

A Study on Motorcycle Taxi Operations in Rural and Urban Philippines

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Abstract: The motorcycle is a popular mode of transport in the Philippines with a total of 4,872,065 motorcycles registered in the country, of which 860,517 (17.7%) are registered in Metro Manila. While, most motorcycles are used as private transport, deficiencies in public transport services and road infrastructure, many motorcycles have evolved to become taxis. There are two main types of motorcycle taxis in the Philippines – the “habal-habal” and the “skylab”. This study presents the operational characteristics of these motorcycle taxis. Two cases are examined. The rural case is on motorcycle taxi operations in Surigao Del Sur in the southeastern Philippines, and the urban case is in Pasig and Taguig in Metro Manila. Profiles of operators, drivers and passengers are also presented. Recommendations are made towards integrating and formalizing these motorcycle taxis as part of the public transport system in the context of accessibility, mobility and safety.

Keywords: Motorcycle Taxis, Public Transport, Operating Characteristics

1. INTRODUCTION

1.1 Background

The motorcycle is a popular mode of transport in the Philippines with an estimated 4,872,065 motorcycles registered across the country including those with sidecars (i.e., tricycles). Table 1 shows vehicle registration in the Philippines for the year 2015 as published by the Land Transportation Office (LTO), which is the government agency in-charge of vehicle registrations.

Table 1. Vehicle registration in the Philippines for the year 2015 (LTO, 2016)

Region	Cars	UV ^a	SUV ^b	Trucks	Buses	MC ^c	TC ^d	Non-Conv ^e	Total
I	32,700	83,070	13,808	13,983	893	199,786	136,371	10	480,621
II	12,717	57,698	8,278	18,077	534	234,979	112,015	30	444,328
III	109,043	240,483	46,036	63,162	3,149	321,854	254,719	0	1,038,446
IV-A	133,321	248,872	41,911	24,004	1,452	448,619	215,594	25	1,113,798
IV-B	3,221	18,800	2,455	4,245	299	41,427	26,026	2	96,475
V	13,440	43,245	5,491	10,500	1,167	151,608	81,076	0	306,527
VI	33,503	101,186	17,848	30,377	1,149	190,220	90,086	70	464,439
VII	55,111	155,853	25,630	31,251	1,080	373,212	66,673	394	709,204

Region	Cars	UV ^a	SUV ^b	Trucks	Buses	MC ^c	TC ^d	Non-Conv ^e	Total
VIII	6,106	34,346	4,700	10,559	552	116,973	14,843	2,692	190,771
IX	10,941	63,394	6,617	14,868	553	165,172	18,133	90	279,768
X	17,937	63,767	10,905	18,555	753	130,957	34,614	60	277,548
XI	23,465	73,395	12,226	18,652	501	246,856	16,456	510	392,061
XII	19,366	76,987	8,023	29,969	415	129,702	67,003	14	331,479
NCR	477,320	643,686	214,327	83,735	15,278	597,647	262,870	1,077	2,295,940
CAR	9,183	46,044	6,514	5,574	470	22,554	15,613	17	105,969
CARAGA	4,991	26,673	3,452	7,059	3,698	76,540	11,867	7	134,287
TOTAL	962,365	1,977,499	428,221	384,570	31,943	3,448,106	1,423,959	4,998	8,661,661

Note: ^aUtility vehicles including jeepneys, multi-cabs, vans, and Asian utility vehicles; ^bSports utility vehicles including pick-up trucks; ^cMotorcycles; ^dTricycles or motorcycles with sidecars; and ^eNon-conventional vehicles including electric vehicles (e.g., 2-, 3- and 4-wheeled EVs).

Note in the previous table the segregated entries for motorcycles (MC) and tricycles (TC). This is actually a recent change in classifications that the LTO implemented. Previously, the motorcycles that were being used as part of a tricycle (motorcycle plus sidecar) were only registered as a motorcycle (2-wheeler) rather than as a tricycle (3-wheeler). As such, there was confusion as to the actual or practical numbers for each type of vehicle.

Motorcycle taxis serve areas that are not being served by formal public transport including tricycles. There are basically two types of taxis: the “habal-habal” and the “skylab”. The “habal-habal” is basically a motorcycle that seats 2 to 3 people including the driver. In rural areas, it is common to add a plank along the length of the motorcycle or a customized seat over the gas tank in order to maximize the number of passengers to 4 or even 5 people. The term “habal-habal” comes from the Visayan term for persons or items piled on top of others. At present, motorcycle taxis are generally unregulated. Most operations are illegal but many are tolerated due to a lack of formal public transport services in these areas. Fares are the result of what is acceptable to passengers as offered by the driver so it is in a manner based on the principle of “willingness to pay”. Being informal, government has no data stating their historical numbers although the perception is that it is increasing over time.

The “skylab” is also basically a motorcycle but with the additional feature of extensions along both side of the vehicle such that it can seat more people or carry more goods. The main issue here is how to balance passengers and goods given their weights. The term “skylab” originates from the American satellite that fell back to Earth in the 1970s. The extensions on either side of the motorcycle mimic the satellite’s solar panels. Figure 1 shows the typical “habal-habal” and “skylab”.



a) Habal-habal



b) Skylab

Figure 1. Motorcycle taxis in the Philippines

1.2 Literature Review

There have been few formal studies on motorcycle taxis in the Philippines. Guillen and Ishida (2004) compared tricycle and motorcycle characteristics and operations in Davao City in the southern Philippines. Their paper provided detailed descriptions of “habal-habal” characteristics and operations in that city. They also provided detailed information there about motorcycle taxi-related policies at the national and local levels. Wicaksono, et al (2015) discussed the typology of public transport in Association of Southeast Asian Nations (ASEAN) countries including various paratransit modes. However, motorcycle taxis were not mentioned for the Philippines case. Perhaps the most recent study mentioning motorcycle taxis in the Philippines is the study by Tuan and Mateo-Babiano (2013), which was more focused on motorcycle taxis in Vietnam but mentions other examples in ASEAN.

1.3 Objectives

The objectives of this study are as follows:

- a. To document operations of typical motorcycle taxis in the rural and urban areas;
- b. To assess the role of motorcycle taxis as part of the transport system; and
- c. To formulate recommendations to formalizing motorcycle taxi operations.

This study is part of a bigger project that aims to study motorcycle operations and characteristics for both public and private use that started in November 2016.

2. DATA COLLECTION

The methodology for this study entailed the identification of the study areas and the conduct of basic surveys in those areas. The surveys were mainly interviews of “habal-habal” and “skylab” drivers. Most of the drivers are the owners or operators of the vehicles themselves and few rent their vehicles from others. This is made possible by the low cost of motorcycles and the easy manner by which low-income persons may purchase or avail of motorcycles. Shops in the Philippines, for example, allow a person to make a 2,500 peso (about 50 US dollars) initial payment for a motorcycle and he can pay for it under very affordable installment plans.

Figure 2 shows the general locations of the study areas for the cases considered in this study. For the rural cases, the study areas were towns in two provinces in the southeastern Philippines, Surigao Del Sur and Agusan Del Sur. The urban cases were in the cities of Taguig and Pasig in Metro Manila. These locations were selected based on convenience as well as their being perceived as representative of rural and urban uses of motorcycle taxis.



Figure 2. Study areas

3. MOTORCYCLE TAXI CHARACTERISTICS

3.1 Basic Structure of Operations

Motorcycle taxis are used for both passenger and goods transport. “Habal-habal” and “skylab” in rural areas typically carry more passengers than their urban counterparts. For one, rural motorcycle taxis tend to be more accepted or tolerated by local governments and as such can be more conspicuous compared to urban motorcycle taxis. Figure 3 shows examples of motorcycle taxis ferrying passengers. Both show versions of the “skylab” with the extensions on either side of the motorcycle. One design has a roof to provide some protection against the elements (e.g., rains) while traveling. “Habal-habal” typically seat at most 4 people including the driver but “skylab” may be configured to seat an average of 6 to 8 passengers including the driver. These numbers of passengers are made possible by the addition of wooden planks along and/or across the motorcycles as shown in the previous Figure 1 and succeeding photos in this paper. There are no regulations or standards for the vehicles’ modifications.

Motorcycles used as taxis vary in terms of displacement. Most motorcycles have displacements ranging from 125cc to 175cc. Since the motorcycle taxis are not regulated, there are also no standards in terms of what type or model can be used. Nevertheless, there are popular motorcycle brands such as those by Japanese manufacturers Yamaha, Honda, Kawasaki and Suzuki. Chinese-made motorcycles have also become popular because they are less expensive and spare parts are compatible with Japanese models.

Most routes are determined by need. That is, motorcycle taxis operate in areas where there are no formal public transport services (e.g., tricycles, jeepneys, vans or buses) in rural areas including remote areas with poor road facilities. As they operate in areas rather than corridors and are informal, there is really no specific delineation of operating areas except the perception of distance (i.e., a place may not be served because it is deemed too far or too remote).



a)



b)

Figure 3. Motorcycle taxis used for passenger transport in rural Philippines

Tables 2 to 5 show the operating characteristics of motorcycle taxis in four towns in southern Philippines. The average numbers of passengers (including the driver) indicate that most samples are “skylab” rather than “habal-habal”.

Table 2. Operating characteristics of motorcycle taxis carrying passengers in Tandag City, Surigao Del Sur

	AVERAGE	MAX	MIN	MEDIAN
Fares: PHP (fixed)	31.30	50.00	20.00	25.00
Range: Kilometers	7.5	8	7	7.5
Number of passengers	6.6	9	3	7

Note: Number of samples: 22.

Table 3. Operating characteristics of motorcycle taxis in Marihatag, Surigao Del Sur

	AVERAGE	MAX	MIN	MEDIAN
Fares: PHP (fixed)	17.00	20.00	10.00	20.00
Range: Kilometers	3.75	4.5	2	4.5
Number of passengers	5.6	10	2	6

Note: Number of samples: 10.

Table 4. Operating characteristics of motorcycle taxis in San Miguel, Surigao Del Sur

	AVERAGE	MAX	MIN	MEDIAN
Fares: PHP (fixed)	41.79	100.00	15.00	37.50
Range: Kilometers	18.24	48.00	4.30	20.50
Number of passengers	8.0	12	2	8

Note: Number of samples: 23.

Table 5. Operating characteristics of motorcycle taxis in San Francisco, Agusan Del Sur

	AVERAGE	MAX	MIN	MEDIAN
Fares: PHP (fixed)	40.00	60.00	25.00	37.50
Range: Kilometers	12.7	17	10	11.5
Number of passengers	6.6	9	4	6

Note: Number of samples: 25.

Fuel consumption is typically 2 to 4 liters per day and gasoline in those provinces is priced at 32 pesos per liter. This contributes to the vehicle operating costs that are presented in the succeeding section that are used to estimate net income of drivers.

For the urban case, Table 6 shows the characteristics of motorcycle taxis in Pasig and Taguig in Metro Manila. The average number of passengers (including the driver) indicates typical “habal-habal” operations. No “skylab” vehicles were observed in the study area.

Table 6. Operating characteristics of motorcycle taxis in Pasig and Taguig, Metro Manila

	AVERAGE	MAX	MIN	MEDIAN
Fares: PHP (fixed)	67.7	150	40	50
Range: Kilometers	8.0	8	8	8
Number of passengers	2.6	3	2	3

Note: Number of samples: 40.

Figure 3 shows typical motorcycle taxi terminal in Pasig City. The drivers have an organization, though also informal, that is similar to the tricycle operators and drivers associations (TODA) that have proliferated in most cities and towns across the country. Note that there are no modifications or extensions on the motorcycles shown in the photos in Figure 3.



a)



b)

Figure 3. Motorcycle taxi terminal in Pasig City

Figure 4 shows a typical route of “habal-habal” between Lower Bicutan, Taguig City and Nagpayong, Pasig City. Motorcycle taxis travel mainly along the Circumferential Road 6 (C-6), which is a 2-lane, undivided road with generally bad pavement conditions. The roads between Napindan and Nagpayong are in poor condition as shown in the photos in the figure.



Figure 4. Example route of motorcycle taxi between Taguig City and Pasig City

Motorcycle taxis were also found to be versatile in that many also carry various types of goods and often in combination with passengers. Following are examples of goods carried by motorcycles:

- Agricultural products (e.g., rice, fruits, vegetables, root crops, copra, etc.)
- Construction materials (e.g., wood/lumber, bamboo, cement, steel bars, etc.)
- Others (e.g., charcoal, house plants, bottled drinks, groceries, etc.)

Figure 5 shows examples of “skylab” carrying various goods including rice and wood. While these are uncommon sights in the larger, highly urbanized cities, such are common in smaller cities and rural areas where motorcycles play a major role for goods transport.



a) Sacks of rice



b) Wood

Figure 5. Motorcycle taxis used for goods transport

The payment for freight or goods is not dependent on weight. Rather, it depends on the space occupied by the goods and is equivalent to the number of passengers who could have been conveyed instead.

3.2 Driver and Vehicle Characteristics

Surveys yielded the following characteristics of motorcycle taxis in Surigao Del Sur and Agusan Del Sur shown in Tables 7 to 10.

Table 7. Profiles of drivers and motorcycle taxis in Tandag City, Surigao Del Sur

	AVERAGE	MAX	MIN	MEDIAN
Driver age, years	37.9	56	20	38
Motorcycle age: years	5.3	15	0.67	5
Cost:				
Fuel Cost: (PHP/day)	111.32	200.00	60.00	96.00
Maintenance Cost: (PHP/mo.)	640.06	2,000.00	171.43	500.00
Revenue:				
Day: PHP/day (net)	372.73	700.00	200.00	300.00
Week: PHP/week (net)	2,660.00	4,900.00	1,400.00	2,100.00
Month: PHP/mo. (net)	11,400.00	21,000.00	6,000.00	9,000.00

Notes: a) Fuel cost based on consumption of 2 to 4L/day at 32PHP/L; b) Exchange rate: 49.8 PHP = 1 USD; c) Number of samples: 22.

Table 8. Profiles of drivers and motorcycle taxis in Marihatag, Surigao Del Sur

	AVERAGE	MAX	MIN	MEDIAN
Driver age, years	29.1	40	21	28.5
Motorcycle age: years	3.44	9.00	0.42	2.50
Cost:				
Fuel Cost: (PHP/day)	80.00	100.00	50.00	70.00
Maintenance Cost: (PHP/mo.)	830.00	2,000.00	200.00	550.00
Revenue:				
Day: PHP/day (net)	195.00	500.00	100.00	125.00
Week: PHP/week (net)	1,325.00	3,500.00	700.00	875.00
Month: PHP/mo. (net)	5,850.00	15,000.00	3,000.00	3,750.00

Notes: a) Fuel cost based on consumption of 2 to 4L/day at 32PHP/L; b) Exchange rate: 49.8 PHP = 1 USD; c) Number of samples: 10.

Table 9. Profiles of drivers and motorcycle taxis in San Miguel, Surigao Del Sur

	AVERAGE	MAX	MIN	MEDIAN
Driver age, years	35.9	65	24	30
Motorcycle age: years	4.13	12	0.5	4
Cost:				
Fuel Cost: (PHP/day)	108.52	160.00	32.00	96.00
Maintenance Cost: (PHP/mo.)	1,278.26	4,800.00	200.00	1,000.00
Revenue:				
Day: PHP/day (net)	482.61	1,100.00	200.00	450.00
Week: PHP/week (net)	2,895.65	6,600.00	1,200.00	2,700.00
Month: PHP/mo. (net)	12,521.74	28,600.00	5,200.00	11,700.00

Notes: a) Fuel cost based on consumption of 2 to 4L/day at 32PHP/L; b) Exchange rate: 49.8 PHP = 1 USD; c) Number of samples: 23.

Table 10. Profiles of drivers and motorcycle taxis in San Francisco, Agusan Del Sur

	AVERAGE	MAX	MIN	MEDIAN
Driver age, years	35.5	50	27	35
Motorcycle age: years	4.21	10.00	1.00	2.25
Cost:				
Fuel Cost: (PHP/day)	183.33	300.00	150.00	175.00
Maintenance Cost: (PHP/mo.)	1,321.67	2,080.00	520.00	1,300.00
Revenue:				
Day: PHP/day (net)	400.00	500.00	300.00	400.00
Week: PHP/week (net)	2,858.33	3,500.00	2,100.00	2,800.00
Month: PHP/mo. (net)	12,250.00	15,000.00	9,000.00	12,000.00

Notes: a) Fuel cost based on consumption of 2 to 4L/day at 32PHP/L; b) Exchange rate: 49.8 PHP = 1 USD; c) Number of samples: 25.

Table 11. Profile of drivers and motorcycle taxis in Pasig and Taguig, Metro Manila

	AVERAGE	MAX	MIN	MEDIAN
Driver age, years	39.5	57	21	39.5
Motorcycle age: years	3.3	10	0.20	2
Cost:				
Fuel Cost: (PHP/day)	157.73	200.00	100.00	150.00
Maintenance Cost: (PHP/mo.)	468.18	1,200.00	200.00	375.00
Revenue:				
Day: PHP/day (net)	468.18	800.00	200.00	400.00
Week: PHP/week (net)	2,745.45	5,600.00	1,200.00	2400.00
Month: PHP/mo. (net)	10,859.09	22,400.00	4,800.00	9,600.00

Notes: a) Fuel cost based on consumption of 2 to 4L/day at 32PHP/L; b) Exchange rate: 49.8 PHP = 1 USD; c) Number of samples: 40.

Note in the previous tables that there is a wide range of revenues for different locations. This is due primarily to the informality of fare setting where drivers and the passengers agree upon the typical fares based on common origins and destinations (e.g., terminal to a rural village or settlement). Motorcycle taxi operators are usually the owners of their vehicles and although there are associations, the latter are comprised of drivers from the locality who are likely familiar with each other. Thus, there is a form of self-regulation in the numbers of drivers.

4. ASSESSMENT

Motorcycle taxi operations in rural areas showed the versatility of these vehicles for both passenger and goods transport. The main differences in rural and urban operations are in terms of the number of passengers and the goods that can be carried by a single vehicle. This is mainly due to the modifications done to the motorcycle in rural areas that allowed for more passenger and freight capacity. Such modification is generally illegal in the Philippines partly due to safety concerns but is tolerated in many areas where transport services are deficient.

Motorcycle taxis are very popular in rural areas because they are able to transport people and goods over terrains that are generally difficult or not passable to four- or even three-wheeled vehicles. These include local roads that are unpaved or poorly maintained (i.e., as shown in previous figures in this paper). There are also very narrow dirt roads on trails connecting to underdeveloped communities that benefit from these motorcycle taxis as a means for access. As such, these vehicles have established themselves an important and perhaps integral role as part of the overall transportation system. This role cannot be denied or neglected by government especially at the local level and guidelines or regulations would need to be formulated to address issues such as safety and even fare regulations.

In the urban setting, motorcycle taxis are also popular but for somewhat other reasons other than poor road conditions or poor accessibility of communities. While the example shown in this paper in Pasig and Taguig cities show poor road conditions, these same roads are currently not served by formal public transportation such as buses, jeepneys or tricycles. Then, there is the attraction of motorcycle taxis in order to overcome traffic congestion because motorcycles typically split the lanes and are able to maneuver through congested roads and thereby reducing travel times for commutes. While there are informal accounts for such operations in cities like Metro Manila, there is a need to substantiate this with empirical or quantitative information. In these cases, the motorcycle taxi's role should be assessed closely in the context mainly of safety but also in terms of the fare structure being used by service providers.

Among the important findings of this research is the significant net income derived from motorcycle taxi services provided. The monthly net incomes in the rural cases in this study ranged from 5,850 to 12,521.74 Philippine Pesos (about 117.47 to 251.44 US Dollars) while the average in the urban case is 10,859 Pesos (about 218.05 US Dollars) per month. Since the government does not recognize practically all motorcycle taxi operations, they are unregulated and operations are actually part of the underground economy (i.e., informal work sector). As such, incomes are largely if not totally untaxed and already represent the take home pays of drivers/operators. The average daily net income compares with the minimum wages in rural and urban areas. The average daily income of 468 pesos in Pasig/Taguig is actually below the minimum wage rate of 491.00 pesos for Metro Manila. For the rural cases, 195 pesos/day in Marihatag is much less than the 280 pesos/day minimum wage in that region, while the others ranging from 372.73 to 482.61 pesos/day are significantly above the minimum wage rate.

These minimum wage rates are supposed to be subject to income taxes. Motorcycle taxi operations being part of the informal economy means drivers/operators likely do not pay taxes on their incomes. These incomes are based on unregulated fares charged by motorcycle taxi drivers/operators based on the willingness-to-pay (and affordability) of passengers and consignees (for goods). Road conditions and the distance between origins and destinations of passengers and goods, in turn, also affect these fares and revenues.

5. CONCLUSION

This paper presented the basic characteristics of motorcycle taxis in the Philippines. Cases for rural and urban areas were discussed and an assessment was made based on data collected from Surigao Del Sur and Agusan Del Sur (i.e., rural), and Pasig and Taguig cities in Metro Manila (i.e., urban).

The current situation in both urban and rural areas has motorcycle operations being tolerated by local officials primarily because of the state of transport services and road infrastructure where "habal-habal" and "skylab" have proliferated. While these are generally true for many rural areas where local roads have poor pavement conditions (others even unpaved), similar conditions may not be true in urban areas. The more serious concern in urban areas like Metro Manila seems to be traffic congestion, the severity of which has encouraged the rapid growth of motorcycle ownership. Few local government units have ordinances or formal rules or guidelines regulating motorcycle taxis, which, like tricycles and pedicabs (motorized and non-motorized 3-wheelers), are under the auspices of local governments.

It is recommended for both national (through the Department of Transportation and the

Land Transport Franchising and Regulatory Board) and local government (city and municipal governments) to formally accept the existence and operations of motorcycle taxis. Making these “habal-habal” and “skylab” formal transport modes should enable and encourage regulations and guidelines to be developed to improve safety as well as to establish fair or equitable fare rates for passengers. A good example of such acceptance and development and implementation of guidelines was already discussed by Guillen and Ishida (2004) and such can be the basis for a template that can be customized to be suitable for specific local conditions. Perhaps, too, the Philippines can learn from the experiences in its neighbor countries on how to better manage motorcycle taxis if these are mainstreamed as public transport modes. Such can also be considered in the context of the emergence of apps available on smart phones that now facilitate availing of motorcycle taxi services such as GrabBike and Angkas. These apps are very similar to Uber and GrabCar but applied to motorcycles instead.

The next step for this research is to conduct studies on passenger characteristics including socio-economic data and travel characteristics (e.g., origin-destination, trip purpose, etc.). These can be compared not just for the urban and rural cases in the Philippines but to motorcycle taxi operations in other countries as well. Such information and their analysis and assessment would be useful for formulating suitable policies to formalize and manage (i.e., regulate) motorcycle taxi operations. Another direction for research would be to document and compare various local ordinances or policies pertaining to motorcycle taxis. This can provide a range of policies and guidelines that can be adopted under various conditions and situations. Finally, there is a need to collect data on the safety aspects of motorcycle taxi operations. There is currently a dearth of road crash data for motorcycle taxis and among those that can be studied are vehicle configurations and stability, driver behavior, and passenger perceptions.

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