

# An Investigation on the Relationship between the Level of Education and Monthly Income: A Case of Kitwe District of Zambia

Banda Gerald<sup>a\*</sup>, Tailoka Frank Patson<sup>b</sup>

<sup>a</sup>*Mukuba University, P.O Box 20382, Itimpi Campus, Kitwe, Zambia*

<sup>b</sup>*Copperbelt University, School of Mathematics and Natural Sciences, P.O Box 21692, Kitwe, Zambia.*

<sup>a</sup>*Email: gerald1banda@gmail.com*

<sup>b</sup>*Email: tailokaf@cbu.ac.zm*

## Abstract

Reducing high level of poverty and hunger, and achieving universal primary education in many developing countries are some of the Millennium Development Goals. The current study was designed to investigate the relationship between the level of education and monthly income in the city of Kitwe in the Copperbelt Province of Zambia. The design of the study was descriptive and quantitative. Simple random sampling was used in this study to come up with the sample of 320 informal and formal employees who participated in the study. Questionnaire was used to collect data regarding the relationship between the level of education and monthly income. Data was analysed using Chi-square test of independence.  $H_0$  (The null hypothesis) was tested at 0.05 level of significance. Results of the study shows that there is a significant relationship between the level of education and monthly income in Zambia. The study recommended that a number of studies should be conducted in Zambia regarding the relationship between the level of education and monthly income to further confirm the results.

**Keywords:** Hunger; Level of Education; Monthly Income; Poverty; Universal Primary Education.

## 1. Introduction

Educational system that helps to reduce poverty in the country is considered to be the best and the future of a better country depends on the graduates the country produces every year. In this 21<sup>st</sup> century, education is considered as the tool that is used for the integration of the individual's with the society.

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\* Corresponding author.

According to [1] as cited from [2], education is important in developing national goals and achieving high levels of progress, promoting unity in communities, self-actualization and strive for political constancy, social evolution, economic welfare, scientific standards, cultural consciousness and technological progress. Nowadays education has become a prominent thing as it involves most people to take part in this matter. In addition, education cannot be separated from human's life. Both males and females need to be educated in order for the country to have a bright future. In spite of the significant role that education plays in society, most people in Zambia are still poor. Most of the developed countries are doing well economically because of its well versed educational population. According to [3], Zambia has population of 17,629,398 people. The World Bank in its 2013 Economic Brief for Zambia as cited from [3] stated that most people are self-employed not by choice but as a result of inability to find a formal job. The report further explained that five million eight hundred thousand (5.8 million) people are employed. Approximately two million four hundred thousand (2.4 million) people of 5.8 million people were self-employed, in which the majority have sporadic incomes, lack social security and insurance. Zambia has eight (8) public universities and thirty one (31) private universities of which graduates are welcomed to the community every year. Looking at the World Bank in its 2013 Economic Brief for Zambia, more than fifty percent of the population of Zambia is unemployed. The question has always been 'at what level of education do people in Zambia start having meaningful income?' Education can be classified into two categories namely formal and informal education [4]. According to [4], formal education is the type of education that is institutionalised, intentional and planned through public organizations and recognised private bodies. Formal education programmes are those programmes that are recognised by the relevant national education or equivalent authorities. For example, any other institution that works hand in hand with the national or sub-national education authorities is considered as formal education programme. In most cases formal education consists of initial education, vocational education, special needs education and some parts of adult education. Formal type of education typically takes place in educational institutions that are designed to provide full-time education. Students in formal type of education have system designed as a continuous educational pathway. The other type of education is informal education. According [4], informal learning is the type of learning that is intentional or deliberate, but the type of education is not institutionalised. The type of education offered under informal education is less organized and less structured than formal education. According to [4], informal learning may include the type of learning activities that occur in the family and workplace. Learning activities that may occur at local community and daily life, on a self-directed, family-directed or socially-directed basis is also considered as informal education [4]. Educational levels can be grouped into an ordered series of categories that represents broad steps of educational progression in terms of the complexity of educational content. People who have done advance programmes are considered to have higher education than those who have done less advance programmes. Income can be defined as the payment people receive for providing resources. According to [5], income is money that an individual or business receives in exchange for providing a good or service or through investing capital [5] described education as an investment in human capital. An individuals can receive income through earning wages through working or through investing into financial assets. The study investigated if there is a relationship between the level of education and monthly income in the city of Kitwe in Zambia.

### ***1.1 Purpose of the study***

The purpose of the study was to investigate if there is a relationship between the level of education and monthly income in the city of Kitwe in Zambia.

## **1.2 Hypothesis**

### **Null Hypothesis**

$H_0$ : There is no relationship between the level of education and monthly income.

### **Alternative Hypothesis**

$H_1$ : There is a relationship between the level of education and monthly income.

## **2. Literature Review**

The objective of literature review in this study is to analyse what other researchers had found concerning the relationship between the level of education and monthly income. The literature review provides theoretical background to the study. According [6], literature review helps to contextualise the findings by comparing them with what others have found out in relation to the area of enquiry. According [6], literature review shares with the reader the results of other studies that are closely related to the one being undertaken. [6] further explain that literature review relates a study to the larger, ongoing dialogue in the literature, filling in gaps and extending prior studies. According [7], literature review provides a framework for establishing the importance of the study as well as a benchmark for comparing the results with other findings. According to [5], the level of education is strongly related to both income and wealth in the United States of America. The study looked at education, income and wealth in the United States of America. The study reviewed that inequality have been on the rise in the United States for decades. According to [5], households with higher levels of education tend to have more liquid assets to withstand financial storms, diversify their savings (investments), and maintain low levels of debt relative to assets. These financial behaviours are effective strategies for building income into wealth. Because much of wealth building can be tied to financial decision making, it is likely that financial literacy can play a key role in reducing wealth inequality over time. The findings of the study indicates that the level of education is strongly related to both income and wealth. According to [8], higher educational attainment and more equal distribution of education play a significant role in making income distribution more equal. Findings of the study shows that education is related to income distribution and income level is related to income inequality income level. A number of studies have been conducted to investigate the relationship between education and income equality. For example, [9] in their earlier work shows a close relation between education and income distribution in developed countries. Another study was conducted by [10] and results of the study shows that across regions in the United States, income inequality is positively correlated with inequality in schooling and negatively correlated with the average level of schooling. According to [11], most vulnerable group in Czech Republic comprises households with primary education or no education. The study looked at relationship between attained level of education and the income situation of households in the Czech Republic, mainly those ones living at risk of poverty.

### **3. Methodology**

#### **3.1 Research Design**

The purpose of the study was to investigate the relationship between the level of education and monthly income in the city of Kitwe in Zambia. A research design is the logical and systematic planning and directing the research [12]. Research design can be defined as a plan for data collection and data analysis in research project. Research design includes a plan on what the researcher will do from writing the hypotheses and their operational implications to the final analysis of data [13] as cited from [14]. The design of the study was descriptive and quantitative in its nature. The study used quantitative method approach in order to investigate the relationship between the level of education and monthly income in the city of Kitwe in Zambia. According to [7], quantitative research approach involves the collection of quantitative (closed-ended) data in response to the research question or hypothesis. In this study, quantitative data was gathered from the monthly income results. The study was a survey research design. A survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population [7]. The use of the survey research design enabled the researchers to gather information on the relationship between the level of education and monthly income in the city of Kitwe in Zambia. The research was experimental because its goal was to determine the relationship between two variables (Level of Education and Monthly Income).

#### **3.2 Target Population**

The study was carried out in Copperbelt Province of Zambia, Kitwe District in particular. The study investigated the relationship between the level of education and monthly income in the city of Kitwe in Zambia. City of Kitwe is located in the Copperbelt Province of Zambia. The target population of this study included all the workers at Mukuba University, lecturers at the Copperbelt University, workers from different mines, workers in shops, teachers in some selected private and government schools, taxis and bus drivers, sellers at Chisokone Market (the biggest market in Kitwe), and business men and women. According to [15], target population refers to a group of elements or cases that conform to specific criteria and to which researchers are interested in generalizing their conclusions.

#### **3.3 Sampling and Sampling Procedures**

The study used simple random sampling to come up with the sample of 320 participants. Random sampling was used to collect data from informal and formal employees. Data was collected from both academic and non-academic staffs from Mukuba University, employees at Kitwe City Council, employees at Kitwe District Education Board Secretary offices, some selected primary and secondary school teachers from both government and private school. Some selected miners from within Kitwe District, some selected nurses, and academic staffs from the Copperbelt University, tax and bus drivers working within Kitwe District and people doing small scale businesses were also included in the study.

#### **3.4 Data Collection Instrument**

In this study questionnaire was used to collect data regarding the relationship between the level of education and monthly income. The questionnaire was chosen because it has the ability to reach many respondents and it helps to preserve anonymity which encourages greater honesty.

### 3.5 Validity of Data Collection Instrument

Reference [6] defined validity as the ability of an instrument to measure what it is designed to measure. ‘In other words, the researcher must obtain the reality of responses of those people who are under the test through comparing their responses with such truth that indeed is truth’[14,p3]. The questionnaire was given to two lectures at Mukuba University to determine their work ability. Suggestions and corrections given were taken care of by the researchers to improve the questionnaire.

### 3.6 Data Analysis

Chi Square test for independence was used to find out if there is a relationship between level of education and monthly income. Chi square test of independence is used to determine if there is an association between two categorical variables. Chi Square test for independence was appropriate in this study since the study of looking at the association between two variables (level of education and monthly income).

## 4. Data Presentation

**Table 1:** Level of Education and Monthly Income

Level of Education	Monthly Income				
	Less than K1000	Between K1000 and K5000	Between K5000 and K10000	Between K10000 and K15000	Above K15000
No School Certificate	18	6	4	0	0
With School Certificate	9	44	8	2	2
With Diploma in any Field	4	52	24	6	3
With Degree in any Field	1	14	33	6	3
With Master’s Degree in any Field	0	2	10	13	40
Doctorate Degree in any Field	0	0	1	0	15

Table 1 shows the collected data on level of education and monthly income in Kitwe District of Zambia.

## 5. Results

Data was analysed using the Statistical Package for Social Science (SPSS) Version 20 and the following results were obtained;

**Table 2:** Case Processing Summary

	Cases			
	Valid N	Percent Percent	Missing N	Total Percent
Level of Education * Monthly Income	320	100.0%	0	0.0% 320 100.0%

In the Group Statistics box above in Table 2, the number of participants in the study were 320. This means that all the 320 cases were processed in the Statistical Package for Social Science (SPSS) Version 20.

From Table 4 above, Pearson Chi-Square was used to determine if there is a relationship between the level of education and monthly income. The p-value (*Asymp. Sig. (2 – sided)*) is 0.000. This means that we reject  $H_0$  at 5% level of significance since the

$P - value = 0.000 < 0.05$  and we can conclude that there is a significant relationship between the level of education and monthly income in Zambia.

Table 5 above shows symmetric measures (the effect size of Chi-Square test of independence). Rejection of the null hypothesis is not the end of discussion when testing hypothesis.

There is more to study when the null hypothesis is rejected. There is need to determine the degree to which the two categorical variables are related to each other when we are looking at Chi-Square test of independence. One method of doing that is by looking at the effect size for the two categorical variables. According to [16], effect size is the strength of the relationship between two variables.

According to [17], for tables larger than  $2 \times 2$  the value to report is for Cramer's V. If Cramer's V = 0.10, then the effect size is small, Cramer's V = 0.30, then the effect size is medium and Cramer's V = 0.50, then the effect size is large.

The higher the effect size the stronger the correlation between the two variables. Since Cramer's V = 0.518, then the effect size in this study is large. This means that in Zambian set up based on the data collected, there is a strong correlation between the level of education and monthly income.

**Table 3:** Level of Education \* Monthly Income Cross-tabulation

		Monthly Income					Total	
		Less than K1000	Between K1000 and K5000	Between K5000 and K10000	Between K10000 and K15000	Above K15000		
Level of Education	No Certificate	Count	18	6	4	0	0	28
		Expected Count	2.8	10.3	7.0	2.4	5.5	28.0
		% within Level of Education	64.3%	21.4%	14.3%	0.0%	0.0%	100.0%
	Certificate	Count	9	44	8	2	2	65
		Expected Count	6.5	24.0	16.3	5.5	12.8	65.0
		% within Level of Education	13.8%	67.7%	12.3%	3.1%	3.1%	100.0%
	Diploma	Count	4	52	24	6	3	89
		Expected Count	8.9	32.8	22.3	7.5	17.5	89.0
		% within Level of Education	4.5%	58.4%	27.0%	6.7%	3.4%	100.0%
	Degree	Count	1	14	33	6	3	57
		Expected Count	5.7	21.0	14.3	4.8	11.2	57.0
		% within Level of Education	1.8%	24.6%	57.9%	10.5%	5.3%	100.0%
	Master's Degree	Count	0	2	10	13	40	65
		Expected Count	6.5	24.0	16.3	5.5	12.8	65.0
		% within Level of Education	0.0%	3.1%	15.4%	20.0%	61.5%	100.0%
	Doctorate Degree	Count	0	0	1	0	15	16
		Expected Count	1.6	5.9	4.0	1.4	3.2	16.0
		% within Level of Education	0.0%	0.0%	6.3%	0.0%	93.8%	100.0%
	Total	Count	32	118	80	27	63	320
		Expected Count	32.0	118.0	80.0	27.0	63.0	320.0
		% within Level of Education	10.0%	36.9%	25.0%	8.4%	19.7%	100.0%

**Table 4:** Chi-Square Tests

	<i>Value</i>	<i>df</i>	<i>Asymp. Sig. (2 – sided)</i>
Pearson Chi-Square	343.13920		.000
Likelihood Ratio	297.65020	1	.000
Linear-by-Linear Association	178.894	1	.000
N of Valid Cases	320		

**Table 5:** Symmetric Measures

	<i>Value</i>	<i>Approx. Sig.</i>
Nominal by Nominal	Phi	1.036000.
	Cramer's V	.518 .000
N of Valid Cases	320	

## 6. Discussion

The analysis in Table 4 shows that there is a significant relationship between the level of education and monthly income in Zambia. The findings in this study are in line with the findings of [5]. According to [5], the level of education is strongly related to both income and wealth in the United States of America. From Table 3, 64.3% of the respondents without school certificate earns less than K1000 monthly while no one earns more than k15000 monthly. A further analysis conducted showed that 46.4% of the respondents without certificate were males while 53.6% were females. All the respondents were informal employment whose ages range from 20 years to 30 years. The majority of respondents with school certificate earns better than those without school certificate. From Table 3, 13.8% of the respondents with school certificate earns less than K1000 monthly, 67.7% earns between k1000 and K5000 monthly, 12.3% earns between K5000 and K10000 monthly, 3.1% earns between K10000 and K15000 monthly, and 3.1% earns above k15000 monthly. Of the respondents, 60% with certificate were males while 40% were females. The majority of the respondents were formal employment. About 11% of the respondents were less than 20 years old and they have worked for more than one year. Approximately 49% of the respondents were between 20 years and 30 years old and the majority of them have been working between 1 year and 10 years. Twenty seven percent of the respondents were between 30 years and 40 years old and only one worked for more than 30 years. Ten percent of the respondents were between 40 years and 50 years old and no one worked for less than 1 year. Three percent of the respondents were above 50 years old and one worked between 1 years and 10 years while the other one worked between 20 years and 30 years.

Eighty one percent of the respondents with diploma in any field were in formal employment while nineteen percent were in informal employment. Of the eighty one percent of the respondents with diploma in any field who were in formal employment, 56% were males while 44% were females. Of the nineteen percent of the respondents with diploma in any field who were in informal employment, 53% were males while 47% were



females. From Table 3, 4.5% of the respondents with diploma in any field earns less than K1000 monthly, 58.4% earns between K1000 and K5000 monthly, 27% earns between k5000 and k10000 monthly, 6.7% earns between K10000 and K15000 monthly, and 3.4% earns above K15000 monthly. Only one person with a diploma was less than 20 years old and has worked for more than one year. Most of the respondents who were in inform employment earns between K1000 and K5000 monthly with two respondents earning above K15000 monthly. Of the eighty one percent of the respondents with diploma in any field who were in formal employment, 37.5% were between 20 years and 30 years old and no one had worked for more than 30 years. Thirty seven and half percent were between 30 years and 40 years old and the majority of them had worked between 1 year and 10 years. Approximately 14% were between 40 years and 50 years old with half of them working between 10 years and 20 years. About 11% were above 50 years old and none of them worked for less than 1 year. The majority of respondents with degree in any field earns better than those without school certificate, with school certificate and those with diploma. From Table 3, 1.8% of the respondents with degree earns less than K1000 monthly, 24.6% earns between K1000 and k5000 monthly, 57.9% earns between K5000 and K10000 monthly, 10.5% earns between K10000 and K15000 monthly, and 5.3% earns above K15000 monthly. Of the respondents, 68% with degree were males while 32% were females.

Ninety five percent of the respondents were in formal employment while five percent were in informal employment. None of the respondents were less than 20 years old and 54% of the respondents were between 30 years and 40 years old. Forty seven percent of the respondents had worked between 1 year and 10 years.

Ninety eight percent of the respondents with master's degree in any field were in formal employment while two percent were in informal employment. Of the ninety eight percent of the respondents, 86% were males while 14% were females. From table 3, none of the respondents earns less than K1000 monthly, 3.1% earns between K1000 and K5000 monthly, 15.4% earns between K5000 and K10000 monthly, 20% earns between K10000 and K15000 monthly, and 61% earns above K15000 monthly. Forty eight percent of the respondents were between 40 years and 50 years old and the majority of them had worked between 1 year and 10 years. All the respondents with doctorate degree in any field were in formal employment. About eighty eight percent of the respondents were males while 12% were females. From Table 3, none of the respondents earns less than K5000 monthly, 6.3% earns between K5000 and K10000 monthly, none of the respondents earns between k10000 and k15000 monthly, and 93.8% of the respondents earns above K15000 monthly. None of the respondents were less than 20 years old. Forty four percent of the respondents were between 40 years and 50 years old and 56% of the respondents were above 50 years old. Sixty three percent of the respondents with doctorate degree had worked between 10 years and 20 years.

## **7. Conclusion**

Significant differences in monthly income were found based on the level of education. The highest paid were those with doctorate degrees, followed by those with masters degrees, then first degrees, diplomas, school certificate and lastly those without certificate. Therefore, the study found that there is a significant relationship between the level of education and monthly income in Zambia. These results would imply that in Zambia there is a strong correlation between the level of education and monthly income.

## **8. Recommendation**

The study has made only one recommendation.

As literature has shown, many countries have been studying to determine if there is a relationship between the level of education and income. However, there are no studies that have been conducted in Zambia on the relationship between the level of education and monthly income. Moreover, the current study focused on Kitwe District only. There is need to conduct more studies in all the provinces of Zambia more especially in the tourist capital city of Zambia 'Livingstone', in the capital city of Zambia 'Lusaka' and all the mine activity towns in Zambia to further confirm the results.

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## Questionnaire

The main objective of this questionnaire is to find out if there is a relationship between the level of education and monthly income. Do not write your name anywhere in this questionnaire. The information you give concerning the level of education and monthly income will be handled confidentially. You are kindly requested to fill in the questionnaire indicating your honest response by ticking [√] against your option. Please respond to the items below honestly.

### 1. Gender

Male

Female

### 2. What is your age?

(a) Less than 20 years

(b) Between 20 and 30 years

(c) Between 30 and 40 years

(d) Between 40 and 50 years

(e) Above 50 years

3. **What is your level of Education?**

- (a) No School Certificate [ ]
- (b) With School Certificate [ ]
- (c) With Diploma in any Field [ ]
- (d) With Degree in any Field [ ]
- (e) With Master's Degree in any Field [ ]
- (f) Doctorate Degree in any Field [ ]

4. **Type of Work**

- (a) Formal [ ]
- (b) Informal [ ]

5. **What is your Monthly Income?**

- (a) Less than K1000 [ ]
- (b) Between K1000 and K5000 [ ]
- (c) Between K5000 and K10000 [ ]
- (d) Between K10000 and K15000 [ ]
- (e) Above K15000 [ ]

6. **For how long have you been working?**

- (a) Less than 1 year [ ]
- (b) Between 1 year and 10 years [ ]
- (c) Between 10 years and 20 years [ ]
- (d) Between 20 years and 30 years [ ]
- (e) Above 30 years [ ]

*Thanks for your Cooperation*