EFFECT OF INFLATION ON MINIMUM WAGES IN KENYA

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF APPLIED ECONOMICS IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF ECONOMICS (FINANCE) OF KENYATTA UNIVERSITY.

NOVEMBER, 2015
DECLARATION

This research project is my original work and has not been submitted for degree in any other university.

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To my father John and mother Rose who have been my inspiration throughout my academic life.
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# ABBREVIATIONS AND ACRONYMS

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<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AAWC</td>
<td>Area Agricultural Wage Committees</td>
</tr>
<tr>
<td>ARP</td>
<td>Average Revenue Product</td>
</tr>
<tr>
<td>AWAB</td>
<td>Agricultural Wages Advisory Board</td>
</tr>
<tr>
<td>COTU</td>
<td>Central Organization of Trade Unions</td>
</tr>
<tr>
<td>CPI</td>
<td>Consumer Price Index</td>
</tr>
<tr>
<td>FKE</td>
<td>Federation of Kenya Employers</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GWAB</td>
<td>General Wages Advisory Board</td>
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<td>IPS</td>
<td>Im-Pesaran-Shin</td>
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<tr>
<td>LLC</td>
<td>Levin-Lin-Chu</td>
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<tr>
<td>MRP</td>
<td>Marginal Revenue Product</td>
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<td>MW</td>
<td>Minimum Wages</td>
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<td>WCs</td>
<td>Wage Councils</td>
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OPERATIONAL DEFINITION OF TERMS

*Kaitz ratio*: is the ratio of minimum wage to average wage in the economy

*Labour Institution Act*: an Act of Parliament to establish labour institutions to provide for their functions, powers and duties and to provide for other matters connected thereto

*Minimum wage*: is the lowest wage payable to designated employees as fixed by law

*Wages Councils*: independent tripartite bodies established by statute with the function of fixing minimum wages and other terms and conditions for employees in specific sectors of the economy.

*Wages Order*: a legal notice outlining the statutory minimum wages payable to various categories of employees
ABSTRACT

The history of minimum wages in Kenya dates back to 1932. The rate of adjustment in minimum wages granted by different wage councils, have been trending one another. Minimum wages have been increasing at a rate lower than the rate of inflation, yet inflation is one of the parameters to be considered while fixing minimum wages. In the Agricultural Wages Order, for example, minimum wages were increased by an average of 11.08 per cent compared to 11.84 per cent increase in inflation in 1990-2014. Under General Wages Order, average increase in minimum wages was 10.25 per cent over the same period. This shows that the average increase in wages have been lower than the rate of increase in inflation. However, the Wage Guidelines (2005), the Labour Institution Act (2007) and the International Labour Organization Minimum Wages Fixing Convention No 131 of 1970 all require minimum wages to be aligned to the inflation. Enforcement of minimum wages has also been low. This study aimed at determining the effect of inflation on minimum wages in Kenya and assessing the effectiveness of minimum wage enforcement mechanism. Pooled ordinary least square technique was used to determine the effect of inflation on minimum wages. The study used panel data for the period 1990 to 2014 to estimate the random effect model. The study further assessed effectiveness of minimum wage enforcement mechanism in Kenya using the kaitz ratio and the labour inspectorate staff employment ratio. The findings show that inflation affects changes in sectoral minimum wage positively. Other variable that was found to have a positive effect on change in minimum wage was population growth rate. Gross Domestic Product and labour force participation rate were found to affect variations in minimum wages negatively. Dummy variable capturing political cycle was found to be statistically insignificant in explaining variations in minimum wage. As at 2014, the Kenyan labour inspectorate staff-employment ratio was 155,435. Comparing the Kenyan labour inspectorate staff-employment ratio to global benchmark, the variance rose from -2716 employees to 115,435 employees in 2014. This means that the labour inspectorate staff was overburdened by up to 289 per cent, implying ineffectiveness of labour inspectorate services and minimum wage enforcement mechanism. The study found an average kaitz ratio of 0.48 between 1996 and 2014, implying that minimum wage was on average 48 per cent of the average wage in the agricultural and general sectors. Arising from the study findings, it is important for the government through the Ministry of Labour, Social Security and Services to work towards pursuing policies that align increase in minimum wages to increase in inflation. There is also need for the Ministry to enhance effective enforcement of minimum wage regulations. This can be achieved through digitization of labour inspection.
CHAPTER ONE
BACKGROUND

1.1 Introduction
This chapter presents historical development of wage policy in Kenya, evolution of minimum wage regulation, determination and enforcement of Minimum Wages (MWs) as well as trends in MWs and inflation. Problem statement, research questions, objectives, significance and organization of the study are also presented.

1.2. Historical development of wage policy in Kenya
Kenya aims to transform to a newly-industrializing, middle-income country providing a high quality life to all its citizens by the year 2030 (Republic of Kenya, 2007a). In Kenya, the creation of productive and sustainable employment opportunities has been the policy priority of the government since attaining political independence in 1963 (Omolo, 2010). At the same time, a number of legislative and institutional reforms have been undertaken by the country to improve terms and conditions for employment of workers (Republic of Kenya, 2008).

Major reforms that have targeted the labour market include the revision and subsequent enactment of five labour laws in 2007. The laws include Labour Relations Act (2007), Employment Act (2007), Occupational Safety and Health Act (2007), Work Injury Benefits Act (2007) and Labour Institutions Act (2007). Institutional interventions are found in the establishment of key social dialogue institutions. These include the National Economic and Social Council (NESC), National Labour Board (NLB), National Council
for Occupational Safety and Health (NACOSH), General Wages Council (GWC), Agricultural Wages Council (AWC) and other sector-specific wage councils (Omolo, 2010).

According to Omolo (2010), Kenya has had two wage policy periods since attaining political independence in 1963. The first wage policy started in 1964 to 1972. This phase was characterized by a growth oriented development strategy whereby wages were set at relatively high levels. Within this framework, Kenya's first policy stance on wage determination was documented in the 1964-70 Development Plan (Omolo, 2010). This wage policy was designed to protect workers against restrictive and unfair labour practices and to stimulate growth of modern sector wage employment to absorb the increasing labour force. The wage policy was mainly focused on productivity and the determination of wages through the interaction of forces of demand and supply key wage determination parameters.

Varied results were recorded during this first phase of Kenya's wage policy. Between 1964 and 1972, for instance, Kenya's economy grew by about 6 per cent per annum in real terms, inflation rate declined to 2.7 per cent per annum, while wage employment increased by approximately 2.8 percent per annum. Since most of the jobs were created by the government income distribution among the wage employees grew inequitably with the average Gini coefficient being 0.59. As a result of the first wage policy period, labour productivity of wage employees increased by an estimated 2.9 percent while capital-
labour ratio increased by 6.8 percent (Omolo, 2010). This implies that the economy grew more capital intensive.

The second phase of Kenya's wage policy, which started in 1973 to 2015, was characterized by employment promotion and distributive aspects of growth. The government regulated public and private sector wages through wage guidelines to ensure moderation of wage awards. This policy was aimed at encouraging labour intensive techniques of production, controlling against undue wage disparities and promotion of labour cost competitiveness. Consequently as a result of this second wage policy period, determination of wages in the public sector has been done through administered approach via schemes of service and periodic salary review while taking note of the legally set minimum wage rates (Omolo, 2010). Wage determination in the unionized sector has been executed through minimum wage regulation, collective bargaining and at times arbitration by Industrial Court. Similarly, wages in the uncovered private sector has been determined through MW legislation supported by individual negotiations.

Mixed results were recorded during this second wage policy. The growth rate of labour productivity slowed down; capital intensity declined; growth rate of the real average wage became negative, averaging -1.8 per cent per annum. There was also slight improvement in income distribution among wage employees. It may be observed that in abandoning the high wage policy, appropriate measures and strategic interventions were not put in place to mitigate against the likely effects of the policy shift. This could have led to low employee motivation and eventual reduction in the growth of labour productivity (Omolo, 2010).
Over the period 1990 to 2005, MWs increased at a rate ranging between 6 to 20 per cent. On the other hand the rate of increase in inflation was fluctuating, ranging between 1.6 per cent and 46 percent. The following decade, that is 2006 to 2014, the increase in MWs was in line with the previous period ranging between 5 to 20 per cent except for the years 2007, 2008 and 2014 when there was a minimum wage increase freeze. The rate of inflation ranged between 4.3 and 15.1 per cent. For the period 1990 to 2014, the changes in the MWs have been at variance with the changes in the rate of inflation. Overtime, MWs have been increasing at a rate that surpasses the rate of inflation.

1.3 Evolution of minimum wage regulation

The practice of MW regulation is generally considered to have first been developed in New Zealand and Australia in 1896 and 1899, respectively (Waltman, 2000). This was followed by MW enactment in Britain in 1906(Gerald, 1993). Minimum wages in the aforementioned countries covered relatively few categories of workers, with particularly low levels of pay (Gerald, 1993). Minimum wages were introduced in Africa by a number of colonies after the First World War (Starr, 1993). The aim of introducing MWs in Africa was to prevent abuses in hiring of indigenous workers under forced labour arrangements (Starr, 1993).

Evolution of MW in Kenya dates back to 1932 (Husband, 1955). The government’s decision to fix MWs was motivated by the absence of effective action by workers and their associations to improve wage levels. The first Minimum Wage Ordinance in Kenya was legislated in 1932 to protect workers from unfair working conditions. This was then
followed by the 1946 Minimum Wage Ordinance, which provided for a Central MW Advisory Board to recommend wage levels to the Governor-in-Council (Omolo, 2010).

The regulation of Wages and Conditions of Employment Act was legislated in Kenya in 1951 (Republic of Kenya, 1989). This Act of Parliament provided for the establishment of General Wages Advisory Board (GWAB), Agricultural Wages Advisory Board (AWAB), Area Agricultural Wage Committees (AAWC) and Wages Councils (WCs). In this respect, a total of fifteen sector-specific WCs were established under the Act (Republic of Kenya, 1989).

Following the repeal of labour laws in 2007, MW fixing is presently guided by the Labour Institutions Act (2007). Section 43(1) of the Act provides for the establishment of general, agricultural and sectoral WCs by the Minister in charge of labour matters (Republic of Kenya, 2007b). The WCs are empowered to make recommendations to the Minister on MW remuneration and other statutory terms and conditions of employment.

1.4 Determination and enforcement of minimum wages

In Kenya, MWs are determined through tripartite mechanism (Omolo, 2010). The tripartite mechanism is composed of representatives of workers, employers and the government. In this case, workers are represented by the Central Organization of Trade Unions (COTU) while employers are represented by the Federation of Kenya Employers (FKE). The government on the other hand is represented by the Ministry of Labour, Social Security and Services (MOLSS).
Section 44(5) of the Labour Institutions Act identifies economic and social parameters that should be taken into consideration while fixing MWs. These include employee’s needs and their families, cost of living, general level of wages in the country, social security benefits and relative living standards of other social groups. Among the economic factors include productivity levels, desirability of attaining and maintaining a high level of employment, poverty alleviation, and minimum subsistence level, need to encourage investment and employment creation (Republic of Kenya, 2007b).

Article 3 of the ILO Minimum Wage Fixing Convention, 1970 (No. 131) also identifies the parameters to be taken into consideration in determination of the level of MWs. They include the needs of workers and their families, general level of wages in the country, the cost of living, social security benefits and the relative living standards of other social groups. Economic factors include the requirements of economic development, levels of productivity and the desirability of attaining and maintaining a high level of employment.

Article 5 of the ILO Minimum Wage Fixing Convention, 1970(No. 131) provides for the measures to ensure the effective application of provisions associated with MWs. The measures include protecting workers against victimization, giving publicity to MW provisions in languages understood by workers who need protection and sufficient penalties for infringement of provisions relating to MWs. The ILO MW Fixing Convention, 1970 (No. 131) also empowers the employers and workers’ organizations to protect workers against abuse so as to ensure effective enforcement of MWs.
Article 23 of the United Nations (UN) Universal Declaration of Human Rights also identifies rights which are important to every worker. These include, working freely, free choice of employment, protection against unemployment and right to just and favorable conditions of work. Others include equal pay for equal work without discrimination, just and favorable remuneration ensuring an existence worthy of human dignity and forming and joining trade unions for protection of worker’s interests. These rights are in line with the parameters identified by the Labour Institutions Act and the ILO Minimum Wage Fixing Convention aimed at according workers bare minimum standards of living.

Determination of MWs in Kenya is also guided by Wage Guidelines (Republic of Kenya, 2005). The Wage Guidelines identifies same parameters, which include granting workers a just minimum standard of living, aligning revision of wages to productivity increases and ensuring consistency between changes in prices and MWs (Republic of Kenya, 2005).

Effectiveness of MW enforcement mechanism is measured in terms of the effectiveness of labour inspectorate services and the kaitz ratio. This is done by assessing the labour inspectorate staff-employment ratio (Omolo, 2010). In the ILO report of committee on employment (2006), a benchmark was developed to provide for an optimal ratio of the number of workers that should be served by one labour inspector. The benchmark is based on the state of the economy. The ILO (2006) benchmark is one labour inspector per 10,000 workers for industrialized and market economies, one inspector per 20,000 workers in transition economies, and one inspector per 40,000 workers in developing
economies like Kenya. Figure 1.1 gives the trends of labour inspectorate staff and employment in Kenya for the period 1996-2014.

Figure 1.1: Labour Inspectorate staff and Employment Trends in Kenya

Source of data: Republic of Kenya, Economic Survey (various) and MOLSS

The data presented in Figure 1.1 shows that while total employment in the economy has been growing, the number of labour inspectorate staff has displayed a decreasing trend for most of the years.
Trend in minimum wages, inflation and GDP in Kenya

Minimum wages in Kenya have been subjected to periodic reviews since their establishment which dates back to 1932 (Omolo et al. 2009). The reviews are done annually and follow Labour Day celebrations, which are always held on 1st May. The rate of inflation is one of the most important parameters that should be taken into consideration while adjusting minimum wages (Republic of Kenya, 2005). Inflation rate rose drastically between 1990 and 1993, for instance the rate ranged between 15.8 to 46 per cent. The inflation rate then dropped between 1994 and 1995 at a rate which ranged between 28.8 to 1.6 per cent. From 1997 to 2014 inflation was generally rising and declining at a rate not more than 15 per cent.

The wide oscillations in inflation were attributed to many reasons. First, the continuous depreciation of the Kenya shillings in the 1990s led to higher prices for imported raw materials, capital and final consumer goods and subsequently to persistent domestic inflation (Republic of Kenya, 1990). Inflationary pressures were worsened by decontrol measurers that were announced which impacted prices of final consumer goods both indirectly and directly. Secondly, In the 1990’s under the Structural Adjustment Programs (SAPs) price decontrols were affected which affected consumer’s budget, withholding of donor aid to Kenya coupled with financing of imports using forex certificates rather than the official allocation subsequently pushed up prices of imports leading to a rise in general price level for final consumer items (Republic of Kenya, 1993). Other factors included increases in administered prices, devaluation of the shilling and monetary expansion. The lowest inflation in the 1995 was attributed to continued
pursuit of tight monetary policy by central monetary authorities. Then the rise after 1995 was due to upward adjustment in prices of petroleum products and dry weather conditions that prevailed in early 1996 which affected prices of vegetables (Republic of Kenya, 1996).

The variation in the changes of inflation in the 2000 was as a result of a number of factors. The factors include decrease in the prices of basic foodstuffs, stability in the Kenya shillings exchange rate, and decline in the price of crude oil, prudent monetary policy, and increase in prices of imports, aftermath of the 2007 post-election violence, bad weather and global high food prices.

The enormous variations in inflation have stimulated much interest in its effect on minimum wages in Kenya. The rate of changes in MWs has been varying overtime. Under AWAB the increase ranged between 6 and 31 percent while the increase in MWs as determined by GWAB ranged between 4 and 30 per cent.

During the period 1994-2014 national GDP has been varying at a rate ranging between -0.8 to 6.9 per cent. Figure 1.1 compares the percentage increase in MWs, GDP and inflation over the period 1990-2014.
The increase in MWs under GWAB and AWAB have been generally trending one another. Over the period 1990-2014, changes in MWs have been at variance with the changes in the inflation rate except for the periods 2007, 2008 and 2014 when there was MW increase freeze. During the aforementioned periods, Kenya recorded a growth rate of 6.9, 1.52 and 5.5 per cent respectively. Percentage change in GDP has remained below percentage change in MWs except in 1993 when the country recorded a negative growth rate and in 2007, 2008 and 2014 when there was MW increase freeze. For the periods 2007, 2008 and 2014 workers were prone to experience decay in their purchasing powers caused by increase in the cost of living.
From 1990 to 1994, the changes in the rate of inflation remained above the changes in MWs. From 1995 to 1999, however, the changes in MWs under GWAB rose above the changes in inflation rate while changes in MWs as set by AWAB remained below percentage change in inflation. From 2000 onwards the trend has remained at variance contrary to the requirement of the Wage Guideline. The Guidelines outlines clearly that while fixing MWs, changes in prices should be taken into consideration. The Guidelines proposes that while there should be adjustment in MWs, this should be consistent with the percentage change in the rate of inflation over time. This is an indication that changes in inflation affect MWs. This could explain why changes in inflation rate are in some periods above changes in MWs and below it in some years.

1.6 Problem statement

Creation of sustainable employment opportunities has been the policy priority of the Kenyan government since attaining political independence in 1963 (Republic of Kenya, 2008). One of the greatest impediments to achieving this desire is the application of inappropriate terms and conditions for employment.

To improve the terms and conditions for employment of workers, the government has designed and implemented a number of wage policy measures which includes both legislative and institutional reforms. Revision and subsequent enactment of five important labour laws in 2007 is among the key reforms.
While the Wage Guidelines, Labour Institutions Act, ILO Convention No 131 of 1970 and Article 23 of UN Declaration on Human Rights all require that increases in MWs are aligned to inflation, this appears not to be the case in Kenya. Minimum wages have been increasing at a rate lower than the rate of inflation, yet inflation is one of the parameters to be considered while fixing minimum wages. For example, under agricultural wages order, in 1990-2014, minimum wages were increased by an average of 11.08 per cent compared to 11.84 per cent increase in inflation. Under general wages order, average increase in minimum wages was 10.25 per cent. On the other hand the average increase in GDP was 3.5 per cent. This shows that the average increase in the rate of minimum wages have been lower than the average increase in inflation. Enforcement of MWs has also been low. This study, therefore, seeks to determine the effect of inflation on MWs in Kenya.

1.7 Research Question

(i) What is the effect of inflation on minimum wages in Kenya?

(ii) What is the effectiveness of Kenya’s minimum wage enforcement mechanism?

1.8 Research Objectives

The broad objective of this study was to determine the effect of inflation on minimum wages in Kenya.

The specific objectives of this study were to:

(i) Determine the effect of inflation on minimum wages in Kenya

(ii) Assess the effectiveness of Kenya’s minimum wage enforcement mechanism.
1.9 Significance of the study

A study of the effect of inflation on minimum wages in Kenya is important for a number of reasons. This study is important since it forms part of the contribution and understanding of how inflation affects minimum wages. The study findings will be useful in facilitating the formulation and implementation of labour market policies. This is particularly for policies that target employment creation and industrial competitiveness. Finally, the study will contribute to knowledge and existing literature on minimum wage fixing, and wage determination in general.

1.10 Scope of the study

The study focused on the effect of inflation on minimum wages and the effectiveness of minimum wage enforcement mechanism in Kenya. It covered the period 1990 to 2014. The aforementioned period associates with liberalization of labour market sector which was aimed at promoting labour market flexibility.

1.11 Organization of the study

The remaining part of this project is organized as follows. Chapter two presents literature review which gives a brief introduction and highlights selected theories on MW fixing and wage determination. It further reviews the empirical studies that have been done on the effect of inflation on minimum wages as well as overview of the literature. Chapter three presents the research design, theoretical framework, empirical model, definition and measurement of variables, data type and source and data analysis.
CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter reviews literature from previous studies. It provides an explanation of existing theories and empirical studies on the effects of inflation on Minimum Wages. It also presents an overview of literature.

2.2. Theoretical Literature

The section is based on the theories of wage determination. The main theories that explain wage determination and hence provide a theoretical framework for existence of inflation effects on minimum wages are efficiency wage theory, marginal productivity theory of wages, wage fund theory, subsistence theory of wages, residual claimant theory and the modern theory of wage determination.

2.2.1 Efficiency Wage Theory

The theory was advanced by Stiglitz (1984). The basic assumption of the efficiency wage theory is that the net productivity of workers is a function of the real wage paid by the firm (Stiglitz, 1984). The theory further assumes that higher paid jobs are rationed and queues for these jobs act as equilibrating mechanism. According to this theory, employers may choose to pay wages above the equilibrium wage in order to attract higher quality labour force, limit shirking, reduce labour turnover and increase worker’s motivation and productivity as well as provides for nutritional requirements of workers (Stiglitz, 1984).
Suppose workers are paid wages that are above the market wage, workers' productivity will increase due to motivation. The relatively high wages may lead to involuntary unemployment (Omolo, 2010). This is due to the fact that employers will only consider a few productive workers who shall be paid above market-clearing wage rate. Therefore, workers who are able and willing to work at lower wages will not be employed. Paying workers efficiency wages increases the cost of a job loss to workers. This provides internal incentive for worker loyalty, dedication, compliance and acts as a disincentive for lofty workers who may be tempted to shirk (Omolo, 2010). Efficiency wage theory has been criticized on the grounds that it only offers explanation of unemployment in contrast to other wage determination theories which emphasize government intervention such as minimum wages.

2.2.2. Marginal Productivity Theory of Wages

This theory was expounded by Hicks (1932) as a wage determination theory. The theory explains that under perfect competition a worker's wage is equal to marginal revenue product (MRP) as well as average revenue product (ARP). According to the theory, MRP and ARP of a worker determine his/her wage. The basic assumption of this theory is that all units of labour are uniform and this implies that productivity of the marginal unit of labor settles the rate which is to be paid to all units of labour.

The theory further assumes the special state of the economy in which there is perfect competition, perfect mobility of labour, no technological progress, and no uncertainty and risk. Under these assumptions, the theory suggests that the amount of wages is
determined by the production optimization process at a firm’s level. The theory further proposes that firms minimize the cost of production, thus equating physical marginal productivities of all factor inputs. Therefore, the theory arises with a proposition that a more productive laborer receives a higher wage (Biewen and Weiser, 2011).

The major weakness of the marginal productivity theory is that it does not carry with it any ethical justification. It may be used by the employers to show that wages are low because productivity is low but exploitation of labour might also be a main cause of low wages.

In respect to inflation effect on minimum wages, when productive workers receive higher wages this is passed on to consumers as a result of meeting the higher production cost which leads to increased price levels. These high prices reduces the expected benefit from working and increases the real reservation wage of unemployed workers for a given consumption level.

2.2.3. Wage Fund Theory

Ideas associated with wage fund theory were advanced by Pigou (1949). According to this theory, a harvest is done once in a year. Therefore, parts of the produce, in form of wage fund, may be reserved for workers’ maintenance until another harvest falls due. It implies past contribution effects on current production. Therefore, past year savings of capitalist are a source of wages (Spiegel, 1983).

The basic assumption of the theory is that the demand of labour is determined by wage fund. The amount of capital destined to compensate workers and labour supply depends
on the size of the population. The theory further assumes that capital was only coming
from prior years and no additional amount of money could be added to production
process to support more workers. Thus wage is derived as the ratio of capital to the
population (Spiegel, 1983).

According to Pigou (1949), when the wage fund was large in relation to the number of
workers, wages would be high. When it was relatively small, wages would be low. If
population increased too rapidly in relation to food and other necessities wages would be
driven to the subsistence level. Therefore, went the speculation, labourers would be at an
advantage if they contributed to the accumulation of capital to enlarge the fund. If they
formed labour organizations that diminished capital, they would be reducing the size of
the fund, thereby forcing wages down. It followed that legislation designed to raise wages
would not be successful, for, with only a fixed fund to draw upon, higher wages for some
workers could be won only at the expense of other workers. The Wage Fund Theory has
no implication on the effects of changes in prices on worker’s earnings.

2.2.4 Subsistence Theory of Wages
The subsistence theory of wages was advanced by David Ricardo (1817) and other
classical economists. This theory held that the market price of labour would always tend
toward the minimum required for subsistence. According to subsistence theory of wages
change in the supply of workers is the basic force that drives real wages to the minimum
required for subsistence. The theory further states that wages tend to settle at the level
just sufficient to maintain the worker and his family at the minimum subsistence level. If
wages rise above the subsistence level, the workers are encouraged to marry and to have
large families. The large supply of labour brings wages down to the subsistence level. If wages fall below this level, marriages and births are discouraged and under-nourishment increases death rate.

As a result, labour supply increases until wages rise again to the subsistence level. The subsistence theory of wages assumes that the labour supply is infinitely elastic, that is, its supply would increase if the price offered rises. While subsistence theory is relevant to the study it entirely ignores the demand side of the labour and emphasizes only the supply side for the determination of the wages. On the demand side, the employer has to consider the amount of work which the employee gives him and not the subsistence of the worker.

The analytical advantage of this theory is that it provides a logic system for price changes and could be applied by looking at the effect of inflation on minimum wages. Therefore, subsistence theory of wages is relevant to this study since it forms the strong base and support for minimum wage law, which is anchored on minimum subsistence level of wages. It takes into account the changes in the price levels which is the core of the study.

2.2.5. Residual Claimant Theory

The residual claimant theory of wages was advanced by Walker (1968). According to the theory, after all other factors of production have received compensation for their contribution to the process, the amount of capital left over will go to the remaining factor.
The theory assumes that the shares of the landlord, capital owner, and entrepreneur were determined independently and subtracted, thus leaving the remainder for labour in the form of wages. The theory further assumes that any of the factors of production may be selected as the residual claimant assuming that independent determinations may be made for the shares of the other factors. The theory concludes that wages are equal to the whole production minus rent, interest, and profit. In short, the theory states that labour receives what remains after payment of rent, interest, profit and taxes out of the national dividend.

The major weakness of the residual claimant theory is that it ignores the influence of supply side in the determination of wages. The assumptions of the Residual Claimant theory are also unrealistic. This is because in actual practice, it is found that at times of business boom when rent, interest and profits rise, wages also increase at the same time.

2.2.6. Modern Theory of Wages

The theory was advanced by Stigler (1946). According to the theory, wage is a price of productive labour. The theory assumes wage determination under perfect competition that is determination of wage rates through demand and supply analysis.

According to the theory, a number of factors influence the demand for labour. Among the factors include availability of substitute for labour, proportion of labour cost to total cost and elasticity of demand for the production. On the other hand, the supply of labour is influenced by factors such as wage rate, size of population, age composition, availability of education and training. Other factors include the length of training period, provision of opportunities for women to work and the social security programmes.
The theory argues that the price or wage of particular grade of labour is determined by the interaction of the forces of demand for and supply of labour in the competitive market. Equilibrium wage rate is said be determined at the point where supply and demand are equal.

While modern theory of wages looks at the influence of supply in the determination of wages it does not consider other factors which determines wages such as changes in prices of consumer goods which the study will incorporate.

2.3 Empirical Literature

A number of studies have been conducted to estimate the relationship between inflation and minimum wages. What follows is a review of empirical literature on effect of inflation on minimum wages both in developed and developing countries.

Elwell (2014) estimated the relationship between inflation and minimum wages on USA using data for the period 1968 to 2009. The independent variables that were included in the study are inflation, real GDP and employment.

The study established that the maximum value of minimum wage in real terms was reached in 1968 to equate the purchasing power of consumers in the same year. The study also found that the nominal value of minimum wage was raised by $5.65 per cent between 1968 and 2009 which did keep pace with rising consumer prices. The major
weakness of the study is that it failed to estimate specifically the effect of inflation on minimum wages, which is the focus of the current study.

Cuong (2011) analyzed the causality between inflation and minimum wages in Vietnam. The study used time series data for the period 1994 to 2008. Inflation was measured by monthly overall consumer Price Index (CPI) and a monthly food CPI. The study found that minimum wage increase did not lead to an increase in inflation. The study established that observed increases in monthly inflation was triggered by increase in consumption demand during the New Year festival which coincides with minimum wage increases. The study also found that there have been 9 increases of the minimum wage since 1994. According to Cuong (2011) the real minimum wage increased by around 118 per cent while the CPI increased by 254 per cent during the period 1994 to 2009. The study established that the point estimates of both the short-run and long-run effects of minimum wage increase were negative implying that the estimates were not statistically significant at 5 per cent. The main weakness of the study by Cuong (2011) is that it did not take into consideration other variables that might affect minimum wages such as GDP, political cycles, productivity and labour force participation rate (LFPR).

Makalamangi (2009) conducted a study to analyze the effects of minimum wage on employment in textile industries in Tanzania. The study used three firms in the Tanzania textile industry as a case study. The study employed both qualitative and quantitative data while most of the information was based on descriptive statistics.
The results from the analysis suggested that minimum wage, to some extent affects the level of employment in large firms contrary to small and medium firms. Furthermore, the study showed that the most affected groups of workers were casual labourers who were facing unemployment after the increase in minimum wage. The varied results from the study indicated that the minimum wage was not the only factor that affects the level of employment but other factors also come into play such as market fluctuations with low and high seasonality. This study specifically focused on textile industries which do not cover the whole economic sectors. The study did not take into account changes in prices which the current study will include.

Andalon and Pages (2008) carried out a study to examine performance of minimum wage legislation in Kenya. The study looked at performance of minimum wage legislation both in terms of coverage and enforcement as well as in terms of their implication for wages and employment. The study by Andalon and Pages (2008) was based on 1998/99 labour force data. The study estimated the following model separately for agricultural and general wages order.

\[ \ln W_{i\alpha j} = \alpha + \beta \ln MW_{\alpha j} + X_i + \tau_o + \tau_j + \tau_s + \epsilon_{i\alpha j} \ldots \ldots \ldots \ldots \ldots \ldots \ldots 2.1 \]

Where \( W_{i\alpha j} \) is monthly real wage of worker \( i \) in occupation \( \alpha \) and location \( j \), \( MW_{\alpha j} \) is the monthly real minimum wage for occupation \( \alpha \) and location \( j \), \( X_i \) is a vector of personal characteristics such as level of education, gender and age, \( \tau_o, \tau_j, \tau_s \) are sets of indicator variables for occupation, location and sector of employment (formal or informal) respectively and \( \epsilon_{i\alpha j} \) is the error term.
The study found that minimum wages to all salaried workers were better enforced and had stronger effects in the non-agricultural industry than the agricultural one. The results of the study suggested that minimum wages were positively associated with wages of low-educated workers and women in non-agricultural activities. The results further suggested that higher minimum wages were associated with a lower share of workers in the formal sector in a given occupation and location. The estimates of the study indicated that a 10 per cent point increase in the minimum to medium wage ration could be associated with a decline in the share of formal employment of between 1.2 to 5.6 per cent and an increase of between 2.7 to 5.9 per cent in the share of self-employment. The major weakness of the study by Andalon and Pages (2008) is that it failed to address the key issue concerning the effectiveness of minimum wage enforcement mechanism.

Folawewo (2007) examined the macroeconomic effects of minimum wage (MW) policy in Nigeria using a static computable general equilibrium. The study employed the data from the 2005 to 2007 to construct social accounting matrix (SAM) for the economy. Simulation results from the study showed that a rise in MW would lead to increased productivity in all economic sectors. The study showed varying results on the impact of MW increase on employment. While it leads to marginal rise of employment in agricultural sector, there was a marginal fall in services sector employment. On the same note the study found that there was no significant effect in manufacturing, mining and oil sectors.

The results also were based on price effects. An increase in MW led to a significant rise in general price levels. A rise in MW had a positive effect on household income,
consumption as well as on government balances. The study did not take into account microeconomic factors such as the individual’s ability to offer labour services.

Lemos (2004) analyzed the effect of the minimum wage increases by examining its effect on other wages, employment and prices in Brazil. Lemos (2004) used monthly Brazilian household and firm panel data for the period 1982 to 2000. The finding of the study by Lemos (2004) was that increasing the minimum wage increases wages and prices with small adverse employment effects in Brazil. The findings of this study imply a general wage price inflationary spiral where the perpetual increase in inflation repeals some of the initial positive wage effects. The study concludes that the eventual increase of minimum wage is dependent on inflation.

Lee and Roark (2000) carried out a study to estimate the relationship between minimum wages food prices on USA. The study used an Input-Output model to analyze the price pass-through effect of Minimum Wage increase on prices of food and kindred product and food service industry. The study used the following model.

\[ P_Q = A^1 \cdot P_a + R + W \]

Where \( P_Q \) is a vector of sector output prices (\( P_j \)'s), \( P_a \) is a vector of input prices(\( P_i \)'s), \( R \) and \( W \) are vectors of returns to residual and wage income (\( P_i \cdot L \)) and \( A \) is the matrix of input-output technical coefficients, row sector purchases per dollar of output in the column sector. The results from the study suggested that $0.5 increase in minimum wage would minimally affect food prices.
Groshen and Schweitzer (1997) analyzed the effects of inflation on wage adjustment in Western countries using firm-level data. Groshen and Schweitzer (1997) used a unique 40 year panel of wage changes that were made by large mid-western employers. In the study wage adjustment was regressed on inflation, population growth, labour force participation rate and productivity. The study applied an institutional-based model of wage-setting that predicted the existence of independent occupational and employer adjustments embedded in the wage changes.

Groshen and Schweitzer (1997) established that wage adjustments operate most immediately at low inflation rate. The study concluded that inflation generated disruptive and unintended wage variations which continued to mount until inflation reached the rates of 7 to 10 percent. The study further concluded that labour market provides little guidance on the preferred low inflation target. The major weakness of the study Groshen and Schweitzer (1997) was the assumption that the impact of low inflation on labour market was probably exaggerated.

Lucas and Rapping (1969) estimated a labour market model to investigate the relationship between real wages, population growth and inflation in the USA using time series data covering 1929 to 1965. The study found that decline in real wages is because of monetary inflation. The study established that for the period 1930 to 1965, the partial effect of inflation on real wages is negative and quantitatively significant. Luca and Rapping (1969) found that a 10 per cent increase in prices is associated with 2.2 per cent decline in real wages.
A major weakness of the study by Lucas and Rapping (1969) was that the model used did not control for factors that are considered important in determination of minimum wages within the context of developing countries such as Kenya. Such factors include GDP of a country, political cycles, productivity and employer’s ability to absorb the increased labour cost.

2.4. Overview of Literature

The literature reviewed provides an explanation about the effect that inflation has on MWs. Theoretical literature reviewed put emphasis on the determination of wages. It explains how MWs are determined under different models. The empirical literature found varying results on the effect of inflation on MWs. The past studies used different data in analysis. Some studies used time series data, among them include Elwell (2004), Cuong (2011) and Lucas and Rapping (1969). Makalamangi (2009) used both qualitative and quantitative data while most of the information was based on descriptive statistics. The studies employed a number of variables such as employment, prices, productivity growth, market fluctuations, minimum wages, gender, education, age, household’s income and consumption.

This study deviates from empirical studies reviewed in a number of ways. First, whilst the studies have tried to focus on relationship between MW and inflation, none of them has found how effective the MW enforcement mechanism in different countries is. Furthermore none of the studies have incorporated political cycles in estimating the relationship between inflation and minimum wages. Politics plays an important role in
determination of minimum wages as politicians always tend to entice voters by offering different wages during different periods of elections. The study also focuses on the labour force participation rate since changes in demand and supply of labour force participants can affect minimum wages.
CHAPTER THREE

METHODOLOGY

3.1. Introduction

This Chapter presents the methodology, which was used in undertaking the study. It explores the research design, the theoretical framework, empirical model that was used in the study, definition and measurement of variable, data types, sources, and data collection techniques and data analysis.

3.2 Research Design

The main objective of this study was to estimate the effects of inflation on minimum wages. The study adopted a longitudinal research design since it helped establish the effect of inflation on MWs over time. The design was appropriate since it allows the analysis of duration and permits the measurement change in a variable from one period to another.

3.3 Theoretical Framework

The focus of this study was to estimate the effect of inflation on minimum wages. The study was based on the Subsistence Theory of Wages. In this case the market price of labour would always tend toward the minimum required for subsistence. Wages tend to settle at the level just sufficient to maintain the worker and his family at the minimum subsistence level.
If wages rise above the subsistence level, the workers are encouraged to marry and to have large families. The large supply of labour brings wages down to the subsistence level. If wages fall below this level, marriages and births are discouraged and under-nourishment increases death rate. The model was extended to incorporate other variables.

Assume that the minimum wage (MW) that is paid to a worker depends on basic needs (N) such as food, housing and clothing. Each worker is assumed to be paid the minimum amount that is needed to afford the basic needs. The minimum wage function was therefore expressed as

$$MW_t = f(N_t)$$ \hspace{1cm} 3.1

According to the arguments of the subsistence theory of wages, need for basic commodities are always affected by changes in the price level. Therefore, the basic minimum wage model was extended to accommodate the effects of the changes in general price levels on MWs.

$$N_t = f(CPI_t)$$ \hspace{1cm} 3.2

Where $CPI_t$ is the change in consumer price indices. Incorporating (3.2) into the minimum wage function (3.1) implies that minimum wages are influenced by changes in CPI. This was then expressed as

$$MW_t = N_t(CPI_t)$$ \hspace{1cm} 3.3
Therefore from Equation 3.3 it can be noted that minimum wages are determined by changes in the consumer price indices.

3.4 Model Specification

From equation 3.3 and building on the variables identified through literature review to be determining minimum wages, the general form of the model that was estimated took the form

\[ MW_{it} = f(CPI_{it}, GDP_{it}, PC, PG_t, LFPR_t) \]

Where \( MW \) represents change in minimum wages, \( CPI \) is the consumer price indices, \( GDP \) is the economic growth rate, \( PC \) is a dummy variable representing political cycles, \( PG \) is the population growth rate and \( LFPR \) is the labour force participation rate.

The effect of inflation on minimum wages was determined using equation 3.5.

\[ \ln MW_{it} = \beta_0 + \beta_1 \ln CPI_{it} + \beta_2 \ln GDP_{it} + \beta_3 PC + \beta_4 \ln PG_t + \beta_5 \ln LFPR_t + \varepsilon_{it} \]

Where \( \beta_i \) are the partial regression coefficients for \( i = 0,1,2, ..., 5 \). \( \ln MW_{ij} \) is the log of change in minimum wage in sector \( i \) at time \( t \), \( \ln CPI_{it} \) is the log of consumer price index in sector \( i \) at time \( t \), \( \ln GDP_{it} \) is the log of gross domestic product in sector \( i \) at time \( t \), \( PC \) is a dummy representing political cycles, \( \ln PG_t \) is the log of population growth at time \( t \), \( \ln LFPR_t \) is the log of labour force participation rate at time \( t \) and \( \varepsilon_{it} \) is the error term.
3.5 Definition and Measurement of variable.

Change in Minimum Wage ($MW_{it}$): is the lowest wage payable to designated employees as fixed by law. The variable was measured by the reported values as set under AWAB and GWAB.

Consumer Price Indices ($CPI_{it}$): Is the annual weighted consumer price indices. The variable was measured by reported values for the Nairobi combined and new other provinces.

Gross Domestic Product ($GDP_{it}$): This is the measure of performance of the economy. GDP growth rate was measured by using recorded annual economic growth rates.

Political Cycles (PC): This is a dummy variable that captures periods when there are elections and periods without elections. It was measured by taking 1 to represent year before election, a year during election and a year after election and 0 otherwise.

Population Growth ($PG_{t}$): is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage. This variable was measured by reported rate of midyear population growth rate for respective years.

Labour Force Participation Rate ($LFPR_{t}$): This is a measure of the active portion of an economy's labour force. The participation rate refers to the number of either people who are employed or actively looking for work. The variable was measured by the country's annual recorded labour force participation rate.
3.6 Data type and source

This study used secondary data collected from various sources. Data on minimum wages, consumer price indices and economic growth was sourced from various Kenya’s economic surveys and statistical abstracts. Data on labour force participation rate and population growth rate was sourced from the World Bank countries development reports. Data on labour inspectorate staff was sourced from Ministry of Labour, Social Security and Services. Data for dummy variable representing political cycles was constructed based on the periods when there are elections and periods without elections.

3.7 Data Collection and Refinement procedures

Data was collected from the specified sources and were taken through diagnostic tests. All the data collected were recorded on the data collection guide.

3.8 Diagnostic Tests

Diagnostic tests were undertaken to ensure that the estimated model was appropriate for ensuring consistent coefficient estimates. The study adopted Im-Pesaran-Shin (IPS) to carry out stationary test. The test allows for individual effects, time trends and common time effects.

Hausman test was also carried out to check which model between fixed effects model and the random effects model was suitable to apply. If the $p$-values are statistically significant, a fixed effect model is adopted otherwise random effects model is used.
3.9 Data Analysis

The first objective of the study, which is to determine the effect of inflation on minimum wages, was achieved by estimating a random effect model. The second objective of the study seeks to assess the effectiveness of Kenya’s minimum wage enforcement mechanism. This objective was addressed by analyzing the trends in the labour inspectorate staff-employment ratio using the recorded data for the period 1996 to 2014 and comparing with global benchmarks. The period 1996 is associated with much of the labour market reforms which were targeting labour market flexibility in Kenya. The study also analyzed the measures of importance and toughness of minimum wage using the kaitz ratio.
CHAPTER FOUR

EMPIRICAL FINDINGS

4.1 Introduction

This chapter presents the study findings and discussions. It highlights the descriptive results and then presents the diagnostic test results. The empirical results are also presented and discussed. These empirical findings have been presented as per the study objectives.

4.2 Descriptive Statistics

The study used descriptive statistics to depict the basic features of the data used in the study. This is due to the fact that they give simple summaries about the sample as well as the measures, and that they form a fundamental basis for every quantitative data analysis. The summary statistics for the selected variables is presented in Table 4.1.
Table 4.1: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measures of Dispersion</th>
<th>No of Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Minimum</td>
</tr>
<tr>
<td>% change in Minimum wage</td>
<td>10.66</td>
<td>0.00</td>
</tr>
<tr>
<td>Consumer price index</td>
<td>458.35</td>
<td>101.97</td>
</tr>
<tr>
<td>GDP growth rate</td>
<td>15.664</td>
<td>-2.600</td>
</tr>
<tr>
<td>Labour Force Participation rate</td>
<td>68.958</td>
<td>65.50</td>
</tr>
<tr>
<td>Population Growth Rate</td>
<td>2.7688</td>
<td>2.11</td>
</tr>
</tbody>
</table>

Source: Own calculations (2015)

From the data presented in Table 4.1, the mean for percentage increase in minimum wages over the period covered by the data averaged 10.66 per cent with a standard deviation of 6.558. The values range from a minimum of 0 per cent to a maximum of 31 per cent. This implies that minimum wages have been increasing at an average rate of 10.66 per cent for the period under review. Based on the standard deviation and the means of the percentage increase in minimum wages, there are no outliers in the series since the standard deviation of the series is less than their respective means (Remenyi, 2009).

As for consumer price indices, the mean value over the study period stood at 458.35 with the standard deviation of 350.801. The minimum and maximum values were 101.97 and
1365.3 respectively. This implies that the weighted average of prices of a basket of consumer goods and services stood at 458.35 for the period 1990-2014.

The GDP growth rates mean was 15.664 per cent with a standard deviation of 9.891346. The highest and the lowest GDP growth rate were 29.5 per cent and -2.6 per cent respectively. Based on the mean, the Kenyan economy has been growing at an average rate of 15.664 per cent for the period 1990-2014.

The mean for labour force participation rate over the period covered by the data averaged 68.958 with a standard deviation of 2.9089. The highest and the lowest labour force participation rate are 75.099 per cent and 65.50 per cent respectively. Population growth rate had a mean of 2.7688 per cent with a standard deviation of 0.2690. The highest and lowest values of population growth rate recorded were 3.38 per cent and 2.11 per cent. It can be observed from the descriptive statistics that the proportion of the population that is economically active for the study period stood at 68.958 per cent. On the other hand, population has been increasing at average rate of 2.7688 per cent.

From the descriptive analysis of the data it can be seen that the variables exhibit variability given the variance in the specified basic descriptive statistics. This means that they are amenable to further statistical analysis.
4.3 Diagnostic Test Results

The panel data was subjected to unit root tests using the Im-Pesaran-Shin (IPS) unit root test. Another diagnostic test conducted was the Hausman (1978) test. The test was performed to enable the choice between the Fixed effects Model (FEM) and the Random Effects Models (REM). The FEM assumes individual heterogeneity while the REM assumes that variations are probabilistic. The null hypothesis under Hausman test is that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. The results of the tests are presented in Table 4.2 and Table 4.3 respectively.

Table 4.2: IPS Panel Unit Root Tests

<table>
<thead>
<tr>
<th>Variable</th>
<th>t-bar statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Levels</td>
</tr>
<tr>
<td>% change in Minimum wage</td>
<td>-3.3099*</td>
</tr>
<tr>
<td>Consumer price indices</td>
<td>-1.5475</td>
</tr>
<tr>
<td>GDP growth rate</td>
<td>0.8342</td>
</tr>
<tr>
<td>Labour force participation rate</td>
<td>-2.3138</td>
</tr>
<tr>
<td>Population growth rate</td>
<td>-0.3279*</td>
</tr>
</tbody>
</table>

* denotes statistical significance at the 1 per cent levels.

The *t-bar* statistic presented in Table 4.2 shows that all the variables except percentage change in minimum wage and population growth rate had a unit root at levels. However, after first differencing all the remaining variables except labour force participation rate attained stationarity. Labour force participation rate became stationary upon second differencing. The implication is that percentage increase in minimum wages and population growth were integrated of order zero, gross domestic product and consumer
price indices were integrated of order one. Labour force participation rate was integrated of order two. After de-trending, all the variables attained stationarity at levels as shown in the last column of Table 4.2.

Table 4.3: Hausman Test (Dependent Variable: Percentage Change in Minimum Wage)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fixed effects model</th>
<th>Random effects model</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer price index</td>
<td>0.0000877**</td>
<td>0.0000547**</td>
<td>0.000033</td>
</tr>
<tr>
<td>Gross domestic product</td>
<td>-0.4494023**</td>
<td>-0.4451066**</td>
<td>-0.0042957</td>
</tr>
<tr>
<td>Population growth rate</td>
<td>30.05278*</td>
<td>30.05077*</td>
<td>0.002078</td>
</tr>
<tr>
<td>Labour force participation rate</td>
<td>-2.675613*</td>
<td>-2.675342*</td>
<td>-0.0002711</td>
</tr>
<tr>
<td>Political cycle(dummy)</td>
<td>1.151967</td>
<td>1.148813</td>
<td>0.0031538</td>
</tr>
<tr>
<td>Constant</td>
<td>-71.46519*</td>
<td>-71.45478*</td>
<td>-0.00043</td>
</tr>
<tr>
<td>Number of observations</td>
<td>300</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>R-Squared</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>0.4710</td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>-</td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>0.4704</td>
<td>0.4704</td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td>6.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob&gt;F</td>
<td>0.0002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi-square statistic</td>
<td>33.75</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Prob&gt;Chi-square</td>
<td>0.0000</td>
<td>0.8337</td>
<td></td>
</tr>
</tbody>
</table>

* and ** denotes statistical significance at the 1 and 5 percent levels, respectively

The test results show that the Chi-square statistics for the difference was 0.01, with a corresponding p-value of 0.8337. Since this p-value was larger than the critical value of 0.05, the null hypothesis that the differences in the coefficients are not systematic was rejected. This means that the preferred model was the REM. Therefore, the empirical results presented in Table 4.4 are based on the REM.
4.4 Effect of Inflation on Minimum Wages in Kenya

The first objective of the study was to determine the influence that inflation has on minimum wages in Kenya. This objective was addressed by estimating the equation 3.5. The results are presented in Table 4.4.

Table 4.4: Regression Results for the Random Effect Model

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer price index</td>
<td>0.0000547**</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
</tr>
<tr>
<td>GDP growth rate</td>
<td>-0.4451066**</td>
</tr>
<tr>
<td></td>
<td>(0.206)</td>
</tr>
<tr>
<td>Population growth rate</td>
<td>30.05077*</td>
</tr>
<tr>
<td></td>
<td>(5.607)</td>
</tr>
<tr>
<td>Political cycle</td>
<td>1.148813</td>
</tr>
<tr>
<td></td>
<td>(1.587)</td>
</tr>
<tr>
<td>Labour force participation rate</td>
<td>-2.675342*</td>
</tr>
<tr>
<td></td>
<td>(0.787)</td>
</tr>
<tr>
<td>Constant</td>
<td>71.45478*</td>
</tr>
<tr>
<td></td>
<td>(15.368)</td>
</tr>
</tbody>
</table>

* and ** denotes statistical significance at the 1 and 5 per cent levels, respectively.

Standard errors are in parenthesis.

The tests results from Table 4.4 show that the F-statistics was 6.59 with a corresponding Prob (F) of 0.0002. Since this probability was less than the critical value of 0.05, therefore the variables in the model jointly significantly explains the dynamics of the model well. This implies that the model fits the data well hence overall significant.
From Table 4.4, the variations in the independent variables jointly explain about 47.04 per cent of the variations in minimum wages. From regression results it can be observed that the coefficient of CPI is positive (0.0000547) and statistically significant at 5 per cent. This implies that a 10 per cent increase in CPI is expected to have resulted into about 0.00057 per cent increase in minimum wage. The results are at par with the findings of Elwell (2014), Folawewo (2007), Lemos (2004) and Lee and Roark (2000) which found that increase in minimum wages led to a significant rise in general price levels. From the results it can be concluded that CPI which is a measure of inflation plays a vital role in determination of minimum wages in Kenya. The results however contradicted Cuong (2011) which found zero effects and Lucas and Rapping (1969) which found negative effects of inflation on minimum wages.

The other variables that were found to be statistically significant in explaining the variations in minimum wage include GDP growth rate, population growth rate and labour force participation rate. Gross Domestic Product and labour force participation rate are found out to affect minimum wage negatively. The coefficient for GDP growth rate is negative with a coefficient of -0.4451066 and statistically significant at 5 per cent level. This implies that a 10 per cent increase in GDP growth rate would lead to about 4.45 per cent decline in minimum wage. The findings on GDP growth rate is consistent with the findings by Elwell (2014) where it was found out that real GDP affect minimum wages negatively.
As for population growth rate it is found to affect minimum wage positively. From Table 4.4 the coefficient of population growth rate is positive (30.05077) and statistically significant at 1 per cent. This implies that a percentage increase in population growth rate would translate to about 30.05 per cent increase in minimum wage. The findings on population growth contradict those of Groshen and Schweitzer (1997) which found that population is negatively related to minimum wages.

The coefficient of labour force participation rate is negative (-2.675342) and statistically significant at 1 per cent. This implies that if all factors are held constant, a percentage increase in labour force participation rate would lead to 2.675 per cent decline in minimum wage.

The coefficient of the dummy variable for political cycle was found out to be statistically insignificant since its p-value was greater that the threshold value of 5 per cent. This implies that the variable is not significant in explaining the variations in minimum wage.

4.5 Effectiveness of Minimum Wage Enforcement Mechanism

The second objective of this study was to assess the effectiveness of the minimum wage enforcement mechanism in Kenya. The first approach that was used to assess the effectiveness of minimum wage enforcement mechanism was the kaitz ratio which is a measure of the importance and toughness of minimum wage (Omolo, 2010). The higher the ratio, the better is the relative position of the worker's minimum wage. Another
approach that was employed in this study was the use of labour inspectorate staff-employment ratio.

A summary of the measure of toughness and importance of minimum wages in Kenya is presented in Table 4.5.

Table 4.5: Toughness of the Minimum Wage across Sectors

<table>
<thead>
<tr>
<th>Sector</th>
<th>1996</th>
<th>2014</th>
<th>Average(1996-2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>0.59</td>
<td>0.32</td>
<td>0.33</td>
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<tr>
<td>General</td>
<td>0.70</td>
<td>0.73</td>
<td>0.62</td>
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<tr>
<td>Average</td>
<td>0.65</td>
<td>0.53</td>
<td>0.48</td>
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</tbody>
</table>

Source: Own calculations (2015)

The study found an average kaitz ratio of 0.48 between 1996 and 2014. From the results, minimum wage was on average, 48 per cent of the average wage in the agricultural and general sectors during the period 1996 to 2014. However across the two sectors, the kaitz ratio ranged between 0.33 and 0.62. The 0.33 Kaitz ratio computed for Kenya’s agricultural sector implies that there is a considerable gap between earnings of the minimum wage workers and an average worker in the agricultural sector. Based on the average kaitz ratio found by the study, minimum wage enforcement mechanism in Kenya is weak. These results are consistent with those reported by Omolo (2010). The author argued that the toughness of minimum wages as measured by the kaitz ratio differed across sectors.
The second approach that was used to assess the effectiveness of minimum wage enforcement mechanism in Kenya was the labour-inspectorate staff employment ratio.

Table 4.5 presents the trends of the labour inspectorate staff employment ratio for Kenya.

Table 4.6: Labour Inspectorate Staff-Employment Ratio

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Employment (Millions)</th>
<th>Inspectorate Staff (Nos)</th>
<th>Inspectorate Staff /Employment Ratio</th>
<th>Variance based on ILO report on employment</th>
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<tbody>
<tr>
<td>1996</td>
<td>4.314</td>
<td>116</td>
<td>37,284</td>
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<tr>
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<tr>
<td>2000</td>
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<td>115</td>
<td>51,755</td>
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<tr>
<td>2001</td>
<td>6.367</td>
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<tr>
<td>2002</td>
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<tr>
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<tr>
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International standards for labour inspectorate staff employment ratio requires that one labour inspector attends to 10,000 employees for industrialized economies, an inspector per 20,000 employees for transition economies and one labour inspector to 40,000 employees for developing economies. Kenya being a developing economy, based on the
The aforementioned standards, effectiveness of minimum wage enforcement mechanism was only achieved in 1996. During this period the labour inspectorate staff–employment ratio was 37,284. Comparing this figure with the ILO benchmark, there was a deficit of 2716 workers to be attended to by one labour inspector. For the remaining period that is 1997 to 2014, the labour inspectorate staff-employment ratio exceeded the International labour Organization benchmark. For instance as of 2014, Kenyan labour inspectorate staffs were overburdened by up to 289 per cent compared to international standards.

The results support the overburdened nature of Kenya’s labour inspectorate services based on the ILO requirements. The results further confirm the weak nature of minimum wage enforcement mechanism in Kenya. Generally, based on the results of the study, minimum wage enforcement mechanism in Kenya is weak. These findings agree with Omolo (2010) which found that the state of minimum wage enforcement mechanism in Kenya is weak.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This Chapter provides a summary of the study, draws conclusions and suggests policy recommendations. The policy recommendations are based on the study findings and are targeted for ease of implementation.

5.2 Summary

This study was conducted to estimate the effect of inflation on minimum wages in Kenya. The specific objectives of the study were to; determine the effect of inflation on minimum wages in Kenya and to assess the effectiveness of minimum wage enforcement mechanism in Kenya. The motivation of conducting the study was the fact that minimum wages have been increasing at a rate lower than the rate of inflation, yet inflation is one of the parameters to be considered while fixing minimum wages.

This study deviated from other studies in this area in a number of ways. First, panel data for was used for analysis and in most of other studies time series data was given preference. Second, this study introduced new variables which were important in determination of changes in minimum wages but were not considered in early studies. The variables included political cycle and labour force participation rate. Lastly, the study determined the effectiveness of Kenya’s minimum wage enforcement mechanism, which had not been looked at by earlier studies.
In order to achieve the aforementioned objectives, the study used a balanced panel data over the period 1990 to 2014. The study used secondary sources of data on all the variables. Random effect model was estimated to determine the effects of inflation on minimum wages and used the kaitz ratio and the labour inspectorate staff-employment ratio to assess the effectiveness of minimum wage enforcement mechanism in Kenya.

For the first objective, the study found that both inflation and population growth affects changes in minimum wages positively. According to the estimation results, both consumer price indices variable and population growth rate had statistical significant effect to changes in minimum wages over the period 1990 to 2014. Gross Domestic Product and labour force participation rate were found to affect changes in minimum wages negatively. Also, the study found out that change in minimum wages in Kenya is not affected by changes in political cycles.

The second objective of this study was to assess the effectiveness of minimum wage enforcement mechanism in Kenya. The study found that, in Kenya the toughness of minimum wage regulation varied across sector. The study found an average kaitz ratio of 0.48 between 1996 and 2014. The study found an average kaitz ratio of 0.48 between 1996 and 2014. However, across sectors, the kaitz ratio ranged between 0.33 and 0.62. The average kaitz ratio of 0.48 manifested a close to an average position for minimum wage workers. The average kaitz ratio computed for Kenya's labour market implies that there is a gap between earnings of the minimum wage workers and an average worker. This reveals a weak minimum wage enforcement mechanism in Kenya.
The study also found that the labour inspectorate staff employment ratio worsened over time. The Kenyan labour inspectorate staff was overburdened by up to 289 per cent as at 2014 implying a weak enforcement of minimum wage regulations. Comparing this to ILO standard for the labour inspectorate staff employment ratio, it implies declining enforcement of minimum wage regulations.

5.3 Conclusion
The study has found out that inflation affects changes in minimum wages positively. This is attributed to the fact that CPI variable was statistically significant. Similarly, the results also established that population growth rate affect changes in minimum wages positively. This mean that minimum wages are expected to increase if there is an increase in general price level and also if there is an increase in population. The study further established that importance and toughness of minimum wage legislation varies across sectors. Based on the argument, the study therefore concludes that indeed inflation influences changes in minimum wages. However, enforcement mechanism of minimum wages in Kenya weak.

5.4 Recommendations
The following recommendations can be considered in addressing the effects of inflation on minimum wages and enhancement the effectiveness of the minimum wage enforcement mechanism in Kenya.
(i) **Increase minimum wages whenever there is a rise in prices of consumer goods and services.**

The Kenyan government in collaboration with employer's representatives, consumer federation and social partners undertake appropriate measures to harmonize wages based on the changes in prices over time. According to this study, inflation has a positive effect on changes in minimum wages. Thus, effecting the changes in minimum wages based on inflation would be important in improving the living standards of citizens. This would help limit erosion in consumer's purchasing power. To undertake the above interventions, this study therefore recommends strict adherence to the Wage Guidelines (2005), the Labour Institution Act (2007) and the International Labour Organization Minimum Wages Fixing Convention which all requires that minimum wages be aligned to the inflation.

(ii) **The government through the MOLSS needs to ensure effective enforcement of minimum wage regulation.**

Based on the results of the study, minimum wage enforcement mechanism is weak. Therefore, weak enforcement of minimum wage regulation in Kenya threatens effectiveness of minimum wage policy. In order to mitigate this challenge, the government should work as a major employer as per the minimum wage laws without gross violation. On the same note, the government through the MOLSS should digitize labour inspection. This can be achieved through designing and implementing e-based labour inspection which will focus on passing information concerning major inspection procedures and regulations.
governing labour inspection in Kenya. This will help in reducing the work load of the labour inspectors that are present in Kenya. The government should pursue policies that encourage expenditure on areas that prioritize inspection activities. This will ensure that the government is in the forefront in setting the pace by observing the minimum wage laws.

5.5 Areas for Further Research

A number of areas still require research in understanding the effect that inflation has on minimum wage in Kenya. For further understanding of the effect of inflation on minimum wages in Kenya, futures research may be undertaken in the following areas.

(i) Effect of other key macroeconomic variables on minimum wages

(ii) Costs of ineffectiveness of minimum wage enforcement mechanism
REFERENCES


Companies


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Switzerland


## APPENDICES

### Appendix 1: Raw Data Used in the Study

**Table A1: Raw Data**

<table>
<thead>
<tr>
<th>Year</th>
<th>Sectors/variables</th>
<th>MW</th>
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<th>LFPR</th>
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**Key**

AGRIC-Agricultural Sector

GEN-General Sector