

Of What Significance Are Improved Main Roads in Malawi? Economic and Non-Economic Perspectives of Rural Communities from Karonga and Chitipa Districts

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Abstract

Road transport is the predominant mode of transportation in developing countries and is the major driver of the socio-economic development of the countries. However, little is known about the empirical evidence of the economic and non-economic impact of these roads to rural communities in Malawi. The main aim of the study was to explore the economic and noneconomic perspectives of improved roads from the perspective of rural communities residing along the improved Karonga-Chitipa road. The phenomenological qualitative approach and case study design were employed to identify both the economic and non-economic impacts of improved Karonga-Chitipa road from the perspective of rural communities dwelling along this road. The study found out that improved Karonga-Chitipa road had an economic and non-economic impact on rural communities along the road. The economic impact included intensification and extensification of forestry-based businesses, the growth of business in rural areas, and employment creation. The study found out that the improvement of the road had brought some positive non-economic impacts like improved mobility, access to social amenities and migration. The study recommends further studies on mechanisms for sustaining the positive impacts on the well-being of the rural communities.

Keywords: Economic impact, non-economic impact, improved Karonga-Chitipa road, livelihood, rural communities, China, Malawi

1. Introduction

Malawi is a landlocked country in Southern Africa, which shares common borders with Mozambique to the East and Southwest, with Tanzania to the North and Northeast and with Zambia to the Northwest. The economy of Malawi depends on agriculture which is predominantly smallholder. As a landlocked country, Malawi relies on overland transportation to gain access to seaports for the movement of its imports and exports. For Malawi to compete favourably in the regional and international markets, the availability of external transport links, which are dependable and less costly, is crucial. At the domestic level, transport is essential in the distribution chain and is a significant factor in the health, education and economic status of people. It is because of the preceding that if the Malawi economy is to grow at all, the transport sector must play its full role (Malawi Government, 2015).

Malawi Growth and Development Strategy II¹ (2015) identifies road as an essential component of all the key areas for Malawi's sustainable economic growth contributing directly to three of the other four key focus areas: Tourism, Mining, and Agriculture. Roads, which handle more than 70% of internal freight traffic and 99% of passenger traffic, are the country's most dominant mode of transport. Road transport is also vital for international trade as it handles more than 90% of freight and passenger traffic. The national road network is composed of 15, 451 km of which about 26% are paved. The rest of the road network (74%) is of earth/gravel surface. Studies carried out in 2005 by Roads Authority identified about 10, 000 km of the undesignated road network that serves the rural communities. Hence the total public road network will be approximately 25, 000 km once the new classification has been gazetted.

In Malawi, the decision of making of which road to construct or upgrade rest in the hands of the government, the donors or the local councils depending on the classification of the road. The donors may choose which road to fund according to their priorities and programs they are implementing in a particular area. The government also has its priority roads that it would like to develop in a specific period according to its strategic plan. Such roads can either is financed by the government, donor or a combination. These roads that are chosen at central government level are constructed, upgraded and maintained at central level by Roads Authority (RA). The Roads Authority takes an advisory role in the decision process. The government has decentralised some roads to district level where the District Assemblies (DA) make decisions on which road to construct, upgrade or maintain.

According to the Roads Authority official, the Karonga-Chitipa is a Malawi government demand driven

road to the Chinese government. The road was chosen for upgrading because the two districts had experienced increased population, increased economic activities in the area, low volume vehicles, the poor terrain of the area and high use of an unmotorized mode of transport which is used in the area. Karonga and Chitipa districts are located in the Northern Region of Malawi 553 kilometres and 647 kilometres away from the capital city, Lilongwe, respectively. Karonga and Chitipa districts are Malawi's border districts with Tanzania and Zambia. Karonga district is the main international route connecting Malawi to the seaport of Dar-es-Salaam in Tanzania. The districts have a population of 327, 084 and 211, 110 respectively (National Statistical Office, 2015). Most of the people in the two districts live in rural area with agriculture being the primary source of livelihood. The poverty levels of Karonga and Chitipa are 61.7% and 75.6% respectively which are higher than the national average of 56.6% (National Statistical Office, 2015). The road also connects essential economic areas of the country such as Kayelekela Uranium mining site, Lake Malawi and smallholder banana and coffee plantations in these districts. The road was purposefully selected because it was funded by China aid and was one of the recent most extended improved roads connecting districts that have never been connected with tarmac road since independence in the northern region of Malawi. This paper intends to contribute to the debate of how the improvement of main roads enhance economic and non-economic activities in communities along such roads. It describes the economic and non-economic impressions of improved main roads from the perspective of people from the rural districts of Karonga and Chitipa in Malawi.

2. Roads and rural development nexus

Roads are the predominant mode of transport in African countries, and represent a critical element for economic development (Boateng et al., 2015). According to World Bank, (2009), among infrastructure, roads are considered of first interest to reduce poverty due to the widely accepted consensus that transport infrastructure has a significant, positive and substantial impact on economic growth and poverty alleviation as it enhances the connectivity of isolated and remote areas.

2.1. Roads and rural economic growth

Better access to roads could have a considerable role on economic growth in the country primarily for countries which have very low initial road density and even more so for the landlocked, like Malawi, (Terefe, 2012).

In his study in the Republic of Palau, Akee (2006) observed that households quickly respond to opportunities once the new roads are in operational. Also, he found that the community had a marked increase in wage sector employment, a decreased in self-employment in agriculture since most labours went into wage labour. However, the study revealed negligible impact on household wage and income. A study by Asher and Novosad in India found that the provision of a new, paved village approach road produces significantly faster employment growth and corresponding reducing unemployment. Good transport infrastructure is a necessary condition for economic growth and poverty alleviation, but transport investments alone cannot address the problems of the poorest households (Gachassin et al. 2010). Conversely, rural roads can accelerate the depletion of natural capital (e.g. due to deforestation occasioned by easier access) and may also contribute to the diminution of social (e.g. loss of cultural heritage and diversity, the decline in social cohesion) and political capital (e.g. from corruption and misuse of public funds (Faiz, 2012).

2.2. Roads and social service

Most rural areas in the world are inaccessible due to poor transport services and infrastructure. According to the United Nations (2014), 54 per cent of the world's population lives in rural areas, with Africa and Asia accounting for nearly 90 per cent of the world's rural population. The importance of roads cannot be overemphasised, more importantly to rural areas, to access social and economic facilities. Faiz et al. (2012) further explain that rural roads reduce the monopoly power of intermediaries (intermediaries) in agrarian markets by reducing the value chain through easy access to markets. Limited and difficult access reduces the potential for economic growth and retards the benefits of investments in other sectors that can improve and sustain the livelihoods of poor communities. The study conducted by Tanga et al. (2014) in Lesotho found that improved road infrastructure and public transport had improved people's access to social services, such as health, education, banks, postal services and markets, which were 135 kilometres far from their area. Further to that, security also intensified, and crime rate decreased as police officers were able to patrol the area efficiently. Also, roads enable installation and retention of agriculture extension services, for residents to adopt new agricultural strategies to promote food security and improve agricultural yields. This is due to the reason that residents were now able to travel, buy and use new improved seeds and fertilizers and managed to sell their produce, people were able to attend funerals and other important ceremonies that bind them, which was not possible before the improvement of road infrastructure and public transport (Tanga et al. 2014).

Tanga et al. (2014) explain that rural areas in the country are becoming increasingly excluded from most services that are likely to be of great importance. The lack of both public transport and road infrastructure in the

rural areas limits the access of the rural poor to most services, including health services and markets. Therefore, public spending on rural roads is crucial as it contributes significantly to lift rural people out of poverty and improves their livelihood. Research shows that public expenditures to promote economic growth and reduce rural poverty have the highest marginal return on investments in agriculture research, rural roads and education (Faiz, 2012).

2.3. Roads and mobility

During the colonial period of developing countries, development such as road infrastructure was mostly done in areas that served the economic interests and needs of the colonial countries. Therefore, areas with major economic activities were well connected with roads and other communication infrastructures and those areas without significant economic interest were neglected, underdeveloped and inaccessible (Manjah, 2005). Rural roads facilitate access of people to shops and markets, to critical services, to income-earning possibilities and socio-cultural opportunities (cultural and sporting events, religion, family visits). This access can involve the provision of facilities in rural areas (proximity) and the mobility to travel to towns or other areas (Gachassin et al. 2010; Dercon and Hoddinott 2005). While the majority of evidence points towards substantial economic gains from the construction of rural roads, a study by Raballand et al. (2011) found that low incomes and population densities in rural areas may not generate sufficient demand for transportation services on rural roads. Even small favourable prices (far below the marginal cost of a ride) lead to substantial declines in demand for a bus ride, reducing the mobility of people. That is the affordability of transport services, the poorest segment of rural areas populations continue to walk and do not necessarily benefit from rural roads investments. The limited demand for the transport of merchandise and the low quality of roads make the sector unattractive for large investments (Ferf et al. 2014).

2.4. Roads and rural livelihood

Chambers and Conway (1991) define livelihood as the composition of people, their abilities and means of living, including food, income and assets. Livelihood is deemed “sustainable” if it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Hussein and Nelson, 1998). Therefore, the household has to define its livelihood strategy by carrying out different activities using the assets that it has to meet their various needs at different times for its members. Livelihood survival strategies are classified as agricultural (intensification or extensification), livelihood diversification and migration (Scoones, 1998). Section of strategies is based on financial, social, physical, human and natural capital that the household is exposed to (DFID, 1999). The road is one of the physical capitals that the household can be exposed. Road construction and upgrading are very vital because it helps rural areas to be connected to urban areas. Therefore, roads can impact on the choice of household survival either to choose agriculture (intensification or extensification), livelihood diversification (non-agricultural activities) and migration. In Malawi, the predominant livelihood strategy for most households is subsistence agriculture. However, the households do not exclusively do agriculture; they also engage in some non-farm activities to meet their needs in a different season of the year. Common non-farm activities include small-scale businesses, small-scale mining, fishing, casual labour and seasonal labour migration.

Research by Muljono Sinaga, Daryanto and Antameng (2010) in Indonesia on the impact of road construction on household income found out that Development policies in road and bridge infrastructures are potentials to increase household incomes. They further found out that construction of road infrastructure creates business opportunity and accommodates labour force, as well as gives a potential multiplier effect to the local and sectoral economy.

2.5. Roads in Malawi

Road construction is essential for Malawi’s socio-economic growth. According to Malawi Government Rural Transport Policy Development Process (1999), despite having rail, water, road and air transport, the predominant mode of transport in Malawi is road transport. Road transport is the country’s most dominant mode of transport. Roads handle more than 70% of internal freight traffic and 99% of passenger traffic. The road is also essential for international trade as it handles more than 90% of freight and passenger traffic. Lall et al. (2009) explains that Malawi’s rail transport has historically been the main mode for international freight transport, connecting Malawi with its southern neighbors of Mozambique, Zimbabwe and South Africa; the current rehabilitation of Nacala-Sena line which was destructed during Mozambique civil war, will revive importance of rail in Malawi’s international freight movements. The national road network is composed of 15,451 km of which about 26% are paved, geographically distributed in urban areas (Malawi Government, 1999).

Table 1: Road classification in Malawi

Category	Description
Main roads	Inter-territorial roads outside cities or towns unilaterally designated by Government providing a high degree of mobility connecting provincial capitals and serving as international corridors
Secondary roads	Roads outside cities or towns unilaterally designated by Government providing a high degree of mobility linking main centres of population and production and connecting to the main road network
Tertiary roads	Roads outside cities or towns unilaterally designated by Government linking collector roads to arterial roads accommodating the shorter trips and feeding the arterial road network
District roads	Roads outside cities or towns designated by Government after consultation with the District Authorities providing an intermediate level of service connecting local centres of population and linking districts, local centres of population and developed areas with the principal arterial system
Urban roads	Any other road in an urban area other than a designated road including arterial and collector roads crossing city boundaries. The main function is the provision of accessibility over relatively short trip lengths at low speeds and providing services to smaller communities

Source: Roads Authority (2010)

The road network in Malawi was relatively well developed in southern and central regions because of tea plantations and cash crops such as tobacco and cotton that were produced and exported to colonial master, Britain. The colonialist prioritised places that had active and potential economic activities as the criteria for them to develop roads. According to Malawi Growth and Development Strategy II (2010), most rural dwellers are involved in smallholder agriculture and have limited access to basic needs such as health, markets, education and transport infrastructure.

Table 2: Malawi road network

Road class	Paved		Unpaved		Total	
	Km	%share	Km	%share	Km	%share
Main	2809	69	548	5	3357	22
Secondary	442	11	2683	24	3125	20
Tertiary	44	1	4077	35	4121	27
District	8	0	3492	31	3500	22
Urban	770	19	578	5	1348	9
Total	4073		11378		15451	

Source: Roads Authority (2011)

In Malawi, roads are essential at the domestic level; transport is crucial in the distribution chain. Roads reach remote parts of the country and services a variety of people engaged in diverse socioeconomic activities. Transport is a service sector whose role is not only one of meeting effective consumer demand but also of stimulating economic growth within the country. It is because of the preceding that if the Malawi economy is to grow at all, the transport sector must play its full role (Malawi Government, 2015). Improved rural roads and accessibility has a proven direct link to reductions in rural poverty and is therefore of high importance to the development of Malawi. Rural roads are crucial for agricultural production and marketing, to meet domestic requirements for water, firewood and food processing; and to utilise social services such as healthcare and education. Malawi Government has given the development of an all-weather primary road network a high priority to meet growing demand for freight and passengers both at domestic and international level (Kamanga and Steyn, 2013).

3. Conceptual framework

It is documented in the literature (Tanga et al. 2014; Malawi Government, 2015; Faiz et al. 2012 and Terefe, 2012) that road construction in rural areas has many impacts, both positive and negative on communities. As defined by Boateng et al. (2015), the positive impacts are changes that significantly contribute to economic growth and improvement in the standard of living of beneficiaries' communities while negative impacts are those that inhibit economic growth and improvement in living standards. Road construction opens the closed societies hence making it accessible thereby facilitating business opportunities and business growth. The growth, in this case, can either be positive or negative business growth either due to accessibility, competition or availability of substitute's services and products.

4. Research methodology: sampling techniques, study area, data collection techniques and analysis

This study used a phenomenological qualitative approach to inquiry. A qualitative method, according to Creswell (2003), is a process of gathering data involving text (qualitative) to collect more information for the more in-depth understanding of the research problem. This research used a case study design to examine the impact of the improved road on rural communities in Malawi. This design was chosen because of its exploratory purpose (Yin, 1994) and the area of study is distinctive to the geographic unit and context (Newman, 2014). Data was primarily collected using in-depth interviews and focus groups to understand the views of respondents on the economic and non-economic impact of improved Karonga-Chitipa road for the communities along the road.

The researchers used purposive sampling techniques to find participants for the study. Newman (2011) defines purposive sampling as a type of non-probability sampling which is characterised by the use of judgment and deliberate effort to obtain a representative sample by including typical areas or groups of the sample. The researchers chose purposive sampling to accommodate different types and categories of participants. The data were collected from 94 participants which included business owners (22), roadside sellers (16), mobile market sellers (21), business employees (9), key informants (5), and local community household heads (21). Three focus group discussions (FGD) were also conducted with local households and business owners. The FGD comprised of 8 and 9 members drawn from villages surrounding trading centres to allow full participation of all members (Krueger, 2002). Women were included to ensure that their views were also taken. Qualitative data were analysed using thematic analysis where data were coded and grouped into themes.

5. Economic perspectives of improved main roads to rural communities from Karonga and Chitipa districts

The section below describes the economic perspectives of rural communities on improved roads with reference to Karonga-Chitipa Road in Malawi.

5.1. Intensification of forestry based business

The study found that improvement of Karonga-Chitipa road had boosted the forestry-based business enterprises in rural areas. During research, the respondents also said that the improvement of the road had increased production of forestry timber products and the number of people that are involved in timber based businesses for livelihood. During the key informant interview with district council official for Karonga District Council, he said that the number of selling points for charcoal, weaving baskets and firewood has increased in number and size. Even if he did not quantify, similar sentiments were echoed by one of the Village headmen in Chitipa and official of National Roads Authority indicating that there are more households now are into businesses that use natural resource than before the road was improved. Concurring with this phenomenon, one of the respondents during the individual interviews explained;

"... I started weaving and winnowing baskets before upgrading of the road. Before improvement of the road, there were only three of us who were weaving in this area. However, many people had weaving skills, but they could not practice because there was no ready market for the products. After the road was improved, we had seen that our friends started weaving after realising that we are selling our products within a short time. Further to that, many people and vendors from other districts such as Rumphu were coming to buy them here. Seeing this opportunity, we saw mushrooming of points selling weaving and winnowing baskets. As of now, we are more than 16 people in the weaving industry in this area. This trend is not only in weaving but also among firewood and charcoal making domains..."

(2)

5.2. The growth of business in rural areas

Another notable finding from the study was that the improvement of the Karonga-Chitipa road had facilitated businesses enterprises in rural areas to grow. From the study, the business owners indicated that their businesses have grown both in some outlets and volumes of goods they stock for sale. The study found out that businesses in the rural areas are growing in two folds; firstly, increasing the volume of merchandise for the business enterprise and secondly, increasing the number business outlets in other trading centres. In the light of increased demand for the business products and services, the business owners responded by increasing the stock of the merchandise after road construction.

The improvement of the road had improved mobility and accessibility in the rural areas along Karonga-Chitipa road and areas connected to this road. The road has made more accessible for the business persons and companies open branches for their businesses in various trading centres. The trading centres are locations in rural areas where most commercial activities take place, and these are areas in which the business owners establish their businesses. The business owners indicated during individual interviews that improvement of the road had eased coordination amongst their businesses located at different locations along the road and in the periphery. The availability of mobile markets in the study areas has also enhanced these business persons to

increase the coverage for their businesses by attending to such markets. Karonga-Chitipa road has become the core road in the rural areas along which it passes. The feeder roads are being constructed and rehabilitated to ensure better connectivity with the periphery and subsequently improving the mobility and accessibility to such areas. It was established that some of the businesses that are taking place in rural areas along improved Karonga-Chitipa road included small and large grocery shops, wholesalers and distributors, retailers, liquor, agricultural farm inputs and petty trading. One of the traders, *an Agro-dealer had to say:*

"... before road improvement, I only had my business operating at Lufita trading centre. Even if I had the finances to expand my business, I could not because the management was not possible regarding supervision and transportation of goods. However, when the road finished, I injected more money into my business, and I started operating in mobile markets. I reinvested my money to grow my business regarding the volumes of stock and number of outlets. As of now, I operate my old shop and satellite shops which are hosted in four mobile markets of Lifumbo, Misuku, Kapoka and Wiliro..."

5.3. Business diversification

The respondents also narrated during the interviews that they are now able to diversify their businesses, thanks to the improvement of the road. Business diversification in this study means the act of an entrepreneur to venture into another additional business that he or she was doing. Most of the business persons said that the proceeds that they got from the previous businesses they invested in new businesses to increase their financial income base and avert the risk of their businesses. The respondents narrated during individual that they were able now to diversify their businesses because, as most of their new businesses, demand to travel to buy merchandise in distant places such as district headquarters of Karonga, Chitipa and cities such as Mzuzu and Lilongwe. When asked, on what are the drivers of diversification, one of the businessmen, said that:

"... My businesses were in grocery and selling of farm produce. However, now I have diversified my business base into the barbershop, bottle store and phone charging shop. The people are now accessing these services around their vicinity. My monthly income has increased due to this business diversification. This is because I have increased my financial base. In addition to that, this has also improved my cash flow since the selling of farm produce was only done during the dry season, but the new investments are being done throughout the year..."

Business diversification, which is resulting from the demand for specific goods and services, means that people in the rural areas are now accessing such things within their locality. This entails that the rural people are now saving money for transport to district headquarters and time for travelling. Such resources are put into productive activities for the household. In most Sub-Saharan countries, Malawi inclusive, businesses are the most common non-farm strategy for most agro-based households. The study by Kutengule (2000) in Malawi found out that household diversification across the farm and non-farm activities are fundamental if the household is to secure better living standard.

5.4. Employment creation

The study also found that the improvement of Karonga-Chitipa road has helped create employment for the rural people in the study areas. It was found during the study that people and companies established their businesses in these rural communities to provide products and services to people. It was found during the study that business establishment and growth were some of the drivers of business owners to employ people in the study area. One of the employees' interviews said;

"... I work in this stationery shop as a manager; I come from a village on the periphery of this trading centre. I was a secondary school student the time this road was beings improved, but the time the road was completed it conceded with the completion of my secretarial studies from Lufita technical college. This was the very time the owner established this branch shop of his business in our trading centre. I did not bother thinking of going to town to look for employment because the job opportunity unveiled itself within my village. Even if many businesses here are run using family labour, the trading centre is growing each year, and many companies and individuals that are opening their branches here are employing youth from around this trading centre who at least have completed their secondary education..."

The results concur with a study done in Zambia by Lombard and Coetzer (2006) which found that after road improvement, there were formal and informal economic activities such as trading, carpentry, sewing, wood, fuel selling, sawmilling, logging, vending, beer brewing, vending in makeshift markets, baking and knitting as a result of improvement of improvement of feeder roads in Copperbelt of Zambia. Rural employment is critical in rural areas because among other factors that cause rural-urban migration. It was found that people were employed in formal and informal employment. Those employed in the formal employment included the shopkeepers, tax and minibuses. The informal employment included language loaders, touts (callboys), car wash, tire fitters and bicycle repairers. Similarly, in their study in Vietnam, Mu and van de Walle (2011) found

that improvement of the road increased the availability of employment opportunities for unskilled labour by 11 per cent in rural areas of Vietnam. Fox and Porca (2001) in their study found that infrastructure stimulates employment as it attracts entrepreneurs, a quality labour force and investment capital into rural areas.

6. Non-economic perspectives of improved main roads to rural communities from Karonga and Chitipa districts.

The section below describes the non-economic perspectives of rural communities on improved roads with reference to Karonga-Chitipa Road in Malawi.

6.1. Improved mobility

Typical to the study area, the social impact elements of improvement in mobility are outlined and explained. Firstly, improvement of Karonga-chitipa road improved number and type of vehicles/transport availability. During the focus group, discussions, key informant interviews and in-depth interviews the respondents indicated that the improvement of the road had increased the number of vehicles and frequency of travel. Before road improvement, it was challenging for people to invest in the transport sector because the road was in the poor shape that could increase wear and tear hence the high operating cost of vehicles. In the past, the vehicles that were passing on his road were mostly lorries which of which most of them did not load worth; there were few and uncomfortable. The respondents reported that most of the vehicles that were passing on the road were not passengers but goods carriers delivering goods to and from Chitipa district headquarters.

The district councils and Roads Authority officials indicated that there had been growing number of people now investing in public transport sector along Karonga-Chitipa road as reflected in the significant increase in the number of passenger vehicles operating along Karonga- Chitipa road. Village Headman Lufita concurred with these officials:

“... There was only one person with a vehicle in the village who had a car, but now there are 13 cars in this area. He said this had improved the availability and accessibility of transport in his area which helps during emergencies such as sickness...”

Secondly, the improved road has facilitated a reduced time of travel from their areas to the district headquarters of Chitipa and Karonga and Mzuzu. The improvement of Karonga-Chitipa road had reduced time of travel. The respondents stated during field research that before improvement the road had many potholes and difficult to pass during the rainy season. As reported, these were among other things that were making the vehicles take time from their bus to their destinations. Good road coupled with good passenger vehicles had facilitated the reduction in travel time. The researchers also observed during the study period that the passenger cars were travelling at high speeds and in some cases, above the recommended speed as indicated by regulatory road signs. The results are similar to the findings found by Iimi et al. (2015) in Brazil that improved road reduced travel time for rural households to town.

6.2. Access to social services and amenities

Improvement of the Karonga-Chitipa road has helped the local communities to have easy access to social services and facilities. The data collected from the study indicate that the services that the people in the study area require included banking, schools, hospital and security. The main areas where they get these services are at Chitipa and Karonga district headquarters. It was found that the people go to either district for such services because they are relatively close that to another district in the northern region. The findings are similar to what was found in Valdivia (2014) study in Peru where roads connect the rural households to large cities where health services are more developed. The results also concur with the findings of Iimi et al. (2015) in Nepal and Brazil in which they found that other than cheaper transport to and from agricultural markets, rural roads have better access to other social amenities such as health facilities and, more generally, to a greater variety of consumer goods

The study also revealed the central amenity that people in the study area require is the market. Like most rural areas in Malawi, people in the study areas depend on agriculture for their livelihood. As such, their production mainly relies on the market, both input and output, for production and marketing. The views of respondents during individual interviews revealed that the road improvement has helped the people to easily access these markets to buy farm inputs and sell their farm produce. The crops mainly grown include maize, tomatoes, vegetables, bananas and sweet potatoes. The results also concur with results found by Mu and van de Walle (2011) in their study in Vietnam on Rural Roads and Poor Area Development in Vietnam. There are indications of significant impacts on the development of markets and commercialisation which led to the presence and frequency of service availability. Also, the households in Vietnam changed from agricultural dependent to service-based non-agricultural dependent. In their study in central and southern areas of Malawi, Kutengule and Nyasulu (2003) found out that monetisation of the agrarian economy and functional markets increases cash circulation in rural areas and renders the households opportunities to exploit opportunities that get

them out of poverty.

6.3. Migration of households

The study found out that people migrated due to the improvement of Karonga-Chitipa road. It was found there were two patterns of household migration, “intra” and “inter” zone migration. In this study, *Intra zone migration* is defined as movement in settlement of households within the study area. *Inter-zone migration* is defined as movement in settlement of households from outside the study area to the study area. Intra zone migration also happened in two forms; households are moving areas along the road going away from the road while other households moved from peripherals towards the road.

During the focus group, discussion participants explained that the improvement of the road had created a good business environment. Therefore, people migrated towards the road to cease the business opportunities. Also, the households migrated towards the road for settlement to have easy access to social services mainly transport and markets. This has resulted in lineated settlement pattern in the rural areas where the road passes. They said being closer to the road one can easily access transport services even at odd hours. The participants said that the push factor of households that migrate to the periphery is inadequate land for farming and settlement. The trading centres in the study area have been growing due to increases in economic activities. This is putting pressure on land and such that other households are selling land to settle in the periphery. Others migrate because of a shortage of land for farming. Commenting on settlement pattern, the Karonga district council official said that:

“...The district carried out a situation analysis to develop the district SEP before this road was completed. The district did not have a clearly defined settlement pattern for the households in the district, that is, it had a mixture of nucleated, scattered and lineated settlement pattern. However, the settlement pattern for people in the rural areas along the road has been changing. Households are now building closer and along the road. Some people are settling along the road because they want to have easy access to the road and others do their businesses along the road...”

Like intra zonal migration, the study also found that households do inter-zonal migrate to the study areas for business and access to social services. The trading centres are the areas where most economic activities happen in rural areas. As such, as explained during the focus group discussion at Waliro trading centre, most households migrate from other areas to do business as one of the livelihood strategies for their families and for settlement. The migrated households are engaged in businesses such as groceries, agricultural produce marketing, and hardware shops and welding. Fox and Porca (2001) observed that better infrastructure, such as road, can improve the attractiveness effect on where people and businesses locate.

It transpired that most of the households who settle in these trading centres in rural areas come from district headquarters and rural regions of Karonga and Chitipa and also from Mzimba and Rumphi districts and some from other rural areas within these districts. Asked to comment on interzonal migration, one of the migrants during the individual interview had to say this:

“... I am 59 years old, and I am married with three children. My home is Misuku hills where I was born, raised and settled. The area is hilly, isolated, closed and lacks basic social amenities such as hospital and market, for improved livelihood. The transport system is very poor you can hardly see vehicles going there, and it is worse during the rainy season because the road is almost impassable. My wife and I are old. My son who works in the commercial city, Blantyre, bought land and we migrated to Lufita trading centre. The main reason was that I should get easily accessible transport services to go to the hospital and also to be close to electricity and market in addition to the fact that he wanted us to settle in a better and accessible place for his convenience when he would like to visit us...”

These results on inter-zone migration are similar to those that were found in a study done in Kagera in Tanzania where households from other areas had come to settle there. However, there was no intra-zonal migration of household in Kagera. This is contrary to the results found in rural areas along Karonga-Chitipa road where households migrated within the study area

6.4. Commoditization of items

Another notable finding from the study is that of commoditization of communal and produces. The study found out that the study area was isolated closed and too traditional. The areas were predominantly agricultural with minimal businesses activities happening. The households’ farming was the primary source of livelihood to people in the area. The people could barter items, and sometimes they could just be sharing amongst themselves. The improvement of the road has made the area more open, connected and more economical and businesses are happening in the area. This has made people commoditise most of the products and services. This has consequently increased the cost of living of people in the area. One of the household respondents concurred with these findings and explained that;

“... I come from Waliro village. I was born and raised in this village. I have seen the changes that have happened in this area before and after improvement of Karonga-Chitipa road. Before the road improvement, we could hardly depend on the market for day to day life. The households were dependent on own production and from other relatives for livelihood. We could share things such as maize, salt, unripe bananas, irrigated vegetable, potatoes and even family labour could be shared. Even if you ask me, I cannot give the maize freely to my relatives now, if I do, it cannot be the same quantities but small. This is because I can sell at a cost at the market and buy household needs. Therefore, there is no logic for me to share for free while friends cannot share me for free...”

These sentiments were also echoed during the focus group discussions. The participants lamented that people now have gone further to commoditise properties, for example, land which was previously being given freely amongst village subjects. This has resulted in unequal distribution of land amongst family clans and conflicts amongst themselves since some want money some want to be farming on it. When asked to comment on this, Village Headman Lufita said that;

“... Lufita trading centre is in my village. I have witnessed a growing number of people who come to settle in this trading centre. This influx of people to this area has created pressure on demand for land. The land was distributed free to whoever wanted to do business at this trading centre, but now it is like “gold” because land is limited and many people would like to have a business plot at trading centre. The people are no longer share but sell their land to those people who would like to do business at the trading centre. People are selling the land because this is the place where they have been residing all along, but now they need money to buy another place outside this trading centre to settle...”

7. Conclusion

The study aimed at identifying the impact of improved main roads in Malawi with the perspective of rural communities along these roads. The study revealed that the improvement of the road had both economic and non-economic impacts to the rural communities. The economic impressions include intensification of forestry based business, the growth of business in rural areas, business diversification and employment creation. The non-economic impressions included improved mobility, access to social services and amenities, migration of households and commoditization of items. The study recommends further studies on mechanisms for sustaining the positive impacts on the well-being of the rural communities.

Notes

¹Malawi Growth and Development Strategy II (MGDS II) is the overarching medium-term strategy for Malawi designed to attain Malawi's long-term development aspirations. The strategy covers a period of five years from 2011 to 2016. The objective of MGDS II is to continue reducing poverty through sustainable economic growth and infrastructure development.

References

- Akee, R. (2006), “The Babeldaob Road: The Impact of Road Construction on Rural Labor Force Outcomes in the Republic of Palau”, Bonn, IZA Bonn.
- Boateng, R. A., Fricano, R. J. & Adarkwa, F. (2015), “Assessing the socio-economic impacts of rural road improvements in Ghana: A case study of Transport Sector Program Support (II)”, *Case Studies on Transport Policy*, 355–366.
- Chambers, R. & Conway, G. (1992), “Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. Institute of Development Studies”, Brighton, UK, *IDS Discussion Paper 296*.
- Creswell, J. (2003), “Research Design Qualitative, Quantitative, and Mixed Methods Approaches (Second Edition)”, London, Sage Publications.
- Dercon, S. & Hoddinott, J. (2005), “Livelihoods, Growth, and Links to Market Towns in 15 Ethiopian Villages”, Washington, International Food Policy Research Institute.
- Development Fund for International Development (1999), “Sustainable livelihoods guidance sheets”, available on <http://www.doc88.com/p-137418754746.html> (retrieved on 10th March 2016)
- Faiz, A., Faiz, A., Wang, W. & Bennett, C. (2012), “Sustainable Rural Roads for Livelihoods and Livability. *Procedia - Social and Behavioral Sciences*, (53) 1 – 8.
- Fox, W. F. & Porca, S. (2001), “Investing in Rural Infrastructure”, *International Regional Science Review*, 24(1), 103-133.
- Gachassin, M., Najman, B. & Raballand, G. (2010), “The Impact of Roads on Poverty Reduction: A Case Study of Cameroon”, Geneva, World Bank.
- Mu, R., & van de Walle, D. (2011), “Rural Roads and Local Market Development in Vietnam, *The Journal of Development Studies*”, (47)5, 709-734, DOI: 10.1080/00220381003599436.
- Hussein, K., & Nelson, J. (1998), “Sustainable livelihoods and livelihood diversification. Available on

- <https://www.ids.ac.uk/files/Wp69.pdf> (retrieved on 24th May 2016).
- Iimi, A., Lancelot, E. R., Manelici, I., & Ogita, S. (2015), "Social and economic impacts of rural road improvements in the state of Tocantins, Brazil (English)", *Policy Research working paper; no. WPS 7249; Impact Evaluation series*, Washington, D.C.: World Bank Group.
- Kamanga, M. J. & Steyn, W. J.V. D. M. (2013), "Causes of Delay in Road Construction Projects in Malawi", *Journal of The South African Institution of Civil Engineering* (55) 79-85, Paper 954.
- Krueger, R. A. (2002), "Designing and Conducting Focus Group Interviews", University of Minnesota. Available on <https://www.eiu.edu/ihec/Krueger-FocusGroupInterviews.pdf> (retrieved on 2nd June 2016)
- Kutengule, E. F. M., & Nyasulu, A. (2003), "Livelihoods and rural poverty reduction in Malawi". *World Development*, 31(9), 1495-1510.
- Lall, S. V, Wang, W. & Munthali, T. (2009), "Explaining High Transport Costs within Malawi: Bad Roads or Lack of Trucking Competition?" Washington DC, World Bank.
- Lombard, P., & Coetzer, L. (2006), "The estimation of the impact of rural road investments on socio-economic development. Available on <http://roadsforwater.org/wp-content/uploads/2013/11/Estimating-the-Impact-of-Road-Inv-on-SocioEcon-Development.pdf> (retrieved on 14th February 2017)
- Malawi Government (2010), "Malawi Growth and Development Strategy II", Lilongwe, Malawi Government.
- Malawi Government (1999), "Rural Transport Policy Development Process in Malawi", Lilongwe. Malawi Government.
- Manjah, F. B. (2005), "The socio-economic impact of roads on rural communities: a case study on the longhouses communities of rumah ukan, rumah jandok and rumah bundong of ulu bukit guram-ulu yong road", *Masters' Thesis*, Universiti Malaysia Sarawak, (UNIMAS).
- Muljono, S., Sinaga, B. M., Daryanto, A. & Antameng, M. (2010), "The Impact of Road Construction Sector on Household Income Intra and Inter-Region of West-East Indonesia", Available on <https://www.pu.go.id/uploads/services/infopublik20130926133457.pdf> (retrieved on 1st May 2016)
- National Statistical Office (2015), "Malawi in figures 2015", National Statistical Office, Zomba.
- Newman, W. L. (2011), "Social Research Methods: Qualitative and Quantitative Approaches (seventh edition)", Pearson Education Limited, Essex.
- Roads Authority (2010), "Five Year Strategic and Business Plan (2011 – 2016)", Volume I. Roads Authority, Lilongwe.
- Scoones, I. (1998), "Sustainable Rural Livelihoods: A Framework for Analysis", Institute of Development Studies.
- Tanga, P. T, Monaheng., Matobo, T. & Abie, S. (2014), "The Impact of Improved Road Infrastructure on the Livelihoods of Rural Residents in Lesotho: The Case of Phamong", *Kamla-R*, 12(2), 209-218.
- Terefe, L. A. (2012), "Impact of Road on Rural Poverty. Evidence Form Fifteen Rural Villages in Ethiopia", *The Hague*, Graduate School of Development Studies.
- United Nations, Department of Economic and Social Affairs, Population Division (2014), "World Urbanization Prospects: The 2014 Revision, Highlights", (ST/ESA/SER. A/352).
- Valdivia, M. (2014), "Business Training Plus for Female Entrepreneurship? Short and Medium-Term Experimental Evidence from Peru", *SSRN Electronic Journal*, 10.2139/ssrn.2510944.
- Yin, K. R. (2004), "Case Study Research Design and Methods (Second Edition)", *Applied Research Methods Series*, Volume 5. SAGE Publication.

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Conflict of interest

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