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Understanding Characteristics and Motivations of Learner Riders of Powered-Two-Wheelers in Melbourne, Australia

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This is an abridged version of the paper presented at the conference. The full version is being submitted elsewhere. Details on the full paper can be obtained from the author.

ISBN: 978-85-285-0232-9

13th World Conference on Transport Research
www.wctr2013rio.com
15-18 JULY 2013
Rio de Janeiro, Brazil
unicast

Understanding Characteristics and Motivations of Learner Riders of Powered-Two-Wheelers in Melbourne, Australia

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ABSTRACT

The term 'Powered Two Wheelers (PTWers)' refers a range of two or three wheel vehicles including mopeds, scooters and motorcycles. Relatively little research attention has been directed at understanding underlying reasons of choosing to ride a PTW instead of other modes of transport particularly in the context of utilitarian rather than recreational travel. In the state of Victoria in Australia, persons wishing to ride Powered-Two (or Three)-Wheel (PTW) vehicles must first complete a theory and practical test to obtain a learner's permit before being eligible start riding (solo) on a PTW. This paper seeks to enhance understanding about the characteristics and motivations of learner riders. Registration and licencing data is used to identify trends in the number of people securing learners permits as well as the characteristics of those individuals in terms of age, gender and residential location. To complement that quantitative data, insight is also obtained from focus groups that examined the motivations of individuals who have recently obtained their licence.

Keywords: Powered-two-wheel vehicles, Motorcycles, Learner Riders, User characteristics, travel behaviour

INTRODUCTION

Increasing concerns over congestion, safety, availability of energy sources and environmental issues such as pollution and climate change have led to growing interest in sustainable transport. In developed countries, motor cycles and motor scooters have received relatively little attention in this context. Increasingly the term Powered-Two (or Three)-Wheel (PTW) vehicle is being used cover a range of two or three wheel vehicles from mopeds (low power motor cycles typically with engines less than 50cc and usually with a maximum speed of 50 kph) to motor scooters and motorcycles (Victorian Government, 2009). In the context of sustainable mobility, the opportunities PTW vehicles present have not been investigated in detail (Rose, 2009).

This paper focuses on individuals who are taking up riding a PTW vehicle in Melbourne, Australia. Melbourne is Australia's second largest city with a population of just over 4 million. The paper aims to provide insight into the characteristics and motivations of learner riders.

The structure of this paper is as follows. The following section provides insight from an initial review of the literature that focuses on the ownership and use of PTW vehicles. We then describe the methodology of this study which relies on a mix of quantitative and qualitative data. Results are then presented from analysis which was undertaken of data on

individuals who successfully obtained their learner rider permit and transcripts of focus groups run with people to recently took up riding a PTW vehicle. The final section summarises the conclusions and identifies future research directions.

LITERATURE REVIEW

There is relatively little literature which deals with PTW vehicle ownership and use especially in the context of western countries. Studies from eastern Asian countries predominate (Hsu, Tsai et al. 2007; Priyantha Wedagama 2009; Dissanayake and Morikawa 2010; Wen, Chiou et al. 2011) however the overall trend and attitudes toward PTW ownership and usage would not be expected to be consistent with conditions in western countries. While increasing income in developing countries is associated with increase in both car and motorcycle ownership, in developed countries economic growth has seen the stronger growth in car ownership (Lai and Lu 2007).

Factors identified as influencing motorcycle purchase and use include their performance, convenience, the freedom they provide, parking availability (Prabnasak and Taylor 2008) at low or no cost; and their ability to manoeuvre through traffic and thereby save time (Hsu, Dao et al. 2003; Leong and Mohd. Sadullah 2007; Priyantha Wedagama 2009). Fuel prices and traffic congestion are other variables found to influence motorcycle purchase and use (Coxon 2002; Jamson and Chorlton 2004; Blackman and Haworth 2010). Of course the reliability and convenience of cars (Hsu and Lin 2007) especially for longer trips along with their greater passenger carrying capacity (Priyantha Wedagama 2009) and the insulation they provide from hot and rainy weather makes them preferred alternative to the motorcycle. Consequently, PTW are popular in warm southern European countries (Yannis, Golias et al. 2007) and many Asian countries. Age is another important variable as motorcycle ownership is prevalent among younger age groups in Europe and Asia (Sanko, Dissanayake et al. 2006). In Asia PTW ownership has been found to be higher to be higher among people with less education (Hsu, Dao et al. 2003) which possibly reflects an income effect. In western countries there is a growing segment of older, returning riders who purchase a motorcycle for primarily recreational use (Haworth, 2010).

There are differences in the reasons underlying car and motorcycle purchase decision in eastern Asian countries (Lai and Lu 2007; Priyantha Wedagama 2009) compared to developed countries. Most of the parameters and conditions described above from income level to less concerns about safety when purchasing or using a motorcycle are not the same as in developed countries. When exploring factors underlying PTW ownership in the U.K., Jamson et al. (2009) found important difference between riders' attitudes depending on whether they were new riders, long-term riders or returning riders (those who have returned to riding a motorcycle after a break). New riders favoured lower capacity PTWs including mopeds or scooters for commuting trips giving more value to economic factors and convenience.

That same U.K. research found that the nature of motorcycle ownership has changed from 1950's to the 1990's. The priorities underlying motorcycle purchase decisions over those decades changed from concerns about independence, style and speed, which were associated with increases in engine size to more priority towards running cost and congestion with more purchase of lower engine capacity vehicles in the 1990's (Jamson and Chorlton 2009).

METHODOLOGY AND DATA

As noted earlier there are relatively few studies which have examined PTW use from the perspective of travel behaviour as opposed to through the lens of road safety research. Against that context, the research approach adopted was largely exploratory. Registration and licencing data provided an opportunity to develop some high level characterizations of

learner riders through analysis of that quantitative data. In particular the analysis relies on a statistical testing to identify whether factors appear to be independent in explaining patterns in the data and whether there are any statistically significant differences in sub-groups of the population. To complement that high level, somewhat aggregate characterisation of learner riders, richer qualitative data was collected using focus groups. The qualitative research methodology was regarded as appropriate for an initial study which sought to explore the factors which may be contributing to the patterns observed in the aggregate data.

Quantitative Data

Registration and licencing data held by the State of Victoria provided the basis for the quantitative analysis. Two particular types of data were made available for analysis.

The first was from the licencing data base where details of all individuals who had obtained their learners permits in three month blocks were recorded. That time series of data covered the period from the middle of 2009 to the middle of 2012.

The second source of data came from the riders' data-base. It included details of all riders in the State of Victoria on 30 June 2012. That data included details of each individual's riding licence and car licence proficiency level, the number of vehicles registered in their name and limited demographic details (age and gender).

Qualitative Data

Focus groups and interviews are the most common methods of collecting quality qualitative data (Gill, Stewart et al. 2008). They are ideal for exploring areas when there is little prior knowledge available and are particularly well suited to exploring underlying attitudes, behavioural patterns and motivations.

We ran focus groups to explore the factors which motivated people to get a learner permit/licence and to understand why people ride a PTW. In all 5 focus groups were held involving a total of 27 riders, 13 men and 14 women. Four of those focus groups were held in close to the city and one in the outer eastern suburbs of the city. While the outer suburban one involved a mix of men and women, the ones held in closer to the city were equally split between male and female participants (two focus groups of each). All participants had completed at least a learner rider course, most had a PTW and all had an interest in utilitarian use rather than purely recreational use of the vehicle.

The focus groups were guided by an experienced facilitator and each discussion lasted between 60 and 90 mins. The facilitator followed a discussion guide to ensure that each focus group covered similar topics. The topics explored in each of the groups included:

1. Motivations for getting a learner permit/licence including prior experience with PTW
2. Their process they went through to obtain their learners permit or license
3. Their current use of the PTW
4. Their experience with purchasing a PTW process and the factors which influenced their purchase decisions
5. Their long term intentions in terms of expectations about continuing to ride
6. Perceptions of safety and environmental issues
7. Their opinions of about current government policies and the implications for ownership and use of PTW.

Each focus group's discussion was recorded on an audio recorder and also with a video camera. Transcripts were then produced for each focus group discussion.

RESULTS

In this section we present results from the analysis of the quantitative and qualitative data.

Quantitative Data Analysis

In Victoria just under 360,000 (359,478) individuals hold either a learner permit or a riding licence. About 6 percent hold a learners permit while about the 94% of those hold a riding licence.

From analysis of the licensing data, it is possible to examine the spatial distribution of learner and licenced riders. About 85 % of both learner and licensed riders live within 20 kilometres of the CBD. Figure 1 shows that a slightly higher proportion of both learner and licenced riders live in the 10 to 20 kilometre range from CBD compared to the up to 10 kilometre range.

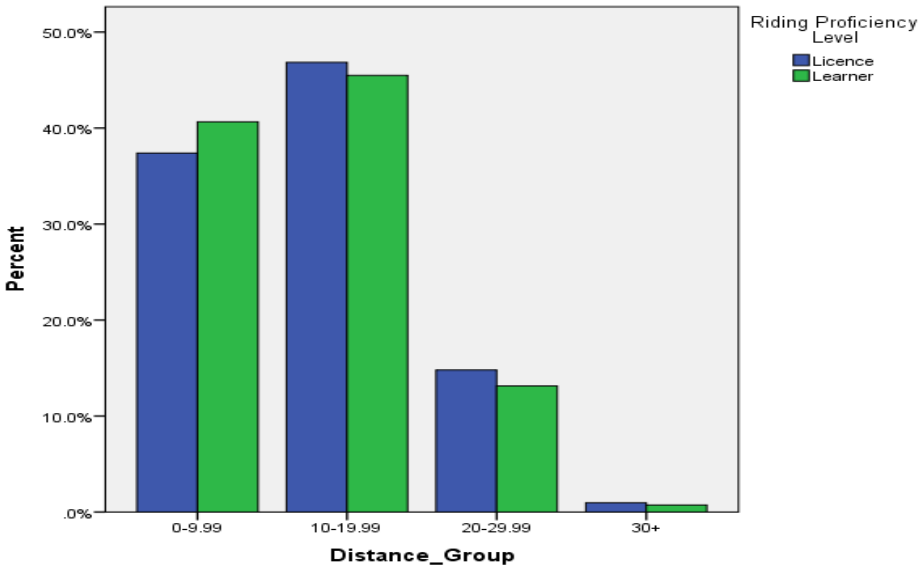

Figure 1 – Spatial distribution of learner riders and licensed riders in Melbourne metropolitan area

Table 1 summarises the gender distribution of licenced and learner riders. While about one in five learner riders are females, only about one in eight licenced riders are female. If time series data were available it might shed light on whether more females are taking up PTW than was historically was the case (hence their higher representation in learner riders) or alternatively it may be that a smaller percentage of females make the transition from a learners to become a licenced rider.

Table 1 - Riding proficiency level of riders versus their gender in Melbourne metropolitan area

PTW Riding Proficiency	Gender			
	Female		Male	
	No	Row%	No	Row%
Licence	13,500	12.2%	97,313	87.8%
Learner	1,339	19.8%	5,417	80.2%

PTW vehicles in Victoria can be registered for general purpose use or solely for recreational use. The annual registration fee for PTW registered solely for recreational use is lower less than those registered for general purpose use but recreational registered PTW have limitations on where they can be ridden. Only 12 percent of PTW registered in Metropolitan Melbourne are registered for recreational use. By focussing only on those PTW which are registered for general use, it is possible to examine the number of PTW individuals

have registered as a function of their riding licence status. Table 2 highlights that slightly over two thirds (70.5 %) of licenced riders do not have a PTW registered in their name. A slightly higher percentage of learner riders have one PTW registered in their name compared to licenced riders (34 % versus 26 %). Only a small percentage of licenced riders, and a very small percentage of learner riders have two or more vehicles licenced in their name.

Table 2 - Level of PTW ownership versus rider's proficiency level in Melbourne metropolitan area

PTW Riding Proficiency	Registered PTWs*					
	0		1		2+	
	No	Row%	No	Row%	No	Row%
Licence	78,082	70.5%	29,263	26.4%	3,468	3.2%
Learner	4,408	65.2%	2,290	33.9%	58	.8%

*The registered PTWs in this table does not include PTWs which are registered just for recreation

Table 3 summarises data on the number of passenger cars registered in a person's name as a function of their riding licence status. A higher proportion of learner riders in the Melbourne metropolitan area do not have a registered passenger car compared to those who hold a riding licence (44% versus 30.7%). While a similar percentage of learner and licenced riders have one car, licenced riders are more likely to own 2 or more cars compared to learner riders (Table 3).

Table 3 - Level of passenger car ownership versus level of rider's proficiency

PTW Riding Proficiency	Passenger car							
	0		1		2		3+	
	No	Row%	No	Row%	No	Row%	No	Row%
Licence	33,994	30.7%	55,257	49.9%	17,021	15.4%	4,541	4.1%
Learner	2,976	44.0%	3,052	45.2%	620	9.2%	108	1.6%

On a per rider basis (either learner or licenced) both PTW and passenger car ownership increases as a function of distance from the Melbourne CBD (Table 4). A chi-square test revealed that both number of registered PTW and passenger cars are not independent from distance from CBD at 95% confidence level.

Table 4 - Average per rider ownership of PTW and passenger car in metropolitan Melbourne

PTW Riding Proficiency	Distance of registered address from the CBD (km)							
	0-9.99		10-19.99		20-29.99		30+	
	PTW	PC	PTW	PC	PTW	PC	PTW	PC
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Licence	.019	.809	.047	1.011	.068	1.061	.122	1.141
Learner	.026	.571	.068	.743	.100	.852	.061	.878

Time series data were available on the number of PTW learners permits issued in each quarter from mid 2009 to mid 2012. Across that three-year period, 20,969 learners permits were issued. The half yearly totals vary between 3,300 and 3,700. In terms of annual totals, 6.1 % more learner permits were issued in 2011 compared to 2010. However it is not clear that growth in the number of learner permits issued is being maintained with the number of permits issued in the first half year of 2012 down nearly 5 per cent compared to the first half year of 2011.

Females accounted for just under 20 percent (17.6 %) of the PTW learners permits issued from mid 2009 to mid 2012. Figure 2 shows the age distribution of those issued with a

PTW learner permit, by gender. In Victoria an individual must be at least 18 years old to be eligible to obtain a PTW learner permit. Nearly half of the learner permits are issued to people who range in age between 22 and 40. A slightly higher percentage of the males are in the younger age groups with the distributions suggesting the female learner permit holders are older than the males. A similar percentage of the men and women are over 50 and some of them could represent returning riders whose licence had lapsed.

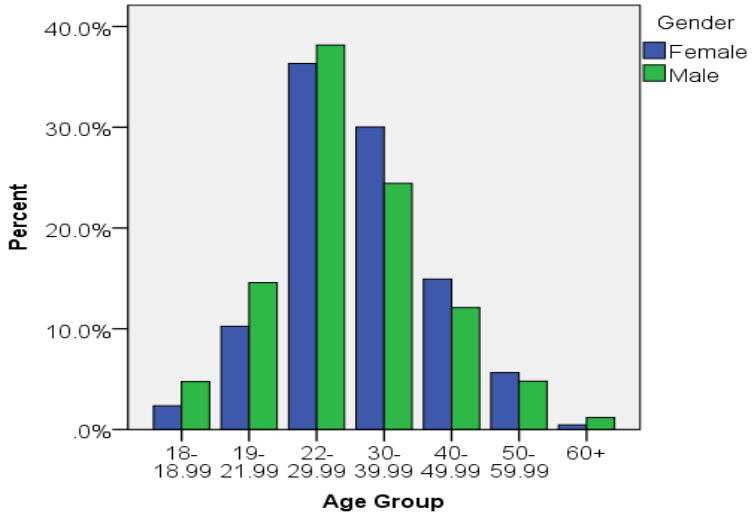

Figure 2 - Age distribution of learner permit takers versus gender in Melbourne metropolitan area

The mean and median age of people who were issued with a learner permit were investigated. On average, males who get their learner permit were about one and a half years younger than their female counterparts (with the mean and median values of 30.8 and 28.1 years old for males versus 32.34 and 30.25 years old for females). The difference in the mean was statistically significant at a 95 % confidence level when tested using a T-test.

We analysed the spatial distribution (in terms of the distance from the CBD to the residential postcode of the holder) of PTW learner permits issued by gender. About 90 percent of all PTW learners permits are issued to people who live within 20 kilometres of the CBD. About half the learner permits issued to females are to individuals who live within 10 km of the CBD.

Table 5 considers how the number of permits issued compares to the number of registered PTW vehicles as a function of distance from the CBD. The number of learner permits issued corresponds to about twice the percentage of registered PTW in close to the city as it does in the furthest distance range (45 % versus 23 %). This reinforces the importance of the inner city market from the perspective of people who are preparing to take up this mode of transport.

Table 5 – Spatial distribution of the number of registered PTWs in Melbourne metropolitan area versus number of people who have got their learner permit from mid 3rd 2009 to mid 2012

Distance From Melbourne CBD	Total Registered PTWs	Number of PTW learner permits issued	
		No.	Learner permits issued as a percentage of total registered PTWs in the region
0-9.99	18,907	8,560	45.3%
10-19.99	23,789	9,417	39.6%
20-29.99	9,632	2,854	29.6%
30+	618	138	22.3%

Motivations of Early Riders

The results presented here reflect an initial analysis of the transcripts from the focus groups and are structured round key emerging issues. Those issues are identified in the discussion which follows and relevant quotes from the focus group participants are included to illustrate how individual participants expressed particular points.

1. Most people had previous experience with, or exposure to, PTW riding. By the time that most participants started riding by themselves, they had at least some riding experience or a connection to a PTW rider. It may have been a family member or close friend had taken them as a pillion passenger or they had ridden themselves legally (off-road) or illegally (on-road) and had enjoyed that experience.

    - "My brother took me riding as a pillion and later I tried myself to ride his bike on the streets around the home".

2. The scope to save on commuting costs was perceived to be an important motivating factor. PTWs are cheaper than other private vehicles to purchase and have lower running and maintenance costs.

    - "I didn't have a vast quantity of money and it's a cheaper way of getting around than in a car and I said it's cheaper, so much cheaper than driving a car. It's unbelievable".

3. PTWs are faster than other modes of transport, as well as being more convenient and reliable.

    - "Once you're comfortable and you can do the speed limit, you can go anywhere a car can"

4. Most participants were reluctant to use public transport (PT). Most felt that public transport is poor in Melbourne and many used derogatory terms in describing the quality of public transport. Some participants mentioned that if they cannot ride for some reason on a work day, they would not use public transport and they would prefer to drive while others said they would not travel to work on that day. For some of the participants, when they were are applying for a job, one important factor for them was whether they can ride there or not and if they could not ride they would refuse that job.

    - "By using public transport, you have to commute around to lots of different places to get to one".
    - Another example: "I would rather get on the bike and get the wet weather gear on and endure a horrible rainy day than take 50 minutes to get to Hawthorne on PT".

5. Some participants sold their cars after starting to ride while others used their car much less than before. Hire or rent a cars were often cited as a back up option when a car was needed.

    - "When we visit my in-laws or I have a really formal function I need to get to, I just hire a car".
    - "In two years, we've hired – we always hire a care when we go to Toowoomba, but in Melbourne in two years, we've hired a car once".

6. Availability of free parking and being able to park close to their destination was a significant motivator. In Melbourne, and in particular in the CBD, riders are allowed to park on the footpath (sidewalk) so long as they do not interrupt pedestrian flow. Not only does this mean they can park very close to their destination but that parking is free.

    - "A friend of mine said the convenience of just getting on there and parking it in front of work – he doesn't have to park it a kilometre away. Just ease in the city and he can park on the footpath there. He said, it's so handy and cheap to run".
    - "I'm not using the car, because car park is about $20 a day. Your scooter costs you nothing, so big difference."

7. The pleasure of riding was mentioned by many participants. That alone is an important motivator to ride. Many said they feel alive and energised when riding. Riders also mentioned they enjoy the close contact with the environment.

    - "I have been here in Australia from Egypt because they restrict women from riding over there and I quite like bikes and my husband likes bikes. So I moved to Australia to ride a motorbike. I'm living the dream".
    - "I feel alive. I feel energised and I feel I can't wait to ride every single day. If there's an excuse to go out on it, I go on it. Whereas two years ago, I don't think I was that enthused about life. I go out for coffee every day, I meet groups of people, I don't have to worry about parking. So it's transformed my life totally".

8. Issues of image and style, often tied to the type of PTW, were identified as important by some participants.

    - "Those bikes look cool. I like those kind of vintage styles more than the super bikes and it's ridiculous".
    - "I see many cruiser riders wearing jeans and t-shirts with tattoos on their hands which they may like that style".

9. Some participants emphasised the freedom of space available to them while riding.

    - "I find that I've become a little bit antisocial because for years I caught the train in and you were sardine and people touched you all the time and you were used to it. Now, we go and line up in a line and my personal space has grown, but in PT you feel them breathing on your hair. It is a problem but now you're so in your own space. I find it crowded and I can't do PT".

10. While almost all participants believed that environment impacts were an issue, they did not consider that as a motivating factor in their decision to ride a PTW.

    - "Environmental factors, no. I consider that I'm riding a bike anyway, so I'm using less fuel, I'm producing less emission than all the cars that are sitting in front of me. So I consider that all bikes are fairly environmentally friendly anyway".

The analysis of the focus group data has highlighted a range of advantages which riders perceive are associated with use of their PTW. There is clearly scope to develop a richer behavioural understanding of the factors governing the behaviour of the new riders.

CONCLUSIONS AND RESEARCH DIRECTIONS

A combination of analysis of registration and licencing data, in conjunction with focus group data, has provided new insight into the characteristics and motivations of people in Melbourne who are earning to ride a PTW vehicle

In the Melbourne metropolitan area almost 6% of riders hold a learner permit and 87.4% of them are males. About 9 in 10 riders (91.3 %) hold a drivers licence. The number of learners permits issued in 2011 (the last period for which a full year's data is available) was 6.1 % higher than in 2010. However it is not clear that the growth is continuing because the number of learners permits issued in the first half of 2012 is down 4.8 % on the same period in 2011. More than half those people who secure a learner permit are between 22 and 40 years old while a small number of people older than 50 also obtain learner permits. While females account for only about 12 % of licenced riders, they account for one fifth (20%) of people who get a learners permit.

The motivations of learner riders were investigated through focus groups. The participants highlighted some major factors and common attitudes leading them to choose riding, rather than other modes of transport, for commuting trips. Important factors in decisions to take up the mode include: lower purchase and running costs, free parking availability for PTWs and being able to park them close to the destination in the Melbourne CBD, enjoyment of riding and have close contact with the environment, convenience and reliability of riding by PTW, discounted (or free) toll charge on freeways for PTWs and poor, unreliable and crowded public transport services.

Future research will be directed at collecting more qualitative and quantitative data from learner riders to develop a more comprehensive understanding of the factors influencing their decisions to ride and the nature of their experiences as early riders.

ACKNOWLEDGMENTS

This research was supported under the Australian Research Council's Linkage Projects funding scheme (Project LP100200197) and conducted in conjunction with VicRoads, the Victorian Department of Transport, the Transport Accident Commission, the Royal Automobile Club of Victoria and the Federal Chamber of Automotive Industries. The views expressed herein are those of the authors and are not necessarily those of the Australian Research Council or any of the organizations associated with the project.

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