

Effect of BODABODA Business on Rural Transport System in MERU County, Kenya

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Abstract: It is in public knowledge that youths are the most adversely affected by unemployment due the current economic crisis in Africa and the world at large, this has led youths to engaging in various businesses to earn a living. In Kenya, bodaboda transport business, an informal employment, is giving employment opportunities to many of these youths at a time when unemployment rates are growing daily globally. This study sought to explore bodaboda business effects on rural transport system in South Imenti Sub County in Meru County, Kenya. The study was informed by systems theory, theory of coordination failure and rational choice theory. The study adopted descriptive survey, employing quantitative approach to source, process and analyze data. Data collection tool was a structured questionnaire administered by the research assistant to public motorcycle operators. Quantitative data collected was analyzed using statistical package for social sciences version 23 and findings presented in frequency and percentage tables. The study adopted simple random sampling to select 165 respondents from a population of 550 bodaboda riders in 19 registered bodaboda groups of South Imenti Sub County, Meru County. The study established that bodaboda flexibility and ability to maneuver compared to other modes of transport has led to its popularity in rural areas. It also emerged that bodaboda has contributed to positive economic effects in the rural areas. It was also established that the adoption of bodaboda as the preferred means of transport has resulted to increase in road accidents and health complications to riders who rarely go for medical check-ups. Based on the findings, the study concludes that bodaboda business has contributed to the current health and economic status of the rural areas. The study recommends a multi-sector approach to streamline and make bodaboda business sustainable because of its socio-economic contributions to the rural areas.

Key Words: Bodaboda, rural transport, economy, health and mobility

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I. Introduction

Transport is an integral aspect of development and socio-economic growth, it is vital for growth and critical for all that we undertake. As the nerve centre of economic integration, transport infrastructure and service facilities institute a foundation for facilitating trade and ease of flow of goods and persons. Traditionally transport has been perceived only as a means of accessing nation-wide and international trade, but in this drastically ever changing world, transport infrastructure is, and will always be, pivotal to development and continued accelerated growth which is key in alleviating poverty. Road transport system involves a spectrum of issues which include issues to do with developing and maintaining road infrastructure, modes of road transport, road safety and human health, environmental effects, institutional capacity building and financing. A United Nations Report, 2008 on status of the cities in the world states that 80% and 90% of goods and passenger traffic respectively, in Africa are through road which position it at the helm of motorized transport in the continent. From a social point of view, it is through transport that members of a society can access job opportunities, health services, education services and food items essential for survival (World Bank, 2002).

Motorized transport services and non-motorized transport services are often considered insufficient and too costly by the rural populace which results too many villagers walking and carrying luggage on their backs as the primary means of transport. While cost limits the use of transport services by the locals, a lack of constant demand limits development of cost effective and more efficient services by investors and the Government. Improving rural transport to alleviate poverty therefore calls for concerted effort to develop suitable transport infrastructure and appropriate transport services and use of affordable modes of transport. In many societies, motorcycles are the principal mode of motorized transport. In Vietnam, motorized traffic is dominated by motorcycles. Asia: China, India, Indonesia, and Vietnam are the dominant motorcycle markets in the world; Brazil's frontier towns are equally popular with motorcycles.

Following the global economic recession of 2008, the motorcycle market shot up by 6.5%, with the popularity of motorcycles increasing across the world in recent years. In the United States of America there was a 51% registration increase between 2000 and 2005. This is majorly associated to the upward trend in fuel prices and congestion in urban areas (Nkede, 2012). Asingo (2004) pointed out that China for a very long time had traditionally emphasized the use of Non-Motorized and Intermediate Modes of Transport. China being the largest manufacturer of bicycles has had the highest fleet of bicycles in the world till recently that there was a decline due to increased access to more convenient, safer and faster modes of transport. Countries like Chile, Peru and Philippines which had lain emphasize on motorized transport had started shifting from motorized transport. Chile for example, constructed a 40-kilometer bike line in Santiago city. This was geared towards facilitating more use of bicycles, easing congestion on roads and controlling pollution. The origin of the motorcycle taxi in Sub Saharan Africa can be traced to the bicycle-taxi which has been in use for transportation since the colonial time. In Benin, bicycles were the primary means of road transport.

The bodaboda taxis in East Africa are part of the African bicycle and its emergence can be traced back in the 1960s in the Kenya-Uganda border, the service arose due to demand to move people and their merchandise between the Kenya-Uganda borders without the documentation required when using motor vehicle to cross. This arose from the southern border, which rapidly spread to Malaba town (Kenya), the Northern border. The bicycle riders in their effort to draw the attention of potential customers would shout out border-to-border which leads to the name "bodaboda". The development of bodaboda as key alternative means of transport has also impacted on several sectors of the economy (Heyen & Jurgen, 2006). Porter (2013) indicated that a common trend in rural areas is provision of feeder services by motorbikes, connecting inaccessible areas to motorized transport at the paved roads which has positively changed the rural areas in many ways. Porter further states that regular and reliable transport facilities as well provide a crucial de-isolating role; They not only allow the rural populace access to vital service areas in urban areas but also enable key service personnel to travel to the rural areas to make their expertise available in rural facilities thus provide regular services in rurally-located service sites.

1.1.1 Bodaboda business

The Kenyan Traffic Act describes a motorcycle as a motor vehicle with less than four wheels whose un-laden weight does not exceed four hundred weights. Motorcycles are designed for different purposes and come in different kinds to suit their use. Those envisioned for use on all weather roads are referred to as street motorbikes while off road cycles are intended for use on seasonal roads and rough terrains, sport bikes are lighter and more powerful (Howe, 2003). Motorcycles differ substantially depending with the intended purpose. Oxford English dictionary (2009) defines a motorcycle (bike, cycle, motorbike) as a two-wheeler motor-driven road vehicle but with an internal combustion engine. In Kenya, the motorcycle Bodaboda provides 3 types of services. Firstly, the short distance service within main urban areas competing with conventional taxis and Tuktuks. Secondly as feeders to urban areas with low density demand, or rough terrain where other means are non-attractive and thirdly as feeders to main roads competing and supplementing taxis and larger capacity matatus (Mwobobia, 2011).

Since 2008 after the Government of Kenya scrapped off the import duty for motor cycles, the growth of motorcycle as a public mode of transport has been tremendous in Kenya. Though offering certain transport advantages such as demand responsiveness, ability to travel on poor roads and easy maneuverability bodaboda evolution has equally resulted to an equal rise in road carnage and environmental degradation (Kumar, 2011). In Kenya motorcycle mode of transportation, has created employment for many youths who would otherwise be jobless. Previous studies indicate that several youths in Kenya are jobless, the reason some have pursued extra means of getting income to improve their livelihoods by venturing into bodaboda industry as a business. Being the most common mode of transport in the up-country the number of Bodaboda operators grows daily.

Another contributor to its fame is its affordability and convenience as a mode of transport for short distances (World Bank Road Research, 2009). According to Mwaura (2013), there is a spectrum of stakeholders associated with the bodaboda mode of transport; this has led to various economic, social and political interests and conflicts in the transport sector. Mwaura noted that since the presidential decree allowing bodaboda's as a means of public transport, they have now become strong competitors of main modes of transport in towns and dominating the rural transport as the best alternative for all sorts of jobs and distances. The bodaboda industry in Kenya has grown to be one of the largest informal sectors in the country, employing thousands of youths

Despite their increasing popularity, bodaboda presents unique shortcomings from the view of the public interest; there growth has been without adherence to safety prescriptions as stipulated in the traffic laws of the various countries. Motorcycle distribution has been carried out with little consideration to proper operator training and licensing, safety precautions have been neglected, urban roads and highways are increasingly becoming unsafe as incautious and unknowledgeable bikers compete on the street for customers, in addition to

safety, motorcycle growth has brought some undesired effects like crime, health and environmental problems (Kumar, 2011).

Statement of the problem

According to a study carried out by Ayanwuyi (2013) on rural dweller's perception of impacts of motorcycle (Okada) services in community development in Nigeria, the use of motorcycle as a commercial transport services (Okada) has come to stay. The results of his study showed that the okada services have contributed both positively and negatively to the rural, local government, state and Nigerian economy. The researcher states that all levels of Government need to take an all-inclusive approach at the okada services with the aim of strengthening the overall strategy of regulating the activities of the okada services provider. Mutiso (2010) in his study 'Bodaboda bicycle taxis and their role in urban transport systems: Case studies of Nakuru and Kisumu, Kenya,' found out that the bodaboda bicycle industry operated without proper regulatory structures and that the emergence and subsequent increase in the number of bodaboda bicycle taxis appeared to have increased the burden on the transport infrastructure, in socio-economic terms bodaboda bicycle taxis provide direct and indirect employment opportunities in the towns where they are operating. In the course of carrying out the study Mutiso realized a significant presence of motorcycle taxis commonly known as bodaboda operating together with the bicycle taxis from the same stages alongside each other by competing for the same passengers, he therefore recommended that further research be carried out to determine the role motorcycle taxis are playing, and their externalities and poverty alleviation impacts relative to bicycle bodaboda.

Makhanu (2015) in his study on motorcycle public transport services in Kenya: a study of their compliance with road safety regulations in Kitale municipality found out that Most public motorcycle operators do not know traffic rules to observe. Their level of awareness of existing rules as stipulated in the Traffic Act Cap 403 laws of Kenya is very low, he also noted that compliance with road safety regulations was low among operators' and the level of law enforcement of traffic rules and regulations by Traffic police was equally low, he recommended a consortium of stakeholders to come together to ensure that there is mutual agreement and ownership of the traffic rules and undertake trainings on the health hazards of motorcycles, and consequent effects on economic wellbeing .This will translate into better health and safer riding cutting on cost of medical care , loss of life and loss of earning ability, he proposed further research to determine the contribution of bodaboda to the national economy. Olawo, (2014) in the study on effect of increased investment in bodaboda business on economic empowerment of people in Kisumu West District found out that the high level of bodaboda business activities in the district had positive significant effects on economic empowerment. The study suggested that further studies should be carried out in other districts to establish the nationwide effects of bodaboda business in economic empowerment, hence the need for the research topic; Bodaboda business effects on the rural transport system, in Meru County, Kenya

To the researcher's knowledge no known local study has ever been conducted in Meru County to evaluate the various motorcycle business effects on the rural transport system in Kenya. Therefore, this study seeks to fill this gap by interrogating the elements identified with the bodaboda business and their effects on the rural transport system as identified by the bodaboda riders in Meru County, Kenya.

General Objective

The general objective of the study is to evaluate bodaboda business effects on rural transport system in Meru County, Kenya

Specific Objectives

- a) To find out bodaboda economic effects on the rural transport system
- b) To determine bodaboda health effects on the rural transport system
- c) To assess bodaboda mobility effects on the rural transport system

II. Literature Review

Systems theory

Ludwig Von Bertalanffy (1928), founded systems theory based on principles of physics, biology and engineering. A system is a set of interrelated components that work in a certain environment to accomplish certain objectives. One of the overarching arguments in systems theory is inter-dependence of components. A system will encompass frequently interrelating set of actions and sub-activities that make a system, individuals, structures and processes continually interdependent on each other to enable a system to function. The central argument of this theory is that in their continuous interaction, actors form relations to maintain interactions that according to Turner (1991) are institutionalized. Institutionalization leads to fairly steady patterns of interactions amongst the actors in the system. Systems theory is based on the opinion that society is a system with interdependent institutions, which have particular roles for ensuring stability and congruence within the overall

system. Turner further notes that by assessing how each part contribute to the systematic whole can be used to understand a social system and its constituent parts. This emphasizes on the importance of team synergy helps particular actors remain focused on their individual roles to achieve the overall potential, leading to arrangements that enable teams maximize their potential to act and think in a new synergy.

In a sector like transport, various stakeholders play vital roles in the attainment of the overall sector stability. Systems theory in this study was vital in identifying interrelated components that are underplay within a rural transport system. Key components in this study includes bodaboda operators, Traffic police officers, bodaboda users, government agencies related to transport matters, medical personnel that attend to accident victims at hospitals and other road users. Some of the interrelated systems under this study include; bodaboda transport licensing, motorcycle repairs and maintenance, training of riders, insurance, traffic control and regulations. Systems theory was important in this study from different levels. First, the model helped in identifying effects that are related to bodaboda mobility in the rural transport system. Secondly, the model helped in identifying health and safety issues that are associated with bodaboda business and thirdly, the model helped in understanding the different ways in which bodaboda business has improved the economy in the rural areas.

2.1.2 Theory of Coordination Failure

The bedrock of the theory of coordination failure is the idea that the market may fail to achieve coordination among complementary activities. Complementariness exists in a case where the success of one firm is dependent of the existence of another firm, complementariness presents duo scenarios. The optimal scenario is where all firms perform optimally with all investments realized within the same duration, the other scenario; it would be senseless for firms to take similar actions when the outcomes are believed to be unfavorable. Coordination failure leads to inferior market outcome to a potential situation in which resources would be optimally allocated and all agents benefiting (Hoff and Stiglitz 2000). Rosenstein-Rodan (1943), early coordination failures economists Nurkse (1953) and Hirschman (1957) were the first to raise coordination issues among complementary industries and laid emphasize for the government need to intervene to seek solution to this problem.

Hoff (2000), and Bowles, Durlauf and Hoff (2006) defined the economy as an ecology in which the conduct of one member is critical to the survival of others. The theory of coordination failure is critical to policy-makers, as it offers insights on the complications of market shortfalls which call for specific interventions from various government agencies for the good of all players. The coordination failure may lead the economy to multiple equilibria, some of which may not all be favorable for the survival of every member of the economy, this results to optimal outcome for only a few members of the economy in a situation where optimal results would have been achieved by everyone if there was market coordination. This therefore calls for thoughtful policy developers when developing policies and strategies tailored towards addressing coordination failure issues as according to coordination failure economists, in the multiple equilibria, circumstances, and the government can coordinate firms to achieve good equilibrium which is beneficial to all actors.

This theory helped the study to explain why it's necessary for the actors (policy makers, motorcycle owners, law enforcement agencies, insurance companies and other public transport players) in the transport system to coordinate to create positive equilibrium for their economic benefit and for policy makers to provide guidelines that will be beneficial to the economy and all stakeholders in the transport business.

Rational choice theory

Rational choice theory developed by Dr. William Glasser is a description of human behaviour. Dr. Glasser explains that our live is about our conduct, and that our behaviour is driven by the need to fulfil our basic human needs (Glasser, 1998). The basic assumption of rational choice theory is that behavior of individual actors in the society is a reflection of the choices they make as they attempt to minimize costs and maximize their benefits. This means that people compare costs and benefits of different courses of action before making decisions about how they should act which result to patterns of behavior within the society. The theory lays emphasize on the specific actors and their specific interests as the starting point, the theory emphasizes that institutions and societal change can be explained as stemming from the actions and collaborations of individual actors. Actor's activities are directed towards certain objectives. This theory holds that particular players weigh different options and choose the option that they anticipate will yield the best results. Rational choice theory was vital in informing the study on the significance of stakeholders in making the motorcycle taxi enterprise a success or failure. The theory helps the study to explain the beliefs, actions and reactions of players in motorcycle business. The bodaboda operators, users, pedestrians, traffic police officers, Government and other actors must act in a rational way to reduce road traffic accidents, enhance order and nurture the "bodaboda" business to reap its full potential.

Empirical Review

According to the G.O.K Economic Survey (2016), Employment in the informal sector grew by 6% against employment in the formal sector that grew by 5.2%. Informal employment in the public sector grew from 0.7 million people in 2014 to 0.718 million people in 2015. According to the report, the major contributors of wage employment in the private sector were; repair of motor vehicles and motor cycles; manufacturing, wholesale and retail trade; Agriculture, forestry and fishing; and education accounting for 13.1%, 15.3%, 16.7% and 10.7% respectively. The report further indicates that the informal sector, fondly known as the Jua Kali sector continues to play a significant role in provision of jobs. Other than direct employment, the bodaboda industry supports several businesses which generate income, most towns and bodaboda areas of operation have a bodaboda garage with a mechanic or two, hardware shops selling bodaboda parts, while stages are host to kiosks and shops which sell a variety of foodstuffs and merchandise (Mutiso & Behrens, 2011).

Whereas motorized transport has expanded in many cities in the world, there has been a growing trend in the number of accidents occurring with death and injuries from road traffic crashes being a major public health epidemic. Every year approximately 1.3 million people perish in road crashes and its estimated serious injuries could be as high as 50 million. The burden of road crashes costs between 1-3% of the world's GDP. It is estimated that almost 90% of road deaths and serious injuries occur in third world countries. In high income countries, road deaths are expected to fall but in the rest of the world they are likely to increase by more than 80%. The poor people are the most vulnerable especially the pedestrians, bicyclists and motorcyclists (Makhanu 2015). According to DETR (2000) 14% of deaths and serious injuries in Britain roads are from motorcycle riders although they constitute less than 1% of vehicle traffic, the report further states that motor cycle riders have a poor road safety record with their fatalities approximated to be sixteen times that of car drivers and twice that of pedal cyclists in the United Kingdom.

According to the WHO report (2012) due to the short term and long-term effects of accidents, road traffic accidents have the possibilities to drive families into poverty as accident victims and their families struggle to manage these effects. Road traffic accidents are as well responsible for burdening our ill-equipped health facilities. As a means of addressing this problem, WHO recognizes road accidents as one of the crucial health aspect negatively impacting on communities and has encouraged member states to come up with policies tailored towards changing this trend (WHO, 2012). Due to the government raft of measures to address the traffic accidents menace, road accidents have been on a downward trend with 2015 recording a 6.4% drop in 2015 compared to 2014, however fatalities increased by 5.2% while minor injury cases shot up by 9.5% in the same period (G.O.K economic survey 2016).

Mbugua (2011) found out that majority of the bikers had suffered a combination of several health conditions such as chest complications, persistent headache, backache, teary and painful eyes with multiple fractures being the most common orthopedic condition. The study further indicated that majority of these riders had not sort any medical attention neither did they have any medical insurance cover. This is confirmed by Makhanu (2015) who in his study realized that 67% of bikers do not have insurance cover though 55% of them had been involved in accidents. Makhanu study further showed that wearing personal protective gear among the motorcycle operators was low. Only 2% of operators sampled wore reflective jackets alone, 22% helmet alone, 3% riding boots alone, 10% wore reflective Jacket, Helmet and riding boots. This is a clear indication that bikers are highly exposed to medical and safety risks but do not take sufficient measures to mitigate the risk.

Mobility is measured in terms of the capability to move from one destination to another efficiently; This hence means mobility is majorly affected by the design of the transport infrastructure and the services provided. There has been a notable expansion of motorbike as a public means of transport in Sub-Saharan Africa over the previous decade; they offer unique transport advantages such as ease in movement on poor roads and demand responsiveness (Ajar, 2011). Zelinsky's (1971) hypothesis of mobility transition paired the relationship between population dynamics as rural-urban link; urban-rural link; rural-rural link; and urban-urban link. The four links cause effective links on two ends in transportation system where there is point of production and point of consumption which facilitates the bodaboda business in transport industry.

In Kenya, the motorcycle Bodaboda provides 3 major types of services. Firstly, the short distance service within main urban areas competing with conventional taxis and Tuktuks. Secondly as feeders to urban areas with low density demand, or rough terrain where other means are non-attractive and thirdly as feeders to main roads competing and supplementing taxis and larger capacity matatus (Mwobobia 2011). According to Mwobobia bodaboda industry has uniquely contributed economically and socially in Kenya more so in the rural areas by offering services in situations where the only option is walking, which is ineffective, uneconomical and of inadequate. The low-capacity of bodaboda aids them in providing services in inaccessible rural and urban areas which other forms of transport find uneconomical, they also boost profit margins and efficiency of more conventional transport services by acting as feeders through transporting commuters to and from conventional bus stops.

Contemporary research in bodaboda transport in Kenya by (Masanga, 2010, Nandwoli 2014, Mbugua 2011, Makhau 2015, Stackey 2016, Luchidio 2013, Karema 2013), acknowledges the speedy growth of the industry. However, the effects of its success and its contribution to the rural transport system have not been exhaustively addressed. Notwithstanding the importance of bodaboda in the public transport, through passenger transport and integrating the various sectors in the Kenyan economy not much has been done on the bodaboda business effects in the rural transport system in Meru County.

Pertinent literature on the subject of study that is available is insubstantial and unreliable thus making it unsuitable for strategy formulation and decision making hence there is a gap posed on the need to study the bodaboda business effects on the rural transport system in Meru County which this research intends to fill.

Present Study

The conceptual framework of this study was founded on three (3) independent variables which are; economic effects, health effects and mobility effects. The conceptual framework shows the independent variables that influences the dependent variable of the study.

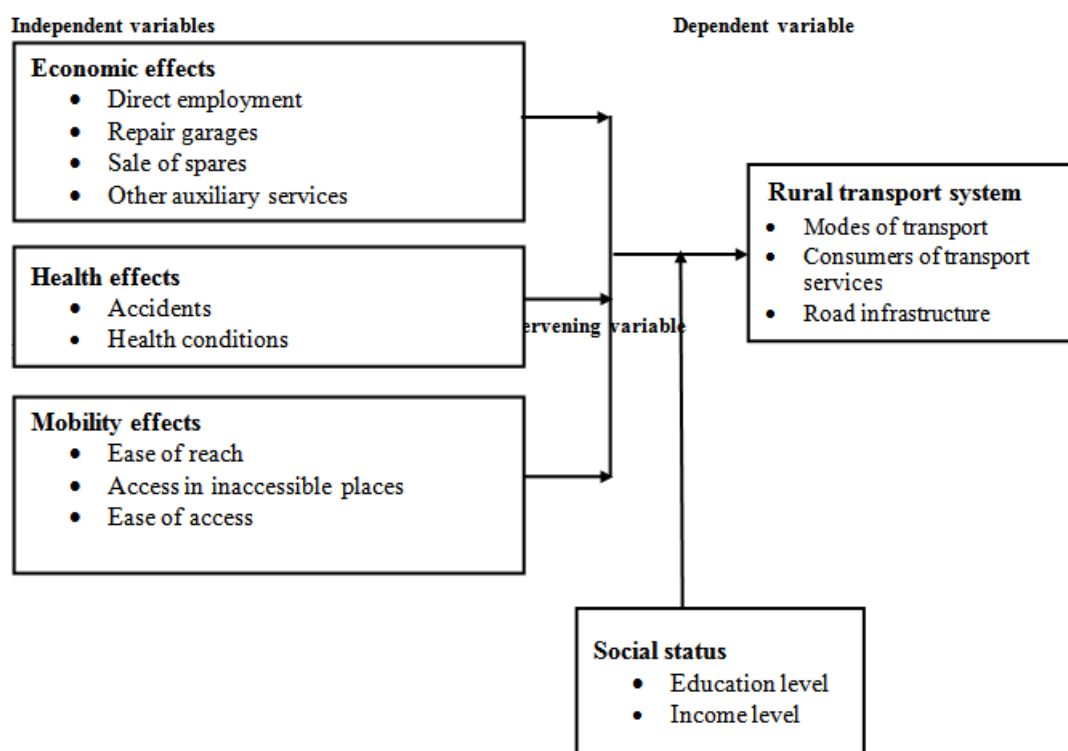


Fig 1.0 the proposed model

III. Research Methodology

Study Design and Participants

The study was conducted using descriptive survey. Descriptive survey can elicit a large amount of information by administering a single questionnaire to a large number of respondents (Mugenda & Mugenda, 2003). The target population was derived from all bodaboda operators in Imenti South Sub County in Meru County and according to the Imenti South Sub County Social Services Department records (2017) there are 19 registered groups of bodaboda operators with 550 bikers. The sample was established through stratified random sampling process whereby 30% of each stratum (the 19 registered groups) was calculated to generate a sample size of 165 respondents (Gary & Cahill, 1992). The response rate was 100 % with all the respondents returning a filled questionnaire for analysis. The gender distribution was 93.8 percent male and 6.2 percent female. The mean age of the respondents was 18-35 yrs while majority of respondents 53% had gone through secondary school education.

Study Procedure

The study was first approved by the ethics committee in National Commission for Science, Technology & Innovation- Kenya. Secondly, informed consent was sought from the selected Bodaboda Associations and their riders. The research instrument was administered to the participating members by a well versed research

assistant on economics and business. All participants received instructions and were informed that the research was voluntary and their privacy was guaranteed. To encourage a high response rate the anonymity of the study was guaranteed at the beginning and questionnaires administered at the respondents convenience. The research assistant checked for any missing data before accepting the questionnaire for data analysis.

IV. Results

Preliminary analyses

The Table 1 presents the means, standard deviations, and zero order correlations of the main study variables. There is a positive and significant association between mobility effect and rural transport system $r = 0.286, p < 0.01$. The association between health effects and rural transport system was positive and significant as $r = 0.215, p < 0.01$ while the association between economic effect and rural transport system was positive and significant at $r = 0.498, p < 0.01$. The association between health effect and mobility effect was positive and significant at $r = 0.390, p < 0.01$, while that of economic effect and mobility effect was also significant and positive at $r = 0.167, p < 0.01$.

Table1.0 Descriptive Analysis; Means, SDs, and Correlations of Key Variables

Variable	μ	δ	Rural Transport System	Mobility Effects	Health Effects	Economic Effects
Age	2.16	0.441				
Gender	1.07	0.250				
Rural Transport System	3.43	0.581	1			
Mobility Effects	4.105	0.470	0.286** 0.000	1		
Health Effects	3.946	0.467	0.215** 0.006	0.390** 0.000	1	
Economic Effects	4.375	0.569	0.498** 0.000	0.167* 0.032	0.217** 0.005	1

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).

Gender was a dummy coded such that 1= Male and 2 = Female

Regression Analysis

Multiple regression equation was carried out to measure relationship between independent variables (mobility effect, health effects and economic effect) and the dependent variable (rural transport system). Coefficient of determination (R^2) and correlation co-efficient reveal that: $R=0.544; R^2=0.295$, Showing that the three independent variables could only explain 54.4 per cent of the total variance indicating that there other factors that this study didn't take into consideration.

Table 2.0 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.544 ^a	0.295	0.278	0.49359

a. Predictors: (Constant), Education Level, Economic Effect, Mobility Effect, Health Effect

The results for the regression analysis are indicated in the table below

Table 3.0 Regression Coefficient values

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.419	0.453		0.925	0.356
	Mobility Effect	0.231	0.090	0.187	2.577	0.011
	Health Effect	0.034	0.066	0.038	0.522	0.603
	Economic Effect	0.466	0.070	0.457	6.695	0.000
	Social Status	-0.041	0.043	-0.064	-0.956	0.341

* $p < 0.05$, ** $p < 0.01$

From the data in Table 4.14, the following was the extracted regression equation: $Y = 0.419 + 0.231X_1 + 0.034X_2 + 0.466X_3 - 0.041X_4$

The study established that rural transport system changes would be at 0.419 holding the effect of mobility, health and economic at a constant. The study further revealed that a unit increase in mobility effect would lead to an increase in rural transport system changes by a factor of 0.231; a unit increase in health effect would lead to increase in rural transport system changes by a factor of 0.034; while a unit increase in economic effect would result in rural transport system changes by a factor of 0.466.

In the computation of the coefficients, the p-value of mobility effect was 0.011 which was less than 0.05 and indication that mobility effect has a positive and statistical significant effect on rural transport system changes. The p-value of health effect was 0.603 which was more than 0.05 which indicated a non-significant effect on rural transport system. The economic effect had a positive and significant relationship with changes in the rural transport system as its p- value was 0.000 which was less than 0.05. The researcher thus concluded that economic effect had the major impact on changes in the rural transport system within Imenti South Sub County of Meru County.

V. Discussion

Conclusion and Recommendations

An analysis of the bodaboda business effects on rural transport system in Meru County, Kenya concluded that there are socio-economic effects brought about by bodaboda in the rural areas. The study demonstrates that the bodaboda industry is dominated by youth who have average level of education with majority having primary and secondary education, few ladies have ventured into this business. With the advent of bodaboda means of transport, mobility in the rural areas has been made easier, this is because bodaboda have free movement as they are not restricted by routes and are able to move to areas that are not attractive to other modes of transport due to its ease of movement in poorly maintained roads. Although bodaboda is the common means of mobility in the rural areas for all classes, it is more prominent to the low class citizens than the high class; the study also concludes that bodaboda is prominent due to its movement to one's point of convenience and ability to get the operators on call.

The economic contributions of bodaboda in the rural areas are immense as they have contributed positively to the rural economy through employment of several youths as riders, emergence of bodaboda spare parts shops, bodaboda garages and shopping centre's, petrol stations, garages and food kiosks which are supported by the operations of bodaboda; despite the immense positive contributions of bodaboda, the study concludes that the business has its negative contributions, this is because bodaboda has led to increased road accidents and health complications to the riders . The study concludes that overall the positive contributions of bodaboda business in the rural areas of South Imenti are more than its negative hence the business should be supported and regulated to reap more benefits and engage more youths who would otherwise be made idle if the industry collapses.

Recommendations

Based on the research findings and conclusion the study makes the following recommendations:

The ministry of health, transport, security and youths needs to come up with a partnership with bodaboda operators and other relevant stakeholders to undertake clinics and trainings on the health hazards of motorcycle, and consequent implication on economic wellbeing and come up with strategies to handle health and accident issues. This will translate into better health and safer riding practices leading to reduced cost of medical care and loss of life. With the increased road accidents and emergence of health complications among the riders, the insurance industry needs to undertake research on insurance uptake by the bodaboda riders. The findings of their research should guide then towards developing products specific for bodaboda which will them help in mitigating accidents and health burdens. Owing to the dominance of young people in the business the ministry of youth needs to come up with strategies to engage the youth on how to sustain and grow their businesses and as well train them on other ways of income generation to cushion the youth incase their businesses are faced with adversities.

The findings of the study reviewed that the road conditions in the rural areas are not anything better even after the advent of bodaboda, the research therefore recommends to the Kenya Rural Roads Authority and other authorities to improve road conditions in the rural areas as this will improve bodaboda operations and help in reducing accidents.

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