

**Effects of Insecurity on the Profitability of Matatu Industry in Nairobi County**

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**Abstract**

The study sought to determine the effect of violent, non-violent and gender-based violence insecurity on the matatu industry profitability in Nairobi County. The target population of the study was 197 Public Service Vehicles SACCOS registered in Nairobi in 2019. The study adopted an exploratory and descriptive research design. The study sought to shed light into the level of insecurity in the public transport and how insecurity affects the sector thus informing the appropriate measures that ought to be put in place to curb the menace. The study applied census given that the target population was small in size. Structured questionnaires with open-ended questions were used. A simple Ordinary Least Square regression model was applied to estimate the effect of violent, non-violent and gender-based violence insecurity on privately owned vans which travels a long a fixed route (matatu) industry profitability. From the study findings, nonviolent insecurities comprising of theft of passengers' luggage and drugging have the highest negative effect on profitability. The study concludes that although gender-based insecurities negatively affect profitability of matatu industry in Nairobi County in Kenya, the magnitude of their effect is suppressed. The study recommends a multi-stakeholder approach to tackle insecurity in the matatu industry, the need for awareness creation and sensitization to the matatu owners on the need to enhance security in their areas of operations, efforts such as employing personal guards at the matatu terminals, installing matatus with security monitoring devices would go a long way in reducing such insecurity incidences in the industry. Fourthly, regulations by the National Transport Authority requiring matatu SACCOS to put up security measures and supervise adherence to these regulations and there is the need for national and county government to form a special security unit to deal with insecurity incidences within Nairobi Central Business District and the Nairobi metropolitan at large.

**Introduction**

According to Cliffe (2004), the public transport business has been in the middle of many kinds of criticism starting from abuse of customers, increased crime rates in public transport, and reckless driving among myriad of other challenges. Cases of bribery and arrest over irregularities have been rampant yet rates of accidents are also visible and at this state the umbrella welfare bodies have been complaining of losing a lot of money out of different circumstances (Cliffe, 2004). The major risk in the industry currently is the high level of insecurity dynamics associated with the industry. This has adversely affected customer trust which has had a bearing on profitability as well. Nairobi County is one of the 47 counties in Kenya. The county hosts the country's capital city. Currently, only 15 percent of the city's 3 million residents drive to work (KNBS, 2016), implying that about 85 percent rely on public transport 'mainly matatus' for commuting within the county. This signifies the importance of the matatu industry in so far as provision of transport services is concerned. It is on this note that the study seeks to investigate the effect of matatu insecurity on profitability of matatu industry in Nairobi.

Transportation networks are conduits through which economic activity takes place. The movement of goods and services via public transport is a daily activity that is inevitable within the economy. Of primary importance is the safety of the users of these means. As such, Ceccato asserts that stakeholders involved in planning of public transport should pay a lot of attention towards safety and conformity of users (2014).

Although early research and seminal works reveal high insecurity risks within the public transport system (Smith & Cornish, 2006; LaVigne, 1997; Clarke, 1996; Block & Davis, 1996; Levine et al., 1986), they also note that this is not the case throughout the globe. To point out a few works, Brantingham and Brantingham (1993, 1995), assert that subway stations within railways transport system tend to attract a lot of insecurity globally from crime perpetrators. The physical and social features of the transport terminal have been cited by early seminal works on public transport system security as key crime generation and commitment given the large number of public transport users in these terminals.

Globally, safety has been at the forefront of transport sector planning for more than a decade. However, despite all the attention from politicians, decision-makers, and scholars, there still exists a gap in knowledge on how travel safety perceptions might influence perceptions of accessibility. In order to encourage both increased use and further development of existing sustainable transport systems, such as public transport, there exists a need to focus on attributes that have the potential of affecting perceptions of the public transport sector. Safety of passengers and their property while on transit is one of these key attributes that, if not addressed, stands to damage the perception of the passengers leading to reduced usage and mistrust in this mode of transport. Further, safety in the public transport sector affects the quality of the service offered by the sector from the dimensions of functionality, information and comfort. This therefore motivates the need for this study in examining how various forms of insecurity in the public transport affects performance of the sector from the profitability point of view.

### **Theoretical review**

The study was anchored on three theories namely: Social disorder theory of insecurity, crime pattern theory and opportunity-based theories of crime. The social disorder theory of insecurity by Hunter (1971), states that insecurity is most likely predicted in neighborhoods with poor physical conditions. This theory could be applicable in explaining the insecurity in the public transport sector whereby social settings such as bus stops, fitting of graffiti in matatus, matatus plying along unsecure areas with poor road networks could be contributory factors towards insecurity in the sector. The crime pattern theory was developed by Brantingham and Brantingham (1984). It asserts that crime is highly patterned and occurs in predictable locations. Third is the opportunity-based theory of crime that was developed by Cohen and Felson (1979). It states that the environment within which the transport operates determines the level and occurrence of the insecurity incidences.

#### **Social Disorder Theory of Insecurity**

According to the social disorder theory of insecurity by Hunter (1971), insecurity is most likely predicted in neighborhoods with poor physical conditions. Further, the theory states that rapid demographic change, both in number and in socioeconomic and ethnic composition is a contributory factor towards insecurity in society. In addition, the theory asserts that the way society networks are formed and how they interact is key in perpetuating or hindering crime in the society.

According to the theory, disorders in society arising from ill social networks, inadequate or lack of social controls which perpetuate society's fear for crime occurrence. The theory tries to offer a link between society attributes on the one hand such as age structure, economic status of the households, previous levels of crimes, and the presence of crime hot spots (such as vacant houses), as well as the structure of the families and insecurity on the other hand. This theory could be applicable in explaining the insecurity in the public transport sector whereby social settings such as bus stops, fitting of graffiti in matatus, matatus plying along unsecure areas with poor road networks could be contributory factors towards insecurity in the sector.

#### **Crime Pattern Theory**

The crime pattern theory developed by Brantingham and Brantingham (1984), asserts that crime occurs in patterns and in predictable areas. The prediction of the theory with respect to crime occurrence is underpinned on the interaction of crime opportunities and the awareness of crime perpetrators. Therefore, based on this interaction, crime tends to happen in a few notable settings/locations for the mere reason that such settings tend to attract crime perpetrators.

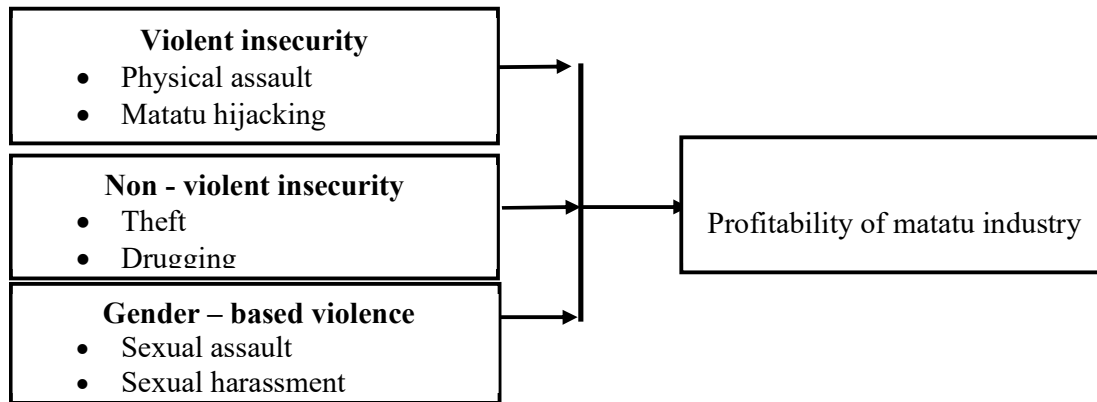
According to the theory, three principal components namely: nodes, paths and edges in relation to public transport shows that crime will tend to occur at the bus terminals. Majority of the bus stations will attract crime given their very nature of accommodating many people who are seeking transport services. In this regard, bus stops are paths of crime. In addition, bus stops are nodes of crime in that they bring together both the crime perpetrators and crime victims. Lastly bus stops are often located on the 'edges' of mixed land use. Since the bus stops are generally areas of transition bringing strangers together, they tend to be susceptible to criminal occurrences. The theory is applicable in justifying the selection of public transport mode as opposed to private transport mode for the study. The theory identifies bus terminals as areas where the perpetrators of crime in the transport sector thrive, therefore implying that this mostly affects the public transport who use these terminals as opposed to private transport which rarely relies on them. This justifies the study focus on public transport as opposed to private transport.

#### **Opportunity-Based Theories of Crime**

The development of opportunity-based theories of crime is linked to the works of Cohen and Felson (1979). The theories explain insecurity around the bus stops as follows; first, the day-to-day activities around the bus stops as explained by the routine activity theory present opportunities for crime happening given the fact that they offer ground for interactions among perpetrators and the crime victims (passengers). The successive changes of this theory add together the conceptions of handlers (persons who keep motivated offenders out of trouble) and position managers (persons who continue with the functioning of a place) as additional forms of controllers of delinquent prospects.

According to these theories, the routine activity theory anchors the distribution of crime around bus stops. The bus stops are therefore deemed to be socio ecosystem that facilitates criminal activities happening as follows: first, bus stops being public places bring together crime perpetrators and passengers seeking for public transport services. Secondly, the movement and accumulation of the passengers around the bus stops makes them visible and easily accessible to perpetrators. Third, other transit passengers may deter crimes from happening by offering some form of protection on the bus. However, it is notable that the ability of some passengers on transit offering some protection against crime perpetration tends to decrease as the passengers targeted for crime move outward from the proximate environment of the bus stop. Lastly, security agents and other place managers charged with responsibility of combatting crimes are not generally close to and around most bus stops. The above conditions are therefore prerequisites to exposing passengers to crime offenders, providing suitable crime targets and the absence of capable protectors. This theory could be applicable in explaining the insecurity in the public transport sector whereby social settings such as bus stops, laxity of security managers at the bus terminals and large accumulation of passengers around bus stops offers a viable socio ecosystem for crime happening.

FIGURE 1



*Source: Author (2021)*

### Conceptual framework

#### Research Gap.

The issue of insecurity in the matatu industry in Kenya remains largely unresearched but only highlighted in news as emerging issues in public transport. The main challenge, however, has been the informal operation and organization of the industry lack of adherence to stipulated rules, inadequate industry regulation framework among other challenges. In addition, the application of empirical techniques in public transport research has been limited at best. This study therefore sought to investigate the effect of insecurity on profitability of matatu industry in Nairobi County using technical empirical techniques.

#### Methodology

The study utilized a combination of research design to achieve the intended objectives. Research design is a framework for specifying relationships between the variables in the study and gives an outline of each procedure from the hypotheses to the analysis of data (Cooper & Schindler, 2014). In this study, a blend of both qualitative and quantitative research designs were employed. The study adopted an exploratory and descriptive research design. This is informed by the fact that the study sought to explain in detail the effects of insecurity in the public transport sector performance. By this, the study shed light onto the level of insecurity in the public transport and how insecurity affects the sector thus informing the appropriate measures that ought to be put in place to curb the menace.

The study target sample was 197 registered Public Service Vehicle SACCOS operating in Nairobi CBD. Upon the actual data collection, responses from 182 Public Service Vehicles SACCOS were received. This translated to a response rate of 92.39 percent thus qualifying going on with the data analysis process. The study relied on the primary data. This data was generally cross-sectional data. This is because the data was collected in a point in time. Therefore, the study used research instruments deemed appropriate for collection of primary data. More specifically, the study used questionnaires for data collection. Mainly, structured questionnaires were used. Questionnaires included both open-ended and closed-ended questions. The questionnaires were self-administered to the sample respondents. Closed - ended questions were used to solicit qualitative data while open-ended questions obtained quantitative data for statistical analysis. The questionnaires were administered to the sampled respondents face-to-face to allow probing for unclear responses as well as seeking for more information from the respondents.

**Descriptive Statistics.**

The study sought to find out the distribution of the SACCOS operating in Nairobi by their registered route of operation. This is because some routes are likely to have more SACCOS registered given the passenger traffic served by the routes. Further, is the realization that the SACCOS are likely to have their matatus operating in more than one route as shown in Table 1

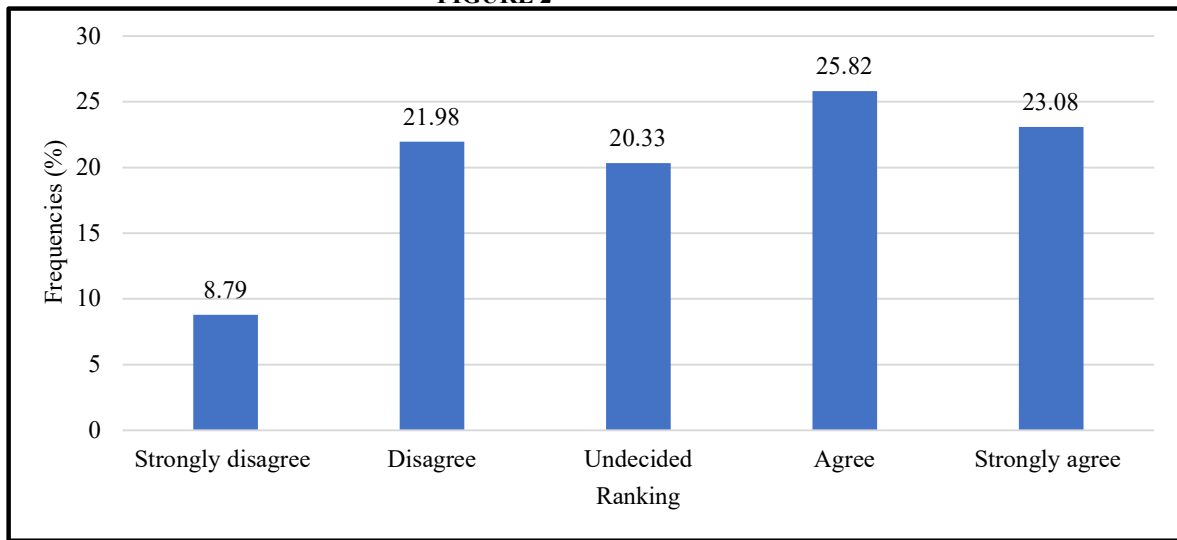
**TABLE 1**  
**Response by SACCOS Route of Operation**

Route of operation	Frequency	Percentage	Cumulative
Limuru road	14	7.69	7.69
Mombasa road	38	20.88	28.57
Ngong road	33	18.13	46.7
Waiyaki Way	21	11.55	58.24
Outering/Jogoo road	29	15.93	74.18
Thika road	47	25.82	100
Total	182	100	

*Source: Author, (2021)*

Lastly, the study examined the overall effect of violent, non-violent and gender-based insecurities on the profitability of matatu industry in Nairobi County. Further, the ranking on the various aspects of violent, non-violent and gender-based insecurities would give an indication into the possible effects theft is likely to have on matatu industry profitability even prior to fitting the regression model.

**FIGURE 2**

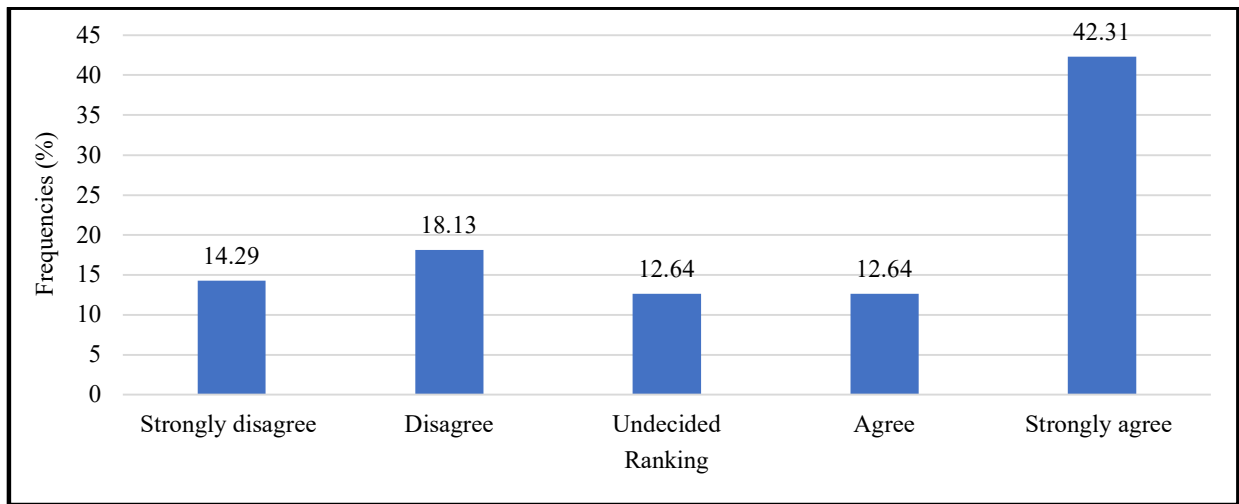


**Violent Insecurity Affects Profitability of Matatu Industry**

*Source: Author, (2021)*

From Figure 2, results reveal that 23.08 percent of the respondents strongly agree that violent insecurity affects profitability of matatu industry. Further, 25.82 percent of the respondents agreed with this finding however, 20.33 percent of the respondents were indifferent/undecided as to whether violent insecurity affects profitability of the matatu industry or not. On the other hand, 21.98 percent of the respondents disagree and 8.79 strongly disagree that violent insecurity affects profitability of matatu industry.

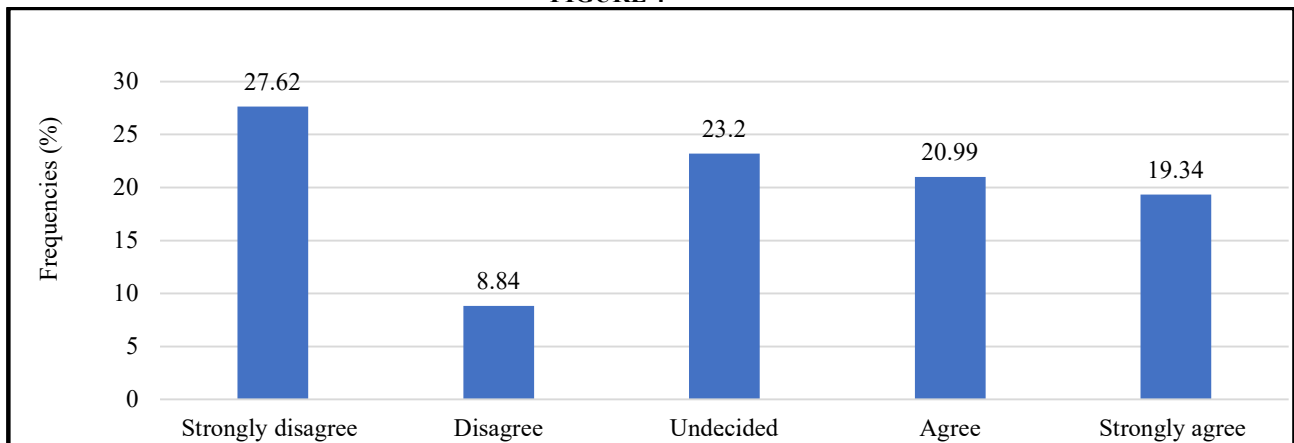
**FIGURE 3**



**How non-violent insecurity affects profitability of matatu industry**  
*Source: Author, (2021)*

From Figure 3, results reveal that 42.31 percent of the respondents strongly agree that non-violent insecurity affects profitability of matatu industry. Further, 12.64 percent of the respondents agreed with this finding however, 12.64 percent of the respondents were indifferent / undecided as to non-violent insecurity affects profitability of matatu industry or not. On the other hand, 18.13 percent of the respondents disagrees and 14.29 strongly disagree that non-violent insecurity affects profitability of matatu industry.

**FIGURE 4**



**How Gender-Based Insecurity Affects Profitability of Matatu Industry**  
*Source: Author, (2021)*

From Figure 4, results reveal that 19.34 percent of the respondents strongly agree that gender-based insecurity affects profitability of matatu industry. Further, 20.99 percent of the respondents agreed with this finding however, 23.22 percent of the respondents were indifferent/undecided as to whether gender-based insecurity affects profitability of matatu industry or not. On the other hand, 8.84 percent of the respondents disagrees and 27.61 strongly disagree that gender-based insecurity affects profitability of matatu industry.

Therefore, given these mixed rankings on the overall effect of violent, non-violent and gender-based insecurities on the profitability of matatu industry in Nairobi County, a regression model would be ideal as it would reveal the causality as well as the magnitude of the effect of these various forms of insecurities on profitability of the matatu industry in Nairobi County. In addition, the regression model has the ability to show the significance level of effect of each insecurity form on the profitability of matatu industry in Nairobi County, thus enabling hypothesis testing as well as policy implications.

**TABLE 2**  
**Regression Model 1**

	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
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Violent insecurity	-0.018	0.076	-0.24	0.014	-0.132	-0.167	**
Non-violent insecurity	-0.027	0.080	-0.34	0.003	-0.185	-0.130	***
Gender based insecurity	-0.149	0.064	-2.33	0.774	-0.144	0.107	
Constant	2.844	0.402	7.08	0.000	2.051	3.636	***
Mean dependent var	2.7532	SD dependent var	1.304				
R-squared	0.6027	Number of jobs	182.000				
F-test	0.0929	Prob > F	0.045				
Akaike crit. (AIC)	619.887	Bayesian crit. (BIC)	632.703				

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Source: Author, (2021)*

The study further went ahead to differentiate the three types of insecurities (violent, non-violent and gender-based insecurities) into actual forms of insecurities. Regression model was then estimated using the actual forms of insecurities. The results are presented in Table 2. Under violent insecurity, physical assault and matatu hijacking were used. For non-violent insecurity, passenger luggage theft and drugging were used. For gender-based insecurities, sexual violence and harassment was used.

The regression model results in Table 3 show that physical assault has a negative effect on profitability in matatu industry in Nairobi County. A one rank increase in the ranking of physical assault was found to reduce profitability by 0.015 units holding other factors constant. The effect was however found to be insignificant at all significant levels. Similarly, matatu hijacking was found to negatively affect profitability with the effect being significant at 5 percent significance level. Further, theft of passengers’ luggage, was found to affect profitability by 1 percent significance level significantly and negatively. Similar results were found for drugging with the effect on profitability being significant at 10 percent significance level. Lastly, sexual violence and harassment was found to adversely affect profitability in the matatu industry whilst insignificant at all significant levels.

**TABLE 3**  
**Regression model 2**

	Coef.	St. Err.	t-value	P-value	95% Conf interval	Sig
Physical assault	-0.015	0.077	-0.20	0.842	-0.137 0.168	
Matatu hijacking	-0.003	0.077	-0.04	0.965	-0.148 0.155	**
Passenger luggage theft	-0.021		-0.25	0.802	-0.182 0.141	***
Drugging	-0.023	0.080	-0.29	0.773	-0.182 0.135	*
Sexual violence and harassment	-0.012	0.065	-0.19	0.853	-0.141 0.117	
Constant	2.867	0.571	5.02	0.000	1.740 3.994	***
Mean dependent var	2.744	SD dependent var	1.308			
R-squared	0.601	Number of jobs	180.000			
F-test	0.045	Prob > F	0.000			
Akaike crit. (AIC)	618.243	Bayesian crit. (BIC)	637.401			

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Source: Author, (2021)*

**Conclusions**

Based on the study findings, the study concludes that in overall violent, non-violent and gender-based insecurity negatively affects profitability of matatu industry in Nairobi County in Kenya. However, from the study findings, it is clear that

non-violent insecurities such as theft of passengers' luggage and drugging have the highest negative effect on profitability. This could be explained by the fact that they are the easiest to be perpetrated without ease of realization and therefore are more likely to be rampant as opposed to violent insecurities which are easily noticeable and require much effort and planning for the perpetrators to commit. The study also concluded that although gender-based insecurities negatively affect profitability of matatu industry in Nairobi County in Kenya, the magnitude of their effect is much muted. This could be explained by fact that women don't have a choice about transport and the drivers are all male, so that skews the perspective on gender-based violence further while the low level of such incidences could be explained by the perpetrators' fear of legal consequences upon being apprehended.

### Recommendations

Based on the study's conclusion, the study recommends a number of policy actions. First, is the need for a multi-agents / stakeholder's approach to the menace of insecurity in matatu industry. This policy action entails collaboration between matatu owners through SACCOS, security agencies such as police and the passengers as well. Set up of security incidences reporting lines with stickers on the same mounted in matatus, passengers pick up and drop terminals would go a long way in reducing such incidences in the industry.

Secondly is the need for awareness creation and sensitization of the matatu owners and SACCOS on the need to enhance security in their areas of operations given the negative effect insecurity has on their businesses. Efforts such as employing personal guards at the matatu terminals, installing matatus with security monitoring devices such as CCTVs would go a long way in reducing such insecurity incidences in the industry. Further, regulations by the National Transport Authority requiring matatu SACCOS to put up security measures and supervise adherence to these regulations is a welcome policy action. Thirdly is the need for national and county government to form a special security unit to deal with insecurity incidences within Nairobi Central Business District and the Nairobi metropolitan at large.

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