The Influence of Socio-Economic Factors on Poverty Incidence in Rural and Urban Households of Zanzibar, Tanzania

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Abstract
This paper examines the influence of socio-economic factors on poverty incidence in rural and urban households in Zanzibar. The study used cross-sectional data from the Zanzibar Household Budget Survey of 2019/2020. A logistic regression model was used to analyze the influence of socioeconomic factors on poverty incidence in rural and urban households with a sample size of 2,788. These variables were found to have negative relationships with poverty incidence. This was affirmed by the marginal effects of -0.3596 and -0.2908 with their p-values of 0.000 in rural and urban respectively for the proportion of employees. Similarly, marginal effects were -0.1717 and -0.1074 with their p-values of 0.000* in rural and urban households, respectively, for electricity access. This means the increase in the proportion of employees, and access to electricity decreases poverty incidence. Furthermore, there was a direct relationship between agricultural land use and poverty incidence; the marginal effect was 0.1090 with a p-value of 0.000* and a marginal effect of 0.0927 with a p-value of 0.001* in the rural and urban areas respectively. Thus, better investment in the variables of production like land use, employment opportunities, and electricity directly increases productivity and hence reduces and alleviates poverty. This study reveals that poverty incidence in Zanzibar was influenced by socio-economic factors that households possessed. This paper recommends that policies be amended in light of insisting on investment in infrastructures such as electrification; instead, making electricity affordable for households; and promoting inclusive agricultural development with infrastructure like irrigation systems, especially in rural areas.*

Keywords: *Socio-economic factors, poverty incidence, households, Zanzibar*

1.0 INTRODUCTION

Poverty incidence is the proportion of persons whose incomes (expenditures) fall below the poverty line (UNSD, 2005). Also, poverty incidence is defined by OECD, (2014) as the ratio of the number of people whose income falls below the poverty line; taken as half the median household income of the total population. Moreover, OCGS, (2020) and D'Arcy, (2014) defined poverty incidence as the fraction of the population who are below the poverty line by viewing different

variables like income (level of spending) required to purchase a bundle of essential goods including clothing, utilities, transportation, communication, health, education. This study considered a household to be poor if its consumption per adult is less than the basic need poverty line of Tshs. 66,313 in the case of Tanzania and $1.90-2.14 for the global poverty line.

Poverty is amongst the greatest challenges worldwide; poverty reduction is given high priority as currently stipulated in the 2030 Agenda for Sustainable Development aiming to eliminate all forms and dimensions of poverty, including extreme poverty for all people everywhere (UN, 2015). Households that reside in rural areas have a higher incidence of poverty than urban households.

Approximately 9.2% of the global population lived below the $1.90-2.14 international poverty line in 2017; which meant that about 689 million people still lived in extreme poverty. Moreover, 79 percent of the world's poor lived in rural areas whereas the remaining (21%) lived in urban areas in 2017. It has also been found that the poverty incidence rate in rural areas is 17.2%; more than three times higher than in urban areas (World Bank, 2018, 2019).

Poverty at the household level is influenced by several factors, which are broadly classified as demographic and socio-economic characteristics(World Bank, 2009). On the one hand, demographic characteristics include household size, age structure, dependency ratio, and gender of household head. On the other hand, socioeconomic characteristics are such as employment status, hours worked, property owned, health, nutritional status, education, and shelter. At the regional and community level, household poverty is influenced by the quality of governance, property rights, availability of infrastructure (roads, water, electricity) and services (health, education), and proximity to markets.

In Tanzania, findings from the World Bank (2019) indicate that the poverty incidence rate declined from 34.4% in 2007 to 26.4% in 2018. About 14 million people are poor living below the national poverty line of Tshs. 49,320 per adult equivalent per month and about 26 million lived below the $1.90 international poverty line per person per day (about 49% of the population). Despite the poverty rate reduction, poverty incidence is higher in rural areas than in urban areas whereby in 2007, the rural poverty rate was 39.1% while in the urban was 20%. Similarly, in 2018, rural poverty rate was 31.3% compared to 15.8% in urban areas (World Bank, 2019).

The low poverty rate in Urban was attributed to the structural transformation in which workers shift from low productive activities to more productive work in services and industry, availability of more productive jobs, and productivity

gains. This comes partly from the benefits of agglomeration economies, such as resource-sharing, quicker and more accurate job matching, and increased self-employment. A greater proportion of households in urban operate their businesses; in 2018, about 14% of households owned nonfarm enterprises such that the proportion of households operating nonfarm enterprises was about three times higher in urban areas. In urban areas also, people with more education and other assets were better positioned to take advantage of the opportunities generated by economic growth, which helped to raise household consumption (World Bank, 2019). The higher poverty rate in rural was due to a large number of dependents, low human capital, low-profile jobs, and limited access to basic services and assets such as road infrastructure and transport services, which also affected access to markets. For example, farmers in rural areas with limited market access suffer from relatively higher prices of fertilizers because of higher transportation costs. These farmers also have little access to output markets; and thus must take less competitive prices (World Bank, 2019).

In Zanzibar, there has been a remarkable decline in poverty rate since 2010 (World Bank, 2017). For instance, the poverty incidence rate was 34.9% in 2009/10; but dropped to 25.7% in 2019/20, but with a large disparity between urban and rural areas in poverty incidence (OCGS, 2020). Additionally, the poverty incidence rate in rural was 39.5%; compared to 28.5% in the urban in 2009/2010. This rose to 40.2% in rural compared to 17.9% for urban in 2014/2015, and 33.69% in rural compared to 15.54% in urban in 2019/2020 (OCGS, 2020).

Poverty incidence declined between 2010 and 2015in Zanzibar, particularly in urban areas, but remains fairly high in rural areas (World Bank, 2017). Also, according to the Zanzibar Household Budget Survey of 2019/2020, the distribution of the poor population shows that 74.3% of the basic needs poor population live in rural areas; which accounts for almost three-quarters of the basic needs of poor people in the urban (OCGS, 2020). Despite the poverty reduction, poverty is more concentrated in rural areas than in urban areas. Results from 2014/15 and 2019/20 ZHBS revealed that Zanzibar managed to reduce the proportion of people living below extreme poverty from 10.8 percent in 2014/15 to 9.3% in 2019/20, but poverty reduction is more significantly felt in urban areas than in rural areas. For instance, in 2009/2010 extreme poverty rate in the rural was 15.2% compared to 6.8% in urban areas; and in 2014/2015, it was 15.7% in rural compared to 4.5% in urban areas (OCGS, 2020). Few empirical studies have studied the influence of socio-economic factors on poverty incidence in Zanzibar without specifically focusing on the rural-urban location. Thus, one can generally say that efforts are needed to study the influence of socio-economic factors in

both rural and urban areas since the factors influencing poverty incidence can have different effects depending on the location and household status. Also, most of the previous studies explain only demographic characteristics towards poverty incidence in Zanzibar; and little is reported on the influence of socio-economic factors on poverty incidence in Zanzibar, which are also not disaggregated in terms of rural and urban households. Therefore, the main objective of this paper is to examine the influence of socio-economic factors on poverty incidence in rural and urban households in Zanzibar. This can attract efforts to reduce the poverty incidence rate, especially in rural areas by uncovering the most significant socio-economic factors that influence poverty at the household level.

Different scholars have pointed out the determinants of poverty using different methods. The existing studies like Zhoupeng *et al*., (2017) and Imam *et al*., (2018) used multilevel modeling analysis to identify the determinants of poverty. They studied the inconsistent relationships between socio-economic factors and poverty incidence across contiguous poverty-stricken regions in China. The results showed that education, grain production, and irrigated land ratio had a significantly negative association with poverty incidence. It was emphasized that the effects of factors on poverty incidence vary across regions; some factors had more effects on poverty incidence than others. Further to that Imam *et al.* (2018) examined factors affecting poverty in rural Bangladesh. The results showed that poverty was significantly associated with such potential factors as household ownership of land, access to electricity, amount of cultivable land, engagement in livestock and farm forestry, household non-agricultural assets, number of male earners, and number of female earners in the family. However, these studies examined factors contributing to poverty only in poverty-stricken regions or rural areas; and thus, ignored the influence of those factors countrywide, including both rural and urban areas.

Makame and Mzee, (2014) examined the influence of Household Characteristics on poverty using the logistic Regression Model to determine the probability of the occurrence of poverty in Zanzibar with a social dimension. The study revealed that the likelihood of poverty was significantly related to household size, gender of household head, and basic education (primary and secondary) of which household size, location, and education were significant factors for household poverty level. However, the study considered only demographic factors and ignored the influence of socio-economic factors on poverty occurrence in rural and urban areas. From the empirical review, the gap emerges on the aspect of coverage of study areas; and the influence of socio-economic factors on poverty incidence. Specifically, scholars have not addressed the influence of socioeconomic factors on poverty incidence in rural and urban households.

Despite the influence, this paper has gone far by assessing the influence of those factors in the context of rural and urban areas of Zanzibar. The study is also in line with Goal No. 1 of the United Nations 17 Sustainable Development Goals (SDGs), which is related to Poverty Eradication. Specifically, this paper focuses on two objectives. These are to examine the magnitude of poverty between rural and urban areas and to identify the variation of poverty based on socio-economic factors in rural and urban areas. This is important because the rural is the centre of production for many primary industries such that the failure to address and curb poverty in rural may lead to poverty vulnerability even in urban areas.

2.0 METHODOLOGY

2.1 The study area

This paper is based on a study conducted in Zanzibar, which consists of two main islands, Unguja and Pemba in the Indian Ocean, the coast of Eastern Africa (Figure 1). It is a low-lying coral island, with an area of about 2,654 square kilometers; of which Unguja Island has 1,666 square kilometers; and Pemba Island has a total of 988 square kilometers (ZPC, 2020). The two main islands of Zanzibar are subdivided into five administrative regions of which Pemba consists of two regions and Unguja three regions. Zanzibar was chosen as a study area because it is among areas with higher poverty incidence in the rural compared to the urban. This is supported by its recent data of ZHBS collected in 2019/2020; which can be analyzed to reflect the real situation to guide policymakers to address the existing poverty problem.

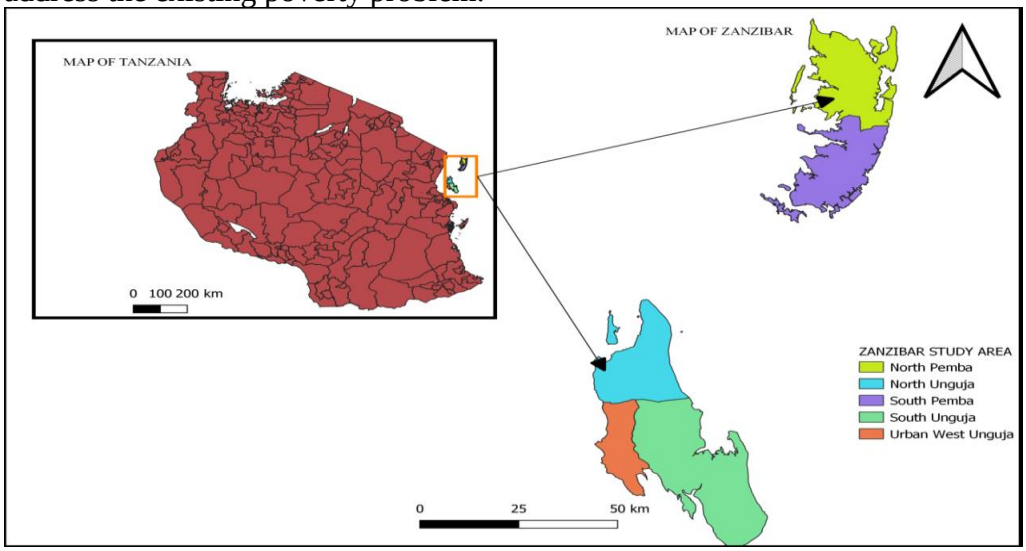

Figure 1: Map of the Study Area
Source: GIS software, 2022

2.2 Research Design

This paper used the cross-sectional research design to examine the influence of socio-economic factors on poverty incidence in rural and urban households in Zanzibar. This design was chosen because it helps to measure simultaneously the exposure (prevalence) of the problem and outcome in the study population at a certain time (Setia, 2016). More so, the method enabled researchers to look at several useful characteristics such as poverty and residential status at once.

2.3 Sample Size

The analysis part of this paper is a result of secondary data from different categories of households. The study employed two categories which were residence (rural and urban) and poverty status (poor, medium, and non-poor/rich households). Thus, stratified sampling was the best sampling method because it helped researchers to divide the population from already collected data into subgroups based on the mentioned characteristics. From 2,820 total households as per OCGS (2020), this paper is based on a sample of 2,788 poor and non-poor leaving aside 32 households of the medium wealth category. In 2,788 a total of poor and non-poor; 1,625 households from rural and 1,163 households from urban areas were used to explore the variation of poverty based on socio-economic factors between rural and urban areas. So far, the magnitude of poverty was explored by 374 respondents who were poor from rural and 130 from urban areas. This sample was drawn from the 2019/2020 ZHBS conducted by the Office of the Chief Government Statistician (OCGS).

2.4 Research Approach

This paper used the quantitative approach to collect data from the Zanzibar Household Budget Survey (ZHBS) of 2019/2020. This was important because the available data consisted of only quantitative variables that could simplify the analysis. The ZHBS of 2019/2020 was used to identify the socio-economic factors that influence poverty incidence among urban and rural households.

2.5 Data Collection

This paper used secondary data from the Office of the Chief Government Statistician (OCGS) where the ZHBS data for 2019/2020 was obtained. The data provided records of information related to private households on economic activities, household income and expenditure, housing characteristics, and asset ownership. This type of data was chosen because it had almost all the variables that answered the study objectives.

2.6 Data Analysis

A quantitative technique was employed to analyze the collected data involving both descriptive and inferential statistics through the statistical software STATA-15, which also involved pictorial presentation. Based on the households as a unit

of analysis, the descriptive analysis used a frequency table, bar graphs, and box plots, whereby the frequency table was used to provide summary statistics of the sample. Similarly, bar graphs and box plots were used to show the relationship between the dependent variable (poverty status) and independent variables (socio-economic factors). Inferential analysis was used to generalize the study population using a binary logistic regression model that depicted the associations of variables. The model was employed because it helped to classify levels of poverty in Zanzibar.

3.0 RESULTS AND DISCUSSION

This part presents the influence of socio-economic factors on poverty incidence in rural and urban households based on descriptive and inferential analysis. Two specific objectives are addressed about the magnitude of poverty based on 374 rural poor households as well as 130 urban poor households; and the variation of poverty between rural and urban areas based on 2,788 poor and non-poor households. Descriptive analysis comprises the summary statistics of socio-economic variables and the relationship between household poverty status and socio-economic factors. Inferential analysis used logistic regression to examine and rank the influence of socio-economic factors on poverty incidence in rural and urban households.

3.1 Magnitude of Poverty between Rural and Urban Areas

This section presents descriptive statistics of socio-economic variables. The descriptive statistics include summary statistics presented in tables and the relationship between household poverty status and socio-economic factors described using bar graphs and box plots. Table 1 presents summary statistics for categorical socio-economic variables; particularly the activity status of the household head, agricultural land use, and access to electricity.

Table 1: Descriptive Statistics for Categorical Socio-economic Factors

Variables	No. of Obs Rural = 1,625		No. of Obs Urban = 1,163	
	No. of Obs	**Percent**	**No. of Obs**	**Percent**
Household poverty status (Poor)	374	74.21	130	25.79
Activity status of the household head				
Employed	1,517	93.35	1,003	86.24
Unemployed	17	1.05	46	3.96
Not working	91	5.60	114	9.80
Sex of the household head				
Male	1,255	77.23	887	76.27
Female	370	**22.77**	276	**23.73**
Agricultural land use				
Yes	694	42.71	128	11.01
No	931	**57.29**	1,035	**88.99**
Access to electricity				
Yes	582	**35.82**	981	**84.35**
No	1,043	64.18	182	15.65

Source: Compiled from ZHBS, 2019/2020

Table 1 shows three activity statuses of household heads, notably the employed, unemployed, and not working. The majority of the sampled households were headed by employed heads; that is 93.35% of the household heads in rural; and 86.24% in urban areas were employed, the remaining were unemployed, and others were not working. In the rural, 1.05% of the household heads were unemployed, and 5.6% were not working while in urban areas, 3.96% were unemployed and 9.8% were not working. This shows that there were more employed heads of households in the rural than in urban areas; while there were more unemployed heads of households in the urban than in rural areas. As for heads of households who were not working, there were more in urban areas than in rural areas. These findings reveal that most of the heads of the sampled households were employed. The results imply that the government's efforts have succeeded in terms of creating employment opportunities and motivating self-employment as many heads of households were employed.

The use of land for agricultural activities was an important variable for the study because most of the households in rural areas engaged in agricultural activities, and thus the study explored this variable to know the influence of agricultural land use on household poverty status. The findings in Table 1 indicate that 42.71% of households in rural areas use land for agricultural activities, unlike households in urban areas where only 11.01% use land for agricultural activities.

However, 57.29% of the sampled households in rural areas did not use land for agriculture. In urban areas, most households (88.99%) did not use land for agriculture. This shows that more households in rural areas use land for agricultural activities than in urban areas. The result implies that the vast majority of the households in rural were engaged in agricultural activities as their source of food and income.

Lastly, the paper explored access to electricity among households as among the important factors that determine the poverty status of households. Table 1 shows that most of the households in rural areas had no access to electricity, which accounts for 64.18% of the households compared to urban areas where only 15.65% of the households had no access to electricity. In rural areas, only 35.82% of the households had access to electricity while in the urban, some 84.35% had access to electricity. These results indicate that more households in urban areas had access to electricity than those in rural areas. These results imply that electricity services in rural areas are still a problem. In some areas, electricity infrastructure may be available near households but people cannot afford to connect the services to their houses. The observed few with such service were reached during TASAF and REA programmes which are in progress, especially in rural areas.

3.2 Variation of Poverty Based on Socio-economic Factors

Based on descriptive and inferential statistics, the paper included variables of access to electricity, agricultural land use, and the proportion of employees in a household to measure the influence of socioeconomic factors on poverty incidence.

3.2.1 Influence of Socio-economic Factors on Poverty Incidence

The paper established the relationship between household poverty status and categorical socio-economic factors, particularly the activity status of the household head, agricultural land use, and access to electricity. Findings are described using bar graphs and box plots to show the relationship between household poverty status and the proportion of employees in the household. Figure 2 shows the household poverty status in rural and urban areas about the status of activity of heads of households.

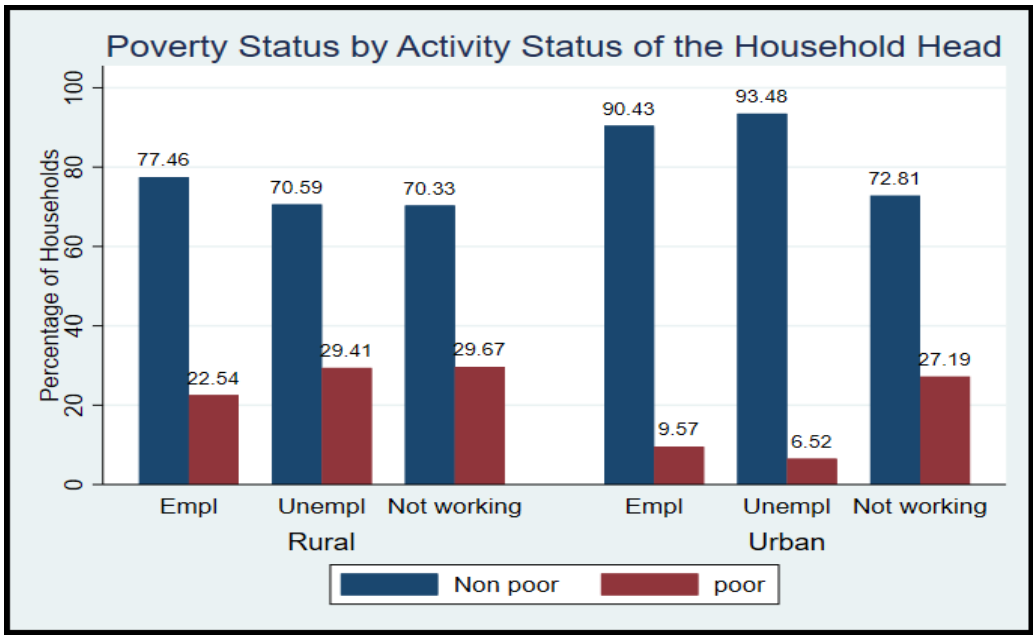

Figure 2: Poverty Status and Activity Status of Household heads between Rural and Urban Households

Source: Compiled from ZHBS, 2019/2020

It is observed in Figure 2 that in rural areas, the percentage of poor households was higher in the households with heads who were not working (29.67%), followed by those who were unemployed (29.41%) and those who were employed (22.54%) in rural areas. On the other hand, in urban areas, the incidence of poverty was higher for households with heads who were not working (27.19%), followed by those who were employed (9.57%) and those who were unemployed (6.52%). Hence, it can be generalized that, in both areas, households headed by heads who were not working had a higher probability of being poor than households with heads who were either employed or unemployed. This is because heads of households who do not work are not assured of income, which is the means of obtaining various livelihood goods and services, hence increasing vulnerability to poverty.

The paper also established the relationship between household poverty status and household access to electricity and agricultural land use. The results are depicted in Figure 3 below.

GRAPH A **GRAPH B**

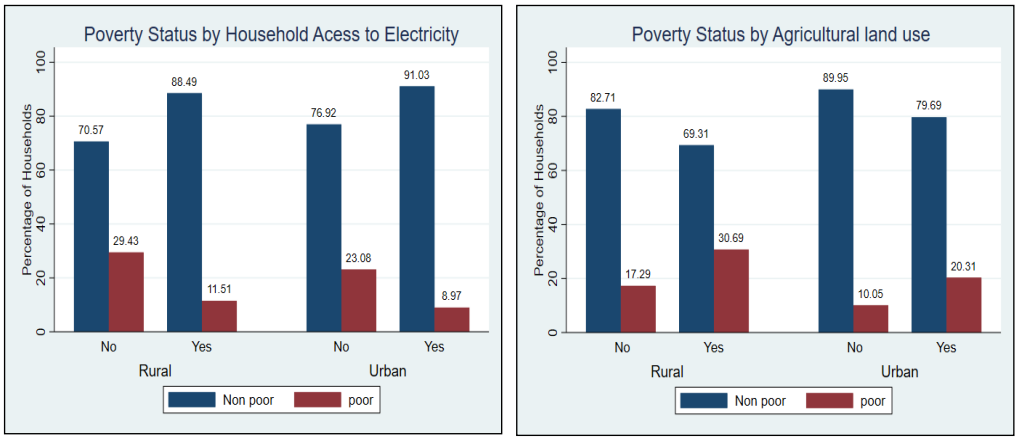

Figure 3: Poverty Status Based on Access to Electricity &Agricultural Land Use

Source: Compiled from ZHBS, 2019/2020

Figure 3A shows the relationship that exists between poverty status and access to electricity among households in rural and urban areas. The figure reveals a higher percentage of poor households in rural (29.43%) who had no access to electricity as compared to those who had access to electricity (11.51%) in rural areas. The figure also shows a higher percentage of poor households who had no access to electricity (23.08%) in urban areas compared to those who had access to electricity (8.97%). Hence, these results imply that, in both areas, the incidence of poverty was higher among households without electricity than among those with access to electricity. These results imply that having electricity can facilitate production activities which decreases the household risk of being poor. The variations between rural and urban could be due to differences in standards and patterns of relevant infrastructure like roads, irrigation systems, transportation and communication networks, and market accessibility. These could assist farmers with credit targeting the poor to ensure higher agricultural productivity and thus reduce poverty.

Figure 3B describes the relationship between Household Poverty Status and the household use of land for agricultural activities. The graph shows that there was a higher percentage of poor households (30.69%) who used land for agricultural activities than those who did not use agricultural land (17.29%) in rural areas. Furthermore, the figure shows that in urban areas, a higher percentage of poor households used land for agricultural activities (20.31%) than those who did not use land for similar activities (10.05%). This implies that infrastructure is still poor in rural than urban areas.

The findings further imply that in both areas, households who used land for agricultural activities were less likely to be vulnerable to poverty incidence than those who did not use agricultural land. Thus, households that depended on agricultural land were more likely to alleviate poverty since most of them were engaged in agriculture. Thus, having electricity and using land for farming is very important in Zanzibar.

The study also examined the proportion of employees among poor and non-poor households in rural and urban areas. The findings are presented in Figure 4 below.

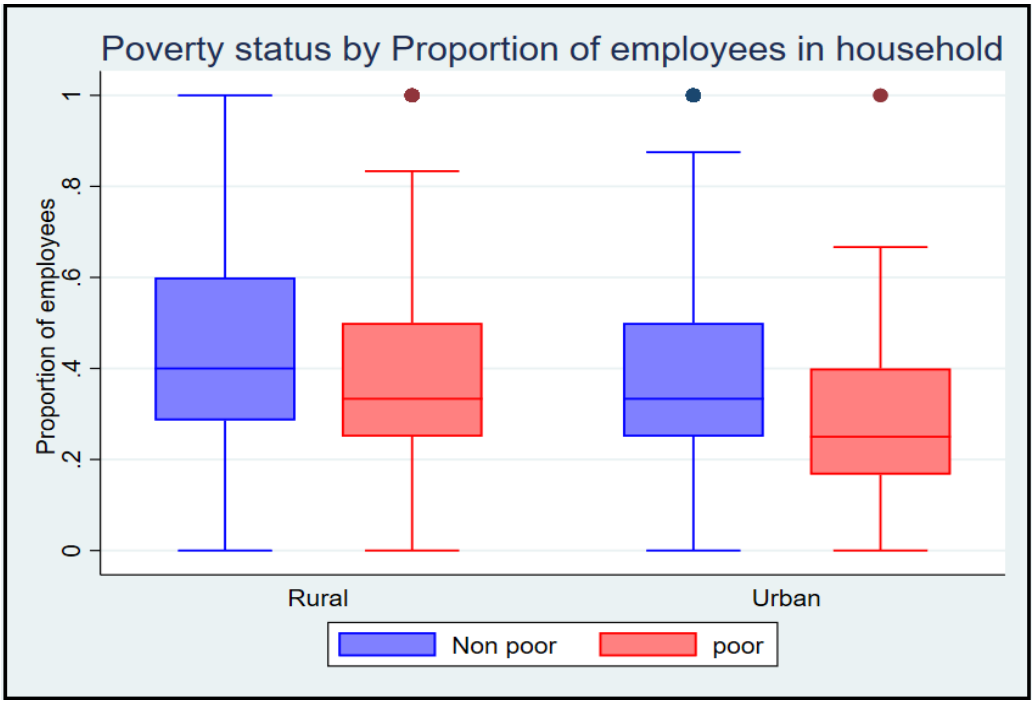

Figure 4: Employees among Poor and Non-poor households
Source: Compiled from ZHBS, 2019/2020

The relationship between the proportion of employees and household poverty status is demonstrated in the box plots presented in Figure 4. Data shows that in both areas, the median of the proportion of employees for poor households is smaller than that of those who were not poor. In addition, the box plot interquartile variations are longer for non-poor households and with long upper whiskers than for poor households' box plots. This means that the proportion of employees among non-poor households is higher than the proportion of employees among poor households. These box plots suggest that households with a low proportion of employees are more likely to be poor than those with a high proportion of employees. These results imply that having a small number of

employed members may cause more dependents who depend on the employed members, and this increases the vulnerability of households to poverty.

3.2.2 Inferential Statistics on the Influence of Socio-economic Factors on Poverty Incidence

A. Testing the Hosmer-Lemeshow Model Goodness-of-Fit

The Hosmer-Lemeshow goodness-of-fit was used to test for binary logistic regression model on the influence of socio-economic factors on poverty incidence in rural and urban households. In the case of using the Binary logistic regression model, the model was evaluated using the Hosmer-Lemeshow test to assess how well the model fits the data. Table 2 presents Hosmer-Lemeshow test results in which p-values for rural and urban are 0.3457 and 0.3323 respectively. The p-values are greater than 0.05, which reveals that all models in both areas were well-fitted.

Table 2: Evaluation of the Binary Logistic Regression Model

Rural	Urban
Number of observations = 1625	Number of observations = 1163
Number of groups = 10	Number of groups = 10
Hosmer-Lemeshow chi-square statistic{chi2(8)} = 8.96	Hosmer-Lemeshow chi-square statistic{chi2(8)} = 9.12
p-value= 0.3457	p-value = 0.3323

Source: Compiled from ZHBS, 2019/2020

B. Logit Results for Influence of Socio-economic Factors on Poverty Incidence

Further inferential statistics were used to examine the influence of socio-economic factors on poverty incidence in rural and urban households. The factors included access to electricity, agricultural land use, and the proportion of employees in a household. This was aided by the Binary logistic regression model at a 5% level of significance. Table 3 presents the results of the logistic regression model, which shows the odds ratio with their p-values, and marginal effects that describe the influence of socio-economic factors on poverty incidence in rural and urban households of Zanzibar.

Table 3: Logit Results for Influence of Socio-economic Factors on Poverty Incidence

Variables	Rural			Urban		
	Odds Ratio	**Marginal Effect**	**P-value**	**Odds Ratio**	**Marginal Effect**	**P-value**
Employees in the household	0.1057	-0.3596	0.000*	0.0392	-0.2908	0.000*****
Activity status						
Unemployed	1.3348	0.0490	0.619	0.4204	-0.0551	0.165
Not working	0.9794	-0.0033	0.936	2.1692	0.0868	0.004
Agricultural land use						
Yes	1.9432	0.1090	0.000*	2.3174	0.0927	0.001*
Access to electricity						
Yes	0.3119	-0.1717	0.000*	0.3811	-0.1074	0.000*
Constant	0.7771		0.126	0.6489		0.140

Note: * means significant at a 5% level
Source: Compiled from ZHBS, 2019/2020

i. Proportion of employees in a household

The proportion of employees in a household is a socio-economic factor that influences poverty incidence. Table 3 shows a negative association between employment status and poverty incidence at a p-value of 0.000 in both areas. This means a unit increase in the proportion of employees decreases the odds of poverty by 0.1057 in rural and 0.0392 in urban. Furthermore, one unit increase in the proportion of employees will result in 0.3596 and 0.2908 decreases in the probability of households being poor in rural and urban respectively. These findings imply that households with few employees are likely to be poor as compared to households with many employees in both rural and urban areas. This is because having large numbers of members in a household engaged in different occupations provides a greater amount of earnings which can satisfy their needs; and thus decrease the likelihood of being poor. Sahar *et al.*, (2019) found the same results that the probability of moving out of poverty consistently increased as the ratio of workers in households increased by one unit, implying that as the ratio of workers increased, the probability of households being poor decreased.

ii. Agricultural land use

The association between agricultural land use and poverty incidence was also analyzed. Results in Table 3 revealed that agricultural land use positively influenced poverty incidence at a p-value of 0.000 in the rural and 0.001 in the urban. Based on the odds ratio, the result proves that households who were using

agricultural land were 1.9432 times more likely to be poor in the rural and 2.3174 times more likely to be poor in urban than those households who were not using agricultural land. The marginal effect further depicts that household use of agricultural land decreases the probability of being poor by 0.109 in rural and 0.0927 in urban as compared to non-use of agricultural land. This result suggests that land use as a socio-economic factor for poverty decline is more significant in the rural than in the urban. It should be noted that using agricultural land is not directly positively associated with a lower likelihood of being poor, but rather higher agricultural productivity may decrease the likelihood of a household being poor by raising the farmer's income. Also, raising productivity depends on important factors that may increase agricultural productivity like the quality of land, education, market information, and roads. Factors like the type of land a household uses can affect agricultural output because some types of land are not conducive to agricultural production, and this can affect productivity, and hence household income. These results are similar to Oseni *et al*. (2014), who argued that using larger agricultural land in itself is not positively correlated with a lower likelihood of being poor, but rather increased agricultural production decreased the likelihood of being poor. Similarly, Wang (2021) found a significantly positive correlation between land/terrain type used by households and poverty incidence, indicating that complex terrain is associated with a higher poverty incidence. This implies that the use of agricultural land had a positive influence on poverty incidence in the sense that, as the use of agricultural land increases, the probability of poverty incidence decreases.

iii. Access to electricity

Access to electricity was analyzed by viewing its influence on poverty incidence. Table 3 shows that access to electricity significantly reduced poverty incidence in rural and urban households (p-value = 0.000). The likelihood of not being poor was 3.03 times in the rural and 2.62 times in the urban for households without electricity. Also, the marginal effect reveals that the probability of poverty for households will decrease by 0.1717 and 0.1074 when households without electricity have access to electricity in the rural and urban respectively. The implication is that households with access to electricity have higher chances of reducing poverty by using electricity in productive activities and use for other activities like water pumps, sewing machines, or machinery which generates income as an effect of electricity, thereby reducing the possibility of being poor. These results concur with a study in Nicaragua by Bridge (2017), who found that access to electricity has a positive and significant effect on household per capita consumption. This implies that access to electricity increases per capita consumption, which reduces the likelihood of households being poor. Imam *et al*. (2018) also found the same in Bangladesh; they viewed that households with

electricity access were 0.44 times less likely to be poor than their counterparts. This result implies that the availability of electricity is more likely to be effective in reducing the incidence of poverty among households in rural and urban areas. This is because access to electricity can enhance productivity by enabling the household to use electric equipment and lights as well as process and manufacture the yields which increases income.

3.3 Results Implication

These results build on the existing body of evidence of increasing the electric services, and widening agricultural land use to peasants which provides more room for employment to household members. By doing so, it is obvious that such investment will lead to poverty reduction. The findings allow more efforts to be invested in electrification and providing more agricultural implements for peasants to use more arable land. This goes hand in hand with the global effort of poverty reduction as has been stated in **"SDG number 1 which is about Poverty Reduction**".

As it has been stated in Target 1.4, by 2030, developmental stakeholders should ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership, and control over land and other forms of property, inheritance, natural resources, appropriate new technology, and financial services, including microfinance; similarly, the results of this study reveal something that more efforts should be done in land use as a part of vital inputs in the agricultural economy to eradicate poverty as per global strategy by increasing areas for employability at the household level in both rural and urban areas. This will also enable the country to enable the achievement of SDG number 1 in its Target 1.2 which aims to reduce at least by half the proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions. It also implies the need for manageable expenses of electrification in both rural and urban areas to widen different opportunities for income generation to individuals and household members.

4.0 CONCLUSION

The socio-economic factors included in this paper have been found to influence poverty incidence positively in both areas. In particular, households with access to electricity had a lower probability of being poor than those without access to electricity. Further to that, it has been noted that household members who used agricultural lands had a greater chance of being non-poor than those who did not use agricultural land. Moreover, a unit increase in the proportion of employees in a household decreases the probability of the household being poor. This means,

there was a direct proportionality between the number of employees and poverty incidence in the household. Thus, all factors had similar influence as they either increased or decreased poverty incidence; the difference was in the extent of influence between rural and urban areas.

5.0 RECOMMENDATIONS

5.1 Policy recommendation:

i) Stakeholders to amend policies that insist on investment in infrastructure such as electrification and ensure that the costs of connecting electricity are affordable to many households to raise the income of the nation.

ii) Promoting inclusive agricultural development with physical infrastructure such as roads, transport, and markets; and assisting farmers with credit targeting the poor to ensure higher agricultural productivity.

5.2 Recommendation on methodology

Further studies need to focus on primary data based on the question that the government is improving all areas, so in the future, what will happen if the whole country is covered with electricity?

5.3 Institutional recommendation

To establish programs like the rural economy to prepare experts who can transform the rural economy by disseminating skills and knowledge on poverty alleviation in rural areas.

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