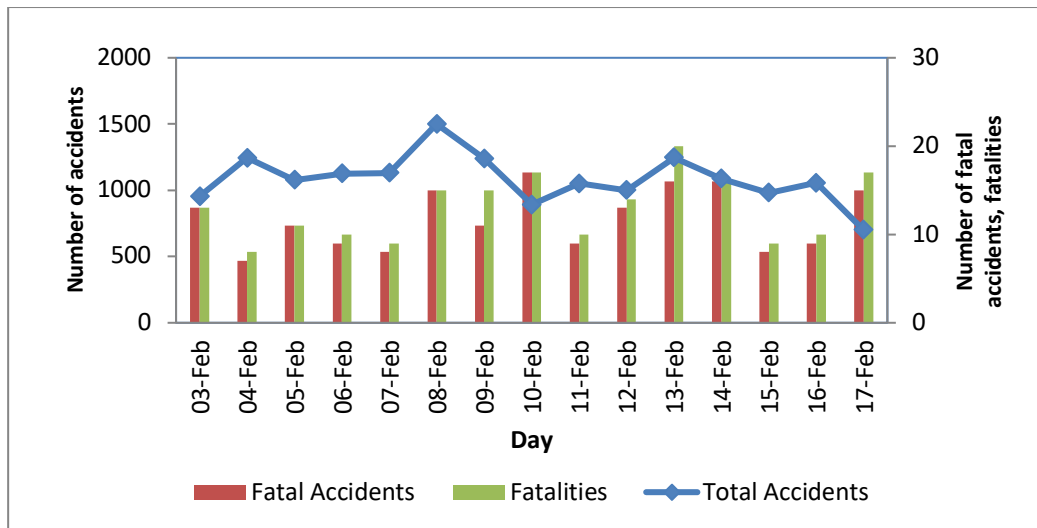


Figure 2 Total accidents, fatal accidents and fatalities during Ops CNY 2013

Recognising the alarming traffic casualty rates during festive seasons, the Malaysian government has taken a number of intervention measures. One of the measures is **Ops Bersepadu** programme, introduced 2001, with the aim to reduce traffic accidents during festive seasons. **Ops Bersepadu** is an integrated enforcement operation carried out by several agencies such as the Royal Malaysian Police (RMP), the Road Transport Department (RTD), the Road Safety Department (RSD), the Commercial Vehicle Licensing Board (CVLB, now absorbed into Land Public Transport Commission or SPAD/LPTC), the Public Roads Department (PWD), the Malaysian Highway Authority (MAH), the Ministry of Health (MOH) and other public sectors. The **Ops Bersepadu** programme that specially focuses on road safety is known as **Ops Sikap**, which started in 2001. The Ops programmes usually last for two weeks—a week before and a week after the festive day—to capture the peak of traffic flow and movements.

The Malaysian government's road safety programmes or interventions can be classified into four comprehensive plans:

- i. Exposure control: promote the use of public transport, ban heavy lorries (non-critical services) on festive days, and promote staged travel time on highways;
- ii. Crash prevention: enforcement using undercover and unmarked vehicle, mass media campaign, and postponing all road construction works;
- iii. Injury control: paramedics and injury management; and
- iv. Post injury control: trauma management at hospitals.

There have been 25 **Ops Sikap** programmes since its inception but they have not been without flaws and arguments. Despite the substantial efforts and resources that have been invested in the programmes, results have not been promising. There was an increase of 31% motorcycle fatalities during the 24<sup>th</sup> **Ops Sikap** compared to the previous one (MIROS, 2012). In response to this increase, the RMP launched **Ops Selamat** to replace Ops Sikap during the festive season of 2012 Hari Raya. **Ops Selamat** is a more comprehensive programme, which covers other aspects such as the safety and security of residential.

An in-depth investigation on the Ops programmes revealed that they lack enforcement by related agencies and adoption of soft approach or advocacy plans. In addition, particularly during festive seasons, Malaysian drivers' travel pattern is uncertain and varies due to spatial geographical environment and long holiday periods. The lack of information on Malaysian drivers' travel pattern during festive seasons has, to a certain extent, posed difficulties to the relevant agencies in planning their implementation strategies such as the location and time of road blocks.

This study was carried out as part of the effort by Malaysian Institute of Road Safety Research (MIROS) to evaluate the effectiveness of the Ops Bersepadu of the 2013 CNY. This study aims to understand the travel pattern of Malaysian drivers during the 2013 CNY festive season by assessing their exposures on the roads and the relationship between the traffic volume and accident profiles. Drivers' exposures on the roads are explained in terms of the kilometre travelled. The more distance travelled, the higher the probability of an accident to occur. The number of kilometres travelled is generally

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considered to be a relevant exposure measure and is defined as the sum of the distance travelled by all motor vehicles in the country over a year (the distance travelled per vehicle multiplied by the number of vehicles) (Ghazwan Al Haji, 2005).

## 2. Methodology

The target respondents for this study were those who made trips away from Klang Valley by road transport (car or motorcycle) during the 2013 CNY festival. A total of seven schools and two multinational companies in Klang Valley were identified to participate in this study. Briefing sessions were conducted from January 28 through 31 at the respective schools and companies and travel diaries were given to the respondents. Respondents were asked to record their travel activity/trips for several days namely on a typical or normal day, the day they travelled to their hometowns or started their long journey, the first three days of CNY and the day they travelled back to Klang Valley. Trip in this context refers to a one-way travel activity with a purpose. Apart from that, other information such as the distance travelled, time, OD and mode of vehicle were also collected. The completed travel diaries were collected a week after the festival.

## 3. Results

### 3.1 Profile of Respondents

A total of 300 travel diaries were distributed a week before CNY of which only 99 were returned, generating a response rate of 33%. Slightly more than half (54.5%) of the respondents were male and most of them were professionals. Chinese respondents made up 66.7% of total respondents. There was an almost equal proportion (47%) of respondents who work for the government and the private sectors, while the remaining do not work. About three quarter of the respondents reported earning between RM 1000 to RM 4000 per month while 78.8% of the respondents belong to households that own two cars or less.

### 3.2 Travel Direction

Figure 3 shows the distribution of the destinations travelled by the respondents on the day they left Klang Valley either to go back to their hometowns (*Balik Kampung*) or for vacation. Findings show that 42% of the respondents headed north, 38% travelled to the east coast and the remaining 20% travelled to the southern part of Peninsular Malaysia.

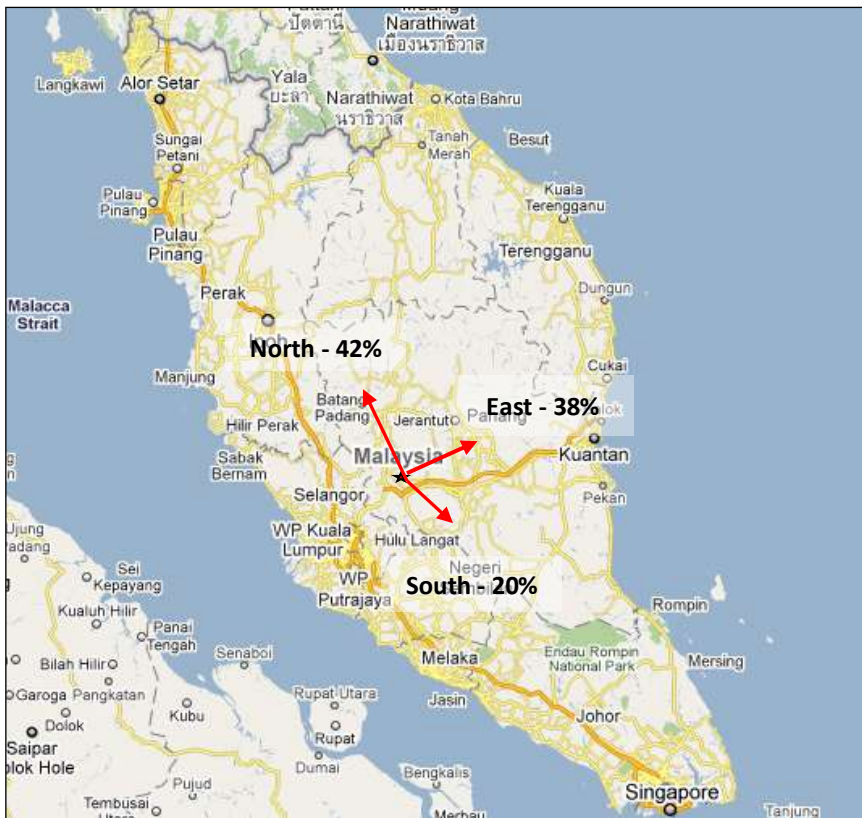


Figure 3 Distribution of respondents' travel direction

### 3.3 Travel Distance

Travel distance describes a motorist's exposure level on the road. In this study, a respondent's travel distance in a day is the distance travelled between the origin and the destination for each trip in one day. Figure 4 shows respondents' average travel distance during the 2013 CNY festive season and a normal routine day. Findings show that respondents of this study travelled an average of 335 km before the CNY to go back to their hometowns or their vacations. On the eve of the CNY, lesser kilometre travelled was recorded (an average of 267 km) and the trend continued on the first day of CNY. Travel distance increased again on the second day of CNY and leveled out on the third



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day of CNY. The return trips reported an average of 275 km travelled by respondents. In general, the total distance travelled to and back from hometowns during the 2013 CNY was about 3.5 to 5 times their daily routine travel distance.

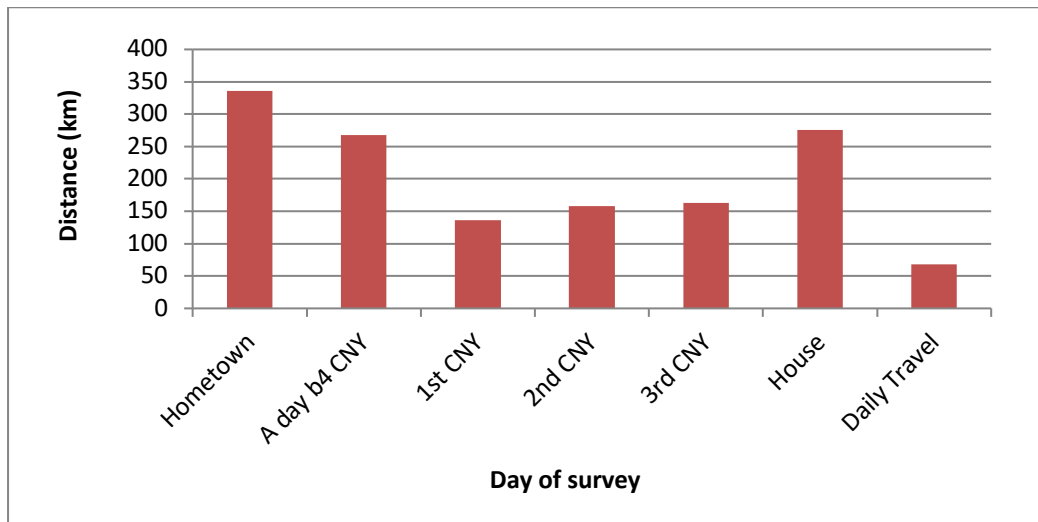


Figure 4 Average travel distance, CNY 2013

### 3.4 Travel Time

Travel time is another parameter used to reflect the intensity or congestion level of a road. However, comparison between the roads' congestion level during festive season and during normal season is not possible as there is no baseline data for the travel time on the particular roads during normal season. Findings show a fairly similar profile for respondents' travel time and travel distance. Figure 5 shows that respondents took approximately 4.54 hours to travel to their hometowns and 4.68 hours of travel time on the eve of CNY. This is consistent with the high traffic volume recorded on the eve of CNY and most expressways reported traffic congestion on the day. Approximately 3.26 to 3.76 hours of travel time per day were recorded during CNY.

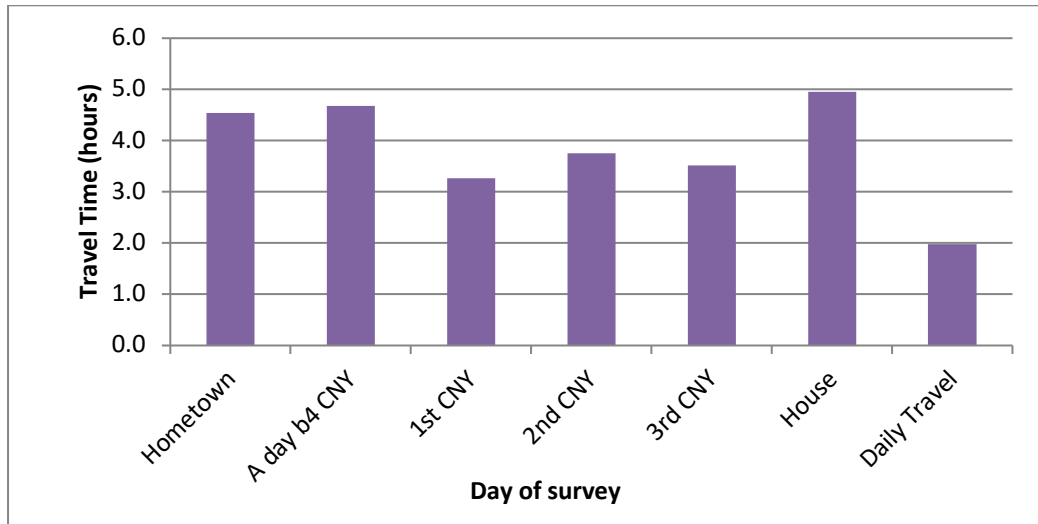


Figure 5 Average travel time, CNY 2013

### 3.5 Number of Trips

Figure 6 shows the findings for respondents' number of trips. Respondents made an average of 2.60 trips on a normal day. They made lesser trips (1.8 trips) during the survey period especially during the days of travelling to and back from their hometowns. This can be explained by the longer distance travelled on the days. During the three days of the CNY, respondents showed an increasing number of trips, which ranged from 2.17 to 2.4 trips per day.

Relating travel distance, travel times and number of trips during the 2013 CNY, respondents show a pattern of making shorter but more trips on the first day of CNY, suggesting that they travelled within the local areas for visiting/leisure purposes during the CNY.

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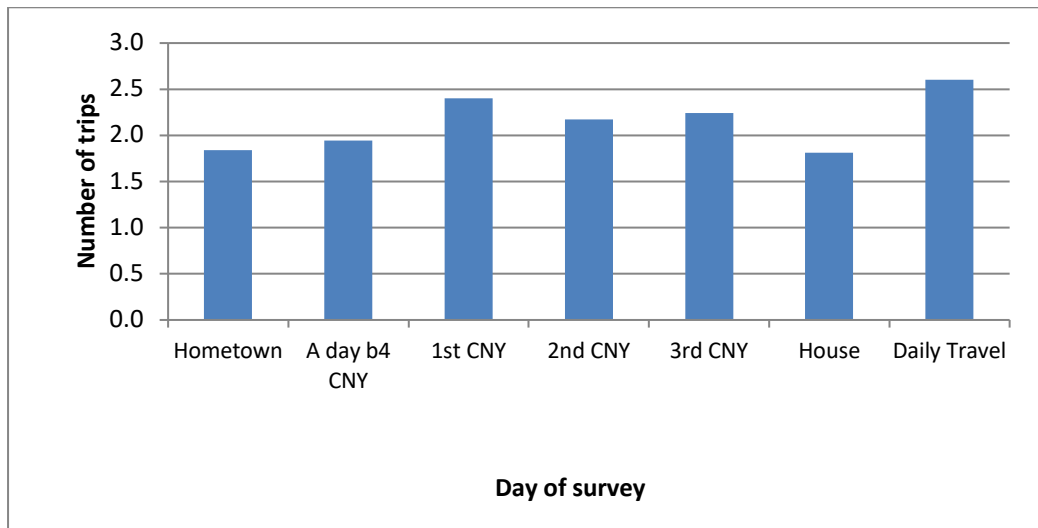


Figure 6 Average number of trips, 2013 CNY season

### 3.6 Daily Travel Profiles

This section reports respondents' travel information during CNY festive season in greater detail. Up to seven trips were analysed to report respondents' daily travel pattern according to geographical factors (inter-state travel or intra-state travel). Figure 7 through 10 show the detailed travel pattern for four days during the 2013 CNY festive season.

Findings show that 42% of respondents travelled across the border on *Balik Kampung* day with the average distance travelled ranging from 77 to 505 km. Nineteen per cent of respondents travelled locally (intra-state) with an average distance ranging from 0.3 km to 46.4 km.

The eve of the CNY saw more than half (54.5%) of the respondents travelled across the state border compared to the *Balik Kampung* day. This can be attributed to the fact that the eve of CNY fell on a Saturday and respondents started their journey on that day. About one third of the respondents continued their journey after the first stop and a

maximum of four trips were reported by two respondents on that day. The difference between the longest and the shortest inter-state travel distance is 349 km. Contrary to inter-state travel, the local trips were shorter and ranged between 8 to 22 km.

On the first day of CNY, 48% of the respondents indicated inter-state travel while 25.2% of respondents travelled locally. The journeys can be translated into an average of 2.56 trips per respondent with a maximum of seven trips recorded by one respondent. The travel distance for the inter-state trips varied from 50.4 to 250 km. As compared to the eve of CNY, 20% more local trips were reported on this day with the average travel distance ranged from 0.3 to 40 km. Similar trend was reported on the second and third days of CNY, though the increment is smaller with around 5% to 11% (compared to local trips on the eve of CNY). The second day of CNY reported approximately similar intra-state travel distance that ranged from 65 to 230 km compared to that on the first day of CNY. The third day of CNY reported 33% of the respondents making local trips. Their travel distances ranged between 10.8 and 33.4 km. On the other hand, 30% of the respondents reported inter-city trips with an average of 182 km for their first trip. However, only 39% of respondents continued on subsequent trips. Two thirds of the respondents were observed to return to Klang Valley as shown in Figure 9, with the inter-state trips ranging from 14 to 279 km. Of the 99 respondents, 14 started with local trips before crossing the state border. In general, the travel pattern suggests that respondents made more local and shorter trips during the surveyed period.

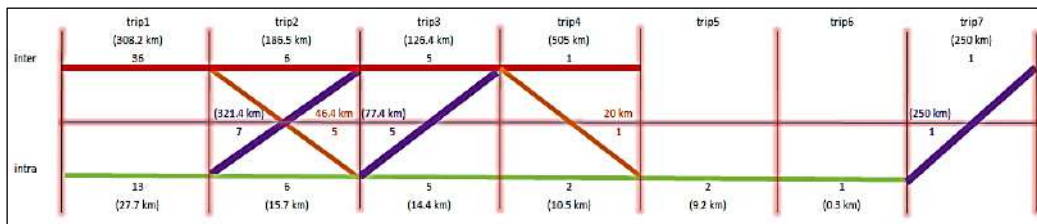


Figure 7 Trip profiles on *Balik Kampung* day

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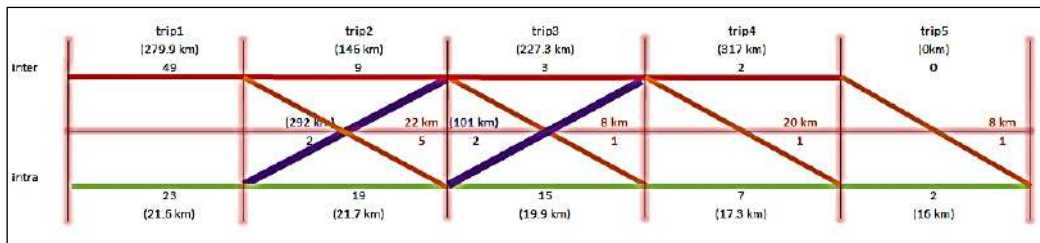


Figure 8 Trip profiles on the eve of CNY

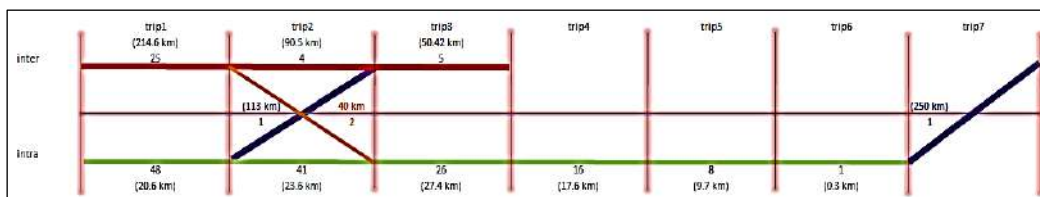


Figure 9 Trip profiles on Day One of CNY

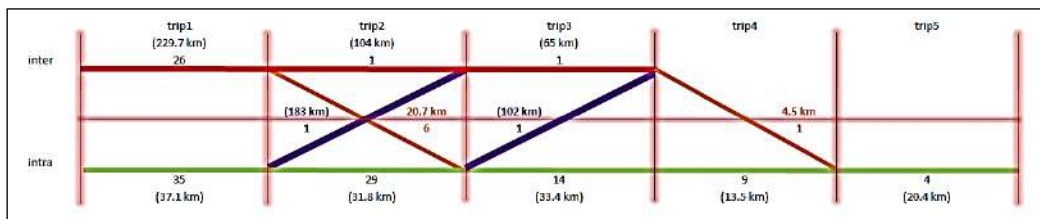


Figure 10 Trip profiles on Day Two of CNY

### 3.7 Travel Pattern and Respondents' Socioeconomic Characteristics

This section explores the relationship between respondents' travel pattern and their socioeconomic characteristics namely gender and household income. McCormark et al. (2001) noted that socioeconomic background is one of the factors that influence travel behaviour.

Table 1 summarises the travel pattern according to respondents' gender and household income. In general, the results show that female respondents travelled shorter distance

compared to their male counterparts except on the second day of CNY. Female respondents reported 70 km to 308 km of travel distance during the festive season. Male respondents recorded the longest travel distance of 356.8 km on *Balik Kampung* day while the shortest trip of 104 km on the third day of CNY. On the normal day, male respondents travelled three times that of female respondents.

Examining the effect of household income on respondents' travel behaviour, results show that *Balik Kampung* travel distance increases with household income. Those with household income more than RM4001 travelled 78% more kilometres (an additional 192.4 km) compared to those with household income less than RM2000. Respondents travelled longer distance on the first and second days of the CNY and the day returned to Klang Valley.

**Table 1** Average travel distance by respondents' socioeconomic characteristics

| Day                        | Gender |        |            | Household Income |                   |         | Sig. Value |
|----------------------------|--------|--------|------------|------------------|-------------------|---------|------------|
|                            | Male   | Female | Sig. Value | <RM2000          | RM2001-<br>RM4000 | >RM4001 |            |
| <i>Balik Kampung</i>       | 356.8  | 308.1  | 0.607      | 246.1            | 371.2             | 438.5   | 0.075      |
| Eve of CNY                 | 333.6  | 189.1  | 0.049      | 287.8            | 258.4             | 258.8   | 0.840      |
| 1 <sup>st</sup> day of CNY | 143.9  | 127.2  | 0.683      | 140.9            | 108.1             | 172.0   | 0.122      |
| 2 <sup>nd</sup> day of CNY | 144.9  | 172.0  | 0.875      | 142.3            | 115.0             | 290.9   | 0.034      |
| 3 <sup>rd</sup> day of CNY | 104.2  | 70.2   | 0.483      | 85.0             | 106.7             | 67.1    | 0.579      |
| Back to Klang Valley       | 195.6  | 187.5  | 0.256      | 162.4            | 198.2             | 277.7   | 0.233      |
| Daily Travel               | 63.8   | 18.8   | 0.009      | 42.7             | 55.3              | 28.6    | 0.882      |

Respondents' travel distance were further analysed across their socioeconomic characteristics using non-parametric analysis. The significant value in Table 1 indicates the level of variability of several days' characteristics within both gender and household income categories. The Mann Whitney test was used to examine the differences of travel distance across respondents' gender while the Kruskal Wallis test was used to examine the variations in travel distance across respondents' household income categories. Findings show that there is a significant difference in terms of travel distance

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between male and female respondents on the eve of CNY and the normal daily travel with male respondents travelled farther compared to female during these two days. On other days, no significant difference in terms of travel distance between male and female respondents (sig. value > p-value=0.05) was found. Findings also show no significant difference in terms of travel distance across respondents' household income categories. The non-significant difference finding indicates that respondents across different household income categories do not differ significantly in terms of their travel distance, except on the second day of CNY.

## 4. Conclusion

This study was part of the research carried out to evaluate the effectiveness of Ops during the 2013 CNY. The findings show that the travel distance during this period was about five times than on the normal routine day and most trips were made on one or two days before the CNY owing to the fact that the CNY's eve fell on a Saturday. This is consistent with the high traffic volumes recorded on expressways two days before the CNY. Findings also show that drivers made more local trips on the days of the CNY. This suggests that different Ops strategies and implementation tactics should be adopted to ensure road safety during festive seasons. Enforcement and emergency response assistance can focus on inter-state travels before the festive days and redirected locally on the festive days.

Accident data (Reference(s)) recorded before and on the CNY days show higher total accidents with lesser fatalities on CNY's eve but lesser accidents with higher fatalities on the days of CNY. This proposes another hypothesis that speed is one of the contributory factors of low fatalities during high traffic movement periods. Therefore, the enforcement agencies should look into speed management related strategies in order to increase road safety during the Ops.







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