

LESSONS FROM ONE-WAY INTER-PROVINCIAL PERMITS AND MUNICIPAL PUBLIC TRANSPORT ISSUES IN SOUTH AFRICAN TOWNS

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ABSTRACT

Paratransit - widely called Minibus Taxi (MBT) in South Africa - is common public transport for the society to reach their socio-economic opportunities and activities. The history of MBT services goes back to 1920's and it is greatly shaped by the changes in legislative frameworks (broadly the Apartheid regime). This industry remains informal, while its service-quality is widely questioned, and related operational strikes and intense rivalry are at the helm of the national contemporary issues. For rural communities, 'best' alternative mobility for long-distance trips is hitchhiking - a service that is globally associated with crime and constituted by a variety of modes, including MBT. That said, this study aimed at highlighting the impacts of the legislative framework, particularly the inter-provincial route permits, on the travel experience of the public. Primary data includes the random, one-on-one interviews of travellers, and observations of corridors of both hitchhiking and MBT services. The findings show that in all six towns of interest, the local MBT associations with route permits generally disrupt the hitchhiking services to guard their market shares. As a result, many travelling experiences and livelihoods of the hitchhiking assistants are negatively affected. The Provincial Regulatory Entities need to align their protocols to efficiently serve, and these may need further research on public-private relationships, including ICT institutions, to bring forth amicable and sustainable solution(s).

1. INTRODUCTION

According to Rodrigue et al. (2020:12), "transportation is the outcome of a derived demand" and it dates as far back as pre-1800s, that is, animal and wind-propelled maritime transportation. The scholar further notes that transportation has evolved over the decades due to technology and economy. Internationally, the first heightened levels for land public transport (PT) demand was during the Great Depression (1929-1939), when hitchhiking was common because private car ownership was very low and both cultural and political principles were permitting (Lavolette, 2016; Chan & Shaheen, 2012; Miteche, 2013; Reid, 2020; Schlebecker, 1958). Although in South Africa (SA) until the 1960s, African entrepreneurs were generally restricted from participating in businesses, including PT industry. Nevertheless, they informally used sedan vehicles as paratransit – which was guided by the Motor Carrier Transportation Act of 1930 (Barrett, 2003; Khosa, 1992; Schalekamp & Behrens, 2010; Woolf & Joubert, 2014). Paratransit services widely refer to the monopoly-capital-driven, common in countries with colonial past and widely considered to be informal PT, usually with 3-20 seating capacities, limited flexibility upon request, and relatively short walking distances to and from the fixed route networks (examples are included in Behrens et al., 2016; Dzisi et al., 2022; Kumar et al., 2016; Székely & Novotný,

2022). In SA, paratransit is minibus taxis (MBT), usually a 15 seater capacities mode. Woolf and Joubert (2014) note that the restrictions to participate in the PT industry was a governmental strategy to disallow competition between the MBT and state-owned PT, railway. Similarly, to many countries around the world, traditionally, the government was responsible for providing the PT services (Fobosi, 2019; Kumar et al., 2016).

Post-1960s, the society was spatially segregated under the Group Areas act of 1950, where the African majority were moved away from the industrial and urban centres to the outskirts, rural communities (Clark & Crous, 2002; Mesthrie, 1993; Plano et al., 2020). Consequently, the government began struggling to provide reliable and efficient PT. In the 1980s, the international deregulation and privatization policies shifted the PT operation from government to private sector (Sohail et al., 2006). For lower-income countries such as SA, this shift was a strategy to reduce bureaucracy, inefficiency, poor management and unresponsiveness related to the provision of public transport (Armstrong-wright,1986; Armstrong-Wright & Thiriez, 1987; Estache & de Rus, 2000; Sohail et al., 2006). In addition, this shift was coupled with Economic Structural Adjustment Packages (particularly the conditional aid from the higher-income countries and global agencies), and further intended to stimulate competition in the PT services (Fobosi, 2019; Khosa, 1994; World Bank, 1989).

Locally, a full deregulation of the PT took place after 1987, under the Road Transport Act of 1977, which allowed Africans to provide PT (MBT). Nonetheless, the daily operations of MBT were widely characterized by intense violence and competition because the government was rejecting about 90,0% of the permit applications, under the Transport Deregulation Act of 1988 (Fobosi, 2019; Plano et al., 2020). In the midst, the operators formed several unions to enter the market. At the end of 1989, the government only acknowledged South African Black Taxi Association (SABTA), and then later split the ranks in two, namely, local (for SABTA), and long-distance, which was held by South African Long-Distance Taxi Association (SALDTA). When SABT mobilized into the South African Taxi Council (SANTACO), another body emerged, National Taxi Alliance (NTA) (Fobosi, 2019; Plano et al., 2020).

Post 1994 to date, the colonial impacts remain despite the democratic government making several attempts to regulate, formalise and mitigate competition in relation to MBT. These efforts include: National Taxi Task Team (NTTT) in 1995 to improve performance, safety, financial margins and end conflicts; Provincial Regulatory Entities (PREs – through the White Paper on National Transport Policy of 1996) to formalise the formation of associations and route-based licenses; Taxi Recapitalisation Programme (in 1999) to regulate and formalize the industry; and National Taxi Lekgotla (in 2020) to reflect on the formalisation, opportunities and challenges in the democratic era (Fobosi, 2019; National Taxi Lekgotla, 2020; Schalekamp & Behrens, 2010; Woolf & Joubert, 2013).

The argument of this paper (in reference to PREs) is that a full regulation will need to consider a wide spectrum of challenges/opportunities. Particularly because the National Land Transport Act 5 Of 2009 encourages the PREs to decide to accommodate such matters (refer to section 25 and 26). Studies argue that full regulation of MBT will enhance the quality of their services because they will get access to subsidies, improve their profit margins and efficient operations (Fobosi, 2019; Plano et al., 2020; and Woolf and Joubert, 2013). Other studies argue that inefficiency in regulating PT industry often results from issues of bureaucratic inertia, morale and/or capture of the government by an industry/service provider (Armstrong-wright,1986; Cervero, 2000; De Vasconcellos, 2001; Estache & de Rus, 2000; Sohail et al., 2006).

1.1 Aim of Paper

This paper intended to highlight how the one-way inter-provincial permits for MBT stimulate municipal public transport issues in South African towns. By exploring the hitchhiking travel behaviour and the local MBT operations, thus, outline the mode usages, observe MBT service and identify factors that influence the modal choices of the hitchhikers.

1.1.1 Problem Statement

Three key problems have been noted. Firstly, advanced technology increases mobility innovations (for instance Uber, Bolts) and the society at large is increasingly showing interest and adoption (Acheampong et al., 2020; Boateng et al., 2022; Enoch et al., 2006; Serumula & Vanderschuren, 2023). However, the MBT operations are conventional, thus, they do not have an integrated technology system. As a result, this digital imbalance causes unfair competition between the MBT and on-demand mobilities, for instance, ride-hailing, social media (SM) hitchhiking (Anburuvel et al., 2022; Chevrier et al., 2012; Enoch et al., 2006; National Taxi Lekgotla, 2020; Serumula & Vanderschuren, 2023,). Secondly, there is no clear law against hitchhiking (for both roadside and SM solicitation) in SA, and this form of travelling serves an alternative (on-demand) mobility for the rural communities (Feni, 2015; Miteche, 2013; Serumula & Vanderschuren, 2023, 2024). Thirdly, the existing salary structures for MBT drivers (refer to Woolf and Joubert, 2013) are based on the frequency of trips and number of passengers carried. Thus, the drivers often overlook the rules of law in general (for instance, permit licence, safety, overloading, traffic etiquette) to secure payments (McCormick et al., 2016; Woolf & Joubert, 2013). Moreover, the working conditions of MBT drivers are not regulated by the Department of Employment and Labour, that is, the drivers' labour rights are not exercised, such as job security and benefits (Fobosi, 2019; National Taxi Lekgotla, 2020; McCormick et al., 2016; Plano et al., 2020).

1.1.2 Mobility Access

In SA, the minibus taxis (MBT) are part of and dominate the mainstream PT (Plano et al., 2020; Serumula & Vanderschuren, 2024; STASSA, 2021a, 2021b). Trains are not available in or near the residences, notably an insignificant reduction from 44,9% to 44,3% of the population in 2020 and 2023 respectively, similarly government subsidised buses are not available with an insignificant increase from 30,1% to 30,6% in 2013 and 2020, respectively (STATSSA, 2021a). MBT remains to mainly serve the African communities (Fobosi, 2019). It is worth noting that African communities take a larger proportion of the national society and they predominantly reside in the outskirts and lower-income areas (STATSSA, 2021b). Thus, many of the African communities are not affluent and do not afford owning private cars as well as accessing socio-economic opportunities (STATSSA, 2021a, 2021b). Studies show that many of the lower-income communities depend on PT - out of which, the majority are females (STATSSA, 2021a; Vanderschuren et al., 2019; Zhen, 2022). In addition, PT is a social need for these communities (Papanikolaou et al., 2017; Šoštarić et al., 2022). Adinata et al (2021) indicate that the dependency on (or demand for) PT is increasing in lower-income countries, because the population is growing much faster than the levels of private car ownerships.

1.1.3 Sustainable Transport

Sustainable development calls for mobility services that meet societal needs (Dadashzadeh et al., 2022; United Nations, 2016; World Health Organisation [WHO], 2003). From the user's perspective, PT must be reachable, accessible, affordable, and reliable (DoT, 2023; Sørensen et al., 2021). MBT services are often characterized by bad attitude of operators, and lack of information, punctuality, safety, schedule and service

frequency (Anburuvel et al., 2022; Githui et al., 2009; Hewage, 2015; Serumula & Vanderschuren, 2023). In that light, some travellers choose hitchhiking and ride-hailing services as alternative modes. In outskirts and lower-income communities, Serumula and Vanderschuren (2023) revealed that there is a scarcity of e-hailing services, which are provided by the Telecommunication Network Companies, for example Uber, Bolt., instead e-hailing occurs over the existing social media platforms (for instance Facebook). Globally, there is a growing understanding that the integration of advance technology in a transport system significantly improves the service efficiency, effectiveness and sustainability (Anburuvel et al., 2022; Anwar et al., 2022; Coutinho et al., 2020; Dadashzadeh et al., 2022; Denmark, 2012; Frei et al., 2016; Ryley et al., 2014; Takeuchi et al., 2003). MBT services remain to be traditional, that is, they lack technological integration. Apart from the digital divide, (roadside/online) hitchhiking services create unfair competition because they are not regulated, thus, there are no restrictions to market entry, route, route allocation and operating licences (Fobosi, 2019; Pretorius & Fourie, 2005; Serumula & Vanderschuren, 2024).

1.1.4 Market Competition

Market competition related to the MBT operators are usually violent and criminal in nature (Fobosi, 2019; Plano et al., 2020; Serumula & Vanderschuren, 2023, 2024; and Woolf and Joubert, 2013). Focusing on hitchhiking, there are several cases of intense conflicts and violence resulting from the local MBT operators in the country. For example, Chirume (2017) and Gill (2018) reported the cases in Eastern Cape Province, where a female hitcher being beaten by the local MBT operator whilst thumbing, another female hitcher was violently forced to use the local MBT instead of the hitched ride, and another case is of a violent road rage, where a hitching ride was chased by the MBT operators. South African Police Service (SAPS, 2021) in Mpumalanga Province reported three robbery cases on different occasions where the victims were hitchers (mostly males), and a rape case of female hitcher by the driver. Two cases had been reported by Kaya FM News (2023) in Limpopo Province – (a) an attempted murder of a driver, who was strangled with a rope by the hitchers, and (b) an armed robbery of a 45-years-old male hitcher by the ride driver. Literature indicates that the violence in MBT industry is a hindrance for female participation, yet most passengers are females (McDonnell, 2019; Legovini et al., 2023; Vandershuren et al., 2019; Zhen, 2022). Nevertheless, Swartz (2020), strongly argues that the hitchhiking-related crimes are relatively very low. Thus, using the American statistics, the author reveals that there is 0,94% probability to die from hitching - precisely, there are more chances to die from an accidental fall than from thumbing. Moreover, hitching is no more dangerous than any other activity in a society and thus, the globally stigmatization of hitchhiking as dangerous lacks empirical evidence, instead it is based on hearsay, rumour and hearsay (Swartz, 2020). Recent increasing literature on hitchhiking emphasizes that this form of travelling 'blurs' the divide between public and private modes and improves social cohesion and promotes a culture of trust, mutuality and empathy (Fullagar et al., 2012; Laviolette, 2020; McGuire, 2017; Morton, 2016; Sodero & Scott, 2016).

1.1.5 Scope of Paper

The preceding chapter provides the details of the deployed methods as well as the results of the paper, including the discussion of the key findings. Thereafter, it is the conclusion statement, which extends to the recommendations for both the policy-makers and researchers.

2. METHODS, RESULTS AND DISCUSSION

2.1 Methods

2.1.1 Case Study

The paper employed a case study because the key topic is hitchhiking, and it is generally lacking and the existing fraction is focusing on the Western World. A case study is commonly applied to explore natural dynamics with intention to contribute to the larger knowledge (Gerring, 2006; Sandelowski, 2010; Yin, 2017). The scholars further note that although the outcomes of a case study cannot derive a generalization, they can be transferred to other cases.

Figure 1 displays the selected case study, Waterberg District Municipality (WDM) that is on the western side of Limpopo Province, South Africa. This case study was selected because there are roadside and over social media hitchhiking, and the socio-economic and land use characteristics are similar to those in other lower-income communities in the country and other parts of the world (refer to Serumula & Vanderschuren, 2023). WDM comprises six rural towns, namely, Bela-Bela, Lephalale, Modimolle, Mookopane, Mookgopong, and Thabazimbi.

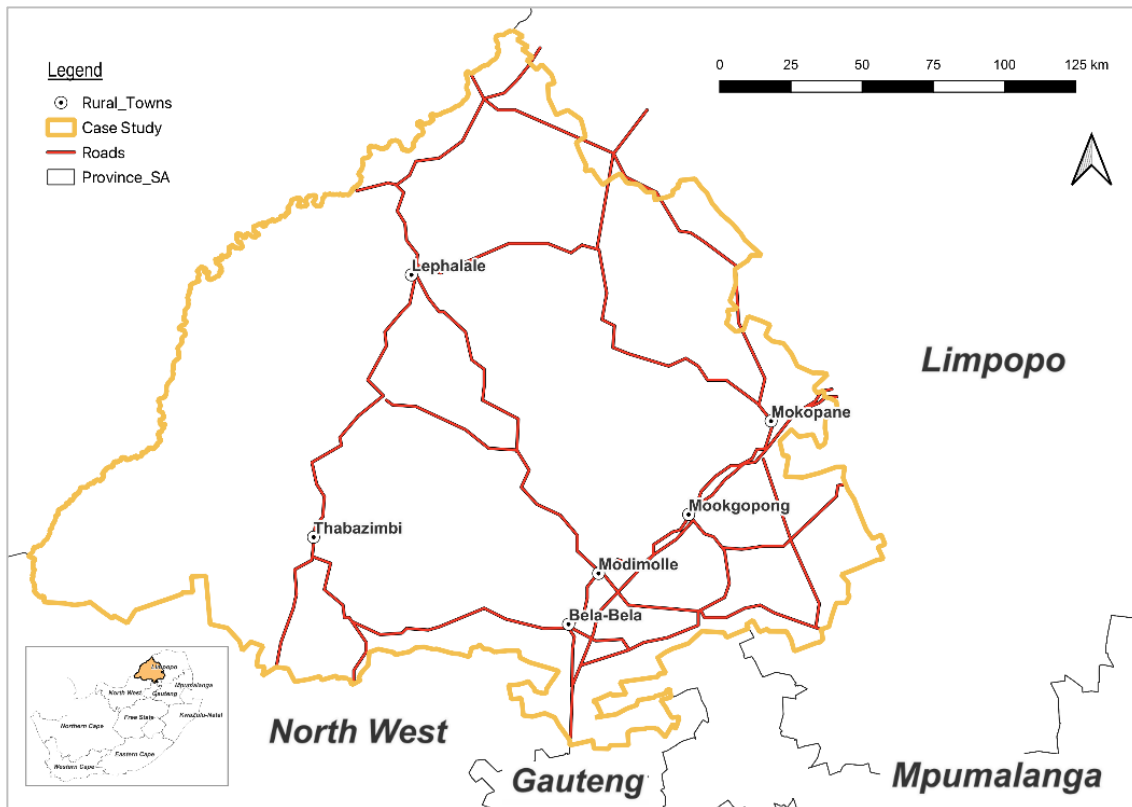


Figure 1: Case Study Area – Source: Created by the authors

2.1.2 Data and Analysis

Quantitative method was employed to collect the datasets in the case study during March and April 2023. The two datasets and their analyses are as follows.

- The first dataset is the random, one-on-one interviews of individuals with long-distance minibus taxi (MBT) and hitchhiking experience, who are 18 years of age and older during March and April 2022. The sampling size of the case study was captured at 95% Confidence Level as proposed by Cohen (1988), which is the sum of Bela-

Bela (38), Lephalale (73), Modimolle (35), Mokopane (169), Mookgophong (19), and Thabazimbi (50). The interview questions were structured, which are based on the Process and Determinants of Mobility Decision (PDMD) framework that is postulated by López and Wong (2019) using 29 theories of travel behaviour. PDMD states that the interrelated socio-economic aspects and embedded long-term decisions give rise to activities (namely, travel time and frequency) in desired spaces/locations, thus, the trip decisions occur before the trip starts and continue after. The response rate was 100,0%, and the participation was voluntary. Each participant received a token of appreciation (that is, a bottle of water or soft drink) upon completing the interview. Due to the wide disruptions of hitchhiking by the MBT operators and short window frames of waiting for the rides, the interviews were conducted at random locations in the town centres. Multi-nominal and logistic models could not be employed due to the categorical nature of the data and the assumption of multicollinearity, respectively (Basheer et al., 2019; Adler et al., 2021). As such, the descriptive, Chi-square test and t-test analyses were executed. Moreover, the Chi-squared tests are presented at a 95% confidence level. The Null Hypothesis (H_0) states that the selected hitcher characteristics and factors that influence their modal choices are independent or have insignificant relationship. Thus, the observed values are less than the expected values, and the p-value is greater than 0,05. Furthermore, the beta values are included to indicate the probability of accepting the Null Hypothesis, even if it is rejected. That is, to evaluate if the Null Hypothesis can be accepted even when it is rejected due to the presence of Type II Error. This error is indicated by the beta value of 0,2, whereby lower values imply no Type II Error and vice versa.

- The second dataset is the observations of MBT and hitchhiking services. The observations were conducted at all relevant taxis in each town during the same period (Mar-Apr 2022) following the time frame (6am-6pm) of Waterberg District Integrated Transport Plan (2021) on MBT survey. However, the hitchhiking activities could not be observed as planned because all the hitchhiking locations/corridors are constantly occupied by the MBT operators, who generally disrupted hitchhiking. Descriptive analyses were conducted to the observed data.

2.2 Results

2.2.1 Mode of Transport Usage From Interviews

Table 1 displays the mode using descriptive statistics of the interviewed hitchers, which relates to the first and last miles. A total of 429 hitchers (57,1% females and 42,9% males) were randomly interviewed and the response rate was 100,0%. The results revealed a sum of 1456 trips (females - 56,7% and males - 43,3%), which are mainly made by walking (55,9%), followed by public transport, particularly minibus taxis (39,1%) and then, private cars (39,1%). Both gender groups make a similar amount of walking but females make more trips by minibus taxis (MBT) while males utilize private cars, and overall males own private cars more than females.

2.2.2 Service Observation

Table 2 displays the descriptive statistics of MBT from observations of trips, gender and vehicle capacity. A total of 104 trips or MBT have been observed. Most trips are from Mokopane (MKP - 30,8%), followed by Lephalale (LPH - 16,3%), Modimolle (MDM - 15,4%), Bela-Bela (BLB - 13,5%), Mookgophong (MKG - 13,5%), and the least trips are from Thabazimbi (TBZ - 10,6%). All drivers are males; thus, a direct relationship is found between the total trips per town and the drivers. Many passengers are females (1160 - 58,6%) than males (820 - 41,4%) and this is true in all towns but the opposite in MKG and

TBZ. Over half of the MBT are 22 seaters (60 - 57,7%) and the rest are 15 seaters (44 - 42,3%). There are three provincial destinations, namely, Limpopo (80 - 76,9%).

Table 1: Mode Usage Descriptive Statistics of Interviewed Participants

Interviewed Hitcher			Trip (By)			
Gender	Age	Total	Total	Walking	Public Transport	Private Car
Female	Adult	139 (56.7%)	468 (56.7%)	56.2%	41.9%	1.9%
	Elder	2 (0.8%)	7 (0.8%)	57.1%	42.9%	0.0%
	Youth	104 (42.4%)	350 (42.4%)	57.1%	40.6%	2.3%
	All	245 (57.1%)	825 (56.7%)	56.6%	41.3%	2.1%
Male	Adult	80 (43.5%)	284 (45.0%)	55.3%	41.2%	3.5%
	Elder	3 (1.6%)	9 (1.4%)	66.7%	33.3%	0.0%
	Youth	101 (54.9%)	338 (53.6%)	56.2%	39.1%	4.7%
	All	184 (42.9%)	631 (43.3%)	55.9%	39.9%	4.1%
Grand Total		429 (100.0%)	1456 (100.0%)	820 (56.3%)	593 (40.7%)	43 (3.0%)

Source: Created by the authors

Table 2: Descriptive Statistics of Observed Paratransit

Variable	Attribute	Origin (trips)						Total	
		BLB	LPH	MDM	MKP	MKG	TBZ	No.	%
		13.5%	16.3%	15.4%	30.8%	13.5%	10.6%	104	100
Gender: Drivers	Female	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0	0
	Male	13.5%	16.3%	15.4%	30.8%	13.5%	10.6%	104	100
Gender: Passengers	Female	15.6%	17.9%	17.1%	31.1%	9.5%	0.9%	1160	58,6
	Male	11.2%	14.3%	13.7%	29.9%	17.3%	12.4%	820	41,4
Passenger Capacity	15 Seaters	11.4%	15.9%	13.6%	31.8%	18.2%	9.1%	44	42,3
	22 Seaters	15.0%	16.7%	16.7%	30.0%	10.0%	11.7%	60	57,7
Provincial Destination	Limpopo	13.8%	15.0%	17.5%	31.3%	15.0%	7.5%	80	76,9
	Gauteng	11.8%	17.6%	11.8%	41.2%	11.8%	5.9%	17	16,4
	North-West	14.3%	28.6%	0.0%	0.0%	0.0%	57.1%	7	6,7

Source: Created by the authors

2.2.3 Influencing Factors

Table 3 outlines the Chi-squared and Beta Test results of the 37 influencing factors, which were identified based on the work of López and Wong (2019). A total of 17 factors were found to insignificantly influence the modal choices – that is to say they failed to reject the Null Hypothesis or rejected it but comprised the Type II Error. These include Gender, Marital Status, Dependants, Household Size, Employment, and unpleasant incidents on the Same Routes of hitchhiking and Other Routes (namely, Personal Safety, Road Safety and Break-Down in a Hitched Ride and MBT).

Table 3: Chi-squared and Beta Test of Influencing Factors

Failed to Reject Null Hypothesis					
Variable	Gender; Marital Status; Dependants; Household Size; Employment; H - Personal Safety - SR & AR; PT - Personal Safety - SR & AR; H- Road Safety -SR & AR; PT - Road Safety - SR & AR; H - Break-Down – AR; PT - Break-Down - AR				
Rejected Null Hypothesis					
Variable	Chi-squared	Degree of Freedom	p-value	Beta	Type II Error
Age	20,580	4	0,000	0,143	No
Disability	54,046	2	0,000	0,234	No
Private Car Access	33,050	14	0,003	0,183	No
Hitching Experiencing	24,042	4	0,000	0,108	No
Travel Mate	18,189	4	0,001	0,167	No
Known Fellow Hitcher - SR	52,035	12	0,000	0,037	No
Known Hitcher – AR	68,143	10	0,000	0,130	No
Overload Experience	23,525	2	0,000	0,071	No
Overload - Related-Emotions	60,732	8	0,000	0,188	No
Assistance – Alighting	12,618	2	0,002	0,180	No
Assistance - Boarding	28,047	2	0,000	0,026	No
Assistance – Hitching	24,727	2	0,000	0,059	No
Assistance - Travelling From	36,213	2	0,000	0,056	No
Assistance - Travelling To	37,980	2	0,000	0,074	No
H. Disruption - Related-Emotions	25,847	6	0,000	0,127	No
Accessible Car Priority	18,056	8	0,021	0,239	Yes
H - Break-Down - SR	22,695	2	0,000	0,079	No
PT - Break-Down - SR	8,512	2	0,014	0,221	Yes
Trip Decision	32,617	4	0,000	0,161	No
Destination Type	77,393	2	0,000	0,064	No
Trip Distance	32,665	4	0,000	0,161	No
Return Trip	19,160	2	0,000	0,180	No
Trip Frequency	42,162	12	0,000	0,168	No
Travelling Schedule	13,281	4	0,010	0,200	No

*Code: H - hitchhiking; AR - another route; SR - same route; AR - another route; SR - same route.

Source: Created by the authors

In contrast, a sum of 22 factors were found to significantly affect the modal choices of the travellers and these are as follows. Age – which comprises three categories, namely, 47,8% youth (18-35), 51,0% adults (36-59) and 1,2% elders (60 and more). Disabilities – as many as 95,8% participants declared no disability and as little as 4,2% indicated disabilities (which include any condition that lasted for over six months and disabled an individual to travel).

Private Car Access – over half of the participants (56,9%) have no access whilst others indicated access to own (4,0%), family (17,0%), friend (16,3%), relative (0,9%), both family and friend (0,2%), and a set of family, friend and work (0,2%), and all listed (4,4%) private car. Hitchhiking Experience – most hitchers (89,7%) thumb out of habit and only a few (10,3%) out of impulse, where habits are six months or more and impulse are less than six months as described by Nkurunziza’s (2013) in Stages of Change Model. Travel Mate – more than half of the hitchers travel alone (59,0%) whilst others hitchhike with family members (27,5%) and friends (12,6%). Knowledge of Other Hitchers – about 65,0% of the participants know other hitchers (namely, family, friend, relative, and community member)

on the Same Routes and less than a half (43,8%) on Other Routes. Overloading and Related Emotions – less than one third of the hitchers (26,3%) do not have overloading experience, and almost two third (63,8%) of the participants do not like overloading.

Table 3 further shows that in all towns, there are unemployed young males, who assist the travellers to alight, board, hitch as well as to get to and from hitchhiking locations. Their efforts are momentarily compensated by both the hitchers and drivers of the hitched rides. Generally, the hitchers do not require assistance (over 70,0% for all assistance types), and out of a few who do, the majority need assistance hailing (27,3%) and boarding (21,4%). Hitchhiking Disruption – as many as 80,2% of the participants had experienced hitchhiking disruptions by the MBT operators, and only a few of them are neutral (12,1%) and unbothered (11,9%), thus the disruption is a serious issue to many (over 70,0%). Accessible Car Priority – in the main-stage, many of the interviewed hitchers have experience of using MBT (90,4%), followed by friend (33,6%), family (25,9%), own (6,5%), relative (5,1%), and then, other cars, such as work (3,7%). Three priorities have been noted: priority 1 (which is the most preferred), which includes hitchhiking and own car (for the minority who have access to this mode); priority 2 – which comprises MBT, and family and relative car; and priority 5 – which is for other cars. Break-Down of the Hitched Ride on the Same Route – only 17,0% of the participants have or at least know someone who has experienced a ride break-down (namely, stuck car, overheating, and tyre puncture).

The findings related to trip characteristics revealed that many hitchers make Trip Decisions for self (85,6%), followed by other (11,7%) and then group (2,8%). Destination Type – most of the trips end in rural areas (65,5%) and the remaining few in urban areas (34,5%). Trip Distance – over half of the respondents (57,6%) take trips longer than 120 kilometres (km), followed by those who take less than 60 km trips (26,8%) and then, those who take trips between 60-120 km (15,6%). Return Trip – almost all trips are return (71,8%) and the rest are one-way (28,8%). Trip Frequency – almost 70,0% of the trips are very frequent (namely, daily, weekly, bi-weekly, and monthly), and the remaining few are quarterly, half-yearly and occasionally. Travelling Schedule – many of the participants (41,3%) have a flexible schedule, followed by those with mixed (35,2%) and then, fixed (23,5%).

2.3 Discussion

The first objective was to explore the mode usage of the hitchers. The findings show that the first and last miles of hitchhiking, across all gender and age groups, are mostly travelled by walking (56,3%), followed by minibus taxis (MBT – 40,7%) and then, private cars (3,05). This finding aligns with literature (Vandershuren et al., 2019; Zhen, 2022). Furthermore, notably, males use private cars more than females. However, the results deviate from the same studies. These findings underpin that females use MBT more than male, however, there are no significant gender differences in the use of MBT and walking.

Secondly, the findings show that the MBT industry remains patriarchal (all drivers are males), and this is noted in literature (McDonnell, 2019; Legovini et al., 2023; Vandershuren et al., 2019; Zhen, 2022). All MBT wait until they are full before embarking, yet most vehicles (even in towns with low travel frequencies) are 22 seaters and the remaining few, are 15 seaters. Consistent with previous studies (Serumula & Vanderschuren, 2024; STATSSA, 2021a; Vandershuren et al., 2019; Zhen, 2022), most of the passengers are females than males. In addition, for many towns, the destinations are inter-provincial, and a few towns with most intra-provincial destinations, have low to moderate travel frequencies.

The third and last objective evaluates the factors that influence the modal choices, and it can be linked to some of the findings of the first objective. Gender is found to not significantly influence the modal choices and as noted previously, this finding does not align with literature. The findings further deviate from studies such as STATSSA (2021a, 2021b) and López and Wong (2019), thus, indicate that the following factors have no significant influence on modal choices, namely marital status, dependants, household size, employment, and incidents such as personal safety, road safety and break-down related to a mode. On the same note, the findings echo the literature that the following factors significantly influence the modal choices.

- Age – many hitchhikers are between the age of 36-59 years (adults - 51,0%), followed by 18-35 years (youth - 47,8%), and then, 60 years and above (elders - 1,2%).
- Disability – almost all hitchers (95,8%) do not have disabilities, and therefore, it can be deduced that hitchhiking is not conducive to travellers with disabilities.
- Private car access – although some have access to more than private car, less than half of the hitchers (43,1%) has access to private cars, that is, own (4,0%), family (17,0%), relative (0,9%) and other cars such work (0,2%). As indicated in previous studies (such as Plano et al., 2020; and STASSA, 2021a, 2021b), many (rural) travellers depend on public transport.
- Hitching Experiencing – for many travellers, hitching is a habit, that is, more than six months experience (89,7%) and the remaining few (10,3%) thumb out of impulse – this finding corresponds with work of scholars such as McGuire (2017), and Morton (2016).
- Travel Mate – many hitchers generally thumb alone (59,0%), followed by those who travel with family members (27,5%) and then, friends (12,6%). However, Morton (2016) noted that females usually hitchhike with others in British Columbia.
- Known Hitcher - similar to the previous studies (the likes of McGuire, 2017; and Morton, 2016; and Reid, 2020), many hitchers know other hitchers (65,0%) on the same or other routes, including friends (44,8%), relatives (7,6%), family (6,1%), and community members (0,2%).
- Overload Experience – as many as 73,7% hitchers have overload experience, and this often-noted studies pertaining to public modes (for example, Dzisi et al., 2022; and Fobosi, 2019).
- Overload Related-Emotions – approximately third quarter (63,8%) of the hitchers are not pleased, and only a few fractions are indifferent (13,1%), unbothered (10,5%), and okay (12,6%).
- Available Assistance (alighting, boarding, hitching, travelling to or from hitching locations) – although over 70,0% of the hitchers do not get assistance, out of the small proportion, many are assisted to hitchhike and board.

- Hitching Disruption Related-Emotions – studies widely note the disrupts (for example Chirume, 2017; Fobosi, 2019; Gill, 2018; Plano et al., 2020; SAPS, 2021; Serumula and Vanderschuren, 2023, 2024; Woolf & Joubert, 2013) and over 80,0% of the hitchers have experienced the disrupts. Furthermore, almost 80,0% are negatively affected, and out of which, the majority are females. This finding aligns with literature (for instance, Morton, 2016).
- Accessible Car Priority – accessible modes include MBT (90,4%), and friend (33,6%), family (25,9%), own (6,5%), relative (5,1%), and other cars, for instance, work (3,7%). Many travellers set their most preferred (priority one) modes are hitchhiking and own cars, priority two includes MBT, and family and relative car; and at priority five is other cars. This finding is consistent with - previous studies (such as Fullagar et al., 2012; Laviolette, 2020) that highlight that hitchhiking is a 'hybrid' public mode because it 'blurs' the boundary between private and public modes.
- Break-Down Incident – only a few of the hitches (17,0%) stated a break-down incident of the hitched rides on the same route (particularly overheating, car stuck and tyre puncture).
- Trip Decision – most hitchers make 'self' (85,6%), followed by 'other' (11,7%) and then 'group' (2,8%). This finding aligns with López and Wong (2019), and it is not surprising because most hitchers are adults, as mentioned earlier.
- Destination Type - many trips end in rural areas (65,5%) and the remaining few in urban areas (34,5%). This finding supports the arguments of scholars such as Berdegue and Soloaga (2018), who argue that if policies are restructure to support linkages to rural areas, these communities can improve from exchange and prosperities of socio-economic activities.
- Trip Distance – over half of the respondents (57,6%) take trips longer than 120 kilometres (km), followed by those who less than 60 km trips (26,8%) and then, those who take trips between 60-120 km (15,6%). Reid (2020) also stated that most hitchhiking trips are long-distance, and Dadashzadeh et al. (2022) highlights that rural inhabitants travel long-distance to reach the socio-economic opportunities.
- Return Trip – almost all trips are return (71,8%) and the rest are one-way (28,8%). This in agreement with the increasing literature that argue that an efficient or on-demand mobility permits smooth access to livelihood activities (Anburuvel et al., 2022; Anwar et al., 2022; Coutinho et al., 2020; Dadashzadeh et al., 2022; Denmark, 2012; Frei et al., 2016; Ryley et al., 2014; Takeuchi et al., 2003).
- Trip Frequency – approximately 70,0% of the participants travel frequently (daily, weekly, bi-weekly, and monthly), and the remaining few on quarterly, half-yearly and occasional basis.
- Travelling Schedule – many of the participants (41,3%) have a flexible schedule, followed by those with mixed (35,2%) and then, fixed (23,5%). This finding supports the empirical evidence for on-demand mobility service, as noted in recent studies (for instance, Anburuvel et al., 2022; Dadashzadeh et al., 2022; Denmark, 2012; Ryley et al., 2014).

3. CONCLUSIONS

The paper revealed a dilemma. That is, South African paratransit (or minibus taxi, MBT) drivers with one-way interprovincial permits regularly find themselves in a position to choose whether to be 'humanitarians' (that is, help the travellers in need and reduce the environment impacts) or 'legalists' that promote unsustainable operations.

The findings reveal that the former entails the MBT drivers partaking in hitchhiking activities on their way back (in which they do not have route licences). In the process, the unemployed youth (call them hitchhiking assistants) receive monetary incentives. But most importantly, the mobility of the rural travellers improves. In other words, the needs of the travellers are somewhat met, notably, time efficient, flexible, and affordable mobility. Furthermore, hitchhiking is generally not free, and therefore, hitchhiking helps to improve the severe financial insecurity of the MBT drivers.

In contrast, the findings further reveal that there are constant disruptions and conflicts around hitchhiking in all six towns of interest. These are led by local MBT operators, who attempt to secure the market share. Literature states that unregulated mobilities (hitchhiking) cause an unfair competition (Fobosi, 2019; National Taxi Lekgotla, 2020; McCormick et al., 2016; Plano et al., 2020). In addition, studies show that the violence in the MBT industry is the key negative root-cause for lack of women (McDonnell, 2019; Legovini et al., 2023; Vandershuren et al., 2019; Zhen, 2022). The findings show that this industry remains patriarchal, that is, all drivers are males.

The latter aspect of the dilemma, which is the 'legalist', implies that the MBT drivers travel with 'empty' vehicles on their way back, that is, the routes they do not have permits. The findings yielded that most MBT are 22 seaters and a few vehicles are 15 seaters. In context, on a less busy period of the year (March, April), the environmental impacts of, at least, 104 MBT with one-way inter-provincial permits from the rural region, can be added to an unsustainable operational list.

In essence, the MBT with one-way inter-provincial permits commonly participate in hitchhiking, which leads to unfair competition, and consequently, this stimulates conflicts with the local MBT operators (particularly municipal PT issues) in South African Towns.

3.1 Recommendations

Section 26, clause 1 of the National Land Transport Act 5 Of 2009 states the following. "The National Public Transport Regulator, a Provincial Regulatory Entity or a municipality may agree that one of them will undertake the functions of another relating to receiving and considering applications concerning operating licences, either temporarily or permanently, where:

- there is a significant travelling of commuters on a daily basis between the areas for which they are responsible;
- the nature of transport movements between them would make such an agreement advisable from a transport or land use planning viewpoint; or
- for other prescribed reasons.

In that light, the Provincial Regulatory Entities (PREs), as the legal power-holder, should address and regularly assess the impacts of one-way inter-provincial permits for MBT as

stipulated by the NLTB, particularly in the regions such as Waterberg District Municipality, in Limpopo Province. Although little is known about the 'work-in-progress' Economic Regulation of Transport (ERT) Act; however, the ERT would be instrument in addressing the latter, as it aims to improve the economy whilst meeting the social needs in transport (DoT, 2023).

Further research is needed to adequately inform the above-mentioned. As previous studies note that the mobility services must meet the societal needs (Dadashzadeh et al., 2022; United Nations, 2016; and WHO, 2003), and internationally, there is a growing understanding that the integration of advance technology in a transport system significantly improves the service efficiency, effectiveness and sustainability (Anburuvel et al., 2022; Anwar et al., 2022; Coutinho et al., 2020; Dadashzadeh et al., 2022; Denmark, 2012; Frei et al., 2016; Ryley et al., 2014; Takeuchi et al., 2003). Thus, sustainable transport will require establishing and maintaining public-private relationships, including Information and Communication Technology (ICT) enterprises (Anburuvel et al., 2022; Dadashzadeh et al., 2022; Serumula & Vanderschuren, 2024). Notably, locally, the government acknowledges the above and this reflected, for example, in the sub-programme public transport (DoT priority area focus area 2) that utilizes 'improved accessibility, quality and reliability of public transport' as performance outcome (DoT, 2023).

4. ACKNOWLEDGEMENTS

The financial support is from the SA National Research Foundation, NRF (MND190708453629), and the SA Department of Transport and NRF Smart Mobility Chair Funds through the UCT Centre for Transport Studies (Grant 138142). Further support includes -

Field assistance: Koko Precious, Kekana; Prisca Nkone, Kekana; Eugene Makgwathana, Kgosana; Lerato Clement, Mabusela, Portia Pududu, Ramaru.

Technology devices and general (logistical) support: Nothabo, Jali; Jela Prudans, Kekana; Mokgaetji Ednah, Kekana; Sydney Tshepo, Mojapelo; Elizabeth Mashila, Monyamane; Baraka Jean-Claude, Munyaka; and Nkululeko Nquku.

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