Assessing the Impact of Transportation on the Economic Development in the Kumasi Metropolis

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Abstract
Transportation vestiges the mainstay of the economic development of nations across the globe. The important contributions of transportation in the economic development of any country cannot be underrated. Conveyance generates links for consumers to have access to goods and services and also for contractors to supply goods and services to the market. The non-appearance of a decent transference system distracts the stock restraint organisation and cripples the financial expansion of any country. This study was conducted in Kumasi Metropolis on the influence of transportation on the economic development of the Metropolis. The study was driven by the desire to expose the important relationship between transportation and economic development to help the City Authorities and Development partners make well-informed pronouncements that can result in a healthy economic development and societal alteration. In pursuing this, a sample size of 120 Traders from four market centres in Kumasi Metropolis was conveniently selected for the study. The study used a designed questionnaire to collect both qualitative and quantitative data, having adopted a mixed-method research design. The data was analysed and the findings showed that the majority of the respondents (61.9%) were satisfied with the road conditions in the Kumasi Metropolis as 25.7% and 39.4% tagged the Metropolitan roads as very good and good, respectively. Transportation was identified to have a direct positive correlation with economic development in the Metropolis. However, the study identified some challenges affecting transportation in the Metropolis, which included traffic congestion, inadequate parking spaces, and reckless driving by some drivers. Therefore, the study recommended that the Metropolis, in collaboration with Urban Roads, should identify and widen critical roads to at least two lanes per direction to reduce traffic, and also, City Authorities and Kumasi Metropolitan Assembly should ensure the provision of enough parking spaces at vantage locations in the Metropolis. In another development, city guide personnel should be employed to help direct traffic and the general movement of people.

Keywords: Development, Metropolitan Assembly, Traffic, Transportation, Urban roads

Introduction

Transportation infrastructure is typically seen as the ultimate component in accelerating development and evolution. This proclamation is backed by the simple reason that one first needs to have access to markets and ideas before one can profit from them. This assumption is underpinned by a realization in research that a noteworthy development of infrastructure, for example, railways, corresponded with times of quick monetary improvement in Western Europe, Japan, and the United States. Presently, it is evident that more extravagant nations have significantly improved transportation frameworks than many under-developed nations (Banerjee, Duflo, & Qian, 2012).

An enhanced system of transportation in a country is totally essential in promoting financial development within modern economies because it offers ties among dissimilar aspects of a nation and the world at large (Arasan T. V., 2012). It connects people to work, conveys items to market centers, and underpins logistics and supply chain networks just like a national and worldwide exchange. A grounded transportation framework doesn't just add to public development but also catalyses the up gradient of economic activities in a country. Along these lines, there is a connection between transportation and the profitability of a nation (Harriet, Poku, & Emmanuel, 2013). The financial and social exercises of mankind hover around transportation. Transportation serves as a connection to practically all sectors of an economy. Almost all human endeavours depend on transportation. Exchange inside and between various countries is critical to the monetary turn of events and forthrightly rely on transportation (World Bank 2002; Kulash 1999). Henceforth, the significance of transportation to socio-economic development cannot be undervalued.

In both the private and public areas, transportation ventures have verifiably assumed a basic part in encouraging monetary improvement by connecting existing settlement designs at the least cost and by opening up a new area to advancement. Railways and the Interstate Highway System made significant commitments to development by expanding production efficiency, boosting exchange, and considering more prominent advancements in production cycles in the United States. Numerous states and state branches of transportation keep on advancing transportation ventures as a monetary improvement procedure. As per Lacono and Levinson (2013), strategies intended to improve advancement through transportation speculation are getting progressively modern, as authorities search for different approaches to deliberately target ventures to generate more noteworthy gains.

According to Kirkpatrick and Parker (2004), the provision of proficient, dependable, and satisfactory infrastructure is fundamental for monetary development. To be sure, investing in transportation is crucial to the thriving of districts. In any case, they connect people with jobs, government administrations, informal organizations, and projects to work, customers, and providers. The transport framework in a subsequent stage can either increase profitability or potentially diminish the expenses of transport and creation, making the locale more appealing to investors (Pradhan & Bagchi, 2013). The significance of transport framework to financial development has for quite some time been perceived in various studies (Phang, 2003; Esfahani & Ramirez-Giraldo, 2003; Pradhan & Bagchi, 2013; Wang, 2002; Short & Kopp, 2005). By and by, the causal connection among infrastructure and development may exist the other way around, where nations with significant levels of productivity can support the establishment of more infrastructure (Egret, Koźlak, & Sutherland, 2009).

Despite the glaring importance of transportation to economic growth in many parts of the world, investment in transport infrastructure is not the best in the developing world, especially in sub-Saharan African countries. It gives one the chance to conjecture whether the leaders of those countries are not aware of the innumerable benefits associated with improved transport systems for socio-economic development. In the year 2011, Danso-Wiredu conducted a study in Ghana on "Mobility and Access for Off-Road Rural Farmers in West-Akim District". From her studies, several revelations were made that supported the fact that transportation and economic development are intertwined. Regardless of all this, her study proved that transport infrastructure is not the best in Ghana and most of the sub-Saharan African states. The provision of good roads for most off-road dwellers is among the top-notch development priorities of many nations, but developing countries in Africa have not been able to live up to expectations in that regard. (Danso-Wiredu, 2011).

It is universally acknowledged that economic development will find no space in countries with poor transport services and infrastructure. Advanced countries are getting the best in terms of economic development due to improved transport systems. This argument is further solidified by studies conducted by Ding (2013), who also discovered that the development of urban roads leads to a rise in GDP shares in the city for both manufacturing and service industries and that the success of every nation partly depends on the available transport system.

Therefore, this study is conducted in Kumasi Metropolis to assess how road transport contributes to economic development in the Metropolis. The study draws inspiration from the findings of several researchers who have proved that transportation leads to economic development, but investment in the sector is limited in developing countries. The study focuses on transportation and its economic role in the Kumasi metropolis. The City Authorities and the various Development Partners in the Metropolis their participation in the promotion will acknowledge the importance of transportation services.

Problem Statement

According to Naazie et al. (2018), good transport provides uncountable paybacks to states, organizations, and private persons. Transport can promote the movement of goods and people, support economic growth, provide employment, and improve access to health care services and education, in addition to connecting people to their families and entertaining events. But the profits come with costs that have to be looked at. Information from under-developed nations shows that settlements in remote areas from good roads face more significant levels of destitution, lower levels of school participation, and more regrettable wellbeing results. The reason of this study is to look at the road transportation situation in the Kumasi Metropolis and its impact on economic development. The transport situation in Kumasi Metropolis is different from those in rural areas due to factors such as population density, the number of vehicles, and the nature of road infrastructure. Within Kumasi, for example, vehicles and taxicabs control the transportation medium in the Metropolis. The Central Business District (CBD) is "inundated" by an excessive number of vehicles and cabs. Vehicles and cabs structure about 77% of the traffic blend, nevertheless constitute below 30% of all individual outings. Such a situation has added to extraordinary gridlock within the Metropolis, predominantly at the CBD, and consequently impacts the logistics framework and business exercises in the city (Harriet, Poku, & Emmanuel, 2013).

According to Shapiro (2002), mass transit is a requirement for ensuring that the transport systems relative to energy conservation, less traffic congestion, and environmental conservation are both efficient and effective in urban areas. He argued that a successful framework of mass travel is supported by openness, accessibility, and the unwavering quality of transport. He proceeded to say that a successful traffic board and control framework is vital to guaranteeing a powerful

transportation framework in the metropolitan regions. This includes the administration and control of road space, road signals, road users, and parking spots. However, Harriet, Poku, and Emmanuel (2013) indicated that these parameters to ensure effective transport management to yield the needed benefit of economic development are not the best in Kumasi Metropolis as traffic is beyond control, packing spaces are limited, and so on. This study is designed to assess whether these transport challenges still exist in Kumasi metropolis.

According to Harriet et al. (2013), portability in Kumasi Metropolis is compelled because of blockages causing pointless travel delays, especially during top hours, and unfavourably influencing business activities. Along these lines, they suggested that extending the transport framework just as enhancement in the rush hour gridlock and control scheme should be skewed towards improving the transportation framework in the Metropolis. It has been seven years since that study, and for that matter, there is a need to re-assess the transport situation in the Metropolis to ascertain whether their arguments still hold.

Objectives of the Study

- To assess the road transport state in the Kumasi Metropolis
- To evaluate the economic progress of the Kumasi Metropolis in the past decade.
- To evaluate the consequence of road transport on economic progress in the Kumasi Metropolis

Literature Review

The concept of Transportation

Transportation has been defined differently by many people according to their needs. In the studies of Naazie et al. (2018), they saw transport as a means of conveying passengers or goods to a specific area or destination. Their study looked at transport as the drive of goods and services, animals, and people to and from one point to another. They indicated in their presentations that transport can be segmented into vehicles, infrastructure, and procedures. Their argument continued that when embarking on studies concerning transport, it is imperative to acknowledge two fundamental elements that are also interrelated. These are the road network and good infrastructure. Infrastructure incorporates stretches of roads, rail tracks, airspace, and related terminal offices, for example, railroad stations, distribution centers, lorry and vehicle stations, ship terminals, etc., on which development happens or on which the needs of transport are met. A road is a recognisable course, way, or route among at least two spots. Roads are characteristically flattened, cleared, or otherwise set up to allow simple travel; however, this is not always the case, and many roads are conspicuous courses with no conventional development or support. In metropolitan regions, as indicated by Naazie et al. (2018), roads may pass through a town or city and be called roads, thus aiding a double capacity as metropolitan space easement and course. The creation and deployment of goods in diverse locations is one of the many purposes for which transportation is important. More trading and a wider distribution of people are made possible by improved transportation. Expanding the restrictions and judgment of transportation has always been a condition of monetary development (Naazie, Braimah, & Atindanac, 2018).

Transportation sustainability is a big issue since transportation infrastructure and operationalization have significant negative effects on the environment and are substantial energy consumers. The core of tourism and a significant component of leisure transportation is commuter travel (World Bank, 2002). Transportation of people is necessary for commerce to occur, either to allow face-to-face discussion for important decisions or to move professionals from their regular workplace to locations where they are required. Among the numerous transport modes, street transport is the most predominant. Anyway, helpless road/street infrastructure impedes street transport and reduces the social turn of events and portability. Rural settlements are places for the creation of essential products and enterprises around the world. Expansions in adequate streets in the villages will in general build admittance to farming data sources and markets, correspondence, and innovation.

Today, administrations of nations, the world over, are fabricating an ever-increasing number of streets to access the remotest locale of their nations to open the tremendous and undiscovered store of gainful expected lying in these regions (World Bank, 2002). It was revealed through the studies of Lombard and Coetzer (2006) that roads interface towns and empower individuals to work at better places. When food is limited in one spot, it tends to be brought from somewhere with fewer challenges. The better the streets are, the more merchandise can be shipped, starting with one spot and moving on to the next. Great streets assist individuals with making a trip effectively to locations where they work and build up their properties and ventures. In Malaysia, for instance, the upgrading of streets has made it simple for talented labourers from the towns to work in distant towns. Individuals in the towns, on the other hand, have had the opportunity to benefit greatly from the towns. This has brought about progress in all circles of monetary movement (Lombard & Coetzer, 2006).

In the global scene, the first means of transportation on roads were bulls, horses, or even individuals conveying goods over dirt tracks that frequently accompanied the game trail. A royal road was later built by the Persians to pass through their empire (Harrison, 2004). During the emergence of the Roman Empire, there was a need for their armies to travel more rapidly from one jurisdiction to another, and the roads that were there during that era were mostly muddy. As a result, the transport of large multitudes of troops was largely affected (Harrison, 2004). The quest for the Romans to avert this situation led to the building of roads. Roman roads were distinguished by thick roadbeds of crushed stone as a key layer to ensure that they were kept dry since the water would stream out of the crushed stone rather than becoming mud in dirt soil. Later, in Baghdad, the Islamic Caliphate built streets with tar (Bartsch, 2013). Comprehensive street transportation systems, such as the national highway system, and vehicle manufacturing as a sizable economic sector, both experienced rapid development in the 20th century. Particularly after the Second World War, singular travel proved to be roughly affordable for middle-class social classes. This was done to serve the mechanical and commercial markets with consistent house-to-house transportation during significant financial events.

In Ghana, as per Burckhardt (2014), the transport infrastructure has developed through day-to-day use, where individuals cut down trees and make lasting ways. Subsequently, an organisation addressing the issues of self-sufficient cultivated settlements emerged. According to his research,

a few shipping lanes crossed the Sahara during the pre-Pilgrim era, and it was through these routes that the new Islamic culture and ideas reached several regions north of Ghana, such as Mali and Songhai. The frontier transport system, he continued in his entries, had been in place since the sixteenth century, and by the eighteenth century, about 40 small landing points had been established along the coast. With Cape Coast as their main point, European nations and organizations conducted trade with the locals who acted as brokers in the trade between those on the inside and those on the coast, including the Fante (Burchardt, 2014).

The British used the tracks for their transportation, including reclining chairs, for a very long time. They established a street bureau in 1894 to build and maintain roadways. From Cape Coast to Kumasi, the British constructed a route for officers in 1873. Later, it was expanded and extended further north. They also constructed a road leading north from Accra to the Akim Goldfields. Railroads were the emphasis, however, from 1900 to 1920. Europeans used the western line to travel to and from the gold mines, accounting for 66% of the traffic flow, with hardware and coal going to the gold mines. The railroad made it possible to start ranches, although there was initially no cocoa production in the area. By 1915, the cocoa freight had increased to 19,191 tons. As street transportation continued to advance, it was projected in 1951 that the turnover of truck transportation was 4-6 times more than the revenue of the railroads. Food crops were moved to metropolitan territories by trucks, while the mining business and cocoa transportation were still transported by rail. Despite the importance of roads by that time, roads were not in the best of condition (Burchardt, 2014).

Currently, asphalt and concrete are the primary materials for constructing good roads. These two materials are based on Macadam’s idea of stone aggregate in a binder, asphalt cement, or Portland cement correspondingly (Ralph, 2002). From his studies, asphalt is acknowledged as a malleable material, one which will gradually "flow" under the hammering of traffic. On the other hand, concrete is expensive and rigid, which enables it to take heavier loads. The nature of concrete requires a more carefully prepared sub-base to be in place for effective use. Due to this, concrete is used for major roads while asphalt is used for local roads. Concrete roads are frequently enclosed with a tinny layer of asphalt to create a wearing surface.

The complications of transportation in the public sector are diverse and commonly witnessed in less developed countries like Ghana, which are undergoing speedy demographic and economic growth since effective development is connected to the enhanced mobility of people. Modern public transportation systems are not a recent phenomenon in Ghana; they started as far back as the 1990s at the point when the principal rail line was established from Takoradi to Tarkwa for the Smammoth exploitation of gold, and the main street was built between Accra Harbor (presently Jamestown) and Dodowa to Larteh in 1905 for the fare of palm natural products. (Wilson, 2006). Moving from one place to another in Ghana can be done through various modes. One's choice of a certain mode sometimes depends on emergency, convenience, affordability, availability, and reliability. Most of the drivers plying on the roads in Ghana unfortunately do not have licenses. Therefore, it is advisable to use your discretion when it comes to choosing any mode of transport in Ghana. Most road accidents in Ghana are caused by faulty tires, and the poor condition of these tyres can be attributed to the nature of the road. According to Easy Track Ghana (2020), the unlisted explained modes are available in Ghana for transportation.

The main objective of this reading is to assess the influence of transportation on economic growth in Ghana. This subsection tries to establish some theoretical facts on how transportation is positively correlational to socio-economic development. Blakely & Leigh (2010) explain economic development as the practise by which wealth generation is attained through job creation and increasing the local tax base. As a perceived driver of national prosperity, economic development is a broad concept referring to numerous facets of development, including growth in income and wealth, equitable income distribution, and increased quality of life for communities, regions, and states. Access to markets for producers and consumers is necessary for economic growth and development at the local, regional, and national levels. This is based on a reliable transportation system infrastructure (Closs & Bolumole, 2015).

Many researchers have claimed for a long time that infrastructure, in all of its forms—such as telecommunications, water and sewerage networks, transportation networks, etc.—is the foundation of economic growth. Being able to connect people with jobs, deliver goods to markets, support supply chains and logistics networks, and promote both local and international trade all depend on having a strong transportation system (Koźluk, 2017). A road development can decrease vehicle working expenses and speed up the rate at which merchandise can move between dealer

and purchaser. This encourages monetary advancement since it takes into account expanded assembling and administration specialization and the efficiency benefits that come accordingly. Since forever, step variations in vehicle arrangement and advances in vehicle innovation have been related to times of quickened monetary development. Indeed, the development of canals, ports, and delivery lines, railroads, metropolitan mass transit rail frameworks, and air terminals has in each case encouraged expanded exchange between population centres and monetary action, whether nationally or globally (Koźluk, 2017).

In the same line, Fillip and Pope (2014) argued that development in transport systems has the potential to increase trade, consequently conveying more assets such as income taxes and benefits, which thusly add to economic progress. Reduced travel times, more pronounced unwavering quality, safer routes, and expansions in connectivity between topographically distant locations have all been brought about by improvements in transportation infrastructure. These developments increased international trade and globalization. Transportation enables people and organizations to travel throughout their nations and around the globe, fostering trade relationships and growing markets with the intention of making money(Filip & Popa, 2014). Over the years, improvements in infrastructure have been associated with lower corporate costs and greater access to markets, both of which increase productivity and economic growth. For instance, the world's largest cities have continuously expanded their rail, road, air, and maritime networks, which have aided in their development by supplying massive workforces to dense and extraordinarily productive economies. It has long been understood how important investments in economic growth are. According to Filip and Popa (2014) and Martin Feldstein (1988), the sign is impressive. Productivity, output growth, and quality of life improvements occur more quickly in countries with high rates of saving and investment than in those with lower rates.

This section of the review tries to establish the importance of increasing investment in the transport sector since transportation is the fundamental driver steering the affairs of most economies in the world. It is undisputed that a nation cannot develop a robust economic sector with limited investment in the transport sector. This is because the spillover effects of improved transportation are bounty and go beyond the borders of human knowledge of transport's importance to the economy. This is clearly established in Rye's (2017) diagrammatical presentation on the impacts of transport investment on the economy of Ghana. This is presented in figure 1 below.

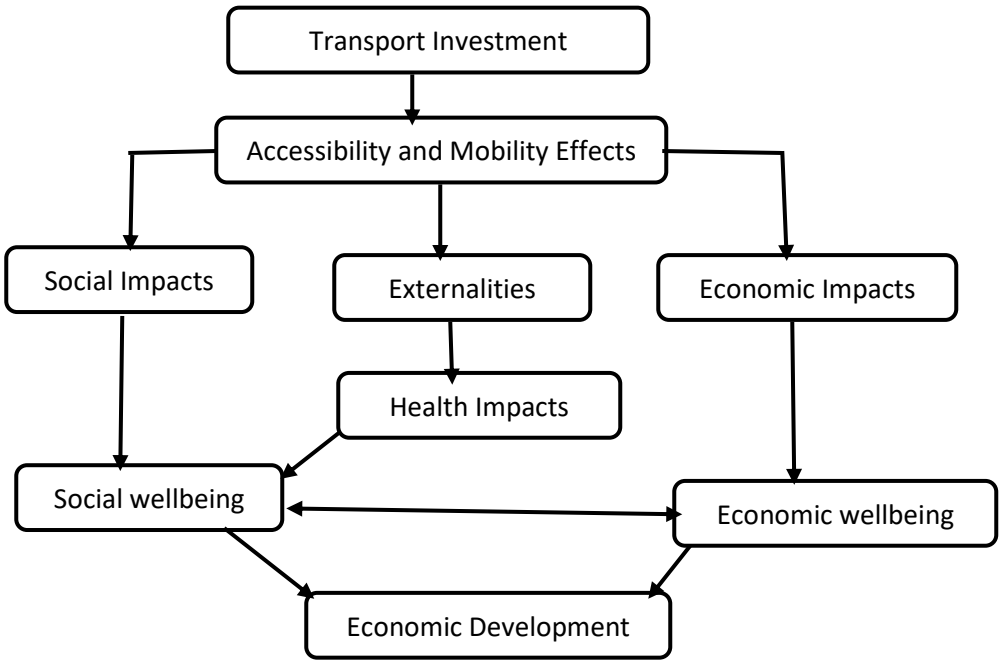

Figure 1

Source: Rye (2020)

Clarified that transport ventures have various over-lapping monetary effects, which can be evaluated from alternate points of view. The underlying effects of ventures 'swell' through the economy both spatially and over the long haul, shows themselves through alterations in a private and modern area, property costs, alterations in the market interest for work and discrepancy consequences for the economy in some random territory/district comparative with different territories/areas.

Perceptibly, transport ventures have various over-lapping monetary effects, which can be evaluated from alternate points of view. The underlying effects of ventures 'swell' through the economy both spatially and over the long haul, showing themselves through changes in a private and modern area, property costs, changes in the market interest for work and differential consequences for the economy in some random territory or district compared with different territories or areas.

As a supporter of a financial turn of events, the transport framework, by its very nature, affects intra-provincial and inter-regional transport time and expenses, and hence possibly the areas of families and organizations. Transport services are delivered and devoured along with the transport

framework. Another extraordinary module of the transport area is that it works essentially as a contribution to numerous different exercises. Firms transport items to dispersion centres and retail sources; organisations send their representatives to meet with clients, providers, controllers, and colleagues; individuals travel to work and for recreational pursuits. All of these things are possible when the government invests in the transport sector (Rye, 2017).

Running through the literature, there were no opposing views on the need to sink resources into transport development as a way to accelerate economic growth. Therefore, this study, through literature, establishes the fact that transportation improvement in a country should be prioritized to help address socio-economic challenges.

In a study conducted by Akoto-Danso (2012), he revealed that in Ghana, the Ashanti Region has made numerous attempts throughout the years to set up a productive and successful vehicle framework to guarantee the transportation of people, materials, merchandise, and ventures is as smooth as could reasonably be expected. Regardless, he noticed that the current transportation framework in the area has neglected to give the required outcome. Subsequently, his investigation tested into the current transportation framework in the area, and it was discovered that the region has a low street thickness of 0.16 km/sq.km, positioning it 6th in the nation and in a helpless condition of dilapidation. The helpless condition of the transportation framework was credited to long stretches of inappropriate arranging and implantation of transportation projects as well as quite a while of disregard of the current transportation offices in the region (Akoto-Danso, 2012).

Likewise, the Ashanti Region has access to several locations across the country via air, road, and train, according to the Ghana Statistical Service (2014). Kumasi is connected to Tamale in the Northern Region, Sunyani in the Brong Ahafo Region, Accra in the Greater Accra Region, and Takoradi by air (Western Region). Kumasi is connected by rail on a number of routes to Takoradi and Accra. The street system connects Techiman and Yeji in Tamale to Kumasi (Brong Ahafo Region). Additionally, the roads connect to Wa (Upper West) via Techiman. Various streets connect Kumasi to Takoradi, Sunyani (Brong Ahafo), Koforidua (Eastern), Greater Accra (Accra), and Cape Coast (Central) (Western). There are not direct routes to Ho (Volta) and Bolgatanga (Upper East). Similar to other regions of the country, the Ashanti Region is connected to many others by road, rail, and air, according to Ghana Statistical Service (2014). Kumasi is connected by

air to Takoradi, Sunyani, Tamale, and Accra in the Greater Accra Region as well as Tamale in the Northern Region (Western Region). Kumasi may be reached by train on a number of routes from Accra and Takoradi. Techiman and Yeji are part of the street network that connects Kumasi to Tamale (Brong Ahafo Region). Additionally, Techiman serves as a road connection to Wa (Upper West). Various streets connect Sunyani (Brong Ahafo), Koforidua (Eastern), Accra (Greater Accra), Cape Coast (Central), and Takoradi with Kumasi (Western). Bolgatanga (Upper East) and Ho (Volta) are not immediately accessible via these routes (Ghana Statistical Service, 2014).

According to Ghana Statistical Service (2014), the primary means of transportation in the Kumasi Metropolis is by road. They outlined how roads are a crucial component of any path towards expressive development and a very important mode of transportation. Trade, social interactions, and all human endeavors grow when there are roads because they allow for the movement of both people and products to various locations. Given the importance of roads, it is encouraging to note that the country's road network is one of the largest. The Central Business District is submerged by the Ring Road, which is part of the Metropolis' spiral-shaped road network. Kumasi and Accra are connected by street networks (the public capital). Additionally, they link it to the nation's typical resource habitats at Takoradi, Cape Coast, and Obuasi (all in the Ashanti Region) (Western). Additionally, they connect the Metropolis to the nation's breadbaskets, namely Tamale (Northern Region), Sunyani Techiman, and Yeji (Brong Ahafo) (GSS, 2014). Air travel is another means of getting into and out of the Metropolis. Currently, it links Kumasi to Sunyani (Brong Ahafo Region), Accra (Greater Accra Region), Takoradi (Western Region), and Tamale (Northern Region). Antrak, Starbow, fly 540 and African Way Airlines are the carriers that bus from Kumasi to these objections. Kumasi is yet to deal with global carriers (GSS, 2014).

Methodology

Research Design

Because it primarily uses quantitative research methods or a mix of qualitative and quantitative methodologies, this study selected a descriptive design. It permits study on an idea, persons, or circumstance that the researcher is already familiar with but only wishes to communicate what they have discovered or noticed (Bridget, 2018). This study specifically aims to do that.

The study's research methodology involved a survey design. The use of sampling and questionnaire design in survey design enables the statistical measurement of population characteristics. Consequently, a survey can be thought of as a method of acquiring statistical data about the traits, attitudes, or behaviors of a group by asking some or all of its members standardized questions (Mensah, 2004). Because the study used a specially created questionnaire to gather information from a sample of respondents among a group of dealers in the Metropolis, a survey design was appropriate.

In terms of research methodology, the study followed the pragmatism paradigm and included quantitative and qualitative methodologies. Pragmatists do not adhere to only quantitative or qualitative methodologies for data collection and analysis since they do not believe that the world is an absolute unity (Creswell, 2009). The concurrent triangulation approach was used in this study, which means that both quantitative and qualitative data were collected simultaneously because it was thought to be more manageable to collect both types of data in the field at or around the same time rather than returning to the field multiple times for data collection. The use of the qualitative method allowed for the collection and analysis of non-quantifiable data and also granted the opportunity to probe further to get a detailed understanding of the phenomenon under study during data collection. On the other hand, the quantitative method allowed the collection of numerical data and helped in the use of charts, graphs, and tables to present information in a more concise and comprehensible manner.

Population

A population of a study is the complete assembling of units from which the sample size can be drawn (Mensah, 2004). In research, the population simply refers to the full universe of individuals from which the sample is drawn for measurement. The study concentrated on traders in the Metropolis by targeting retail and wholesale operators at various market centers in the Metropolis. Statistics on the total number of wholesale and retail traders in Kumasi Metropolis were not available during the study, but enough evidence exists that numerous people in the Metropolis engage in this economic activity (Ghana Statistical Service, 2014).

Sampling Technique and Sample Size

The sample size is the total number of sample units drawn from the population to be surveyed, and the sampling technique is the process for choosing a representative portion of a population to

ascertain characteristics of the entire population (Poku-Boansi & Adarkwa, 2013). To gather participants for the study, convenience sampling and random sample methods were used. According to Bridget (2018), convenience sampling occurs when sampling targets are easily accessible, but random sampling uses a probability sampling technique where every member of the targeted population has an equal chance of being chosen for the study. The simple random method was used to select the market centres, while the convenience method was used to select the traders from the various market centers. The reasons for using these two techniques are that the simple random gave each market centre in the Metropolis an equal opportunity to be selected for the study. Thus, it helped to reduce sampling bias.

On the other hand, the nature of work of the respondents and the undefined schedules of the participants permitted the use of the convenience method, which helped to contact only those traders who were available and accessible during the survey. The study conveniently selected 30 traders from 4 market centres (Kumasi Central Market, Bantama Market, Asafo Market, and Adum Shopping Center) in the Metropolis. Therefore, the sample size for the study was 120 (30 x 4).

Data Collection Procedures

When it comes to the type of data used, the research utilized both primary and secondary data. First hand data that are normally collected through interviews, phone calls, meetings and survey are the primary data while second hand data collected from internet, books, library and other written materials are the secondary data (Gibaldi, 2009).

These two categories of data—primary and secondary—used in the study came from various sources. The secondary data were gathered from printouts from the internet and libraries as well as books, papers, and journals. The main data, on the other hand, were gathered through the distribution of questionnaires from the field. Each of the 120 participants who were chosen for the study received a standardized questionnaire. the participants were personally interviewed for the data collection.

When it comes to collection instruments and procedures, the study used a structured questionnaire and a personal interview to collect both qualitative and quantitative data from the respondents. The questionnaire was developed to include both open-ended and closed-ended questions. The

objectives of the study and the problem statement influenced the sort of questions to be included in the questionnaire. Each of the 120 participants had a separate questionnaire but with the same questions. To ensure that all the stakeholders in the data collection exercise are on a common platform, the questionnaire was designed, in consideration of the following: practicality and relevance; language, phrasing, and structure of questions. All the survey instruments had preambles to explain to participants the purpose of the study, which was nothing less than academic purposes only.

The study collected data from traders through the administering of a designed questionnaire skewed toward addressing the research questions. Traders were visited at their market centres and administered the questionnaires. With the use of convenience sampling, traders who were readily available and willing to participate in the study were contacted until an acceptable response rate in social science research was reached. During the questionnaire administration, the busy schedules of the participants were acknowledged and therefore worked within a convenient timeframe. The questions were read and interpreted to them in their local language. Follow-up questions were asked to make sure all the pertinent information relating to the study objectives had been gathered. Permission was asked from the participants before starting the interviews, and conducted the interviews in a more respectful and humble manner to gain their attention. All the 120 participants were not contacted on the same day. The data collection exercise took 12 days. Each selected market centre took 3 days before all the needed participants were contacted.

Results, Analysis and Discussion

Data analysis is the process of inspecting, rearranging, modifying, and transforming data to extract useful information from it (Chapman, 2018). The analysis began with the editing of raw data collected. This was done to recognise and beyond what many would consider possible to kill mistakes in the finished polls. That ensured the informational collection was perfect in the workplace of fulfillment, precision, and consistency before additional moves were made.

Subsequent to altering, there was coding, which arranged the responses to inquiries into reasonable classes, thereby drawing out a fundamental layout. This was done by apportioning numbers to the reactions, which encouraged simple examination utilizing computer programming like Scientific Package for Social Scientists (SPSS). Different factual components, for example, recurrence tables,

outlines, and diagrams, were used to demonstrate a portion of the outcomes from hands-on work. Both subjective and quantitative instruments of information investigation were utilized to carefully look at the volume of proof that was assembled from the field.

The examination of the subjective information started with the acclimation of the information, consequently, perusing, interpreting, and making introductory notes-to-self. After acclimation and recording, coding and topics were framed. The coding measures started with first-cycle encrypting, which included distinguishing ideas that appear to fit the information. The subsequent cycle of encrypting followed. At this stage, more scientific aptitudes were utilized. This comprised arranging, organizing, coordinating, incorporating, conceptualizing, and hypothesis-building.
The qualitative data collected were diagrammatically analyzed following the steps in figure 2

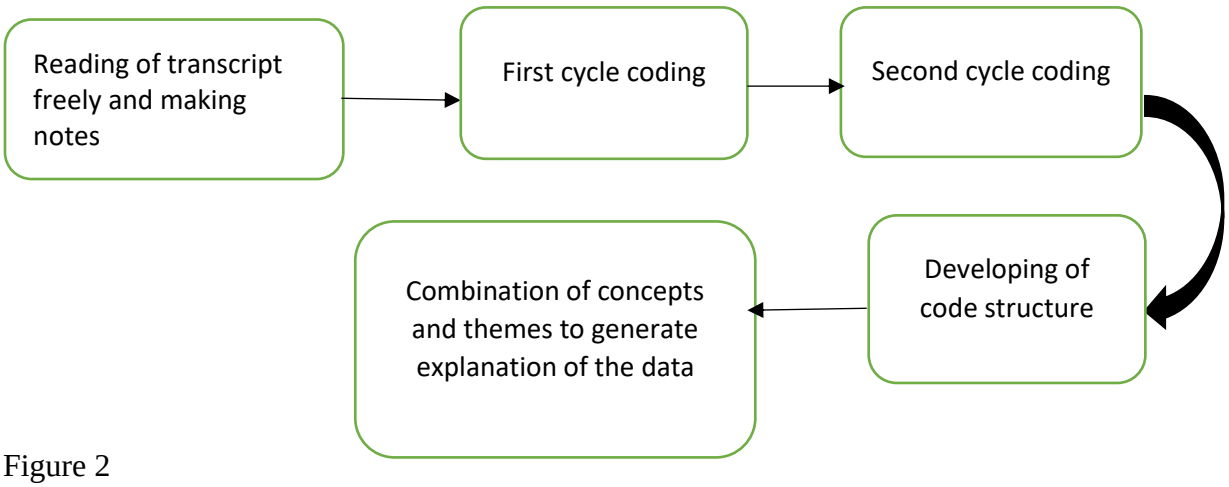

Figure 2

Response Rate
A sample size of 120 traders was chosen for the study. The response rate of these participants is shown in table 4.1 below

Table 4.1 Response Rate of selected Participants.

Questionnaires sent out	Questionnaires retrieved	Response Rate %
120	109	90.83%

Source: Field survey, 2020

A response or completion rate is the percentage of participants who responded to the survey questionnaire during the fieldwork. It is calculated by dividing the number of people who answered the survey questionnaires by the total sample size (Jack, 2008). As indicated by Jack (2008), research proposed to cover a more extensive scope of populaces like all schools, merchants, or

families in a given limit, ought to have a response rate of 80% or more. Thus, a 90.83% response rate is adequate and can be utilized for investigation in this research.

Road Transport Situation in Kumasi Metropolis

The study had the objective of assessing the various transportation services in the Metropolis and those patronized by the traders and how the available transportation services affect the economic development of the Metropolis. After the collection of primary data with a designed questionnaire, the results from the analysis are presented in the subsequent sections below.

Conditions of Transport Infrastructure (road network)

This section tried to assess the respondents on the nature and conditions of road infrastructure in their places of abode. It was intended to appreciate how the road conditions in their areas affect their mode of transport and easy access to transport services. In view of this, the respondents were asked to rank how they perceive the conditions of roads and transportation situations in their respective areas using a scale of "very poor" to "very good". The result is shown in figure 3 below.

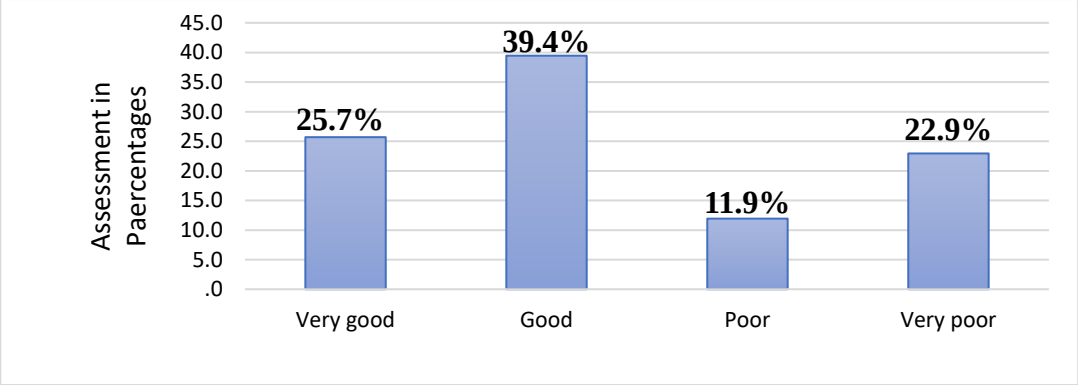

Figure 3: Assessment of Transportation conditions in the Metropolis
Source: Field survey, 2020

It can be deduced from figure 4.1 that 65.1% of the participants are comfortable with the road conditions in the Metropolis whiles the remaining 34.9% are complaining that road conditions in the Metropolis are poor or very poor.

Means of Transport

The study assessed the means of transportation by the Traders to and from their business locations. availability and accessibility to good transportation stand to be the most important need to

accelerating business growth (Naazie, Braimah, & Atindanac, 2018). After interrogation with the Traders on their means of transportation to work, the results, with the help of SPSS, is shown in Table 4.3 below;

Table 4.2: Means of Transport

		Frequency	Percent	Cumulative Percent
Valid	Personal automobile	32	29.4	29.4
	Friend, relative or neighbor	16	14.7	44.0
	Volunteer Driver	3	2.8	46.8
	Trotro or Taxi	58	53.2	100.0
	Total	109	100.0	

Source: Field Survey, 2020

It can be seen from Table 4.3 that the most of the Traders interviewed (53.2%) use "Trotro" or Taxis as a means of transportation. The common reason they gave was that "Trotro" is very affordable and easily accessible anytime anywhere in the Metropolis. That helps to make their movements very easy. Even though, they confirmed that the use of "Trotro" as a means of transportation is not comfortable and at times delays them on way. This goes to confirm the findings of Kwarteng et. al, (2018) that the dominant means of transportation in Metropolis in Ghana, especially Kumasi and Accra, is the use of "Trotro", despite its numerous challenges like less comfortability, insecurity, traffic congestions, and unprofessional drivers. The next dominant means of transportation among the Traders interviewed was "Personal Automobile". Upon further inquiries during the fieldwork, it was realized that not all the 29.4% of participants who confirmed the use of this mode own a car but some have motorbikes and tricycles which they rely on to transport their goods and themselves to the market centers.

It is within the purview of common knowledge that time spent in transit to work has a relationship with the means of transport and that subsequently has an impact on the growth of businesses. This is because according to Naazie et al. (2018) easy accessibility to transport service by economic actors (both buyers and sellers) help the growth of business activities. In trying to understand the linkage of these two variables (means of transport and time spent in transit) to the economic development of Traders interviewed, a Correlation Matrix was queried from the SPSS database for this study, and the result is shown in table 4.3 below

Table 4.3: Correlation between Means of Transport and Time Spent in Transit

		Primary means of transport	Time spent in transit to the business center
Primary means of transport	Pearson Correlation	1	.215*
	Sig. (2-tailed)		.025
	N	109	109
Time spent in transit to the business center	Pearson Correlation	.215*	1
	Sig. (2-tailed)	.025	
	N	109	109

Source: Field Survey, 2020

The result has shown that the majority of the Traders use "Trotro" as their means of transport. When this is juxtaposed to the time spent in transit to reach their business centers, it can be seen, from table 4.4, that the two variables are positively correlated with Pearson's Product-Moment Correlation Coefficient (r) of 0.215.

A correlation measures the strength of association between two variables and the relationship can be negative or positive. A negative relationship means an increase in one of the variables leads to a decrease in the other while the Positive correlation signifies that an increase in one variable replicates the same increase in the other variable. Since "means of transport" is positively correlated with "time spent in transit", it means, in this study, that the continuous use of "Trotro" (which is the dominant use of transportation for traders in the Metropolis) will continue to increase the time spent in transit to business centres. In other words, the study has revealed that Traders will continue to spend more time in transit when they continue to rely on "Trotro" as their main means of transport.

Cost of Transportation

As part of assessing the transportation situation of the Metropolis, one important element which influences the profit margins of Traders is the Cost of Transportation. Therefore, a question was asked to inquire about an amount spent a day on transportation. This one included the cost of transporting goods, fuel cost (for those having private automobile), and "lorry fare" for Traders. the result on the cost of transportation for Traders interviewed is shown in table 4.4 below

Table 4.4 Cost of transportation

		Frequency	Percent	Cumulative Percent
Valid	Less than GHc 10.00	30	27.5	27.5
	11.00-20.00	21	19.3	46.8
	21.00-50.00	49	45.0	91.7
	51.00-100.00	9	8.3	100.0
	Total	109	100.0	

Source: Field survey, 2020

It can be siphoned from Table 4.4 that 91.7% of the respondents do not spend more than GH¢ 50.00 a day on transportation with 45% of them spending between GH¢21.00 to GH¢50.00. From this, it can be concluded that the cost of transportation is moderate, probably due to the mass use of "Trotro" among the traders in the Metropolis. Considering the formula for calculating business profit (Income minus Expenditure), there is no doubt the cost of transportation will not affect one's net profit. Therefore, it can be deduced from Table 4.4 that the moderate cost of transportation is a contributory factor to the relatively high profits traders earn in the Metropolis.

Linkages between Transportation and Economic Development

The research has the prime objective of assessing the impact of transportation on economic development in the Kumasi Metropolis. It is widely accepted in the corridors of economic development that a good transport system is the lifeblood of socio-economic transformation since a good transport system heighten customers' accessibility to market centres as well as easy transport of goods and services to the market places. This is confirmed by Closs and Bolumole (2015), who reported that the fast growth of every country's economy hinges on the available transport system. In the context of this, the Metropolis's transportation usage was examined separately to see how the results might affect the Metropolis's economic development.

Analysis of Transportation Usage

In the quest to carry out this analysis on transportation usage, a 5-point Likert scale was used. The scale ranges from 1 (Strongly Disagree) to 5 (Strongly Agree). After field data collection and analysis with SPSS, table 4.5 below shows the result.

Table 4.5 Analysis of Transportation Usage

REPORT

TRANSPORTATION USAGE	Number (N)	Mean (M)	Std. Deviation	Sum (Weight)
Private Car Usage				
1. Regularly travel in my private car to and from work	109	2.00	1.599	218
2. Prefer to commute to and from work in my private car	109	3.49	1.824	380
3. Find it convenient when traveling in my private car when it comes to work	109	3.50	1.829	381
4. It is important that I travel in my private car for work-related activities	109	3.35	1.802	365
5. Use my private car to and from work every working day	109	2.26	1.493	246
6. Driving my private car to and from work is something that excites me	109	3.04	1.440	331
Mass Transportation Usage				
7. Happy to use public mass transport	109	2.80	1.169	305
8. Open to the idea of using a public mass transport	109	4.09	0.290	446
9. Willing to sit on a public mass transport	109	4.27	0.444	465
10. Prepared to join a public mass transport	109	4.51	0.502	492

Source: Field Survey, 2020

Mean (M), Standard Deviation and Sum of Weights were used to analyze the transportation usage in the Metropolis. Mean and Standard Deviation were used to measure the Central Tendency of the listed variables signifying both private car usage and mass transportation usage. The sum of weights for the variables was assessed as well.

In statistics, the higher the mean of a variable in an informational index shows that the variable is the more concentrated and, besides, more significant of that variable in examination with its connected factors in that informational collection. A low standard deviation implies that the greater part of the numbers is near normal, while an elevated standard deviation implies that the numbers are spread out.

The output of Table 4.5 indicates that the Traders make use of both Private Cars and Public Mass Transport. Considering the "*Mean"* and "*Sum of Weight"* of the variables for Private car usage, "*Convenience in the use of cars"* was ranked the highest with the "*Mean"* of 3.50 and "*Weight*" of 381. The second variable the Traders mostly agreed to was "*the preference to commute to work on private cars".* This variable had a "*Mean"* of 3.49 and a "*Weight*" of 3.80. In simple terms, more of the traders interviewed with the Likert scale attributed a high scale (Agreed or Strongly Agreed) to

the convenience of using private cars to work, and for that matter, their preference to use private cars to and from work. The reasons attributed to this, when further interrogated, were that private cars are easily accessible because the car is always with you and that makes your movement to every place easy at any time. This is in line with Odoom and Kyeremeh (2020), who argued that the majority of people prefer the use of private cars in Ghana, even though they may not have the resources to own one, due to the comfort, prestige, and ease of movement from place to place. However, the Traders who owned private cars lamented that inadequate parking spaces and high traffic congestion made the use of private cars in the Metropolis a challenge.

On the other hand, the traders overwhelmingly endorsed "*Prepare to join a public mass transport"* and *"willing to sit on a public mass transport"* as the two main variables for assessing their mass transportation usage in the Metropolis. The Traders assign a "*Weight"* of 492 to the former and 465 to the latter. Comparing the "*Weights*" to those assigned to the variables in the "*private car usage*", it is clear that the traders are making use of Mass Public Transportation more than Private Cars in the Metropolis. This goes to confirm the output of Table 4.3 above, as 53.2% of the Traders used Trotro or Taxis as their main means of transport to and from work. Thus, the two mentioned variables in this paragraph were accorded with the most *"Strongly Agree*" and "*Agree*" responses from the Traders. It is not because they are delighted to use public mass transport but from observation, it was realized that in the absence of owning private cars, mass public transportation is the next available option for the Traders in the Metropolis.

VARIABLES	REPORT			
	Number (N)	**Mean (M)**	**Std. Deviation**	**Sum (Weight)**
Personal Productivity				
1. Able to finish hard tasks at work	109	4.33	0.782	472
2. Able to take pleasure in my work tasks	109	4.49	0.502	489

3. Feel hopeless about finishing certain work tasks	109	4.37	0.633	476
4. I have been able to focus on achieving my goals at work	109	4.57	0.644	498
5. Have enough energy to complete all my work tasks	109	4.54	0.986	495
Business Growth				
6. Sales have improved over the past 12 months	109	3.99	1.228	431
7. Sales development have been more positive compared to our competition over the past 12 months	109	3.86	1.243	421
8. Our market value has increased compared to our competition over the past 12 months	109	3.82	1.292	416
Economic Development				
9. There has been a rise in my disposable income	109	4.12	1.078	449
10. My standard of living has generally improved	109	4.08	1.090	445
11. My investment ability has generally improved	109	3.91	1.229	426

Analysis of Economic Development in Kumasi Metropolis

The economic development of the Respondents was assessed with a designed questionnaire containing a 5-point Likert scale ranging from 1=Strongly Disagree to 5=Strongly Agree. A set of variables were assessed to evaluate how business activities are moving with respect to Traders' productivity, business growth and economic development. These variables were ranked by the traders following the Likert scale. After SPSS analysis, the output is shown in table 4.6 below.

Table 4.6 Analysis of Economic Development

Source: Field Survey, 2020

From table 4.6, under economic development, the traders assigned a high weight to an *"increase in disposable income"*. This shows that transportation usage has an impact on economic development in the Metropolis.

Correlation between Transportation and Economic Development

Having looked at Transportation and Economic development in the Metropolis as far as trading activities are a concern, the study tried to link the two to assess how transportation situation and usage in the Metropolis have an impact on personal productivities of Traders, business growth, and

economic development. In the quest to do this, the two most highly ranked variables in each section (both transportation and economic development) were paired through a correlational matrix to assess the relationship between the variables. Thus, the transportation usage variables were correlated with the economic development variables to ascertain how the two relate to bringing socio-economic development in the Metropolis.

Summary of Findings, Conclusions and Recommendations

Summary of Findings

The study was driven by three specific objectives. The design of the questionnaire, collection of data, and analysis were done within the framework of these three specific objectives to help the achievement of the main objective. The findings of the study are grouped under the specific objectives as shown in the subsequent sections.

Current Road Transport situation in the Kumasi Metropolis

The study collected primary data on this objective and after analysis, the following was discovered; Firstly, the majority of the respondents (61.9%) were satisfied with the road conditions in the Metropolis as 25.7% and 39.4% tagged the Metropolitan roads as very good and good respectively.

Secondary, the use of public transport (Trotro) was the main means of transport by the Traders interviewed as 53.2% of them confirmed using Trotro or Taxi to and from their business locations. However, 29.4% of the respondents noted that they have private automobiles which they rely on in their daily movements.

Thirdly, there was a positive correlation between the use of public transport and the time spent in transit to work. That is, as Traders continue to use public transport, it increases the number of minutes or hours spent in transit to work. Also, the cost of transportation was relatively low or moderate as 91.7% of the respondents do not spend more than GH ¢ 50.00 a day on Transport.

Economic Development in Kumasi Metropolis

The study used a questionnaire designed on a 5-point Likert scale starting from 1(Strongly Disagree) to 5 (Strongly Agree). Data was collected on Transportation usage and Economic Development and after analysis, the following were garnered; Additionally, the Traders confirmed that there has been an improvement in disposable income, sales of goods and services as well as

the standard of living due to the availability and accessibility of transportation services in the Metropolis. Also, the traders confirmed that there has been an improvement in the standard of living as well as their ability to increase investment.

Effect of road transport on economic development in Kumasi Metropolis.

Under this objective, it was discovered that Traders in the Metropolis are willing and prepared to join a public mass transport to and from work. Also, the Traders find it convenient to travel with private cars to work and therefore, prefer to commute to and from work in their private cars.

Additionally, Transportation has a direct positive impact on economic development as variables used to analyze transportation usage had a positive correlation with economic development variables. Thus, improved transportation and economic development are inseparable.

Conclusions

The importance of good transportation to economic development cannot be overemphasized. This is because the review of literature has proved that aspiring for economic development on the shoulders of poor transportation is like pouring grains of corn into a bag full of holes. Therefore, development partners need to understand the relationship between transportation and economic development so that they can take decisions accordingly. In light of this, this study was organized in Kumasi Metropolis to assess the impact of transportation on economic activities by focusing on activities of traders in four selected Markets in the Metropolis. These markets were Kumasi Central Market, Asafo Market, Bantama Market, and Adum Shopping Center. Random and Convenience Sampling techniques were used to select 120 participants for the study. After data collection and analysis, it was realized that transportation has a major impact on economic development in the Metropolis. Therefore, measures must be in place to address all the transportation challenges in the Metropolis to aid the full development of the socio-economic status of the Metropolis and the people at large. The study was very successful and cooperative as the Traders, despite their tight schedules, managed to buy time to assist in the administering of the questionnaire. The findings of this study are only limited to Kumasi Metropolis.

Recommendations

Based on the findings of the study, the following are recommended;

Firstly, the Metropolis, in collaboration with Urban roads, should identify and widen critical roads to reduce traffic by at least two lanes per direction.

Secondly, the Metropolis, in collaboration with Urban roads, should identify and develop "Urban Arterial Roads" that compose major roads in the Metropolis and upgrade minor local roads to regional roads, which should serve as connections between major radial roads within a 10 km radius from the city center.

Also, in addition to the Inner Ring Road (IRR), the Metropolis should encourage the realization of a middle ring road for better traffic circulation by upgrading existing roads that can be improved to form a middle ring road.

Additionally, the Security Agencies, in collaboration with the City Guards, must enforce the laws on public transportation in the Metropolis by ensuring that Trotro Drivers obey the traffic rules and regulations.

Moreover, City Authorities and the Kumasi Metropolitan Assembly should ensure the provision of enough parking spaces at vantage locations in the Metropolis.

Also, the Driving and Vehicle Licensing Authority (DVLA) should make sure licences are issued to only professional and qualified Drivers alone to operate in the Cities. They must also make sure roadworthiness will not be given to vehicles that are too old in the system.

Suggestions for Future Research

This study concentrated on assessing the impact of transportation on economic development with an emphasis on Kumasi Metropolis. Therefore, the output of this study cannot be generalized for the whole country or Africa. It is therefore recommended that a similar study be conducted in different metropolises in Ghana or nearby countries so that results can be compared to validate whether the results of this study reflect the actual situation on the ground.

References

Abane, M. A. (2010). *Travel Behaviour in Ghana: Empirical Observations from Four Metropolitan Areas. Journal of Transport Geography. 189 – 376.*

Adarkwa, K. K., & Tamakloe, E. K. (2011). *Urban Transport Problems and Policy Reforms in Kumasi. In Adarkwa, K. K and J, Post (Eds); The Fate of the Tree: Planning and Managing the Development of Kumasi, Ghana, Accra: Woeli Publishing Services.*

Adom, D., & Hussein, E. K. (2018). *Theoretical and Conceptual Framework: Mandatory Ingredients of a Quality Research.* International Journal of Scientific Research.

Adom, D., Hussein, E. K., & Joe, A.-A. (2018). *Theoretical and Conceptual Framework: Mandatory ingredients of a quality Research.* International Journal of Scientific Research.

Aghadiaye, E., Adebayo, O., & Emmanuel, A. (2013). *"The Role of Road Transportation in Local Economic Development: A Focus on Nigeria Transportation System".* IISTE Journals.

Akhtar, I. (2016). *Research Design: Research in Social Science: Interdisciplinary Perspectives.*

Akoto-Danso, S. (2012). *Transportation problems in the Ashanti Region: a case study of the cocoa industry and distributive trade.*

Amairia, R., & Amaira, B. (2017). *Transport Infrastructure and Economic Growth: New Evidence from Tunisia an ARDL Bounds Testing Approach.* Journal of Infrastructure Development.

Ameyaw, S. (2010). *Dynamics of Female Entrepreneurship in Indigenous Food Markets; A case study of Techiman, Ghana, Michigan State University Working Paper 205, Michigan State University.*

Anin, E. K., Annan, J., & Alexander, O. F. (2013). *Assessing the Causes of Urban Transportation Challenges in the Kumasi Metropolis of Ghana.* Kumasi: American Based research Journal.

Arasan, T. (2012). *Urban Transportation systems planning. Unpublished Hand Book presented at Short Term Course organized by Kwame Nkrumah University of Science and Technology and Indian Institute of Technology Madras, Accra.*

Arasan, T. V. (2012). *Urban Transportation systems planning. Unpublished Hand Book presented at Short Term Course organized by Kwame Nkrumah University of Science and Technology and Indian Institute of Technology Madras, Accra.*

Banerjee, A., Duflo, E., & Qian, N. (2012). *On the Road: Access to Transportation Infrastructure and Economic Growth in China.* National Bureau of Economic Research.

Bartsch, F. (2013). *BB Handel: Truck freight - nothing easier than. Retrieved 8 June 2020 ISBN 978-07922-8296-9.*

Blakely, E., & Leigh, N. G. (2010). *Planning Local Economic Development Theory and Practice. Thousand Oaks, CA: Sage.*

Bridget, Y. (2018). *Introduction to qualitative research methods. University of Liverpool. .*

Burchardt, J. (2014). *Transportation infrastructure development in a low-income country (Ghana). Comparison with a developed country (Denmark) based on history, culture, climate and geography.* Denmark: National Museum of Science and Technology.

Carney, D. (2002). *Sustainable Rural Livelihoods. What Contribution Can We Make? Papers presented at the Department for International Development's Natural Resources Advisers' Conference, July 2002, London: DFID.*

Chapman, R. (2018). *What is Data Analysis in Research and How to Do It?*

Closs, D. J., & Bolumole, Y. A. (2015). *Transportation's Role in Economic Development and Regional Supply Chain Hubs: Special Issue Transportation & Supply Chain Relations (Winter 2015), Vol. 54, No. 1 pp. 33-54.* Transportation Journal.

Creswell, J. W. (2009). *Research Design, Qualitative, Quantitative and Mixed Methods Approaches (Third Edition). California, London, New Delhi: Sage Publications, Inc.*

Danso-Wiredu, E. Y. (2011). *Mobility and Access for Off-Road Rural Farmers in West-Akim District.* Ghana: Ghana Journal of Geography.

Downie, A. (2011). *The World Worst Traffic Jams time. Available at:*

http://www.time/world/article/0,8599,1733872,00.html. (Retrieve on 20th September,2020).

Easy Track Ghana. (2020). *Local Transporttion Ghana.* Accra: Easy Track Ghana.

Eddington, S. R. (2006). *The Eddington Transport Study – The case for action. Sir Rod Eddington's advice to Government. December 2006. HM Treasury. .*

Égert, B., Koźluk, & Sutherland, D. (2009). *'Infrastructure and Growth: Empirical Evidence.' OECD Economics, Department Working Papers, n° 685, OECD Publishing, 61 p.*

Emmalogo. (2020). *Ghana signs rail revitalisation agreement.* Accra: Emmalogo555.

Esfahani, H., & Ramirez-Giraldo, M. (2003). *'Institutions, infrastructure, and economic growth.' Journal of Development Economics 70 (2): 443–77.*

Feldstein, M. (1988). *"The Effects of Fiscal Policies When Incomes are Uncertain: A Contradiction to Ricardian Equivalence," NBER Working Papers 2062, National Bureau of Economic Research, Inc.*

.

Filip, N., & Popa, C. (2014). *The Role of Transportation in Economic Development.* Constanta, Romania.: Mircea cel Batran" Naval Academy Press.

Flannelly, L. T., Kevin, J., & Jankowski, K. R. (2014). *Independent, Dependent, and Other Variables in Healthcare and Chaplaincy Research.* ResearchGate.

Garth, A. (2008). *Analysing data using SPSS: A practical guide for those unfortunate enough to have to actually do it.* Sheffield Hallam University.

Ghana Statistical Service. (2014). *2010 Population and Housing Census. Regional Analytical Report, Ashanti Region.*

Ghana Statistical Service, G. (2014). *2010 Population and Housing Census, Kumasi Metropolis. District Analytical Report.* GSS.

Gibaldi, J. (2009). *MLA handbook for writers of research papers, New York: Modern Language Association of America, 5th ed.*

GSS, G. S. (2014). *2010 Population and Housing Census. District Analytical Report, Kumasi Metropolis.*

Harriet, T., Poku, K., & Emmanuel, A. K. (2013). *An Assessment of Traffic Congestion and Its Effect on Productivity in Urban Ghana.* International Journal of Business and Social Science.

Harrison, I. (2004). *National Geographic Society: The Book of Inventions. Washington, DC p. 277. .*

Hassink, R., & Gong, H. (2019). *New Economic Geography. .* Kiel University, Dept. of Geography, Hermann-Rodewald: ResearchGate.

Iacono, M., & Levinson, D. (2013). *Case Studies of Transportation Investment to Identify the Impacts on the Local and State Economy Minnesota.* Department of Transportation.

Innocent, N. O. (2018). *The Concepts of Development and Underdevelopment: A Review of Notable Scholars' Arguments.*

Jack, E. F. (2008). *Response Rate and Responsiveness for Surveys, Standards, and the Journal. .* American Journal of Phamaceutical Education.

Keller, W., & Shiue, C. H. (2003). *The Origins of Spatial Interaction. New Working Paper Series: Working Paper 10069.* Massachusetts Avenue Cambridge, MA: NATIONAL BUREAU OF ECONOMIC RESEARCH.

Khadi, O. (2015). *The Maritime Industry of Ghana: Role of our Ports, Challenges and Key Lessons from successful Maritime Nations.*

Kirkpatrick, C., & Parker, D. (2004). *'Regulatory impact assessment and regulatory governance in developing countries.' Public Administration and Development 24 (4): 333–44.*

Koźlak, A. (2017). *The Role of the Transport System in Stimulating Economic and Social Development.* University of Gdansk.

Koźlak, A. (2017). *The role of the transport system in stimulating Economic and Social Development.* Research Journal of the University of Gdansk.

Kwarteng, A.-A. C., Iyer-Raniga, U., & Guillermo, A.-M. (2018). *Transport and Accessibility Challenges Facing the Rural People Living Along Feeder Roads in Ghana.*

Lombard, P., & Coetzer, L. (2006). *"The Estimation of the Impact of Rural Road Investment on Socio economic Development".*

McGaghie, W. C., Bordage, G., & Shea, J. A. (2001). Problem Statement, Conceptual Framework and Research Questions. *Academia Medicine.*

Mensah, S. (2004). *"A review of SME financing schemes in Ghana". Presented at the UNIDO Regional Workshop of Financing Small and Medium Scale Enterprises, Accra, Ghana, 15- 16 March 2004.*

MESTI, & TCPD. (2013). *The Study on the Comprehensive Urban Development Plan for Greater Kumasi in the Republic of Ghana. Final Report Summary.* Kumasi: Japan International Cooperation Agency (JICA).

Ministry of Transport. (2008). *The National Transport Policy.* Accra.

MLNR, & NDPC. (2015). *Ghana National Spatial Development Framework (2015-2035) Volume I: Conditions and Main Issues.* Accra: Republic of Ghana.

Mohmand, Y. T., Wang, A., & Saeed, A. (2017). *The impact of transportation infrastructure on economic growth: empirical evidence from Pakistan. The International.* Journal of Transportation Research.

Mustapha, M. (2011). *"Impact of Transportation on Economic Growth". An Assessment of road and Rail Transport System. Wednesday, January 26, 2011.*

Naazie, A. N., Braimah, S., & Atindanac, V. A. (2018). *The Effects of Bad Roads on Transportation System in the Gushegu District of Northern Region of Ghana.* Tamale: American Scientific Research Journal for Engineering, Technology, and Sciences (ASRJETS)).

Nakano, D., & Muniz, J. J. (2018). *Writing the literature review for an empirical paper. Production, 28, e20170086. http://dx.doi.org/10.1590/0103-6513.20170086.*

Odoom, D., & Kyeremeh, C. (2020). *Transportation Management Challenges in Ghana: A Study of Three Selected Companies in the Sekondi-Takoradi Metropolis.* Takoradi: American Journal of Economics and Sociology.

O'Kelly, M. E. (2014). *Spatial Interaction.* Columbus, OH, USA: The Ohio State University.

Okoko, E. (2006). *Quantitative techniques in urban analysis. Ibadan: Kraft Books Limited.*

Patawari, V. (2015). *The Importance of Proper Education for Successful Trading.* Linkedin.

Phang, S. Y. (2003). *'Strategic development of airport and rail infrastructure: the case of Singapore.' Transport Policy 10 (1): 27–33.*

Poku-Boansi, M., & Adarkwa, K. K. (2013). *The Determinants of Demand for Public Transport Services in Kumasi, Ghana.* Kumasi: Journal of Science and Technology, Vol. 33, No. 3 (2013), pp60-72.

Pradhan, R., & Bagchi, T. P. (2013). *'Effect of transportation infrastructure on economic growth in India: The VECM Approach.' Research in Transportation Economics 38: 139–48.*

Pryn, M. R., Cornet, Y., & Salling, K. B. (2015). *Applying Sustainability Theory to Transport Infrastructure Assessment Using a Multiplicative AHP Decision Support Model Vilnius*. Gediminas Technical University (VGTU) Press.

Ralph, M. (2002). *Construction UK: Introduction to the Industry, Oxford: Blackwell Science, p. 51, ISBN 0632-05852-8,*

Robson, C. (2011). *Real-world research: A resource for social scientists and practitioner – researchers. Malden: Blackwell Publishing.*

Rodrigue, J., Comtois, C., & Slack, B. (2013). *The Geography of Transport Systems, 3rd edn. London: Routledge.*

Rye, T. (2017). *Transport and economic growth. SCOTS Annual Conference Pitlochry. .* Edinburgh Napier University.

Sen, A. (1999). *Commodities and Capabilities. Oxford: Oxford University Press.*

Short, J., & Kopp, A. (2005). *'Transport infrastructure: Investment and planning. Policy and research aspects.' Transport Policy 12 (4): 360–67.*

Venables, A. J. (2012). *New Economic Geography**. London: London School of Economics and CEPR.

Wang, E. (2002). *Public infrastructure and economic growth: a new approach applied to East Asian economies.' Journal of Policy Modeling 24 (5): 411–35.*

World Bank. (2002). *Rural Roads and Transport: Overview and Conclusions from managing and financing rural transport infrastructure. Washington. World Bank, electronic; htt://www.worldbank.org/file.*

Zikmund, W. G. (2010). *Exploring Marketing Research, Dryden Press, Fort Worth.*