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## ROAD ACCIDENTS PROFILE IN TAIWAN

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### 1. INTRODUCTION

Taiwan had a population of 22.7 million in 2005 with a density of 630 persons per square kilometer. Per capita income GNP in Taiwan has increased by about 2,000US dollars in the past 20 years, which brought about a rise in motor vehicles. The total number of motor vehicles registered has increased from 7,950,000 in 1985 to 19,863,000 in 2005, almost a tripling in 20 years. In the same period, passenger cars rose from 3,874,000 to 5,634,000, a 45% growth. At the same time the number of motorcycles increased from 8,517,000 to 13,195,000, a growth of 55%. Passenger car ownership in 2005 was 248 passenger cars per thousand people and motorcycle ownership was 582 per thousand people. This implies that there is one passenger car for every 4 people and one motorcycle for every 1.7 people. Substantial rates of growth have caused more road traffic accidents.

### 2. ACCIDENTS AND CAUSES

Table 1 presents historic data for fatalities, injuries, accident rates and major causes of accidents. The accident rate (accidents/10,000 vehicles) has increased almost 10 times in the past 20 years from 8 in 1985 to 78 in 2005 as the number of vehicles grew 2.5 times. However, the number of people killed in vehicle traffic accidents during the period of 1985-2005 declined by 20%, while the injuries increased almost 29 times. The high injuries come from the different definition and measurement of

injuries before and after the year 2000. The number of injuries before 2000 was obtained from injuries only in fatal traffic accidents, while after 2000 that was defined as the injuries in all traffic accidents. Table 1 also shows the major causes of accidents. Over the years, human error coming from the vehicle driver remains the leading cause (96%-98%) of vehicle traffic accidents. This implies that considerable transport safety improvements should be devoted to reduce human error through education and training in Taiwan.

One way to evaluate motor vehicle risk is to estimate its share of all accidents. Accidental fatalities include deaths from unintentional injuries that occur at work, home, or other locations. In 2005, 2,894 lives were lost due to motor vehicle accidents, which is 56.6% of all accidental deaths and 3.4% of all causes of deaths in Taiwan. Motor vehicle deaths are decreasing as a percentage of total deaths, but have remained at about half of all accidental deaths.

Table 2 shows accident rates, injury rates and fatality rates by selected vehicle type. Motorcycles received the highest rank on vehicle traffic accidents in 2005 while buses, motorcycles and truck/trailers all have a relatively high accident rate, injury rate and fatality rate.

Another way to evaluate motor vehicle risks is to examine deaths by age group. Figure 1 shows that in the age group 15 to 24 years old, 43.3% of deaths could be attributed to motor vehicle traffic accidents. This implies the younger people have a high exposure of traffic risk.

Table 1 History of traffic accidents and causes

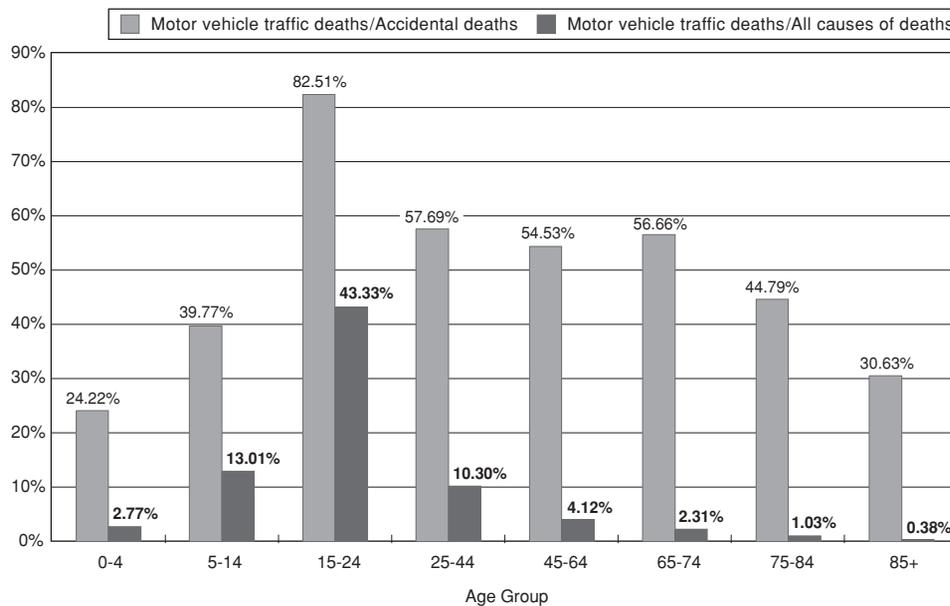
Year	Items				Causes (%)			
	vehicle registration	accident/ 10,000 vehicles	injuries	fatalities	vehicle driver	mechanical failure	passenger/ pedestrian	other
1985	7,949,993	8.0	6,955	3,564	96.30	1.70	1.80	0.20
1990	11,432,605	5.9	6,115	3,910	97.80	1.18	0.82	0.20
1995	13,201,471	2.7	2,933	3,065	97.50	1.02	1.39	0.09
2000*	17,022,689	31.1	66,895	3,388	98.45	0.35	0.91	0.29
2001	17,465,037	36.8	80,612	3,344	98.42	0.35	1.02	0.21
2002	17,906,957	48.2	109,594	2,861	97.84	0.35	1.50	0.31
2003	18,500,658	65.0	156,303	2,718	98.07	0.34	1.40	0.19
2004	19,183,136	71.5	179,108	2,634	97.93	0.33	1.48	0.26
2005	19,862,807	78.4	203,087	2,894	97.81	0.28	1.62	0.28

\* Before and after 2000, the measurement of injuries is different.

**Table 2 Accidents, fatalities and injuries by vehicle type in 2005**

vehicle	registration	accidents	accident rate*	injury rate	fatality rate
passenger car	5,634,362	86,940	154.30	34.14	0.96
motorcycle	13,195,265	130,366	98.80	119.86	1.19
bus	26,967	1,919	711.61	264.40	4.82
truck/trailer	953,470	25,499	267.43	54.41	1.71

\* All rates are measured in unit of no./10,000 vehicles.



**Fig. 1 Motor vehicle traffic deaths by age group in 2005**

### 3. THE SAFETY MEASURES

Although Taiwan has adopted several regulations to mandate motorcyclists to wear helmets from 1997, to require car drivers and front seat passenger to fasten seat belts from 2001, to raise the penalties for drunk driving and other traffic offences from 2001 etc., the motor vehicle accident rate still remains high. Since vehicle drivers, vehicle equipment, road conditions and government regulators are all responsible for road safety, recent planned road safety programs in Taiwan comprise the improvement of driver training and education, particularly for young drivers, the requirement of vehicle safety equipment, particularly for buses and heavy goods vehicles, the mandatory requirement for the use of daytime running lights, particularly in mountain and tunnel areas,

the improvement of road traffic engineering, particularly on the dangerous intersections and links, and the increase of enforcement, particularly for drunk driving, excessive speed, road shoulder driving, and signal violation behaviors.

Recent debating issues discussed in Taiwan include the mandatory use of rear belts, the right turn on red, a speed limit of 40 km/h for the urban buses, the age of 16 years for access to driving for a motorcycle and a car, and the introduction of road safety audit system. The encouraging thing is that not only the central government pays attention to road safety policy and programs, but also many local governments have established a road safety committee to review the safety performances and provide safety improvement measures.