

**INVESTIGATING THE RELATIONSHIP BETWEEN MINIMUM  
WAGE AND POVERTY IN KENYA**

**BY**

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## DECLARATION

This thesis is my original work and has not been presented for the award of degree in any other university.


Signature 

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This thesis has been submitted for examination with my approval as the University Supervisor.

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Prof. Damiano Kulundu Manda

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I take responsibility of any error(s) and/or omission(s) contained herein.

## **DEDICATION**

To my best friend and husband Mike. And to my children Aidan, Athan, and Aaron; never give up.

## TABLE OF CONTENTS

<b>DECLARATION.....</b>	<b>ii</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>iii</b>
<b>DEDICATION.....</b>	<b>iv</b>
<b>LIST OF TABLES .....</b>	<b>viii</b>
<b>LIST OF ABBREVIATIONS AND ACRONYMS .....</b>	<b>ix</b>
<b>ABSTRACT .....</b>	<b>x</b>
<b>1. CHAPTER ONE: INTRODUCTION .....</b>	<b>1</b>
1.1 Background of the study .....	1
1.1.1 Historical overview of minimum wage in Kenya .....	4
1.1.2 Covered sectors and poverty in Kenya .....	6
1.1.3 Uncovered sectors and poverty in Kenya .....	8
1.2 Statement of the problem .....	9
1.3 Objectives of the study.....	10
1.4 Significance of the study.....	11
1.5 Scope and limitations of the study .....	11
<b>2. CHAPTER TWO: LITERATURE REVIEW .....</b>	<b>13</b>
2.1 Introduction.....	13
2.2 Theoretical framework.....	13
2.2.1 Neoclassical theory of labour .....	13
2.2.2. Subsistence theory of wages .....	14
2.2.3 Efficiency wage theory .....	16
2.3 Opponents of minimum wage as an anti-poverty tool .....	17
2.4 Proponents of minimum wage as an anti-poverty tool .....	19

2.5	Overview of the literature .....	24
<b>3.</b>	<b>CHAPTER THREE: METHODOLOGY.....</b>	<b>26</b>
3.1	Introduction.....	26
3.2	Conceptual framework.....	26
3.3	Model specification.....	27
3.4	Definition of variables .....	29
3.5	Data types and sources.....	31
3.6	Diagnostic tests .....	33
3.6.1	Heteroscedasticity .....	33
3.6.2	Multicollinearity.....	33
<b>4.</b>	<b>CHAPTER FOUR: DATA ANALYSIS, RESULTS, AND DISCUSSION .....</b>	<b>35</b>
4.1	Introduction.....	35
4.2	Descriptive statistics .....	35
4.3	Diagnostic tests .....	37
4.3.1	Heteroscedasticity test.....	37
4.3.2	Multicollinearity Test.....	37
4.4	Model results.....	39
4.4.1	Food poverty .....	39
4.4.2	Absolute poverty .....	43
<b>5.</b>	<b>CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS..</b>	<b>47</b>
5.1	Summary of findings.....	47
5.2	Conclusion .....	49
5.3	Recommendations.....	49

5.4	Areas of further research.....	50
	<b>REFERENCES.....</b>	<b>51</b>
	<b>APPENDICES .....</b>	<b>55</b>
	APPENDIX I .....	55
	APPENDIX II.....	56
	APPENDIX III.....	57
	APPENDIX IV.....	58
	APPENDIX V .....	59
	APPENDIX VI.....	60

## LIST OF TABLES

Table 1: Definition of variables .....	29
Table 2: Descriptive statistics .....	35
Table 3: Breusch-Pagan test for heteroscedasticity .....	37
Table 4: Multicollinearity test: VIF .....	38
Table 5: Food poverty overall model statistics .....	39
Table 6: Marginal effect for food poverty. ....	40
Table 7: Absolute poverty overall model statistics .....	43
Table 8: Marginal effect for absolute poverty .....	44



## **LIST OF ABBREVIATIONS AND ACRONYMS**

AAWC	Area Agricultural Wages Committees
ASEAN	Association of South and East Asian Nations
AWAB	Agricultural Wages Advisory Board
CBA	Collective Bargaining Agreement
CBN	Cost-of-Basic-Needs
COTU	Central Organization for Trade Unions
FKE	Federation of Kenyan Employers
GDP	Gross Domestic Product
GWAB	General Wages Advisory Board
ILO	International Labour Organization
KSH	Kenya Shillings
KIHBS	Kenya Integrated Household Budget Survey
MW	Minimum Wage
OLS	Ordinary Least Squares
WC	Wages Councils

## ABSTRACT

Minimum wage has been adopted as a wage-fixing mechanism in over 90% of the world economies. In Kenya, it has been in use for over 50 years with two key goals associated with its implementation: first, to protect workers against exploitation; and second, to protect workers against poverty. This study purposed to evaluate the effectiveness of minimum wage on the second goal. Specifically, the study sought to analyse the effect of minimum wage on food poverty and absolute poverty in rural and urban areas. Using the KIHBS 2015/2016 dataset, the study applied a bivariate probit function to analyse food poverty  $Z_f$  and absolute poverty  $Z_{bn}$  against minimum wage, with control variables: area of residence, household size, age, number of sources of income, gender, marital status, and education level. The study established that there exists a significant, negative relationship between minimum wage and poverty. However, the results showed that absolute poverty was more sensitive to minimum wage changes than food poverty, exhibiting a higher maximum likelihood coefficient of 15.99% against 10.69%. Workers in urban areas were additionally at higher risk of being both food poor and absolutely poor than their counterparts in rural areas. Nevertheless, education presented a larger influence on absolute poverty than minimum wage, while it ranked second to minimum wage in its influence on food poverty. Based on these results, the study established that while minimum wage policy is important in reducing poverty, it is not sufficient. Its implementation should be done in tandem with other policies such as quality education-driven policies in order to make minimum wage effective as an anti-poverty instrument. Moreover, devolution-driven policies that will promote urban to rural migration should also be considered by policy makers.

# 1. CHAPTER ONE: INTRODUCTION

## 1.1 Background of the study

On 30<sup>th</sup> May 1928, the International Labour Organization established the first wage-fixing convention for its members. This instrument was meant to protect vulnerable workers in manufacturing and commerce against exploitation and poverty at the height of the industrial age (Campos-Vazquez & Esquivel, 2022; Prayoga, Wardani, & Hartarto, 2022; Borat, Kanbur, & Stanwix, 2017; Syarif & Wibowo, 2017; Saari, Hassan, Habibullah, & Rahma, 2016). During this period, mankind's needs had become heavily dependent on manufactured goods and services, the reliance of which was vastly supported by salaries and wages earned from selling individual skills in exchange.

Firms, being capitalistic in nature, aimed at maximizing output at the lowest possible cost of production. Their focus was to pay wages that corresponded to the optional output; the convergence of marginal cost of a worker and marginal product of labour (Stigler, 1946). This, in many cases, would translate to meagre earnings for the workers especially because there were fewer opportunities than there was available labour. Kenya, like many developing nations still suffers from high unemployment, which means that the wages determined by the market mechanisms are usually relatively low and insufficient to cater for the needs of employees as well as their households. The exploitation of employees is therefore an underscored factor in such a labour market, necessitating the minimum wage intervention.<sup>1</sup>

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<sup>1</sup> Minimum wage is defined as a statutory wage below which an employer is not allowed to renegotiate or pay through a CBA or individual contract. (ILO, 2015).

Additionally, many scholars have argued that the level of poverty that needs to be dealt with in poor economies is prevalent with the unemployed population and not necessarily with the working poor (Neumark, 2013; Gindling, 2018). These assertions appear to suggest that poverty in developing countries is not likely to shrink solely by enabling a percentage of the working poor to purchase more goods and services, as dictated by theory (Gindling, 2018; Atseye, Takon, & Ogar, 2014). The effects on those in the uncovered sector or those that end up being unemployed have been shown to cancel any benefits from increments in minimum wage for some economies, especially in the long term (Gindling, 2018; Borjas, 2012; Bengal, 2012).

The earliest works on wages of labour by Smith (1776) submits that sustainable wages ought to be enough to take care of a household's needs. Otherwise they risk extinction through malnutrition, mal-education, and mal-housing, which are all direct indicators of poverty (Jadoon, Tanveer, Javed, & Sarwar, 2021; Awan & Perveen, 2019). Theoretically, minimum wage should provide adequately for an employee's their basic needs and offer decent living standards (Jadoon, Tanveer, Javed, & Sarwar, 2021; Manda, Kosimbei, & Wanjala, 2007). However, in spite of the implementation of minimum wage requirements, there has been little evidence linking wage fixing to poverty alleviation.

In the recent past, seemingly in response to George Stigler's (1946) call for a more active engagement in the minimum wage discussions by economists, the question of whether this policy is more of a political tactic than an economic one has been the epicentre of numerous labour economic debates across the globe (Overstreet, 2021; Borhat, et al. 2017; Aderemi, 2017; MaCurdy, 2015; Atseye, Takon, & Ogar, 2014; Bengal, 2012). However, attention has been concentrated in developed nations, the economies in Latin America, and the Association

of South and East Asian Nations (ASEAN). Over the last two decades, these countries appear to have a decent capacity of well-developed discourse on minimum wage, while Africa is still building on its own (Bhorat & Stanwix, 2021; Neumark & Wascher, 2015).

An International Labour Organization (ILO) study (2015) showed that approximately only 10% of the world's nations are yet to implement minimum wage regulations. New Zealand and Australia were the first known countries to have introduced minimum wage legislation in 1896 and 1899 respectively, with Britain following in 1909 (Omolo, 2010). The general observation is that the effects of Minimum Wage on poverty have not been agreed upon by researchers. That is, whether the effect they are positive, negative, or neutral (Gindling, 2018; Borjas, 2012; Bengal, 2012). The lack of consensus fails Stigler's secondary appeal for a unanimous view by economists regarding minimum wage legislation.

Divergence in views has been attributed to differences in the ratios between the formal and informal sectors, poverty rates ratios to minimum wage, inflation rates, gendered employment ratios, the level of minimum wage enforcement, and geo-political complexities (Campos-Vazquez & Esquivel, 2022; Gindling, 2018; Mwangi, Simiyu, Beyene, & Onderi, 2017; MaCurdy, 2015; Bengal, 2012). In Kenya, studies show that a majority of labourers that earning minimum wage are employed in public sector, therefore have formal engagements. These individuals form less than 35% of the working population<sup>2</sup> (Bhorat & Stanwix, 2021; Manda, Kosimbei, & Wanjala, 2007; Cunningham, 2007).

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<sup>2</sup> Formal employment is an engagement between the employer and the employee that involves the exchange of services for wages or salary.

### **1.1.1 Historical overview of minimum wage in Kenya**

Subsequent to its introduction in Kenya in 1932, Minimum Wage has since had three major reviews – in 1946, 1951, and 2007 (Omolo, 2010). Established following the abolition of forced labour in 1930, the Minimum Wage Ordinance of 1932 was adopted to protect workers in regional areas that were considered to have excessively low wages. Soon after World War II, the Minimum Wage Ordinance of 1946 took effect, with the Central Minimum Wage Advisory Board taking the helm as the wage-setting body. The Regulation of Wages and Conditions of Employment Act was later enacted in 1951, widening the scope to not only cover wages but also determine the working conditions for employees (Omolo, 2010). The Act provided for four key establishments: the General Wages Advisory Board (GWAB); Agricultural Wages Advisory Board (AWAB); Area Agricultural Wages Committees (AAWC); and Wages Councils (WCs) (Omolo, 2010; Republic of Kenya, 1989). These establishments were mandated with fixing the wages and conditions of employment in specified sectors and regions, totalling about fifty-six different categories (Omolo, 2010; Republic of Kenya, 1989).

Through stakeholder engagement involving the government, employer, and employee representatives, Kenya's labour laws were revised in 2007. This revision gave rise to five Acts: the Employment Act of Kenya 2007; the Labour Relations Act 2007; the Labour Institutions Act 2007; Organization Safety and Health Act 2007; and the Work Injury Benefits Act 2007. Sections 5 and 43 of the Labour Institutions Act 2007 established the National Labour Board, the General Wage Council, the Agricultural Wage Council, and Sectoral Wage Council. Each of these establishments has tripartite representation as required by the ILO Convention C144<sup>3</sup> (Republic of Kenya, 2007). In 2010, the new Constitution of Kenya was implemented ushering in a new era where fair labour practices were made a fundamental right for every Kenyan. The

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<sup>3</sup> ILO Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144)

Constitution also led to the establishment of the Labour and Employment Relations Court as a High Court in the country, therefore giving it a broader jurisdiction unlike before (Republic of Kenya, 2010).

In summary, there have been two major policy phases driving the minimum wage agenda since independence: the period of 1964-1972; and that of 1973-2010 (Dayan, 2015; Omolo, 2010; Andalon & Pagés, 2009). The first phase (1964-1970) was growth and development-oriented, characterized by high minimum wages. These were aimed at protecting the employees against unfair labour practices and promoting growth for the employer through increased productivity; to enable the latter to engage more labour and produce more output, therefore motivating overall productivity (Dayan, 2015; Omolo, 2010). The economic changes realized during this period included: a six percentage increase in Gross Domestic Product (GDP) (Dayan, 2015), a fall in inflation to 2.7%, a rise in income distribution inequality with a Gini coefficient of 0.59, and a general shift from labour-intensive production to capital-intensive production (Dayan, 2015; Omolo 2010).

Based on the results from the first phase, the second phase was modelled between 1973-2010 to promote employment and equitable distribution of income (Omolo, 2010). To achieve this, wage increases were done restrictively in a bid to stimulate labour-intensive production methods and increase employment while reducing poverty. The results of this move were marked by insignificant improvement in income distribution, reduced productivity in labour, a fall in the growth of annual real wages to an average of -1.8% per annum, and a reduction in capital intensity (Dayan, 2015; Omolo, 2010). It was evident that the shift from the high minimum wage policy needed to be supported with other strategic policies in order to maintain the positive effects earlier accomplished in the first phase (Omolo, 2010). Following the

implementation of the second policy phase, most wage increases moved to schemes of service for the public sector, collective bargaining agreements and individual contractual negotiations for the private sector (Omolo, 2010). Since independence, there have been nineteen minimum wage increments and three wage freezes. The average minimum wage growth has changed from between 6- 20% during the 1990's period to between 4 -18% in the 2002-2022 period (Republic of Kenya, 2022; Dayan, 2015; Omolo, 2010; Andalon & Pages, 2009).

### **1.1.2 Covered sectors and poverty in Kenya**

The ILO (2015) report indicates that the Minimum Wage objectives include: protection of workers from exploitation, the promotion of a fair wage structure, the promotion of equal distribution of income, the provision of an acceptable minimum standard of living and the alleviation of poverty. In Kenya, the Wages Councils are mandated to take note of the following factors when setting minimum wages: (i) employee needs, including those of their dependants; (ii) general wage level in the country; (iii) levels of productivity; (iv) employer's ability to pay; (v) cost of living; (vi) employment levels; (vii) minimum subsistence levels; and (viii) alleviation of poverty. The set minimum wages are then published through gazette notices as either General Wage Orders or Agricultural Wage Orders (Omolo, 2010; Dayan, 2015; Republic of Kenya, 2007).

The General Wage Order currently contains minimum wage levels for fifteen occupational categories with specific pay rates according to different cities, municipal and town centres. Considered the areas where a majority are vulnerable low-skilled workers, these categories include trade, industries, and occupations. Employees covered under these sectors include those in tailoring, hotels, road transport, motor engineering trades, bakeries, construction, laundry cleaning, footwear, distributive trades, petrol stations, domestic servants, electrical construction industry, saw-milling trades, security services, furniture, boat, door and



window-making industries. The sector further divides the employees based on their geographical locations giving a sum total of forty-five different categories (Republic of Kenya, 2003).

On the other hand, the Agricultural Wage Order takes care of the agricultural workers. This segment is mainly concentrated in the rural areas and the sum total under this subsector is eleven categories. The classifications are limited to cover unskilled or skilled/semi-skilled workers, grouped into unskilled employees, stockmen/herdsmen/watchmen and skilled/semi-skilled employees. The last group includes foremen, farm artisans, cooks/house servants and farm machinery drivers. The key requirement is that the employee should be 18 years old because child labour is prohibited in Kenya (Republic of Kenya, 2003). In addition to the wages, the order also specifies the kind of accommodation and living conditions that the employer should provide for their workers. This is because most agricultural employers provide living facilities for their staff, in close proximity to the farms; since most work is usually done in the wee hours of the day.

The current average monthly rate for the general wages is KSH 15,120, while that of agricultural wages is KSH 9,024.31 (Republic of Kenya, 2019, 2022). The most recent revision for the former was in 2022, while that of the latter was in 2019. The general observation is that the general wages seem to grow at a relatively faster rate than agricultural wages. This could be another factor that has affected labour migration, income inequality, and poverty rates between urban and rural areas (Mwangi, Simiyu, Beyene, & Onderi, 2017).

Under the covered sectors, all engagements are formal, and they include both written and verbal contractual agreements between an employer and employee (Republic of Kenya 2007).

According to Andalón and Pagés (2009), one in every five workers in the covered sectors was underpaid between 1998 and 1999. Underpaid workers usually end up forming the working poor populace. A more complex problem, however, lies in the unemployed. The Kenyan economy is not able to sufficiently absorb the labour force into the limited formal employment opportunities. This has led to the resurgence of a vast informal sector as the populace averts the plunge into poverty.

### **1.1.3 Uncovered sectors and poverty in Kenya**

The uncovered sectors typically encompass the population that works in informal employment. In Kenya, the local term is the '*Jua Kali*' sector, loosely translated to the 'hard-labour sector', mainly because most of the production is highly labour intensive. Informal employment, relationship is usually non-standard and may include; owners/ self-employed workers, unpaid family workers, apprentices, and workers 'without' employment rights (Federation of Kenya Employers, 2021). The last category of workers is usually underpaid, untaxed, with no employment or social benefits.

A Federation of Kenya Employers (2021) Informal Sector report shows that 71.8% of the workers in the informal sector are regular wage earners/employees with only 21% and 5.2% of the workers being unpaid family workers and apprentices respectively. In addition, using the Kenya Integrated Household Budget Survey 2015/2016 and the Micro Small and Medium Enterprises Survey 2016 microdata, the report showed that the mean wage for workers in the informal sector was 31.74% of the recommended living wage level. With the mean being KSH 3,527.33/- while the average minimum wage in 2020 was KSH 11,112.19 in both the agricultural and general wage sectors. Employees in the informal sector are grossly underpaid (Andalón & Pagés, 2009).

Total disregard of the minimum wage legislation is therefore not uncommon, meaning the economy's poverty cycle ends up with two categories of the poor: those who are unemployed; and the working poor. Low levels of enforcement in Kenya have been a contributing factor to this quagmire. The enforcement of both the General Wage and Agricultural Wage Orders; amongst other labour legislation in Kenya, is usually done by inspectorate officers in the Ministry of Labour. The effectiveness in enforcement is measured as a ratio between available inspectorate officers and the size of the labour market (Omolo, 2010; Andalón & Pagés, 2009). The proposed acceptable ratio by ILO (2006) is 1: 40,000 for developing economies like Kenya. In 2008, the ratio in Kenya was approximately 1:106,948; where earlier in the decade (1998) it had been 1:45,506. The number of officers has been decreasing even as total employment increases (Omolo, 2010).

## **1.2 Statement of the problem**

For more than five decades since the first wage determination policy of the 1964-1970 Development Plan for Kenya, wage floors have been theorized to mitigate poverty (Omolo, 2010). There is however minimal empirical backing to the policy, just like in many other developing economies. The complex nature of the labour market, highly characterized by a large, active and unregulated informal sector and trade unions in the formal sector, make it difficult to apply generalized results from other economies (Aderemi, 2017; Mwangi, Simiyu, Beyene, & Onderi, 2017). The strong presence of unionism in the labour market is an indicator that the policy could be sterile or worse, that it could be causing more harm than good.

Kenya is classified as the 42<sup>nd</sup> world's poorest nation by the World Bank, with a poverty rate of approximately 29.4% as of 2015 data (The World Bank, 2023). Abolishing poverty by the year 2030 is the number one objective of Sustainable Development Goals (SDGs), of which

Kenya is a key stakeholder. Minimum Wage has had an average growth rate of 7.5% in the last two decades (Dayan, 2015), whereas poverty have been inconsistently reported without a clear direct suggestion about their trend. Whether minimum wage should continue being part of the purported solution will be an important consideration for future decision-makers.

Examining the relationship between minimum wage and poverty in rural and urban areas forms the basis of this study. It additionally assesses the kind of relationship that exists between minimum wage and food poverty on one hand and absolute poverty on the other hand therefore bringing a unique contribution to existing literature.

A majority of the empirical studies conducted in Kenya have paid little attention to minimum wage and poverty. The focus has mostly been on employment (Adhiambo, 2018; Manda, Kosimbei, & Wanjala, 2007), inflation (Dayan, 2015), inequality (Mwangi, Simiyu, Beyene, & Onderi, 2017), other wages (Omolo, 2010) and enforcement (Thuita, 2017). Most of the above studies have used cross-sectional and time-series data, however, none has used a probit model which is used in this study.

### **1.3 Objectives of the study**

The general objective of the study is to analyse the effect of minimum wage on poverty in Kenya.

The specific objectives are:

- i. To analyse the effect of minimum wage on food poverty and absolute poverty in rural and urban areas in Kenya.
- ii. To draw the implications of minimum wage as an anti-poverty policy.

## **1.4 Significance of the study**

The Kenyan labour market, like that of most emerging economies, is at a pivotal point, trying to balance between managing wage rigidities and allowing labour market liberalization. The use of minimum wage as a wage fixing mechanism has been contentious not just globally but also locally amongst trade unions (represented by the Central Organizations of Trade Unions Kenya (COTU-K)), employer organizations (represented by the Federation of Kenyan Employers (FKE)), international financial institutions and the government. This study will provide the much-needed information to drive labour market policy tripartite discussions regarding minimum wage.

The effectiveness of minimum wage as a response to social economic challenges will also be elucidated in this study. Specifically, poverty eradication, the number one SDG, and the objective of many development agendas since independence, which also happens to be a key objective of the minimum wage policy. The study results provide objectivity to policy makers on the application and the impact of minimum wage policy to poverty eradication.

Finally, this study will contribute to the scarce research knowledge on minimum wage and poverty in Kenya and Africa as a whole.

## **1.5 Scope and limitations of the study**

This study restricted its scope to evaluating the relationship between minimum wage and poverty in Kenya. The study evaluates data from 2015/2016, a period that was characterized by exponential growth of the informal sector, following the enactment of the Micro and Small Enterprises Act in 2012. The period additionally coincides with the implementation of the Medium-Term Plan II of the Vision 2030, which focused on the development of Small and

Medium Enterprise centres of excellence. The Kenya National Trade Policy of 2016 was equally implemented during this period to largely promote and protect the informal sector players. Further, two national surveys were conducted in this period, the Micro Small and Medium Enterprises Survey and the Kenyan Integrated Household Budget Survey, therefore, providing verifiable data.

## **2. CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

In this section, the study discusses the different theories that anchor and interconnect the concepts of minimum wage and poverty. Past empirical studies around the world and locally will also be appraised for both the advocates and challengers of minimum wage as an anti-poverty mechanism.

### **2.2 Theoretical framework**

#### **2.2.1 Neoclassical theory of labour**

The underlying assumptions of the neoclassical theory of labour include the understanding that while labourers seek to maximize their utility either on wages or leisure, firms are always focused on profit maximization. Additionally, people are viewed as rational, and independent decision-makers when they have perfect information (Borjas, 2012). The theory suggests that for employees to participate in the labour market, the wages have to be above the reservation wage level below which the labourer perceives they are better off unemployed. This wage level determines the supply level of required labourers. On the other hand, the demand from the firm is a derived demand (Borjas, 2012). It is determined by the market demand for products at a given price. When consumers demand more of a given product, it means the firms need to produce more of it to meet the demand, which translates to them hiring more labour to produce it (Borjas, 2012).

The labour demand curve is a downward sloping while the labour supply curve is upward sloping. The point at which the two curves meet in a perfectly competitive market is referred to as the equilibrium wage. At this wage, the labourers are willing to supply a given quantity of labour and the firms are willing to absorb the supplied labour at that wage level. In Kenya,

like most developing countries that have high unemployment and a dual-sector economy, leaving the wage setting to the market can be detrimental, especially to non-skilled and semi-skilled labourers (Adhiambo, 2018). The equilibrium wage level is usually unfairly low. This is the reason behind the introduction of minimum wages (Borjas, 2012). When minimum wages are set above the market wage, neo-classicalists theorize that a lacuna is created because high wages mean that the marginal cost of labour will go up. This cost is inevitably transferred to the price of goods, making the consumers buy less. The overall effect is that less demand for the product leads to less production, therefore, less labour required, eventually translating to dis-employment (Borjas, 2012; Stigler, 1946).

Minimum wages, therefore, have two effects. The first is for those whose salaries will be increased, therefore enjoying the income effect. The second effect impacts those who lose their formal jobs (Andalón & Pagés, 2009; Manda, Kosimbei, & Wanjala, 2007). Borjas (2012) suggests that the dis-employed group either join the informal sector to avoid poverty or look for another formal job to be actively engaged in. In developing countries, the chances of getting another formal job are low. Therefore, most labourers end up either unemployed or in the informal sector. The increase in number within the informal sector has been seen to affect the informal wage level downwards (Borjas, 2012). This makes sustenance a problem with most informal labourers living in poverty or just above the poverty line. This theory has however been criticised for making unrealistic assumptions, especially within developing nations. Perfect competition is a near-impossible occurrence.

### **2.2.2. Subsistence theory of wages**

The subsistence theory of wages is mostly attributed to David Ricardo (1772-1823) with deep roots in Malthusian Laws (Aspromourgos & Groenewegen, 2005; Stigler, 1952). The theory



assumes that the population has a high growth rate and that the law of diminishing returns applies directly to food production. According to Ricardo, the main reason why labourers work, in the long run, is to meet their basic needs, otherwise referred to as sustenance or survival.

The wage level at which the labourer is able to meet their needs and avoid starvation forms the subsistence wage level (Stirati, 1994). When wages fall below the subsistence level then it leads to the labourers starving; also known as food poverty. Conversely, when wages rise above the subsistence level, it encourages the labourers to procreate. The increase in more mouths to feed reduces the individual income back to subsistence. Moreover, the additional children eventually join the labour market therefore leading to more workers availability, which reduces the market wage back to subsistence wage (Stigler, 1952).

The labour supply is assumed perfectly elastic in the long run; the percentage change in wages is zero regardless of labour supplied. The theory has been criticized for overlooking the demand of labour in the economy and concentrating on the long-run effects on wages (Aspromourgos & Groenewegen, 2005). This very well fits the tenets around which minimum wage is actually set. Little attention is usually given to the demand side of labour when minimum wage is being set, and especially when the motive is politically driven. In addition, among the key factors considered during minimum wage setting as earlier discussed is workers' basic needs (Republic of Kenya, 2007).

The subsistence wage, however, could be equated to the reservation wage of neoclassical economists (Stirati, 1994). While it is not sufficient, it is useful in examining the effects of population increase, wages, and the labour market.

### **2.2.3 Efficiency wage theory**

The “5 Dollar a Day” phenomenon by former car manufacturing giant Ford, has been used as a point of debate of the efficiency wage theory for decades (Raff, 1988). In 1913, the Ford Company was facing high employee turnover rates of up to 370% per annum. In 1914, Henry Ford offered to pay five dollars a day to workers, therefore, doubling their wages. Apart from having long queues of interested job applicants at the gates, their employee retention rate grew to 84%. Furthermore, their productivity increased by 30% from an earlier 40% leading to an increase in profit by 20% (Campbell, 1994; Raff, 1988).

The key assumption of the efficiency theory is that higher wages lead to higher motivation, which leads to increased productivity. In addition, the wage differentials amongst industries are postulated as permanent. Otherwise, under perfect competition, all firms would increase their wages if they noticed that one firm was attracting all the good and productive labourers. The efficient wage is therefore determined by the point where a percentage increase in wage is equal to the percentage increase in output (Campbell, 1994).

Campbell (1994) also deduces increased output as one of the assumptions that was initially used to advocate for higher minimum wages than market-clearing wages. The increase in payroll costs due to an increase in wages is assumed to be covered by higher productivity and employee retention costs. Some of the direct costs associated with a high turnover are recruitment and training. Akerlof (1982) further introduces the “gift exchange” that results from labourers earning higher wages while they ‘reward’ the firms with loyalty, responsibility, and initiative.

### **2.3 Opponents of minimum wage as an anti-poverty tool**

Several empirical studies have been conducted world over, in the last many years in support of identified labour theories. Stigler (1946), ignited the debate against minimum wages. In his maiden essay, he opines that minimum wage legislation is a poor solution for combating poverty in the economy. The basis for his concerns was that poverty is not an individual problem but a household one; while minimum wage targets individual workers and not households. To this end, Stigler continues to argue that the determinants of poverty are not daily or monthly wages but household income and needs.

Additionally, Neumark (2013) observes that a majority of minimum wage earners were not from poor family households; and that minimum wage increments benefitted non-poor families more than poor families. This observation is equally agreed on by Overstreet (2021) and Burkhauser (2014). Neumark (2013) concludes that the cause of poverty in the US is mainly from the reduction in working hours and not from low income. He also observes that the earned income tax credit is a more effective policy than the minimum wage policy. Overstreet (2021), Burkhauser (2014) and Neumark (2013) find that the minimum wage-poverty link is insignificant statistically. Atkinson, Leventi, Nolan, Sutherland, & Tasseva (2017) likewise agree upon this observation, in their study of the United Kingdom. Using a microsimulation approach, they find that other mitigation policies like progressive income tax, child benefits, and social insurance have a more significant effect on poverty.

In the United Arab Emirates, Farhad & Emil (2020) evaluates 14 oil-rich countries using panel data analysis and establishes a weak relationship between minimum wages and poverty. They observe that when minimum wages are raised above the market rate, they cause unemployment for the non-skilled labourers. The employers are seen to prefer hiring skilled labourers instead,

therefore, increasing poverty among the unskilled labourers. The study also notes that the minimum wage-poverty connection is mostly through income and unemployment.

Jadoon, Tanveer, Javed, and Sarwar (2021) study 11 Asian countries between 2000-2017, using the ordinary least squares estimation method. Their study focuses on assessing poverty through the social poverty indicators including education, health and standard of living; they conclude that minimum wage was an ineffective non-economic poverty policy. In Indonesia, Feriyanto et al. (2020) evaluate unemployment, minimum wage and poverty in the 33 provinces of Indonesia using the fixed effect model. Minimum Wage was found to have no effect on poverty in Indonesia with a probability of 47.80 at  $\alpha=10\%$ . Syarif and Wibowo (2017) equally echo these sentiments in their exploration using Arellano Body Dynamic General Method of Moment on the Java (West, East and Central), Yogyakarta and Banten Islamic regions.

Del Carpio, Messina, and Sanz-de-Galdeano (2019) obtain an inconclusive effect of minimum wage with respect to poverty in Thailand. However, they observe that the rise in minimum wage does not cause labour mobility or displacement to the informal sector as purported by theory. Awan and Perveen (2019) and Bano and Khaskhelly (2019) pilot their studies in Pakistan and conclude that whereas minimum wage may be important, it is not sufficient as an anti-poverty policy. Awan & Perveen's (2019) study shows that education, expenditure, income, family size, employment and savings were more significant anti-poverty factors than minimum wage.

Sarrabayrouse's (2020) study in Ecuador evaluates the influence of minimum wage on other wage earners both in the regulated and non-regulated sectors. A strong positive significant effect is established between minimum wage, poverty and unemployment in both sectors. In Honduras, Ham's (2018) Thirteen Household cross-sectional survey shows that a rise in

minimum wages leads to a reduction in regulated employment and leads to an increase in unregulated sector, which is consistent with the neo-classical theory. In turn, unregulated most of who are uncovered by the living wage legislation are consequently exposed to poverty due to low wages as a result of high labour supply.

Atseye, Takon, and Ogar (2014) conduct their study using ex-post facto design in Nigeria, by assessing formal labourers in government parastatals, ministries and state organizations. They determine that there was statistical insignificant of living wage to poverty for low wage public servants. Aderemi (2017) reaches an equivalent conclusion in which education and age are empirically perceived to affect poverty more than minimum wage. South Africa's Bhorat and Stanwix (2021), equally conclude the same in their evaluation of the effectiveness of a national minimum wage that was introduced in 2019.

## **2.4 Proponents of minimum wage as an anti-poverty tool**

As observed in the previous section, majority of the research conducted on the effect of minimum wage on poverty have mostly been observed through the dis-employment effect of labour. This premise however crumbles when the dis-employment effect is nullified. Card and Krueger (2016) have over the last three decades continuously disputed what had otherwise been viewed as the doom of minimum wages. In their first analysis of 1993, the duo show that the Minimum Wage increment in the US did not lead to an increase in unemployment (Card & Krueger, 1993). This is after analysing 410 fast food stores in New Jersey (where the minimum wage had been increased by .80cents/hr) and Pennsylvania (where the minimum wage remained the same). Using a natural experiment difference-in-difference approach, they assess the changes in wages, employment and prices in the two cities. The results show an increase in employment following the increase in minimum wage, which is atypical to theory. In their

view, this creates room for the introduction of alternative models in the explanation of unconventional findings (Card & Krueger, 1993; Card & Krueger, 2016).

Card and Krueger's earlier work, however, seems to clear of the relationship between minimum wage and poverty until recently. In *Myths and Measurements*, their most current work, they suggest that apart from promoting employment, minimum wage could be an effective poverty alleviation mechanism at the individual level. The study uses the data collected in their earlier studies and through the meta-analysis difference-on-difference approach, they evaluate the effects of minimum wage on family earnings, poverty and the stock market. They disagree with the notion that the majority of the minimum wage earners are teenagers from high or middle-income families as provided by Overstreet (2021). Card and Krueger (2016)'s analysis reveals that over 70% of the respondents are actually female adults (20 years and above), mostly from minority communities and sole breadwinners in their households. In conclusion, the results show that the minimum wage working populace is three times more likely to fall into poverty compared to other workers (Card & Krueger, 2016). However, the effect of minimum wage on overall poverty is statistically insignificant.

Godøy and Reich (2019), 's county-level relative minimum wage analysis yielded more positive results with respect to household and child poverty. They applied a similar approach to Card & Krueger (2016) to evaluate the relativity and bite of minimum wages effects in low-wage states in the USA. They regress minimum wage, average wages, employment, and poverty. The observations made are that there is a positive effect on average wages; with no effect on unemployment, but a significant negative effect is realized on household and child poverty.

In Europe, Karakitsios and Matsaganis (2018) did a meta-analysis using a microsimulation technique and acquired mixed results. Through a hypothetical mock-up, they make observations of the effects that a minimum wage increase would have on poverty and inequality in identified European Countries. In Cyprus, Latvia, and Spain, they find a negative and statistically significant effect between minimum wage and poverty. The results show that a unit increase in living wage reduces 1.59%, of poverty 1.19% and 1.12% in the three countries respectively. Minimum wage increments in the Czech Republic, Luxembourg, Austria, Belgium, and the Netherlands have a negative but weak effect on poverty. The poverty rate reduction is more for female workers in Latvia, Lithuania, Denmark, and Germany than their male counterparts. Meanwhile, in Denmark, Greece, Malta, Finland, and Bulgaria, the growth in minimum wage leads to a weak but positive effect on poverty. Croatia, Sweden, United Kingdom, and Ireland results show that a rise in minimum wage does not affect the household head's income and therefore lead to an increase in poverty rates. In general, Karakitsios and Matsaganis (2018) observe that minimum wage changes affected workers between the ages of 18-29 years old more than other ages.

In Bosnia and Herzegovina, Kurta and Oruč (2020) detect a positive and significant effect between minimum wage and poverty reduction using a micro-simulation model to evaluate tax and social benefit. They however find an insignificant effect on minimum wage and inequality. They conclude that it is important for governments to implement several supporting policies to manage poverty and inequality, as opposed to relying on one policy. Burić and Laporšek (2016) provide comparable results in their study on whether minimum wage does indeed lead to poverty reduction amongst working women in Croatia and Slovenia. Using panel data, they evaluate the workers that are most at risk of poverty, in their case female workers. Through

regression analysis, working women earning minimum wage were found to be weakly at a lower risk of poverty in the two Eastern European Countries.

In the West Java region of Indonesia, a study conducted by Syauqiah, Pattiasina, and Firdausyah (2022), reveals that minimum wage has a negative and significant effect on the poverty level. Using both time series and cross-sectional data, the research reveals that a percentage increase in minimum wage would lead to a 1.47% reduction in poverty levels. Gournay (2015) views the minimum wage legislation as a solution for reducing the large informal sector in Indonesia. Using the Systematic Control Method, the study shows that an increase in minimum wage within the economy had led to a shrinking in the informal sector by 6% and therefore poverty in the last 6 years. Hohberg and Lay (2015) use the fixed effects methods and similarly establish that an increase in minimum wage in the same economy has a positive significant effect on employment in the regulated sector.

Lindelöw (2019) uses a probit model and analysed India's household and individual data. The results indicate a significant positive impact of a minimum wage increase on poverty. These results have been echoed by Belser and Rani (2011), who propose a national minimum wage with a wider coverage. Through a bivariate probit model, their study shows that a 1% increase in minimum wage would effectively reduce poverty by 5-8% while reducing wage inequality by 5-9%.

In Latin America, Campos-Vazquez and Esquivel (2022) in Mexico find that on average minimum wage increases lead to a reduction in poverty by between 1.7-2.6% within different regions in Mexico. Godínez Montoya, Figueroa Hernandez, and Peres Soto (2021) make similar observations within the same economy with their two linear regression models of



minimum wage on employment and poverty simultaneously. Brito and Kerstenetzky (2019) evaluate the reduction in poverty in Brazil between 2002 and 2013. By the use of microdata, it is established that minimum wage income has contributed to 38.2% of the reduction in poverty from 38% to 16% in 2002 and 2013 respectively.

South Africa effected their minimum wage legislation in 2001 (Hertz, 2002). They identified two key vulnerable groups that were domestic workers and farm workers. In a study conducted immediately after the implementation, Hertz's uses poverty, ultra-poverty, household income and assumes perfect enforcement to realize a reduction in poverty amongst the working poor by 5%. The study however gives a caveat on the premise that poverty is widespread and is not limited to the working poor.

Fields and Kanbur (2007) observe the non-existence state of a strong positive-only or negative-only effect. This is much more so for developing countries, where there are too many externalities that directly and indirectly affect the impact of minimum wages and poverty, therefore influencing outcomes. Macro shocks like political instabilities due to civil unrest, economic instabilities due to global or regional pandemics, unfavourable balance of trade, high inflation, poor enforcement structures and corruption; amongst others have been observed to have a significant influence. In their analysis, it is possible to have situations where minimum wage has a positive effect, negative or no effect on poverty in an economy.

Both Gindling (2018) and Borjas (2012) remark that for minimum wage to be an effective anti-poverty tool in a developing economy, the magnitude of employment losses especially amongst low-skilled Household heads will have to be significantly low compared to the household heads that gain from the increase. That net increase has to be positively significant.

While this could be accurate, it is important to have in mind the other facts that Gindling's (2018) theoretical analysis brings into perspective; the dual nature of the economy and the existing unemployment burden within the economies. As seen earlier, Kenya has a similar dynamic and a study by Adhiambo (2018) using time series data exhibited significant and a positive connection on minimum wage and employment. The study identifies minimum wage and poverty as an area of further research in Kenya.

## **2.5 Overview of the literature**

The theoretical literature reviewed explains how minimum wage affects employment and in turn affects the living standards of active labourers within an economy. While the theories evaluate the workers as individuals, poverty is defined in terms of households, therefore creating a gap. Empirical literature has however, been used to bridge this by assessing poverty with regard to the individuals in a household more commonly researched as either general household heads (Atseye, Takon, & Ogar, 2014; Ashta, 2013), gendered household heads (Burić & Laporšek, 2016; Kurta & Oruč, 2020) and children (Godøy & Reich, 2019). The theories albeit idealistic have been able to provide a basis for minimum wage determination as either a market-correcting tool or a wage-setting tool.

A majority of the empirical work reviewed are driven by quantitative data, with many using secondary data sources. The data used in most studies has been Time Series (Stigler, 1946), Panel Data (Godøy & Reich, 2019; Burić & Laporšek, 2016; Card & Krueger, 1993, 2016), Cross sectional Data (Lindelöw, 2019; Atseye, Takon, & Ogar, 2014) and a combination of both Panel and Time Series Data (Syauqiah, et al., 2022; Farhad & Emil, 2020). In addition to minimum wage, some of the control variables used in the different studies include biodata, geo-data, wages, family earnings, unemployment, Gini coefficient, GDP, Inflation and

Consumer Price Index. The methodologies used range from the conventional OLS to the more unorthodox non-model-dependent natural experiments difference-in-difference approach.

In Kenya, of the nine studies reviewed on minimum wage, five of them evaluate the effect that wage floors have on employment through the use of both time-series and cross-sectional data. The other four are on: inflation where the researcher used time series; income inequality using cross-sectional data; average wages; and general performance of minimum wage where both time-series and cross-sectional data were used. From the studies, the time-series-based research showed us the trend of the Minimum Wage, which has generally been growing above average wages. This study aims to bridge the gap identified in the relationship between minimum wage and poverty, as an area for further research by Adhiambo (2018). In addition, it will deviate from past literature by evaluating minimum wage from both a food poverty and absolute poverty perspective.

### **3. CHAPTER THREE: METHODOLOGY**

#### **3.1 Introduction**

This chapter presents the methodology used in the study. It covers the theoretical framework that supports the linkage between minimum wage and poverty, the data used and its source.

#### **3.2 Conceptual framework**

To evaluate the poverty state of households, the study adopts the calculated food poverty and absolute poverty lines as proxies to food poverty and absolute poverty. These are provided by the Kenya Bureau of Statistics in the Kenya Integrated Households Budget Survey 2015/2016 national data.

The Cost-of-Basic-Needs method (CBN) by Ravallion (1994, 1998) is the model that was used in the KIHBS 2015/2016 survey. It estimates the fraction of the population that is unable to meet their daily basic requirements based on the prices of goods. The method assesses the cost in prices, of a given consumption basket for food items needed to give a fixed level of nutrition to an adult equivalent. The calorific requirement used in the KIHBS 2015/2016 survey was 2,250 calories a day. By accommodating the difference in standards of living within urban and rural areas, estimates for the food poverty line ( $z_f$ ) are provided. The survey used KSH 2,551.01 for Urban Areas and KSH 1,953.30 for Rural Areas.

Consequently, the non-food components that are sufficient for supporting the basic human needs of households within the food poverty line are equally identified, priced, and added to the food component costs to give the absolute poverty line ( $z_{bn}$ ) for both rural and urban areas. KIHBS 2015/2016 survey calculated the absolute poverty lines at KSH 5,995.90 and KSH 3,252.74 for urban and rural areas respectively.

Using this information, the study classifies households as food poor for those that fall below the identified threshold and non-food poor for those that are above it. This premise is applied equally in identifying households that are absolutely poor and non-absolutely poor.

### **3.3 Model specification**

The study purposed to determine the effect of minimum wage on poverty and whether it increases or reduces it. From a micro level, the study tries to determine the probability of avoiding poverty for an individual whose earnings are below the minimum wage.

The evaluation being dichotomous and having two interrelated decision outcomes, therefore utilizes a probit model, evaluating both food and absolute poverty. Past empirical research in India and Nicaragua, have used binary probit models (Lindelöw, 2019; Alaniz, Gindling, & Terrell, 2011; Belser & Rani, 2011).

According to the World Bank Institute (2005), the food poverty line can be expressed as a function of the amount of income ( $i_f$ ) or expenditure spent on the consumption of food items in a household.

$$z_f = f(i_f) \qquad \text{Equation 3.1}$$

Building on equation (3.1), minimum wage is used in place of income, with other control variables being adopted from past research. The relationship between minimum wage and poverty is thus assumed to be linear and assessed using an individual's poverty line which is estimated against their: source of income, household size, gender of the household head, consumption, location of residence and the deviation of their income from minimum wage at a

time (Godínez, et al., 2021; Lindelöw, 2019; Alaniz, Gindling, & Terrell, 2011; Belser & Rani, 2011).

$$z_t = f(MW_i) \quad \text{Equation 3.2}$$

$$Z_{fi} = \beta_0 + \beta_1 MW_i + \beta_2 HH_i + \beta_3 Gen_i + \beta_4 Emp_i + \beta_5 A_i + \beta_6 Ed_i + \beta_7 MS_i + \beta_8 R_i + \varepsilon$$

$$\text{Equation 3.3}$$

$$Z_{pi} = \beta_0 + \beta_1 MW_i + \beta_2 HH_i + \beta_3 Gen_i + \beta_4 Emp_i + \beta_5 A_i + \beta_6 Ed_i + \beta_7 MS_i + \beta_8 R_i + \varepsilon$$

$$\text{Equation 3.4}$$

Where:

$Z_{fi}$  is a dummy variable taking the value 1 when an individual ( $i$ ) is food poor and zero if otherwise.

$Z_{pi}$  is a dummy variable taking the value 1 when an individual ( $i$ ) is experiencing absolute poverty, zero if otherwise.

$MW_i$  is the dummy variable for minimum wage, taking a value of 1 when the household head ( $i$ ) earns below minimum wage, and zero if otherwise.

$HH_i$  is a continuous variable that represents the number of people within a household.

$Gen_i$  is the dummy variable representing the gender of the household head ( $i$ ), it takes the value of 1 if the head is female and zero if they are male.

$Emp_i$  is a continuous variable that captures the number of sources of income an individual ( $i$ ) is engaged in.

$A_i$  is also a continuous variable representing the age of the individual ( $i$ ).

$Ed_i$  is a set of dummy variables representing the highest level of education that has been attained by the individual ( $i$ ).

$MS_i$  represents the marital status of the household head ( $i$ ), it contains a set of dummy variables.

$R_i$  is a dummy variable representing location of residence of the household head ( $i$ ), with urban residence taking a value of 1 with rural residence taking 0.

$\beta_0$ =Constant

$\beta_1$ - $\beta_7$ =Independent variable coefficients

$\varepsilon$ =error term

### 3.4 Definition of variables

Based on the model, the main variables are minimum wage as the independent variable, while the dependent variables are food poverty and absolute poverty. The control variables include: household size; age of the household head; gender of the household head; number of sources of income; level of education; marital status; and area of residence. The Table below indicates the variables, adopted symbols and the signs expected.

**Table 1: Definition of variables**

Variable	Symbol	Expected Sign
Food Poverty	$Z_f$	
Absolute Poverty	$Z_p$	
Minimum Wage	MW	Negative
Household Size	HH	Positive
Gender	Gen	Positive
Number of Sources of Income	Emp	Negative
Age	A	Positive
Level of Education	Ed	Negative
Marital Status	Ms	Negative
Area of Residence	R	Positive

**Source: Author (2023)**

**Food poverty** ( $Z_{fi}$ ) is considered the lowest form of poverty according to the Poverty Manual by the World Bank Institute. When a household is food poor, they are only able to afford a given bundle of food items and nothing else (World Bank Institute, 2005). The study adopted

the food poverty line as a proxy for food poverty. It is used as a dummy variable, taking the value of one where an individual is food poor and a value of zero for non-food poor individuals.

**Absolute poverty** ( $Z_{pi}$ ) is the second dependent variable, defined by a household's inability to meet the expenditure of a given basket of both food and non-food items. The absolute poverty line is used in the study to represent absolute poverty. Individuals that cannot meet the food and non-food expenditure take the value one in this dummy variable with those that are able to afford taking zero (Lindelöw, 2019).

**Minimum wage** ( $MW_i$ ): is the lowest allowable statutory wage in both urban and rural areas as provided by the General Wage Advisory Board and Agricultural Wage Advisory Board. It is treated as a dummy with individuals earning income above the calculated average minimum wage taking a value of one and zero for those that are below.

**Household size** ( $HH_i$ ): This is the measure of dependency on the individual given by the number of people they are supporting. The variable is a continuous variable and has been perceived to positively affect poverty levels, especially when a majority of the dependants are unemployed (Awan & Perveen, 2019).

**Number of sources of income** ( $Emp_i$ ): The variable is a continuous variable measuring the level of income sustainability for an individual. It shows the number of income-generating activities the household head is engaged in.

**Age** ( $A_i$ ): The variable is a continuous variable and it gives the age of the household head. In this study, the age bracket that was considered was individuals between 15-64 years, with the purpose being to weigh the individual economic productivity level.

**Education** ( $E_i$ ): This variable is used to measure the literacy levels of the household head and it gives the highest level of education that has been attained. A set of dummy variables are created to cover the different levels of education available. 'None' ( $E_{1i}$ ) is used as the control, taking a value of zero where the household head has no education and one otherwise against



each of the other categories i.e., Primary ( $E_{2i}$ ), Secondary ( $E_{3i}$ ) and Technical and Vocational Education Training (TVET) ( $E_{3i}$ ). Primary level represents Kenya Certificate of Primary Education and Certificate of Primary Education. Secondary level represents Kenya Certificate of Secondary Education and Kenya Certificate of Education. TVET level include: Kenya Advanced Certificate of Education, Diplomas and Other Certificates.

**Marital status** ( $Ms_i$ ): This variable is considered as an indicator of the immediate social support structure assumed to be available to the household head, should a micro shock occur. It is a set of several dummy variables with ‘Never Married’ ( $Ms_{1i}$ ) being the control and taking the value of zero where the household head is single and never married and one if otherwise against other categories like: Monogamous ( $Ms_{2i}$ ), Polygamous ( $Ms_{3i}$ ), Living Together ( $Ms_{4i}$ ), Separated ( $Ms_{5i}$ ), Divorced ( $Ms_{6i}$ ) and widowed/widower ( $Ms_{7i}$ ).

**Gender** ( $Gen_i$ ): This is a dummy variable that takes the value of one if the household head is female and zero if otherwise. It is used to denote the sex dynamics within an economy, where women have been found to be at a higher risk of economic exploitation and therefore more likely to fall into poverty than men (Burić & Laporšek, 2016).

**Area of residence dummy** ( $R_i$ ): It is a dummy variable that takes a value of one for workers in Urban Areas and zero if otherwise. Workers in Nairobi, Mombasa, Kisumu and all former municipalities are considered to be in urban areas while those in ‘Other Areas’ are considered to be under rural areas.

### 3.5 Data types and sources

To fulfil the research objectives, the study utilized secondary data from two main sources. The first set of data was collected from KIHBS 2015/2016 national survey accessed through the Kenya National Bureau of Statistics website, while the second dataset was calculated from the Minimum Wage Notices sourced from the Ministry of Labour.

KIHBS survey provided data on food poverty, absolute poverty, income, household size, age, education levels, the number of sources of income, gender, marital status, and area of residence. It is from this dataset that the assessed sample size of 5,837 was identified, using the characteristics discussed hereafter.

First, the respondents needed to be household heads, who are theorized to be the key decision makers within a household. They were also required to be employed, having the salary as the primary source of income, with other secondary sources being considered where applicable. The age of the respondents was also capped between 15-64 years, as guided by the labour laws regarding child labour and retirement age in Kenya (Republic of Kenya, 2010, 2007). Additionally, only the respondents that had a maximum income of KSH 24,719.50 for urban areas and KSH 21,811.10 in rural areas were considered.

The study initially planned to accommodate the evaluation of a definite category of minimum wage earners as provided by the Ministry of Labour classifications. However, in the absence of data identifying the occupations of the respondents, the study considered all the workers that met the aforementioned characteristics. In view of the fact that there were no changes in minimum wage during the period under consideration 2015/2016, the average minimum wage employed in the study were calculated as follows: the occupations were divided into two main categories, those in the urban areas and those in the rural areas. The General Wage Order defines urban areas as Cities, former municipalities and town councils. For this study, all “other areas” that do not fall in the aforementioned locations together with the Agricultural sector wages were assumed to fall under rural areas. Based on this, the mean minimum wage for all occupations in the urban areas was determined at KSH 16,586.77. Similarly, the average wage

for all occupations in the “other areas” and agricultural wages was calculated at KSH 10,438.11 to represent the average minimum wage in rural areas. These figures formed the basis for the Minimum Wage Dummy, where individuals earning below these averages were assigned one and zero if otherwise. The study used STATA version 17 statistical software to analyse the data.

### **3.6 Diagnostic tests**

Like other maximum likelihood estimate models, the model in this study relies on a set of assumptions to ensure that the estimates are consistent, efficient and reliable. Discussed hereunder, are applicable diagnostic tests that will be conducted to ensure the appropriateness of the estimated model.

#### **3.6.1 Heteroscedasticity**

A key requirement in regression analysis is that of the random error terms having uniform variances across all independent variables making them homoscedastic (Kennedy, 1992). This assumption ensures that the standard errors are small, and the model remains precise and consistent (Caglayan & Un, 2012). When the disturbances are unequal, then a case of heteroscedasticity is reported in the model, meaning that each observation’s error term has a different variance which varies with the different independent variables (Kennedy, 1992). To ensure the model is not in violation of homoscedasticity, the study utilizes the Breusch-Pagan Godfrey Test. If the presence of heteroscedasticity is detected, the study will use Robust Standard Errors, where a sandwich estimator of the variance will be calculated to ensure unbiased and efficient standard errors.

#### **3.6.2 Multicollinearity**

Another assumption that is made in the model is the absence of multicollinearity, meaning there is a correlation between the independent variables. Under this assumption, the independent variables should not have a near or direct linear relationship between themselves, and the degrees of freedom should be large (Kennedy, 1992). Where multicollinearity exists, the regression coefficients are indeterminate, and their standard errors are not defined. This leads to high variances of the parameter estimates for the collinear variables and insignificant 't' values. The model therefore becomes biased and inaccurate leading to poor generalization. Kennedy (1992) however notes that it is nearly impossible not to have multicollinearity especially when dealing with economic variables as is the case in this study. To test for multicollinearity, the study uses Variance Inflation Factors (VIF), which measures how much the variance of the coefficients is exaggerated by this violation. If detected, this study will consider: incorporating additional information to ensure that the number of observations is larger than the number of independent variables; dropping out insignificant and highly collinear variables; or data transformation. The severity of this violation will determine the form of the intervention to be applied. Where all the variables are significant, the model will be considered to be unbiased and accurate.

## 4. CHAPTER FOUR: DATA ANALYSIS, RESULTS, AND DISCUSSION

### 4.1 Introduction

In this chapter, the study embarks on a journey to explore the effect of minimum wage on poverty in Kenya, as postulated in our general objective. The chapter covers statistical analyses and descriptive statistics to reveal insights into the complex relationship between minimum wage policies and poverty levels. Through a systematic presentation of the findings, the aim is to provide clarity on whether and how minimum wage impacts poverty, shedding light on potential policy implications and contributing to a deeper understanding of this critical socioeconomic issue within the Kenyan context.

### 4.2 Descriptive statistics

The descriptive statistics include mean, standard deviation, minimum and maximum values for each variable as shown in Table 2 below.

**Table 2: Descriptive statistics**

Variable	Obs	Mean	Std.Dev	Min	Max
Food Poverty	5,837	.2905602	.4540598	0	1
Absolute Poverty	5,837	.3825595	.4860537	0	1
Minimum Wage Dummy	5,837	.1718348	.3772692	0	1
Household Size	5,837	3.757067	2.346505	1	15
Residence Dummy	5,837	.5122494	.4998928	0	1
Sources of Income	5,837	1.203358	.4146921	1	5
Age	5,837	37.16361	10.7034	16	64
Female Dummy	5,837	.2415624	.4280671	0	1
Primary Education Dummy	5,837	.3594312	.4798748	0	1
TVET Dummy	5,837	.192222	.3940804	0	1
Monogamous Dummy	5,837	.687682	.4634784	0	1

**Source: Author (2023)**

Table 2 provides a comprehensive overview of the key summary. Notably, a significant proportion of individuals, accounting for 38.25%, falls in absolute poverty, while 29.05% are below the food poverty. This means that approximately 9.2% of individuals are able to afford their daily food expenditure but cannot afford anything else. A notable 17.18% of the sample size earn below the calculated minimum wage averages of KSH 16,586.77 for urban areas and KSH 10,438.11 in rural areas. This is a representation of the number of employees that are under paid in spite of having provisions for wage floors in both urban and rural areas in Kenya. Household demographics reveal an average household size of approximately four individuals, with a minimum of one individual and maximum of 15 individuals.

Urban representation in the labour force stands at 51.22%, closely balanced by rural residents at 48.78%, underscoring the diversity of residential locations in the study. Labour force composition indicates that, on average, individuals possess one source of income, with a majority depending solely on their salaries for sustenance. The sample's average age is 37.16 with a minimum of 16 years and maximum of 64 years. It also has a high standard deviation of 10.70 years reflecting the age distribution of the working population. The sample contained 24.15% female household heads and 75.85% male household heads, indicating that a majority of the labour force who are household heads are mainly men. Marital status includes those who are monogamously married, constituting 68.76% of the sample while those who have never married are 31.22% of the sample. The other marital status sub-sets were not significant. Additionally, educational attainment reveals that 35.94% of respondents have primary level of education, 19.22% hold technical and vocational education and training (TVET) while 44.84% had no education, highlighting the educational diversity within the dataset.

These summary statistics provide a foundational understanding of the sample characteristics, setting the stage for the empirical examination of minimum wage's impact on poverty in Kenya.

### 4.3 Diagnostic tests

Diagnostic tests were conducted to determine whether the required assumptions were able to hold in this study. It is a prerequisite for the error terms to have uniform variances across all independent variables making them homoscedastic and multicollinearity should be absent in order to establish whether the data was suitable for further analysis.

#### 4.3.1 Heteroscedasticity test

Heteroscedasticity occurs when the assumption of equal variance of the error term is violated. It is present when the variance of the error term is not constant over time. Heteroscedasticity was tested using the Breusch-pagan Godfrey test where the null hypothesis of a constant variance was tested against alternative hypothesis of heteroscedasticity, if the p-value is greater than 0.05, then null hypothesis is accepted. The results of the test are presented in Table 3.

**Table 3: Breusch-Pagan test for heteroscedasticity**

chi2(1)	Prob > chi2
242.62	0.7200

**Source: Author (2023)**

The results in Table 3 indicate that the p-value 0.7200 is greater than 0.05 thus leading to the acceptance of null hypothesis of a constant variance therefore no heteroscedasticity.

#### 4.3.2 Multicollinearity Test

Multicollinearity exists when there exists inter-correlation among the independent variable. The study used Variance Inflation factor (VIF) to detect multicollinearity. The VIF measures how much the variance of an estimated regression coefficient is increased due to multicollinearity. High VIF values (typically above 10) indicate a potential problem with multicollinearity. The results of the test are presented in Table 4.

The results in Table 4 showed that the VIF for all the explanatory variables were less than 10, additionally, the mean VIF for all the explanatory variables was 1.21 which is less than 10 indicating the absence of multicollinearity.

**Table 4: Multicollinearity test: VIF**

Variable	VIF	1/VIF
Household size	1.40	0.712619
Gender	1.31	0.766097
Age	1.14	0.875200
Area of residence	1.10	0.908042
Minimum wage	1.07	0.935545
Number of sources of income	1.08	0.927146
Monogamy	1.55	0.645720
Primary level of education	1.07	0.934185
TVET level of education	1.13	0.882932
Mean VIF	1.21	

**Source: Author (2023)**



## 4.4 Model results

The empirical results shed light on the impact of minimum wages on poverty in Kenya. The analysis begins by estimating the food poverty model against a set of independent variables. Consequently, the model that specifically addresses absolute poverty is also presented and analysed. This comprehensive approach allows for a thorough examination of how minimum wages influence different dimensions of poverty, providing valuable insights into the complex relationship between policy measures and poverty outcomes in Kenya.

### 4.4.1 Food poverty

#### 4.4.1.1 Overall model statistics

The overall model fit was evaluated and the results are as shown in table 5 below.

**Table 5: Food poverty overall model statistics**

Wald chi2(14)	Prob > chi2	Pseudo R2
772.84	0.0000	0.1341

**Source: Author (2023)**

The probit regression results for food poverty, as indicated by the Wald chi-squared test, reveal a highly significant overall model fit with a chi-squared statistic of 772.84 and a p-value of 0.0000. This implies that the collective influence of the independent variables in explaining food poverty is statistically significant. These results underscore the importance of the chosen predictors in understanding and predicting food poverty in Kenya.

#### 4.4.1.2 Probit regression results

The first set of probit regression results, presented in Table 6 focuses on the factors influencing food poverty in Kenya. A positive coefficient in the probit model implies that the corresponding

independent variable increases the probability of an individual being food-poor. In other words, it increases the likelihood of one being below the threshold for food poverty.

The marginal effects give a practical interpretation of the significance and degree of probability of change expected on the dependent variable when the independent variables change. These effects are calculated to provide insights into how changes in the independent variables translate into changes in the probability of an individual being food-poor. The results are presented in Table 6.

**Table 6: Marginal effect for food poverty.**

Variable	dy/dx & Std. Err.
Minimum wage	-.1069096* (.0159177)
Household size	.0675112* (.0024602)
Residence	.0650071* (.0115978)
No of income sources	-.0556404* (.0137162)
Age	.0018336* (.0005755)
Female Dummy	.0478226* (.015199)
Monogamously married	-.0425099* (.0200199)
Primary Education	-.038289* (.0128801)
TVET Education	-.0924599* (.0222761)

Note: \* , \*\*and \*\*\* denotes statistical significance at the 1, 5 and 10 levels, respectively. Standard errors are in parenthesis.

**Source: Author (2023)**

The analysis reveals that minimum wage has a significant negative impact on food poverty, with a coefficient of approximately -0.1069096 at 1% significant level. This implies that, a unit increase in the minimum wage is associated with nearly a 10.69% decrease in the likelihood of an individual food poor holding other factors constant. The negative coefficient suggests that higher minimum wages are associated with a lower likelihood of food poverty. This may imply that increasing the minimum wage could contribute to reducing the incidence of food poverty among individuals.

Household size also plays a significant role in food poverty, with a coefficient of roughly 0.0675112 at 1% significant level. This positive coefficient indicates that a unit increase in family size corresponds to an approximately 6.75% increase in the likelihood of a household head experiencing food poverty. Larger households may face challenges in ensuring an adequate food supply for all members.

Urban residence, with a coefficient of 0.0650071 at 1% significant level, implies that living in an urban area significantly increases the probability of being food-poor compared to rural residence by 6.50%. This urban-rural disparity highlights the need for targeted poverty alleviation strategies that address the unique challenges faced by urban populations.

The number of income-generating activities that an individual is engaged in similarly seem to have a significant negative effect on Food poverty with a coefficient of -0.0556404 at 1% significant level. This translates to a 5.56% likelihood decrease in the probability of an individual being food poor following a unit increase in income generating activities.

Age however provided interesting results, with a coefficient of 0.0018336 at 1% significant level. While the results are significant, the marginal changes are quite low at 0.18%, presenting the likelihood increase in the probability of an individual being food poor as they grow a unit older.

Gender also plays a major role in determining food poverty, with a significant positive coefficient of 0.0478226 at 1% significant level. This implies that female labourers are 4.78% more likely to be food poor as compared to their male counterparts, thus showing the gender discrepancy in food poverty.

Marital status variables show that individuals who are monogamously married are 4.25% less likely to be food poor as compared to those who are never married, with a coefficient of approximately -0.0425099 at 1% significant level.

Lastly, education levels have significant effects on food poverty. Individuals who possess primary education are 3.83% less likely to be food poor as compared to those with no education at a marginal effect coefficient of -0.038289 and 1% significant level. Possessing technical or vocational training (TVET), with a coefficient of roughly -0.0924599, significantly decrease the likelihood of food poverty at 5% level of significance by 9.25% compared to those with no education. These results show a higher likelihood of an individual being food poor when one has no education or has primary education compared to those with TVET certifications.

The marginal effects provide a nuanced understanding of how various factors influence food poverty in Kenya, offering valuable insights for policymakers and researchers working to address this critical issue.

## 4.4.2 Absolute poverty

### 4.4.1.3 Overall model statistics

The test of overall significance of the absolute poverty probit regression model was evaluated and the results are as shown in Table 7.

**Table 7: Absolute poverty overall model statistics**

Wald chi2(14)	Prob > chi2	Pseudo R2
934.20	0.0000	0.1821

**Source: Author (2023)**

The results showed that the wald chi-squared statistic was 934.20 and was associated with a probability (Prob > chi2) of 0.0000. This implies that all independent variables: minimum wage, household size, area of residence, age, marital status, and education, taken together, have a statistically significant impact on the absolute poverty line. Therefore, the model can be assumed to capture a significant portion of the variations in the absolute poverty.

### 4.4.1.4 Probit regression results

To understand the magnitude of effect on the second dependent variable as a result of changes in the independent variable, the marginal effects are discussed as Table 8 shows.

**Table 8: Marginal effect for absolute poverty**

Variable	dy/dx & Std. Err.
Minimum Wage	-.1599673* (.0162886)
Household size	.0778525* (.0025307)
Residence	.1820695* (.0117331)
No of income sources	-.0466679*** (-.0466679)
Age	.0019789*** (.0005869)
Primary Education	-.0847883** (.0130293)
Secondary Education	-.1489279** (.0162181)
TVET Education	-.2817968** (.0234421)

Note: \* , \*\*and \*\*\* denotes statistical significance at the 1, 5 and 10 levels, respectively. Standard errors are in parenthesis.

**Source: Author (2023)**

The analysis revealed that minimum wage has a significant negative impact on absolute poverty, with a coefficient of approximately -0.1599673. This implies that all else being constant, a unit increase in the minimum wage is associated with a nearly 15.99% decrease in the likelihood of being absolutely poor at 1% level of significance.

Household size, with a coefficient of approximately 0.0778525, positively affects absolute poverty, signifying that a unit increase in family size corresponds to an approximately 7.79% increase in the probability that a household head will be absolutely poor at 1% level of significance *ceteris paribus*.

Urban residence, with a coefficient of 0.1820695, significantly increases the probability of being absolutely poor for urban residence workers compared to rural residence workers. This implies that holding other factors constant, urban labourers are 18.27% more likely to be absolutely poor compared to rural workers.

The number of income sources also had a significant effect on absolute poverty. The number of income sources had a negative coefficient of -0.0466679 at 10% significant level. This implies that there is a 4.567% likelihood decrease in the probability of an individual being absolutely poor following a unit increase in the number of income-generating activities.

Age also plays an important role in determining state of absolute poverty. Age had a positive significant effect on absolute poverty with a coefficient of 0.0019789 at 10% significant level. The results reveal that there is a 0.20% likelihood of increase in the probability of individual being absolutely poor with a unit increase in the age of the individual. Once again, while age is significant, the likelihood coefficient is low raising the question of its depth of impact on absolute poverty.

Lastly, education levels have significant effects on absolute poverty. Primary level of education had a significant effect on absolute poverty, with coefficient of -0.0847883, implying that holding other factors constant, having primary level of education is associated with lower absolute poverty likelihood by 8.48% as compared to having basic education. Additionally, having Secondary level of education is linked to a decreased likelihood of absolute poverty, with coefficients of approximately -0.1489279, suggesting that holders of secondary level of education are 14.89% less vulnerable to absolute poverty compared to those with no education.

Further still, having technical or vocational training (TVET) is associated with yet a higher and significant decrease in absolute poverty risk as compared to those with no education, with a coefficient of roughly -0.2817968. The results suggest that having a technical or vocational training significantly reduces the likelihood of absolute poverty by 28.18% as compared to basic education. These findings underscore the importance of education in poverty reduction efforts.

The results highlight the potential impact of policy interventions related to minimum wage, family size, urban-rural disparities and education.



## **5. CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS**

### **5.1 Summary of findings**

The aim of the study was to clarify how minimum wage affects poverty, providing insights for policymakers and contributing to a deeper understanding of this critical socioeconomic issue within the Kenyan context. The study examined the effect of minimum wage on poverty in Kenya through statistical analyses, exploring the complex relationship between minimum wage policy and poverty levels. Under the specific objectives, the study sought to analyse the effect of minimum wage on food poverty and absolute poverty in rural and urban areas in Kenya; and recommend applicable policy measures.

The study adopted a unique approach through the use of a bivariate probit model, analysing poverty in Kenya from a minimum wage perspective. Both the food poverty and absolute poverty levels were analysed in detail, giving a holistic approach to the research. Additionally, the study evaluated the rural-urban disparity in as far as minimum wage and poverty is concerned. This added a new divergence from past studies conducted in other regions.

Cross-sectional data from the KIHBS 2015-2016 survey was used, collected through desk-top review of documentation from Kenya Bureau of Statistics and Ministry of Labour. A model was adopted taking into effect minimum wage as a function of both food poverty and absolute poverty.

The probit regression results answered the first objective, by indicating that minimum wage had a significant negative impact on both food poverty and absolute poverty. These results are as echoed by Card and Krueger (2016) in the US, Karakitsios and Matsaganis (2018) in Europe

and Lindelöw (2019) in India. The results also showed that food poverty seemed to be more sensitive to all the determinants than absolute poverty. Gender specifically did not have any effect on absolute poverty at any significant level. This could mean that food poverty being the most basic form of deprivation, has slightly more ways of managing it than absolute poverty.

The household size was positively correlated with the two poverty indicators, having similar findings to the study done in Pakistan by Awan and Perveen, (2019). This means that larger families are at a higher risk of poverty, at both food and absolute levels than households that are fewer in number. The Family Planning program FP2030 currently in effect is definitely a step in the right direction of reducing poverty in Kenya (Republic of Kenya 2030).

The effects of rural-urban migration are felt in the degree of influence impacted by the area of residence of a worker for both food poor and absolutely poor conditions. The likelihood of being impoverished when in the urban areas was established to be higher. This could be explained by the differential in cost of living in the two regions. The study therefore underscores the need for a comprehensive implementation of devolution in Kenya as one of the ways of reducing urban congestion.

Education was observed to play a key role in poverty reduction, with higher education, providing a lower likelihood of an individual falling into both food and absolute poverty. In fact, having TVET education is seen to have a higher likelihood in reducing absolute poverty at 28.18% than minimum wage at 15.99% from the results. These findings are similar to Awan and Perveen's (2019) study where higher education was found to have a higher negative correlation to poverty in Pakistan than minimum wage.

In summary, the model was not only established to be unbiased and accurate, but it was also significant, associated with a probability ( $\text{Prob} > \chi^2$ ) of 0.0000.

## **5.2 Conclusion**

The precepts of the subsistence theory and the neo-classical theory of labour are both confirmed in this study. Minimum wage does indeed have an effect on poverty, and the study has gone further to establish that the effect is negative. The study has equally provided local empirical backing substantiating the importance of the minimum wage policy as a poverty reduction mechanism in the Kenyan labour economy.

While it is clear from the study that food poverty is more delicate than absolute poverty, it provides an awakening to the kind of interventions that could be used to tackle both levels of poverty. TVET education level ranked second as a key factor in food poverty eradication and first in the fight against absolute poverty, indicating that education cannot be ignored in the fight against poverty.

## **5.3 Recommendations**

The effect of minimum wage on poverty needs to be underscored, however from the study it is evident that the minimum wage policy is not sufficient to tackle poverty on its own. Education and, by extension, literacy have been seen as enormous contributors to reducing poverty. Counted as SDG 4, and specifically labelled as quality education, policy makers need to take advantage of this connection and adopt education policies that are not only progressive but also sustainable. Proper implementation of which will lead to the achievement of both SDG 4 and SDG 1 on the eradication of poverty. The strengthening of the CBC curriculum for instance that focuses on learner led and practical technical skills for the future could be a way to begin.

Additionally, the promotion of a national long-term driven poverty reduction framework that does not change with the political climate is definitely a goal worth achieving.

In the interim, it is important for employers to self-regulate and pay fair wages to their employees. The percentage of workers getting underpaid needs to greatly reduce by ensuring that workers have sufficient information about the law. Labourers need to be well informed and consciously aware of their rights. While trade unionism has significantly decreased, and therefore affecting workers' rights, the information age is actively present in this day and can be advantageously utilized when an employee is negotiating for their wages.

Finally, for any policy to be to be viable, it requires up to date data. Household and labour force surveys need to be conducted more frequently than the current decade-on-decade frequency. This data will greatly assist in identifying the specific trend between minimum wage and poverty, an aspect not covered in this study. The use of Technology by the Kenya Bureau of Statistics to collect relevant and up-to-date data more regularly will ensure that researchers provide more relevant policy recommendations to social economic challenges.

#### **5.4 Areas of further research**

The focus of the study was to analyse the effect of minimum wage on poverty in Kenya. The key indicators used to measure poverty were poverty lines. As an under-researched area, future studies could evaluate the effect of sector-specific minimum wage on other poverty indicators. Additionally, only household heads were considered in this study. Further study could be conducted by incorporating secondary wage earners within house-holds.

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## APPENDICES

### APPENDIX I

i) Probit model marginal effect for food poverty at 1% level of significance.

Variable	dy/dx	Std. Err.	z	P> z	-[99% Conf. Interval]
Minimum wage	-.1069096	.0159177	-6.72	0.000	-.1479108
Household size	.0675112	.0024602	27.44	0.000	.0611741
Residence	.0650071	.0115978	5.61	0.000	.0351331
No of income sources	-.0556404	.0137162	-4.06	0.000	-.090971
Age	.0018336	.0005755	3.19	0.001	.0003513
Female Dummy	.0478226	.015199	3.15	0.002	.0086726
Monogamously married	-.0425099	.0200199	-2.12	0.034	-.0940778
Polygamously married	-.0283577	.063403	-0.45	0.655	-.1916731
Living Together	-.0310869	.0264149	-1.18	0.239	-.0991273
Separated	-.0620222	.0430308	-1.44	0.149	-.1728622
Divorced	.0313334	.0292573	1.07	0.284	-.0440283
Primary Education	-.038289	.0128801	-2.97	0.003	-.0714658
Secondary Education	-.02807	.0162211	-1.73	0.084	-.0698529
TVET Education	-.0924599	.0222761	-4.15	0.000	-.1498394

## APPENDIX II

ii) Probit model marginal effect for food poverty at 5% level of significance.

Variable	dy/dx	Std. Err.	z	P> z	-[95% Conf. Interval]
Minimum wage	-.1069096	.0159177	-6.72	0.000	-.1381076
Household size	.0675112	.0024602	27.44	0.000	.0626893
Residence	.0650071	.0115978	5.61	0.000	.0422758
No of income sources	-.0556404	.0137162	-4.06	0.000	-.0825237
Age	.0018336	.0005755	3.19	0.001	.0007057
Female Dummy	.0478226	.015199	3.15	0.002	.0180331
Monogamously married	-.0425099	.0200199	-2.12	0.034	-.0817482
Polygamously married	-.0283577	.063403	-0.45	0.655	-.1526254
Living Together	-.0310869	.0264149	-1.18	0.239	-.0828592
Separated	-.0620222	.0430308	-1.44	0.149	-.146361
Divorced	.0313334	.0292573	1.07	0.284	-.0260097
Primary Education	-.038289	.0128801	-2.97	0.003	-.0635334
Secondary Education	-.02807	.0162211	-1.73	0.084	-.0598628
TVET Education	-.0924599	.0222761	-4.15	0.000	-.1361203

### APPENDIX III

iii) Probit model marginal effect for food poverty at 10% level of significance.

Variable	dy/dx	Std. Err.	z	P> z	-[90% Conf. Interval]
Minimum wage	-.1069096	.0159177	-6.72	0.000	-.1330918
Household size	.0675112	.0024602	27.44	0.000	.0634645
Residence	.0650071	.0115978	5.61	0.000	.0459304
No of income sources	-.0556404	.0137162	-4.06	0.000	-.0782016
Age	.0018336	.0005755	3.19	0.001	.000887
Female Dummy	.0478226	.015199	3.15	0.002	.0228225
Monogamously married	-.0425099	.0200199	-2.12	0.034	-.0754397
Polygamously married	-.0283577	.063403	-0.45	0.655	-.1326464
Living Together	-.0310869	.0264149	-1.18	0.239	-.0745356
Separated	-.0620222	.0430308	-1.44	0.149	-.1328015
Divorced	.0313334	.0292573	1.07	0.284	-.0167905
Primary Education	-.038289	.0128801	-2.97	0.003	-.0594748
Secondary Education	-.02807	.0162211	-1.73	0.084	-.0547514
TVET Education	-.0924599	.0222761	-4.15	0.000	-.1291008

## APPENDIX IV

iv) Probit model marginal effect for absolute poverty at 1% level of significance.

Variable	dy/dx	Std. Err.	z	P> z	-[99% Conf. Interval]
Minimum wage	-.1599673	.0162886	-9.82	0.000	-.2019239
Household size	.0778525	.0025307	30.76	0.000	.0713337
Residence	.1820695	.0117331	15.52	0.000	.151847
No of income sources	-.0466679	.0141653	-3.29	0.061	-.0831553
Age	.0019789	.0005869	3.37	0.071	.0004671
Female Dummy	.0013058	.0156642	0.08	0.934	-.0390425
Monogamously married	-.01516	.0202433	-0.75	0.454	-.0673032
Polygamously married	-.097807	.0663711	-1.47	0.141	-.2687677
Living Together	.0035643	.0264415	0.13	0.893	-.0645445
Separated	-.034277	.0428225	-0.80	0.423	-.1445806
Divorced	.0403997	.0304539	1.33	0.185	-.0380444
Primary Education	-.0782226	.0131201	-5.96	0.055	-.1120176
Secondary Education	-.1392947	.0165048	-8.44	0.063	-.1818083
TVET Education	-.2703342	.0236424	-11.43	0.058	-.3312329

## APPENDIX V

v) Probit model marginal effect for absolute poverty at 5% level of significance.

Variable	dy/dx	Std. Err.	z	P> z	-[95% Conf. Interval]
Minimum wage	-.1599673	.0162886	-9.82	0.000	-.1918924
Household size	.0778525	.0025307	30.76	0.000	.0728923
Residence	.1820695	.0117331	15.52	0.000	.159073
No of income sources	-.0466679	.0141653	-3.29	0.061	-.0744314
Age	.0019789	.0005869	3.37	0.071	.0008285
Female Dummy	.0013058	.0156642	0.08	0.934	-.0293955
Monogamously married	-.01516	.0202433	-0.75	0.454	-.0548361
Polygamously married	-.097807	.0663711	-1.47	0.141	-.227892
Living Together	.0035643	.0264415	0.13	0.893	-.0482601
Separated	-.034277	.0428225	-0.80	0.423	-.1182077
Divorced	.0403997	.0304539	1.33	0.185	-.0192889
Primary Education	-.0782226	.0131201	-5.96	0.000	-.1039374
Secondary Education	-.1392947	.0165048	-8.44	0.000	-.1716435
TVET Education	-.2703342	.0236424	-11.43	0.000	-.3166724

## APPENDIX VI

vi) Probit model marginal effect for absolute poverty at 10% level of significance.

Variable	dy/dx	Std. Err.	z	P> z	-[90% Conf. Interval]
Minimum wage	-.1599673	.0162886	-9.82	0.000	-.1867597
Household size	.0778525	.0025307	30.76	0.000	.0736898
Residence	.1820695	.0117331	15.52	0.000	.1627703
No of income sources	-.0466679	.0141653	-3.29	0.001	-.0699677
Age	.0019789	.0005869	3.37	0.001	.0010135
Female Dummy	.0013058	.0156642	0.08	0.934	-.0244595
Monogamously married	-.01516	.0202433	-0.75	0.454	-.0484572
Polygamously married	-.097807	.0663711	-1.47	0.141	-.2069778
Living Together	.0035643	.0264415	0.13	0.893	-.0399281
Separated	-.034277	.0428225	-0.80	0.423	-.1047138
Divorced	.0403997	.0304539	1.33	0.185	-.0096925
Primary Education	-.0782226	.0131201	-5.96	0.000	-.0998031
Secondary Education	-.1392947	.0165048	-8.44	0.000	-.1664427
TVET Education	-.2703342	.0236424	-11.43	0.000	-.3092224