Riding for a Living: Youth Bicycle Enterprising in Shinyanga and Tabora Towns, Tanzania

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Abstract
This study profiles the bicycle taxi business and its role in enhancing the livelihoods of young people in Shinyanga and Tabora towns, Tanzania. 405 bicycle taxi operators were randomly selected, and data were primarily collected through questionnaires. Additionally, a checklist for conducting interviews was developed to gather qualitative data in conjunction with the quantitative data. Descriptive data were analyzed on demographics, bicycle possession, income, and livelihood strategies. The relationship between nominal variables was tested using chi-square. A binary logistic regression analysis revealed that age, current residence, and bicycle ownership status all affected the daily income. By far, the most important indicator of bicycle taxi earnings was age. Additionally, the study revealed a significant relationship between bicycle taxi operations and the purchasing of mobile phones, cattle, and crop farm inputs. It is probably crucial to strengthen this sector by creating an atmosphere conducive to development, especially in towns with limited public transportation options. The second is to avail support to youth on financial management and entrepreneurship. This may help young people diversify income sources and refocus on productive sectors with the potential for growth and reliable employment generation.

Keywords: Bicycle taxi, Youth, Livelihoods, Income, Tanzania.

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INTRODUCTION

Tanzania has one of the highest youth populations in the world, responsible for almost two-thirds of the overall population (URT, 2012). According to the International Labor Organization (2016), youth unemployment rates in 2014 were 6.5 percent for those aged 15 to 24 and 11.5 percent for those aged 15 to 34. Females account for 14.3 percent of the population, while male account for 12.3 percent. Urban areas are the worst affected, with unemployment hitting 22.3%, compared to 7.1% in rural areas (Haji, 2015). This unemployment rate occurs despite a good record of economic growth in the past decade, averaging 7 percent (ILO, 2016). Unfortunately, for various reasons, this growth has not resulted in productive and decent employment for the youth. For starters, emerging industries such as information technology, telecommunications, and professional services necessitate soft skills that the young lack (Mutalemwa *et al*, 2020). Again, such sectors are not labor intensive and employ just a few people. For traditional sectors such as agriculture, the lack of farm inputs and markets has made it unattractive to young people. According to Ochieng (2020), a growing trend is for young people to leave agriculture and engage in non-farming activities such as petty trade. This apparent decline in interest is also influenced, among other things, by the seasonal nature of farm earnings and the need for young people to make quick money. Youth involvement in bicycle riding is one of

many activities in Shinyanga that has resulted in job opportunities. This has been possible because of the increasing demand for transportation due to the city's expansion and a limited network for conventional urban transport. All these have culminated in the advent of bicycle taxi services in towns and semi-urban regions (Bloom and Freeman, 1986; Mangulama and Shengkun, 2016).

In Africa, the history of the bicycle taxi industry dates back nearly a century ago when the Senegalese began transporting people and luggage for payment. The mode was later adopted in the borders between Kenya and Uganda in the 1960s and 1970s (Manda, 2014). It was then bicycles used to transit goods through black markets, rebranded *boda-boda*, which refers to motor-powered two-wheeled cycles. Elsewhere in the continent, the bicycle taxi business has flourished in the central and southern region, including Rwanda, Burundi, Malawi and Zimbabwe, although the industry's popularity is on the decline given the emergence of motorcycles (Onyango, 1997; Chilembwe, 2017; Kanamugire, 2017). High efficiency, cost-effectiveness, and easy accessibility are among the factors that put bicycles higher in priority for mobility choice, especially among low and medium-income residents in towns and the countryside.

Shinyanga and Tabora towns in Tanzania are top-rated for bicycle use services in Tanzania. For instance, the number of households using bicycles for their daily transport needs is more than two thirds. Tabora has the highest number of households owning at least one bicycle in the country (71%) compared to the second-placed Shinyanga (68 %) (URT, 2014), and these figures are near twice the national average (43%). However, little is known about the profile of bicycle operators and the role this industry plays in promoting livelihoods.

LITERATURE REVIEW

A limited number of studies on the bicycle taxi business have been carried out in East and southern parts of Africa (Calvo, 1994; Mutiso & Behrens, 2011; Kokwaro, 2013; Bryceson, 2009; Manda, 2014; Kaduluka, 2011). However, some studies have partly given less attention to the business aspect (Raber, 2014). In Kenya, bicycles play an essential role by providing off-road transport services, especially in informal settlements where conventional vehicles cannot pass (Mutiso & Behrens, 2011; Kokwaro, 2013). They also provide earning opportunity for a large number of low-income earners who employ themselves through the provision of bicycle taxi services in towns (Tiwari, 2008).

Concerning bicycle taxi operators, this enterprise has been entirely dominated by men since this business venture started in Asia. For instance, the early rickshaw pullers of the 1900s in Yokohama, Shanghai, Calcutta and Singapore were all men (Warren, 2019). This gender skewed pattern is because of the work's masculine nature, which requires strength to pedal the bicycle. The tendency of male domination continues in recent times in Africa, of which all bicycle operators in Kisumu and Nakuru towns (Behren and Mutiso, 2011; Kokwaro, 2013; Bryceson, 2009).

Additionally, the literature shows that the majority of bicycle riders are youths of prime working age. The average age of bicycle taxi operators in Kenya, for example, is between 24 and 27 years (Behren & Mutiso, 2011). In Zambia, they fall between 15 and 35 (International Transport Workers' Federation, 2006). These are young people who are physically capable of doing the work and eager to take on a potentially energy demanding job due to a shortage of viable sources of income.

Most cyclists are illiterate, school dropouts, or just a primary education (Calvo, 1994; Kanamugire, 2017). In Kenya, however, most operators are literate, with about 83 per cent having attained primary education and some 26 per cent with form four certificates (Behren & Mutiso, 2011). Due to the failure of the agricultural sector, uneducated and unskilled young people flock to urban areas in large numbers, and the bicycle taxi, due to its low investment,

attracts the majority (Mangulama, 2016). disparities in educational profiles most likely represent countries' differing levels of college preparation. Additionally, the bicycle taxi industry is populated by vulnerable and mostly rural-urban refugees seeking shelter after losing hope of finding decent work elsewhere (Manda, 2014). For example, bicycle riders in Kisumu town are mostly young people from areas other than the Kisumu district who have come specifically to conduct business (Kokwaro, 2013).

Cycling is a valuable stream of revenue and an economic prospect for young men who see the industry as a last option for a means of subsistence (Kanamugire, 2017). According to Kanamugire (2017), operators earned between US$ 3 and 4 in Rwanda. Similarly, in another neighbouring country, Malawi, bicycle taxi was the primary source of income for many young people, majority earning more than the U.S. $10 per day (Manda, 2014). Increased revenues allowed the acquisition of valued assets such as bikes, high-quality construction materials, and farm inputs (Porter, 2013; Manda, 2014; Mangulama, 2016). In Uganda, experiences from rural Tororo and Mbale districts show that young people earn small incomes to sustain them on necessities only (Calvo, 1994). This income level is relatively lower than that of bicycle operators of urban areas of Kenya and India. The variations may be caused by income levels between rural and urban areas. Totoro and Mbale have more rural than urban characteristics, and therefore, the need for mobility among residents is limited and fewer trips made have an impact on income earned. Bryceson *et al.* (2003) revealed a significant contribution of the sector to youth livelihood development.

METHODOLOGY

Four hundred and five (405) young men between 18 and 35 years in Tabora and Shinyanga towns were surveyed in mid-August 2019. The selection of these two towns was purposive. For instance, Shinyanga town, with more than 150,000 residents, has no public transport system, thus compelling residents to rely on walking, motorcycles and bicycles, whereas in Tabora, there are few public places with public transport while the majority is not. Second, motorcycles as a substitute for commuter buses are usually priced higher than bicycle taxis, rendering the majority poor rely on bicycles. Third, traditionally the residents in these towns are used to riding bicycles, and that is why according to the URT (2014), Tabora (70.3%) and Shinyanga (67.8%) topped the regions with the highest household's bicycles ownership.

The research gathered data from both qualitative and quantitative sources. Qualitative data were collected through interviews, while quantitative data were collected using structured questionnaires. The rider's personal and job-related characteristics were carefully recorded, analysed, presented and reported. Chi-square tests were performed to compare daily revenue rates between groups and various demographic and socio-economic characteristics. In addition, logistic regression models were developed to predict the income generated per day based on several independent variables. One side of the model was the dependent variable defined as income below 10,000 Tsh coded as 0 or income equalling or above 10,000 Tsh coded as 1, and on the other side, several demographics and bicycle transport-related predictors. The first set of factors consisted of age, highest education qualification, city, current residence status, and residence town included in the model. Bicycle related-factors were the ownership status, number of customers, and daily working hours. To ensure that critical assumptions were met, various tests were performed. For instance, the minimum sample size of at least ten times the number of predictors was established (Hosmer and Lemeshow, 2000). The combined cross-tabulations with chi-square tests were performed to ensure that no cell in the categories had less than five expected frequencies (Field, 2009). The Hosmer and Lemeshow test confirmed that actual values

were not statistically different from the predicted ones (χ^2 (8) =4.788, p=.780). Nagelkerke R Square explained more than a third of the variance in the level of income generated per day. The model was generally impressive because, overall, it made 76% correct classification of cases. Menard (2002) recommendation of testing multicollinearity in logistic regression using the OLS regression collinearity diagnostics technique was considered appropriate to this model. First, all categories were dummy recorded and included in the OLS model with income levels (0-below 10,000 and 1-Over 10,000) as dependent variables. Table 1 shows that no single variable had VIF more significant than five or a tolerance cutoff of less than .25, therefore ruling out any chances of the presence of multicollinearity (Garson, 2014). These tests combined suggested that regression coefficients were stable, earmarked with lower standard error.

Table 1: Multicollinearity test results for the binary logistic model

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Variables	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
Town	.158	.062	.167	2.544	.012	.676	1.479
Number of children	.049	.020	.153	2.454	.015	.751	1.331
Have dependents?	-.046	.058	-.044	-.784	.434	.918	1.089
Age_dummy	.154	.105	.102	1.461	.145	.598	1.672
Ms_dummy	.296	.094	.250	3.158	.002	.464	2.153
Edu_dummy	.006	.059	.006	.106	.916	.936	1.068
current residence	.080	.054	.084	1.467	.143	.877	1.140
Bicycle dummy	.082	.055	.083	1.489	.138	.944	1.060
Passengers dummy	.071	.054	.075	1.321	.188	.893	1.120
Experience in riding	.032	.056	.032	.577	.565	.940	1.064
Work hours per day	.124	.067	.106	1.839	.067	.868	1.152

FINDINGS

Demographic and socio-economic characteristics: All 405 participants were men, which may be due to the nature of the job itself, which requires muscle and strength. Participants represented three age categories: 21-25, 26-30 and 31-35. In addition, a younger group, the under 21, also featured in this study comprising nearly 17%. Nearly half of survey participants were currently married (48%), while one in five said they had ever been married even though they were currently not, and a third said they had never been married at all. Four in five respondents reported having at least a child, yet more than two-thirds said they were living with dependents in their households, a situation that reflects increased family responsibility that was weighing on them. Roughly half of the participants were divided between no formal schooling (27.5%) and completed primary education (28.5%). The other half had either ever incomplete secondary education or completed. Table 2 shows further that before joining this industry, participants were roughly evenly distributed across several occupations,

Table 2: Participants occupation before joining the bicycle taxi transportation business

Type of occupation	Responses	
	N	%
Small business	104	25.9
Farming	101	25.1
Casual jobs	120	29.9
Employed	51	12.7
School leaver	26	6.5
Total	**402**	**100**

namely small business (25.9%), farming (25.1%) and casual jobs (29.9%). However, some had joined the industry straight from school (6.5%).

Comparison of bicycle taxi service performance in Tabora and Shinyanga towns

Table 3 shows chi-squares results between study location and selected demographic characteristics. Most of the participants in this survey were middle-aged, i.e. 26-30 years old, and were based in Shinyanga municipality. Many of the young people in Tabora have come out of school. Tabora represented the highest number of bicycle taxi riders without any formal education regarding the level of education. The number of taxi operators with primary and secondary education was higher in Shinyanga than in Tabora town. In terms of homes, bicycle taxi riders built their own houses were more in Shinyanga than in Tabora. However, there was a more significant proportion of participants in Shinyanga living in their parent homes than were found in Tabora.

On the other hand, Tabora town had more renters compared to Shinyanga town. Nearly two-thirds of all bicycles in Tabora and Shinyanga were self-owned, a finding that was contrary to the previous study in East Africa (Kokwaro *et al.,* 2013). However, the study further revealed a near-even distribution of self-owned bicycles between the two towns surveyed. While co-ownership was dominant in Shinyanga, rented bikes were, on the other hand, prevalent in Tabora. On average, participants from Shinyanga municipality generated more income per day (Tsh. 9,674) than those from Tabora municipality (Tsh. 6,594). The residence was an important aspect considered a dividing line among participants in the surveyed towns. On the one hand, results for residence history showed that more participants (34.2%) in Shinyanga reported being migrants, whereas resident participants in Tabora constituted the larger population (21.8%). On the other hand, nearly one-third of Tabora participants lived in the inner city, whereas 24.1% of participants in Shinyanga reported living in the outskirts.

Table 3: Relationship between study locality and demographic profiles

Variable	Categories	Tabora	Shinyanga	X^2	p-value
Type of home	Self-ownership	54 (13.4%)	88 (21.8%)	33.82	.000
	Renting	119 (29.5%)	64 (15.8%)		
	Family home	26 (6.4%)	53 (13.1%)		
Marital status	Never married or single	87 (21.6%)	43 (10.7%)	24.96	.000
	Currently married	80 (19.9%)	113 (28.1%)		
	Broken	30 (7.5%)	49 (12.2%)		
Education	No formal education	72 (17.8%)	39 (9.7%)	19.10	.000
	Primary	45 (11.1%)	70 (17.3%)		
	Incomplete secondary	29 (7.2%)	46 (11.4%)		
	Completed form four	53 (13.1%)	50 (12.4%)		
Age	Under 21	46 (11.4%)	20(5.0%)	13.65	.003
	21-25	49 (12.2%)	58(14.4%)		
	26-30	60 (14.9%)	77(19.2%)		
	31-35	42(10.4%)	50(12.4%)		
Current residence	CBD	120 (29.8%)	71(17.6%)	38.51	.000
	Outskirts	72 (17.9%)	97(24.1%)		
	Neighbouring village	6 (1.5%)	37 (9.2%)		
Residence history	Resident	88 (21.8%)	110 (27.3%)	5.88	.015
	Migrant	67 (16.6%)	138 (34.2%)		

Shinyanga bicycle taxi riders had higher work experience (4.7 years) than Tabora (3.5 years). On average, riders in Tabora worked a little longer (14.08 hours per day) than Shinyanga (12.91%). When asked how many days a participant worked a week, it was not surprising that half of the study sample reported working throughout the week in both study areas. However, significant discrepancies arose between those who reported either one or two days off the job. The majority (58.4%) of those who said they had a day off duty in a week were stationed in Shinyanga, while those who claimed to have two day-off duty were overrepresented in Tabora.

Factors affecting bicycle taxi daily income

The findings in Table 4 indicate that some variables greatly influenced the amount of regular income earned by bicycle taxi operators. Participants in Shinyanga town raised nearly four times the daily income (more than Tsh. 10,000) than those in Tabora. This may be attributed to Shinyanga's complete shortage of transportation services, which forces many people to rely on bicycle taxis to commute to work and other destinations. In contrast to Shinyanga, Tabora town has some commuter bus service that runs throughout the municipality, reducing the reliance on taxis. Currently, married participants were five times more likely to earn a higher daily income (Tsh. 10,000 or more) than non-married participants. As breadwinners, currently, married participants were likely required to demonstrate a greater level of dedication to any subsistence plan that met family needs.

The current residential status of a participant has a direct effect on the daily income generated. Riders who reside in the suburbs, described as those who live within 10 kilometres of the centre, earn 1.2 times as much as those who live in the inner city. Furthermore, riders from remote villages (more than 10 km) who were required to leave their homes early in the morning to do business in town admitted receiving almost four times as much as those who lived in town. Collectively, it seems that location has a significant effect on the daily income earned, as many who travel from afar demonstrate a high degree of involvement in the job and ultimately receive more than resident participants. Additionally, city dwellers place a lower premium on cycling job, perhaps due to the availability of other income-generating sources.

Table 4: Logistic Regression analysis of daily revenue as a function of demographics and bicycle taxi characteristics in both Shinyanga and Tabora towns

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Shinyanga vs Tabora town	1.327	.306	18.851	1	.000	3.769
Age			10.660	3	.014	
Age 21-25 vs Under 21	1.275	.550	5.386	1	.020	3.580
Age 26-30 vs Under 21	1.324	.547	5.856	1	.016	3.757
Age 31-35 vs Under 21	1.768	.545	10.508	1	.001	5.860
Education Qualification			3.473	3	.324	
Primary education vs no schooling	-.245	.359	.464	1	.496	.783
Incomplete secondary vs no schooling	.165	.391	.179	1	.673	1.180
Form four vs no schooling	.411	.368	1.249	1	.264	1.509
Current residence			9.428	2	.009	
Outskirt vs Inner town	.109	.283	.148	1	.701	1.115
Neighbouring village vs Inner town	1.311	.443	8.770	1	.003	3.711
>= 16 vs <16 passengers	.278	.267	1.084	1	.298	1.321
Bicycle ownership status			3.781	2	.151	
Hired vs self-owned	.433	.315	1.891	1	.169	1.542
Family asset vs self-owned	.679	.409	2.752	1	.097	1.972
Working hours	.187	.067	7.849	1	.005	1.205
Constant	**-6.072**	**1.101**	**30.405**	**1**	**.000**	**.002**

Effect of bicycle taxi income on youth livelihoods development

Participants were asked how the income generated from bicycle taxi operations helped promote various livelihood activities. Table 5 shows significant relationships between the two-income earner's groups (Under 10,000 and 10,000 or more) regarding three household consumption and or investment activities reported. For instance, participants earning less than Tsh. 10,000 per day reported using the income for buying phones (74%) compared to those who generated Tsh. 10,000 or more, and this difference was statistically significant (χ^2 (1) =12.482, p=.000).

Table 5: Relationship between socio-economic livelihood activities and level of daily income

	Under Tsh. 10000		More than Tsh. 10,000		$\chi 2$
Livelihood activity	Counts	Percent	Counts	Percent	**values**
Bought land	74	69%	34	31%	0.086
Initiated house construction	41	68%	19	32%	0.056
Bought furniture	123	75%	42	25%	12.482
Bought phone	157	78%	45	22%	12.482**
Bought own bicycle	68	75%	23	25%	1.441
Started new business	29	64%	16	36%	5.655**
Children fees	33	61%	21	39%	2.481
Bought livestock	35	74%	12	26%	26.809**

**Significant at .05

Furthermore, income groups differed significantly in livestock purchases due to increased income due to bicycle taxi operations (χ^2 (1) =26.809, p=.000). The majority of participants (75%) earning less than Tsh 10,000 per day reported buying livestock due to increased earnings. A similar phenomenon is portrayed by those who reported investing in new businesses (χ^2 (1) =5.655, p=.017). Interview findings with two operators reveal similar patterns. For instance, Sita, a migrant from the Mwanza region, currently working in Shinyanga, has been living here for a year. He is a husband and father of seven children and was asked whether the business has benefited him. He said:

I have managed to buy my bike, and I have also been able to raise money to invest in my crop farm project…. I usually send money back home to keep farming work on…

When asked further how much he earns out of his bicycle taxi business, he said he earns Tshs. 6,000 ($ 2.5) per day, and during peak seasons, daily earnings sometimes exceed Tsh. 10,000 ($4.2).

Baraka, aged 23 years, comes from Tinde, a forty (40) kilometre small town away from Shinyanga. He has been in the bicycle taxi industry in Shinyanga for the last 12 months. He is a husband and father of two. He says his day starts at 6 am and works until 9 pm. On average, he says he earns Tsh. 8,000 per day, but during peak seasons (usually rainy seasons when people cannot walk on foot), he says sometimes daily revenue is as higher as Tsh. 12,000. When asked further whether he has an extra job, he said sometimes he has to do the masonry work, but this usually does not last long. Turning around how the business has impacted him, he says, he has managed to expand his farm enterprise by renting more plots and procuring farm inputs, something he could not do before. He also supports his wife's small business back at home as well as providing for the family. He says this job is far better than many of the jobs people do because he is assured of earning every day.

DISCUSSION

The results suggest that the bicycle taxi business falls under the dominance of males, which may be due to the nature of the work itself that uses the most power and, therefore, the preference for men similar to nearly all previous findings in East Africa). This dominance is attributed to the nature of the job itself, which requires carrying passengers and cargo and sometimes in different terrains such as slopes. An examination of the results shows that most part the industry is more established in Shinyanga town. This follows a clear over-representation of experienced riders in Shinyanga as they are in Tabora. On the one hand, many young people in Tabora town spend more than 12 hours a day searching for a living through this service. However, many hours spent in this work do not seem to benefit the young people of Tabora since their daily income is still low compared to that of Shinyanga. First, unlike Tabora, Shinyanga does not have a fully motorized public transport system, whereas Tabora has some places with commuter transport buses. So, this can cause the demand for services among town residents to be high and thus cause the fare to go high. Put together; they appear to influence income disparities between these two study towns. Secondly, in the absence of alternative public transport, it is probably evident that the business cycle is large enough to enable service providers to generate large sums of money in a short time per day.

On income disparities among riders, marriage appears to make a significant difference as married riders earn more than singles. A similar observation is made in a study by Korenman and Neumark (1991), who found that married men earn 11% more than never-married men. Higher earning among the married is attributed to higher job performance rating (Mehay & Bowman 2005). This may be that men's family commitments as breadwinners drive them to be more demanding and work extra hard to fulfil family needs. Conversely, single men may not have the same responsibility to provide for and maybe somehow relaxed.

It is also clear that this industry seems to be very attractive to young people with a low education level, especially in Tabora. However, it seems that the industry is the ultimate choice for form four leavers. This gives an impression that the sector is an alternative to many young people who could not find employment based on merit and skills in other sectors. The presence of high income on the part of Shinyanga appears to be a one-sided incentive for service providers to initiate and sustain economic activity to bring about development. There may be a need to strategize for these young people to benefit from the money they earn by helping them to meet their daily needs.

The tendency of bicycle riders to reinvest the income on assets such as livestock and other businesses is an interesting observation made in this study. This is commendable considering that bicycle taxi riding is not foreseen as a sustainable source of income amidst efforts made to improve public transport in towns. Support to youth on financial management and entrepreneurship may prove to be beneficial in helping them diversify their income sources and focusing on more productive sectors, which can generate employment.

CONCLUSION AND RECOMMENDATIONS

This study aimed to determine the size and trends of bicycle taxi operations in Shinyanga and Tabora towns by interviewing young people and evaluating the business's contribution to income generation. The study's findings revealed that the industry is dominated by young people, particularly males, who occupy a leading position in the transportation sector where public transportation is unavailable. Youth participation in this sector has helped them significantly improve their financial situation, acquire assets, and invest in other business ventures. However, the overabundance of motor bicycles poses a threat, and the town authorities intend to

modernize the transportation sector. As a result, bicycle taxis are not expected to be a long-term source of revenue. The tendency of bicycle riders to reinvest their earnings in assets such as livestock and other businesses, on the other hand, is an intriguing finding in this study. As a result, it is recommended that young people be given financial management and entrepreneurship training to diversify their income and concentrate on productive sectors with high growth potential and stable employment.

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