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Effect of Union Membership on Private Sector Wages in Kenya

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DECLARATION

This research paper is my original work and has not been presented for a degree award in any other university.

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With no previous experience in writing a research paper and so many topics to choose from, it was difficult for me to know which topic would give me achievable results. However, through technical and academic guidance from my tutors and supervisors, I was able to settle for this topic, undertake and complete my research project.

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DEDICATION

This research paper is dedicated to my loving dad Simon Kibiru Chuthi for his encouragement, my lovely daughter Joy Njoki and son Simon Kibiru for their patience and understanding the during my study period.

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ABSTRACT

Union membership is one of the indicators of collective bargaining in the labour market. The trade unions rely on the number of workers they represent during the bargaining process since it gives them leverage over the employers in pushing for higher wages and better working conditions for the workers. This research paper focuses on the effect of union membership on private sector wages in Kenya. There have been fluctuations in union membership over the years; but there has been a consistent growth in the negotiated wages. Therefore, the paper sought to determine whether union membership plays any role in the determination of the private sector wages.

Using the Generalized Method of Moments (GMM) to estimate the dynamic fourteen-year panel data of 2000 – 2013 from nine sectors of the Kenyan economy, drawn from the Ministry of Labour records and other government publications, union membership was found to have a positive effect of 0.43% on the annual wages of the private sector. On the other hand, a percentage increase in sectoral productivity leads to an increase in wages by 0.05% while a percentage increase in the Gross Domestic Product (GDP) in the country will lead to an increase in annual wages by 0.48%.

1. INTRODUCTION

1.1 Background

A trade union is an institution that organises the workers, who are usually employees in firms/industries, and plays a vital role of representing them during negotiations with employers. Such negotiations provide the workers with a platform on which to express their grievances and views. In addition, the negotiations enable both the workers and the employers to settle disputes through dialogue and consensus rather than through conflicts and confrontations thus contributing to the smooth running of the organisations and consequently industrial peace and harmony.

In democratic countries, laws are formulated to protect the legal rights and interests of trade unions as well as protecting them politically and socially. In Kenya, the law gives employees the right to freedom of association and allow the unions to hold elections and elect their leaders, to go on strike, hold peaceful assemblies, and exercise freedom to form trade unions and to enter into agreements with the employers on behalf of their members (Constitution of Kenya 2010; Labour Relations Act, 2007 Cap. 4).

The trade unions work as independent institutions that act as agents for the workers by raising a collective voice, in protecting and promoting the interests of their members, which is more effective than individual bargaining (Booth *et al.*, 1995). The unions prefer high wages in order to attract more workers as members. However, such a demand increases the probability that the firm rejects it especially if the demand is more costly to the firm. Therefore, the union must take into consideration the effect of their decision on their operations when negotiating for wages with the employer (Ahmed and Miller, 1999).

The most important objective of the trade union is to maintain and improve the terms and conditions of workers, particularly those who are members of the union. This is done through collective bargaining between the employers and the unions (Blanchflower and Bryson, 2008). The success of the unions depends largely on their bargaining power, which increases with an increase in the number of workers they represents. The bargaining power also depends on both the ability of the union to restrict the supply of labour into the market and the ability of the employer to give in to the demands of the union (Bryson, 2007).

Further, the bargaining power enables the union gain support by increasing its strike advantage or political influence especially when it issues strike threats while pushing for higher wages and better working conditions from the employer. Therefore, this bargaining power determines whether the union is able to achieve its target of representing its members effectively during the bargaining process (Katz *et al.*, 2003).

Belman and Voos (1993) argue that workers in heavily unionized industries, which pay high wages, are likely to organize themselves into unions in order to gain from such high pay. If the industries are working in a competitive environment, they pass the cost of the high wages to consumers in form of higher prices. This reduces the consumers' purchasing power and consequently their consumption thus endangering the jobs of the union members. Further, firms may threaten to close down or to invest abroad if the unions have high bargaining power that leads to their success in negotiating for higher wages (Dinardo and Lee, 2004).

Success in negotiations for higher wages implies that unions impose excessive wage costs on employers thus raising the unemployment levels in their countries of

operation. In most cases, the employees take these threats seriously and keep off from union activities. As a result, the union withdraw from organising the employees and consequently and the number of workers covered by the CBAs falls. On the other hand, the firms invest more into non-unionised workers than in unionised workers and may even pay higher wages to non-unionized workers in order to prevent unionization.

Therefore, to avoid such an outcome, unions moderate their wage demand by negotiating for a moderate wage level, since they behave like monopolists and act as wage-makers rather than wage-takers, and leave the industries to decide on both the volume of output and the employment levels (Kotowiz and Mathewson, 1982) that will maximize their profits in a competitive product market.

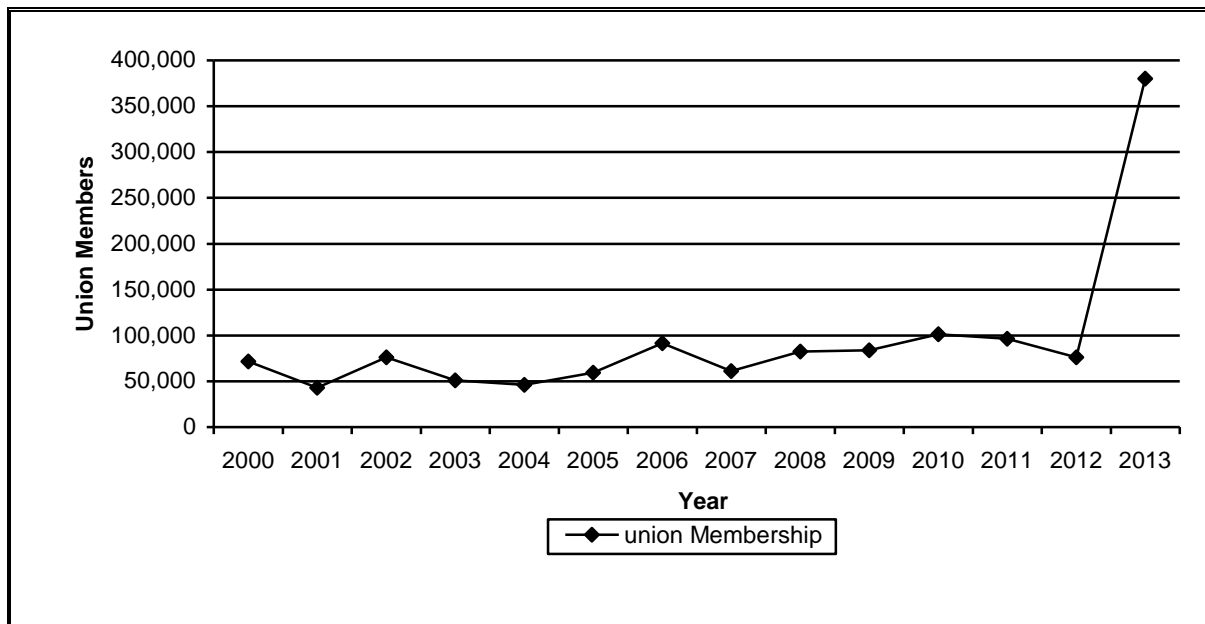
Trade unions in Kenya started in 1948 long before the country's independence and they have the mandate to make collective agreements. Currently, there are thirty trade unions, twenty-five of which have been actively negotiating for an improvement of terms and working conditions for their members through collective bargaining. However, the union movement in the country is weak with low membership and organisation due to internal leadership struggles (Manda *et al.*, 2005). Omolo (2001) argues that the union leaders attribute the weakness of the union movement to the emergence of splinter unions that have significantly reduced the voices of workers.

In addition, the retrenchment of workers has negatively affected the labour market operations thus leading to low organization of workers. Hirsch (2010) suggests that as long as a unionized firm is operating in a competitive environment, union membership will continue declining during weak economic performance as long as the state does not make changes in the law to favour union organization.

The union membership of a given country is largely determined by the law and other institutions and includes both currently employed and the unemployed workers. In Kenya, the law mandates the Industrial Court whose status was elevated to that of the High Court by the Constitution of Kenya, 2010, to register Collective Bargaining Agreements (CBAs) setting terms and conditions of service for all unionisable employees between a trade union and a group of employers or employer organization. The law further allows such a trade union to get authority from the Minister for Labour to collect an agency fee from the wages of each unionisable employee covered by the agreement even if the employee is not a member of the trade union (Labour Relations Act, 2007 Clause 47).

This implies that unionisable employees may opt to join trade unions, which leads to an increase in the number of union members covered by the Collective Bargaining Agreements, as long as they are working in institutions that allow unionisation. This may explain why there has been a growth in union membership in the last three years following the enactment of the revised labour laws in year 2007 as shown below.

Figure 1: Union Members Covered by CBAs



Although there has been a gradual increment in average negotiated wages from KShs. 1,075 in 1985 to KShs. 31,989 in 2013, there have been fluctuations in the number of unionised workers and membership growth from time to time despite the benefits accrued by the workers from being union members. For example, in 1986, union membership grew by 505.7% but declined by 73.4% the following year; in 2006, union membership grew by 53% but declined by 33% in 2007 (Appendix I). This therefore makes it necessary to establish whether these fluctuations in union membership have any effect on the wages of the private sector employees.

Some researchers have hypothesised that once the unions have achieved a wage premium, there is a decline in union membership since this premium causes the firm to adopt union-avoidance strategies and reduces the competitiveness between the firm and the union (Belman and Voos, 2006). Therefore, in the long-run, union membership decline may be attributed to differences in the wages of union and non-union members.

On the other hand, if a firm is highly competitive and the union sets high wages for its members, there will be a decline in the level of employment in the unionised sector that results to an increase in the supply of labour in the non-unionised sector. Therefore, in such a case, the union has to continue organizing new workers constantly to enable it maintain its market share in the competitive industry especially if a large number of the firms in the industry are unionised.

According to Bryson (2007), where a collective bargaining agreement covers most workers, focusing on union membership effects is not valuable but focus should be on collective bargaining arrangements. In Kenya, the CBAs cover only a small proportion of workers. For example, in 2005-2006, only about 25-30% of the workers in Kenya's formal sector were unionized, which means only about 4 per cent of Kenya's total workforce are unionized (Pollin, 2009). This therefore makes it necessary for this research paper to focus on the effect of union membership on the wages of private sector workers in the country since only a small number of workers are covered by the CBAs.

1.2 Statement of the Problem

Union membership is one of the indicators of collective bargaining. The question that researchers (Freeman and Medoff 1984, Landerretche *et. al* 2011) are mostly interested in answering concerns the impact of unionisation on the wages of the workers. Some researchers (Fitzenberger *et. al* 2010) have found a positive impact of union membership on union's bargaining power in the collective bargaining process especially after taking into consideration the fact that workers' union status has no external influence. Therefore, union membership is important in the bargaining outcome of the covered sector.

Some studies of the labour markets have shown that unionized workers earn higher wages than their non-unionized counterparts earn (Freeman and Medoff, 1984; Blanchflower and Bryson, 2004; Manda *et al.*, 2005) and as such, the unions distort the outcomes of the labour market due to the increase in wages above the competitive levels. Thus, this means that the unions impose costs on employers especially by raising members' wages, which may cause the employers to reduce employment, output or even drastically to close down their operations.

When unions negotiate for higher wages with the employers, both unionized and non-unionized workers benefit from an increase in their incomes especially when there is an increase in union density. In Kenya, union membership is not compulsory and has been fluctuating from time to time. Manda *et al.* (2005) argue that the choice of non-union workers either to join or not to join a union may partly explain these fluctuations. However, even with these fluctuations in membership, there has been a consistent growth in the average negotiated wages in the labour market.

Therefore, this study contributes to the Kenyan literature on the effect of unions on wages by examining the available annual data of various industries in the economy to establish whether the unions play any role in the determination of industry wages in various sectors of the economy. This is important since it is only in the manufacturing sector where Manda *et al.* (2005) found a positive relationship between union membership and wages of male workers in Kenya. The effect of union membership on wages in other sectors has not been established and therefore, this research paper seeks to fill this gap by analysing the effect of union membership on industry wages in Kenya's private sector.

1.3 Research Objective

The main objective of this study is to determine whether union membership has any influence on the wages of private sector workers in Kenya. The specific objectives are to:

- i) Analyse the effect of Union Membership on the Private Sector Wages
- ii) Suggest policy measures drawn from the research results

1.3.1 Research Hypothesis

H₀: Union membership plays no role in the determination of wages in the private sector in Kenya

H₁: The growth in wages in the Kenya's private sector depends on the number of workers trade unions represents

1.4 Significance of the Study

The factors that influence the growth of union membership have both economic and political effects on the trade unions and the economy (Said *et al.* 2002; Schultz and Mwabu, 1997). From an economic perspective, the rise in wages following union's intervention distorts the market wage setting which further leads to a loss of economic efficiency. However, markets do not always operate at their optimal levels and thus, may be able to increase their capacity even with the rise in wages.

The effect of union membership on the private sector wages has an economic impact on the operations of both the trade unions and employers. High union density means that the trade union has more bargaining power and may use it to negotiate for high wages, and better terms and conditions of employment for their members. If

the employer agrees to pay the high wages, this may lead to a rise in inflationary levels. On the other hand, if the employer gives in to the demands of the union and pays the high wages, it leads to an increase in his operating costs, which reduces his profitability and may result to job cuts and consequently business closure.

Therefore, the trade unions have a direct effect on the wages of both union and non-union workers if they set the wages through collective bargaining. This is because unions are able to protect the wages of the most vulnerable workers in the labour market since they ensure that all workers get at least the statutory minimum wage. In addition, trade unions ensure that workers have access to improved terms and conditions of employment while as the employers experience stable and productive employment relations since the employers are committed to improving the work environment, productivity and workers' skills in return for employment security.

Thus, it would be of great importance to policy makers if they understood the impact of the unions on the economy since this would enable them to develop policies that are perceived to support both the operations of the trade unions and at the same time promote the competitiveness of the firms in the economy. This study will therefore inform policy makers on the union wages effect in the country thus enabling them to formulate labour market programmes aimed at enhancing the activities of trade unions. Such activities should focus on promoting employment in the country bridging the wage gaps among the workers and guarantee job security, especially during such times when the country is experiencing high unemployment levels and income inequality.

1.5 Outline of the Research paper

The rest of the research paper is organised as follows: Chapter 2 describes the theoretical and empirical analysis of the relevant literature reviewed in this paper while as Chapter 3 discusses the model used in the study, the data type and their sources. Chapter 4 gives the study findings while as Chapter 5 gives the Conclusion and Recommendations of the study.

2.0 LITERATURE REVIEW

2.1 Theoretical Literature

In an ideal situation, wages would be determined through the free interaction of the forces of demand and supply of labour and follow the flexible theory of wages advanced by the Classical economists (Hicks, 1966). However, when a trade union enters the labour market, its activities together with those of the government influence the wages paid to the workers. The presence on unions in an economy can generally change the level and distribution of wages (Bryson, 2007) and if the union possesses monopoly power over the firm, it sets the wages unilaterally (Dunlop, 1944) since they are able to restrict the supply of labour to the employer. This model is referred to as the monopoly union model.

Nickell and Andrews (1983) generalized the monopoly union model and came up with the right-to-manage model. This model assumes that wages are bargained between the firm and the union and the outcome depends on the union's bargaining power. The higher the bargaining power, the higher the negotiated wage and vice versa. In addition, the firm is left to decide on the level of employment that is consistent with the labour demand function and where the firm would maximize its profits when the Marginal Revenue Product of Labour is equal to the wage level.

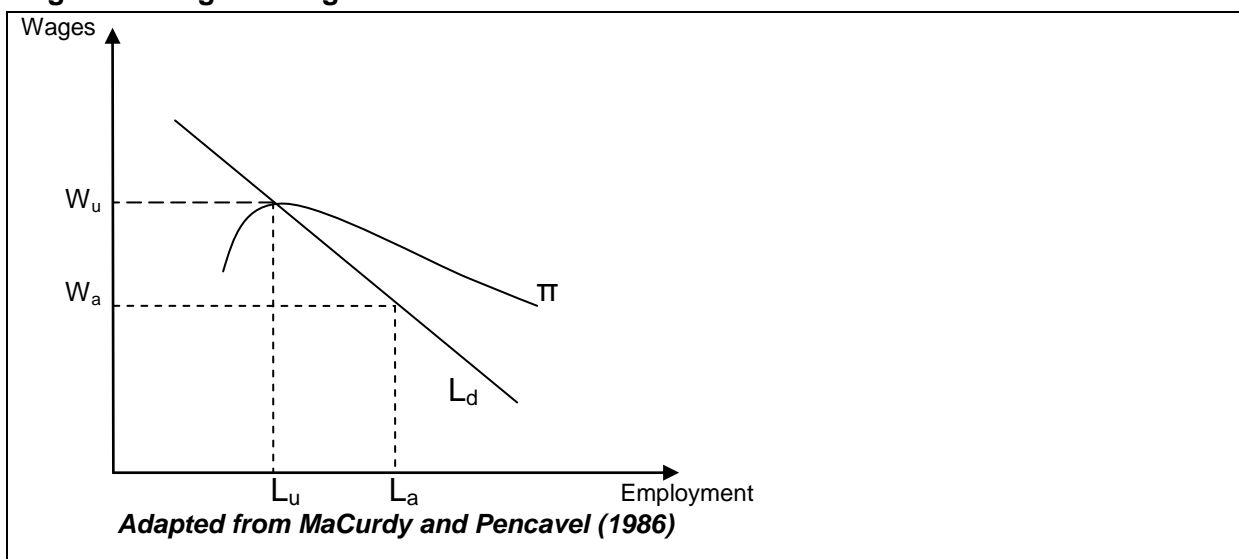
In the right-to-manage model, union-wage effects assume a partial equilibrium framework because the union sets the wage that maximizes the utility of the workers depending on the union's bargaining power while as the firm sets the employment level given the wage level. Therefore, Pareto optimal outcome is not reached as is the case with efficient bargaining models where the union and the firm bargain for

wages and employment simultaneously. Hence, under the right-to-manage models, it is difficult to isolate the true casual impact of unions on wages.

When the firm and the union bargain for wages, the most critical assumption that is made concerns the derivation of the objective function of the union. The right-to-manage model assumes that the utilities of the members are identical and that the members of the trade union are homogenous. Hence, the objective of the union is the same as that of the members and as such, maximization of the expected utility function of the members implies maximization of the preferences of the members.

This research paper adopts the right-to-manage model because wage bargaining between the firm and the union in Kenya takes place at fixed intervals, usually after every two years when unions negotiate and enter into new agreements with the employers. On the other hand, the firms may adjust the employment levels from time to time depending on their production and as such, employment is set periodically and not at fixed intervals. The labour demand curve represents a trade-off curve between the wages and employment facing the unions and the firms by the standard economic approach.

Figure 2: Wage Setting in the Presence of a Union



The labour demand curve (L_d) shows a trade-off between wages and employment in the labour market and represents the profit maximizing employment level for any given wage rate. The higher the labour demand curve, the higher the wages and employment of workers and consequently, the increase in union welfare. Following the completion of the wage bargaining process between the employer and the union, the agreed wage rate is W_u . At this wage rate, the firm chooses L_u employment level thus showing that a higher wage level leads to a lower employment level. This wage rate W_u , is consistent with the firm's demand for labour (L_d) at the point where the firm maximizes its profit (π). On the other hand, the profit maximizing firms try to bargain towards a lower wage rate (W_a) which leads to a higher employment level (L_a) since the firm can set the employment that leads to maximization of its profit at any given wage rate.

2.2 Empirical Literature

The negotiated wages in unionized sectors is treated as a rent-sharing problem by the bargaining models such as monopoly union, right-to-manage and efficient model; whereby, the outcome of the negotiations depends on the bargaining power of the negotiating parties. These models predict a positive relationship between union power and the level of negotiated wages, where union power is measured by the share of employed union members among the employees (Fitzenberger and Kohn, 2005; Fitzenberger *et al.*, 2010).

Belman and Voos (2006) carried out a study on union wages and union decline in the United States, using the construction industry data from the 2000 Current Population Survey (CPS) and the Census of Construction with an aim of establishing the relationship between union wage increase and union membership decline. They

used the conventional micro-data model, which predicts that a rise in the wages of union members leads to a fall in employment in the sector thus prompting unionised members to look for employment in the non-unionised sector. This raises the supply of workers in the non-unionised sector and consequently a fall in the non-sector wages due to the spill over effect.

They estimated a conventional micro-data model of individual membership based on union density, past wage differentials and individual characteristics such as age, sex, marital status, educational attainment, ethnicity and veteran status, with union density as a dependent variable and union wage as the independent variable lagged one and two years. After taking into consideration the omitted variable problem, they found that the decline in union membership in the construction industry in the United States was because of other factors other than union/non-union wage differentials.

They argued that union membership could be high in areas where the members are more productive and concluded that high union/non-union wage differentials in 1970's and 1980's did not result in a decline in union membership in year 2000. Therefore, a rise in unionised sector wages does not necessarily lead to a decline in union membership in an industry, as is the case in competitive market models.

In a study on the wage impact of trade unions in the United Kingdom (UK) public and privates sectors, Blanchflower and Bryson (2008) used the Ordinary Least Squares (OLS) approach to estimate data from the Workplace Employment Relations Survey of 2004. They did not control for potential endogeneity of union membership but rather used individual level data, which included such variables as workplace fixed effects, workers' occupations, job characteristics, qualifications and demographics.

The study found that the union membership premium in the public sector was twice that in the private sector.

In a study on union wage effect, Cai and Liu (2008) sort to establish whether there was variation along wage distribution in Australia using the quantile regression model. They argued that in a country with decentralized wage setting system, workers' bargaining power plays a major role in the determination of wages. Low wage earners, who in most cases are low skilled, have high bargaining power if represented by a union while high wage earners, who have high skills have low bargaining power since union intervention does not make much difference in the determination of their wages.

They used data from the Household, Income and Labour Dynamics in Australia survey and estimated two equations, union and non-union workers' equations using the Ordinary Least Squares method. The variables used in the study were hourly wages, firm size, industry to which the firm belongs and workers' earnings. They found that the union wage effect on men was higher than on women and the effect on men's wages decreases as one moves upwards in the wage distribution with the effect being high at the lower conditional wage distribution and low in the upper distribution. In addition, the union wage effect on women was stable except at the extreme upper and lower ends of the distribution.

In a study on union wage effect and probability of union membership in the United Kingdom in the period 1993 – 2003, Chrysathou (2010) used a dynamic model of union membership status and wage determination in estimating the effect of trade unions on wages using data from the British Household Panel Survey. The study used logarithm of hourly wage and trade union membership as the dependent

variables while the independent variables were firm size, work experience, ethnicity, education level, industrial classification and occupational classification.

He concluded that although the trade unions play a significant role in the determination of wages in the United Kingdom, they were unable to establish a wage premium for the male workers considered in the study. However, there was a union wage effect of 19.4% and 17.6% in the two groups of female employees studied. In addition, the researcher found that the unobserved factors that influence union membership also affect the wages of union members.

Landerretche *et al.* (2011) used a two-stage approach to estimate a six-year panel data collected from Social Protection Survey to estimate the effect of union on wages in Chile. The two-stage approach controls for individual heterogeneity in the decision to enter a union and in wages. The variables included in the study were firm size where large firms have high union participation due to economies of scale in union management, industry in which the firm belongs, education, work experience and sex. They found that union increase wages by 20 percent with unions having a higher impact on individuals with low wages. In addition, they found that union membership in Chile is driven by firm size and past union status; and that economic sectors in Chile are important in the determination of wages but do not appear to be important in the union membership equation.

In a study on labour unions and distribution of wages and employment among Africans and Whites in South Africa, Schultz and Mwabu (1997) found that union membership among African workers increases their wages by 145 percent in the lower percentile and increases their wages by 19 percent in the upper percentile of wage distribution. However, among the whites, union membership increases their

wages by 21 percent in the lower percentile and decreases their wages by 24 percent in the upper percentile of wage distribution.

In a study on the effect of trade union membership and male earnings in the Kenyan manufacturing firms, Manda *et al.* (2005) used a three-year panel survey data (1993-1994) from the Regional Programme on Enterprise Development (RPED) survey of manufacturing sector in Kenya and individual workers' data to analyse the effect of unions on earnings. They used the switching-regression model with endogenous switching, which takes the endogeneity of the unions and earnings into account, in estimating union-status and union membership premium.

The variables included in the study were union status, and hourly wage and hourly earnings as the dependent variables in the two equations estimated while the independent variables included union status, location of the firm, sector, training, firm size, age, weekly hours worked and value of recent investments in equipment per worker. They found that union membership had a positive effect on the wages and earnings of male manufacturing workers with the less skilled workers benefiting more from trade union activities than the elite workers who tend to abstain from union membership.

2.3 Literature Overview

It is generally accepted that the higher the union percentage in the labour market, the higher the wages for those in the union (Belman and Voos, 2006; Freeman and Medoff, 1981). Various labour market studies that have focused on the effect of unions on wages have concluded that unionization has a positive effect on the wages of workers in the covered sectors (Vella and Verbeek 1997; Landerretche *et al.* 2011; Belman and Voos, 2006). However, the rise in wages because of

unionization depends on the level of unionization whether at national, industrial or firm level. Other studies have found a positive relationship between wages and union membership (Schultz and Mwabu 1997) whereby an increase in the wages is associated with an increase in union membership. In Kenya, Manda *et. al.* (2005) found that there was a positive relationship between union membership and wages of male workers in the Manufacturing Sector in Kenya.

Various studies have used different methods in identifying the effect of unions on wages. The Ordinary Least Square method has been used widely though most researchers argue that it is likely to give biased results because of the unobserved factors that are not taken into consideration in the analysis yet they affect unionisation and membership. In addition, where the firms are paying higher wages to their unionized employees than those paid to non-unionized employees for reasons not attributed to the membership, one is likely to obtain biased results due to endogenous selection of employees for the study.

Other studies on the individual level union effect on wages use Instrumental Variable approach to solve the endogeneity of union status (Landerretche *et al.*, 2011). This method entails simultaneous estimation of union status and earnings to account for the simultaneity. However, this method cannot be used to sign the direction of the selection process since the Instrumental Variables imposes opposite signs on the selection terms. One requires to choose suitable Instrumental Variables, which are difficult to design into the survey (Blanchflower and Bryson 2010), thus affecting the probability of union status but do not have a direct bearing on wages.

On the other hand, the use of endogeneity correction methods such as Instrumental Variables Estimators is restrictive in its treatment of unobserved heterogeneity (Vella

and Verbeek, 1991). This is because, it assumes that the endogeneity of union status is individual specific and fixed and produces an increasing union wage effect. The use of longitudinal data sets require taking endogeneity of union membership status into account while estimating the effect of unions on wages and was found to produce reducing union wage effect to fixed effects of high wage earners in the unionised sector.

3.0 METHODOLOGY

This study uses balanced panel data drawn from nine sectors of the Kenyan economy over a period of fourteen years from 2000 to 2013. The data collected does not capture some characteristics of the sectors such as their managerial qualities or organisational structures yet they may affect unionisation and membership. Thus, the primary motivation for using panel data is to solve the problem of omitted variables since it treats unobserved variables as random variables. Hence, one is able to obtain consistent estimators even in the presence of the omitted variables.

In addition, this panel data relate to individual sectors over a period of fourteen years and therefore, there is bound to be heterogeneity in these units. The techniques of panel data estimation consider such heterogeneity by allowing for sector-specific variables. Further, panel data allows for great flexibility in modelling differences in behaviour across individual sectors and makes it possible to control for the unobserved characteristics since it involves the use of multiple observations on the same sector over the considered period.

3.1 Theoretical Framework

This research paper adopts the theoretical framework advanced by Pencavel (1985). Once the firm and the union agree on formalizing bargaining between them, the union must aim at maximizing the expected utility of the workers it represents, which is a function of their real wages. Thus, the union will set the wage that maximizes this utility. To determine the wage, the union uses its bargaining power, which depends on the number of workers the union represents (L^*), to influence the wage

level. The expected utility of a member is a weighted average of the utility of real income when one is covered by the contract and the utility of real income when one is unemployed. Therefore, the objective function of the trade union will be as follows:

$$U(w,L,L^*) = (L/L^*)U(w) + (1-L/L^*)Uw^* \dots\dots\dots (1)$$

Where L is the actual number of employees covered by the collective agreements and L* is the total number of employees who benefit from the negotiations between the employer and the union and is treated as an exogenous variable. L/L* is the probability of being employed. The currently employed are likely to have more weight in bargaining than those who are currently unemployed, even if the later are members of the union. w is the union negotiated real wage, all union members have the same chance of being employed at this wage rate and w* is the unemployment benefits.

However, in Kenya, the unemployed do not receive unemployment benefits and therefore from equation (1), the union’s objective function becomes:

$$U(w,L,L^*) = (L/L^*)U(w) \dots\dots\dots(2)$$

From equation (2), $U_w \geq 0$ and $U_L \geq 0$.

On the other hand, the firm has a reservation wage which, is the wage level paid to the workers in the absence of a union. Therefore, once the union comes into the market and negotiates for a wage that is above the reservation wage, the firm may reject the offer. The firm will therefore accept a wage level that will enable it to maximize its profits.

$$\pi(A, w, L) = \theta F(L) - wL \quad \theta \text{ is the technological shock}$$

$$\pi(A, w, L) = S(A, L) - wL \dots\dots\dots (3)$$

This profit function shows that profits are a decreasing function of labour. $S(A, L)$ is the revenue function of the firm and satisfies the conditions $S'_L \geq 0$ and $S''_{LL} \leq 0$; A represents shifts in the revenue function as a result of changes in demand; w is the wage rate measured in terms of the domestically produced goods and L is the quantity of labour employed. If there are N number of workers in the labour market, then it means that $L \leq N$. Also, assuming that the firm can only hire union members, then the hired workers will not exceed L^* i.e. $L \leq L^*$.

The firm and the union bargain and reach a bargaining solution, which is arrived at by solving equation (2) and (3). The focus is on wages and as such, the solution to their bargaining will be;

$$\text{Max } w [U(w, L, L^*) - U_0] [\pi(A, w, L) - \pi_0] \dots\dots\dots (4)$$

Where U_0 is the union's utility before the negotiations and π_0 is the firm's profit before the negotiations. Taking the first order condition gives us;

$$U(w, L, L^*) - U_0 = \pi(A, w, L) - \pi_0$$

$$U(w, L, L^*) - U_0 = S(A, L) - wL - \pi_0 \dots\dots\dots (5)$$

From equation (5), the wage equation will depend on the specification of the union utility function and the firm's revenue function. If for example the union's utility is given by $U(w, w_a, L) = (w - w_a)L$ where w_a is an alternative wage available to the union members and the revenue function is given by $S = A_s(L)$, then the wage equation will be given by;

$$(w - w_a)L - U_0 = A_s(L) - wL - \pi_0 \dots\dots\dots (6)$$

Solving for w in equation (6) we get;

$$w = 1/2 \{ As(L)/L - \pi_0/L + U_0/L + w_a \} \dots\dots\dots (7)$$

3.2 Model Specification

Different solutions may be arrived at when a firm and a union engage in negotiations. The wages may be increasing with an increase in the bargaining power of the union, or union-wage mark-up becomes zero if the unions have no bargaining power, or the wages are set as in monopoly union model if the union possesses all the bargaining power. This research paper assumes that the union negotiates only for higher wages for their members, although in real situation, the unions negotiate for better working conditions, employment security, among other things. In addition, both the employer and the union possess information on different variables that affect wage and employment levels.

The wage of a given industry in a specific sector at a certain period in time is determined by a set of observable and unobservable characteristics. In this study, the unobservable characteristics in each wage equation shall be modelled as the sum of two random components: an industry-specific fixed effect and an industry-specific random effect. Hence, the basic framework for this research paper is a regression model of the following form:

$$w_{j,it} = X_{j,it}\beta + Z_{j,i}\alpha + \varepsilon_{j,it} \quad t = 1, \dots, T; \quad i = 1, \dots, N; \quad j = 1, \dots, 9; \dots\dots\dots (8)$$

Where $w_{j,it}$ denotes the wage of industry i in sector j at time t ; $X_{j,it}$ includes economic-wide observables variables that vary with time such as economic growth; sectoral productivity and industry-specific variables such as union membership. $Z_{j,i}$ include observable or unobservable industry-specific variables which are taken to be

constant over time. β are unknown parameters that describe the effect of these variables on wages in sector j . $\varepsilon_{j,it}$ is a random effect specific to industry i of sector j at time t .

In this study, $Z_{j,i}$ is taken as observable industry-specific variables that are constant over time following the use of panel data. Time-specific variables will be included in the model in order to capture their effect on the wages of a given industry in a specific point in time, since such changes are not carried across periods within the cross-sections unit. Thus, the model becomes:

$$w_{j,it} = X_{j,it}\beta + \alpha + \varepsilon_{j,it} \quad t = 1, \dots, T; \quad i = 1, \dots, N; \quad j = 1, \dots, 9; \dots \dots \dots (9)$$

Where α is taken as an industry-specific constant term.

3.2 Estimation Procedure

The exogenous variables are restricted to be identical to each industry in the various sectors of the economy, thus giving the following wage function:

$$\text{Wages} = f(\text{Union Membership, Gross Domestic Product, Sector Productivity, Time})$$

Logarithmic wage function is used to estimate the effect of union membership on wages using the fixed effects method, random effects method and the Generalized Method of Moments and the results of the two methods compared.

The fixed effects method produces consistent estimates even in a situation where relevant time invariant explanatory variables have been omitted in the model. The intercept in the model may differ across the included individual industry of the economy but does not vary over time. In using panel data, the individual industry

fixed effect, α is taken to be correlated with the observable explanatory variables, X_{it} that change across time.

The random effects method treats the intercept of individual industries included in the model as a random variable with a common mean. The unobserved effects are treated as random variables drawn from the same population along with observed explained and explanatory variables. The individual differences in the intercept values of each industry are reflected in the error term. Therefore, the estimated wage equation is of the following form.

$$\ln wage = \beta_0 + \beta_1 \ln UM + \beta_2 \ln GDP + \beta_3 \ln SctProd + \beta_4 T + \omega_{it} \dots\dots\dots (10a)$$

Further, the Generalized Method of Moments (GMM) is used to estimate the dynamic fourteen-year panel data of 2000 to 2013. Lagged wage variables are used to estimate the effect of past wages on the present wage. Hence, the wage equation is of the following form.

$$\ln(wage) = \beta_0 + \mu_1(wage)_{-1} + \mu_2(wage)_{-2} + \beta_1 \ln PropUM + \beta_2 \ln GDP + \beta_3 \ln SctProd + \beta_4 T + \omega_{it} \dots\dots (10b)$$

Where β_i measure the effect of the exogenous variables on the endogenous variable

μ_i measures the effect of previous wages on current wages

$(wage)_{-i}$ is the previous wage

T is time indicating growth of wages over the years;

Where $T = t_1 \dots\dots t_{14}$

ω is the composite error term or the idiosyncratic term, which varies over cross-section as well as over time since it consists of two components which are cross sector-specific error term and time series error component.

3.3 Description of Variables Used

The industries in Kenya are grouped according to their economic activities to form economic sectors which include Agriculture and Forestry; Mining and Quarrying; Manufacturing; Electricity and Water; Building and Construction; Wholesale and Retail Trade; Transport and Communication; Finance, Insurance and Business Services and Community, Social and Services (Statistical Abstract, 2012). The economic sectors that engage in activities that yield high returns such as manufacturing and agriculture are likely to have more organised workers due to economies of scale in union management than those with low returns. In addition, such sectors have large industries with high union participation and consequently high bargaining power, which could result to higher wages during negotiations.

This section discusses the variables used in this study, which relate to the nine economic sectors considered in this study.

Annual Individual Wages

The unit of analysis in this research paper is the average annual individual wages in the private sector in Kenya. In industries where employees are organised, wage bargaining takes place between the employers or employers' representatives and the unions or their representatives. In industries where employees are non-unionised, an average wage paid to the employees is determined within the industry. This study uses the average annual individual wages and controls for union membership in each sector since this data includes both average wages and negotiated wages from various unionized firms. The study takes the average annual individual wages paid out to workers in particular industries in various sectors of the

economy as the endogenous variable. The Annual industry wages include both negotiated wages and average wages paid out to non-unionised employees and they cover all cash payments, including basic salary, cost of living allowances (CPI), profit bonus and an estimation of the employer's contribution towards housing. However, wages in informal sector, self-employed persons, rural small-scale agriculture and pastoralist activities are excluded (Statistical Abstract, 2012).

Proportion of Union Membership (UM)

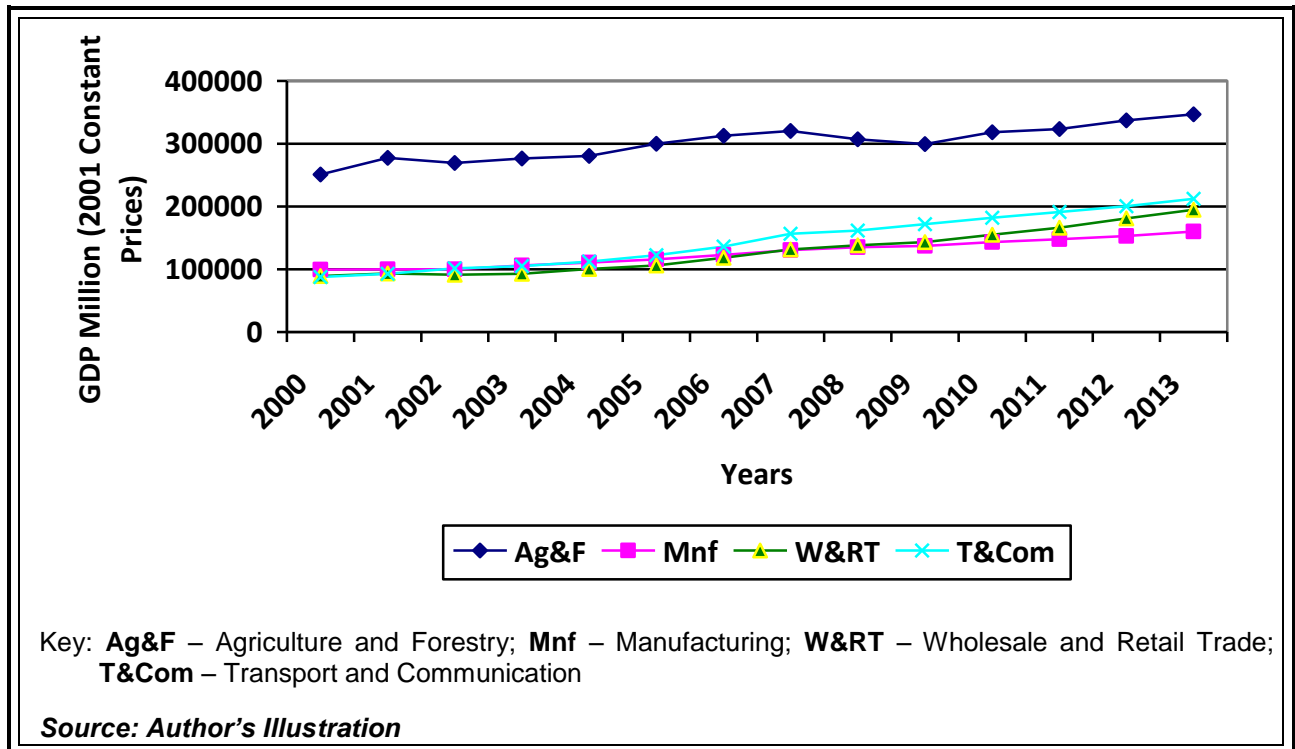
Union Membership is the number of workers who have joined various trade unions in various industries in the economy. Union membership is used as a measure of union's bargaining power and the trade unions rely on their members to be able to achieve their objectives especially through strike influence. This study treats the proportion of union membership in each sector as an exogenous variable although its correct treatment depends on the characteristics of the particular union under study. It is expected that as union membership increases, the average annual individual wages will also be increasing since an increase in union membership leads to an increase in the bargaining power of the unions thus enabling them to have an upper hand in wage bargaining.

Gross Domestic Product (GDP)

The Gross Domestic Product is an indicator that measures a country's economic performance in terms of output and growth. It represents the market value of goods and services an economy produces in a given period. Different sectors make different contributions to the growth of the economy and therefore, there are

variations in their GDP levels. Figure 3 below shows the GDP contribution of four selected sectors in the Kenyan economy over the eleven-year period.

Figure 3: GDP of Selected Sectors



The Agriculture and Forestry sector has been contributing the highest level of GDP over the fourteen-year period compared to the Manufacturing; Wholesale and Retail Trade; and Transport and Communication sectors. There has been a cyclic growth in GDP in the Agriculture and Forestry sector, with the highest GDP of KShs. 346,935 million realized in 2013 and the lowest GDP of KShs. 250,965 million in 2000. The cyclic growth may be attributed to seasonal changes in the country that lead to boom production in rain-fed agriculture produce during high rainy seasons and a fall in the produce during the low rainy seasons. Although there has been a gradual upward trend in the growth of GDP in the Manufacturing Sector, this sector has the least GDP contribution among the four considered sectors. This study uses Gross

Domestic Product as a measure of other economic factors indirectly affecting the wages of the workers such as cost of production and competitiveness. When the GDP in the country rises, it is expected that the wage rate will also be rising since the producers will compensate the workers for their contribution in the growth of the economy.

Sectoral Productivity (SectProd)

Sectoral Productivity is the ratio between Gross Value Added Output (GVAO) and the Number of Workers in a particular sector of the economy. Thus, productivity is the value of output produced per individual worker and it is commonly used as a measure of productivity of the labour force in the production process. When productivity in a particular sector increases, the wages in that sector are also expected to increase since these are the returns the workers get for their contribution in the production process.

3.4 Diagnostic Tests

The following tests will be carried out to determine the fitness for use of the variables. The Gross Domestic Product (GDP) is a macro-economic variable and in most cases, it has a trend since it will be growing upwards. This implies that the mean GDP will be changing over time and the series could be non-stationary. Therefore, Harris-Tsavalis and Levin-Lin-Chu unit root tests will be carried out on the panel Gross Domestic Product data to check for unit root in the series. If the data is not stationary, GDP will be differenced to make it stationary. Correlation between

the independent variables will be checked prior to running the model to determine if there is multicollinearity among the included independent variables.

3.5 Data and Sources

Each of the nine economic sectors considered in this study comprises of various industries performing similar economic activities. Each economic sector has one or more trade unions that represent some of the workers in the sector in the wage negotiation process with the employers. This study uses panel data from the private sector industries in Kenya for the period 2000 – 2013 collected from various Statistical Abstracts and Economic Surveys.

Union Membership data is drawn from unpublished records of the Registrar of Trade Unions in the Ministry of Labour. The Registrar of Trade Unions is charged with streamlining trade unions' activities and maintaining their membership records in the country. All trade unions are required to submit their returns to the Registrar, six months after the closure of the calendar year. At the time of data collections, some of the information on union membership pertaining to year 2014 was yet to be submitted to the Registrar, and therefore, the Ministry had not updated the information in all the records of the trade unions. Therefore, this prompted the use of data up to year 2013.

Data on the Gross Domestic Product, Employment, Gross Value Added Output and Annual Industry Wage of various industries was obtained from various Statistical Abstracts at the Kenya National Bureau of Statistics.

4.0 STUDY FINDINGS

This section presents the descriptive statistics and the regression results of the variables used in the study.

4.1 Descriptive Statistics Results

Table 1 below provides the summary of descriptive statistics for all the numeric variables in the model used in the determination of their effect on annual individual wages. It provides the mean and standard deviation each of the five variables in the model.

Table 1: Summary of Descriptive Statistics (Results)

Variable	Observations	Mean	Standard Deviation
Annual Sectoral Wages	126	65800.2	78412.4
Annual Individual Wages	126	394,042.5	265,550.7
Gross Domestic Product	126	125,523.5	91,170.3
Union Membership	126	70,478.14	108,547.1
Proportion of Union Membership	126	0.525	0.684
Sectoral Productivity	126	1.586	1.735
Year	126	2006.5	4.047

The study uses a sample size of 126 observations drawn from nine economic sectors in Kenya and in a span of 14 years starting from year 2000 to 2013. The data of the ninth sector, Mining and Quarrying was dropped due to an anomaly where the given number of union members exceeded the number of employees in the sector.

The average Annual Individual Wages is KShs. 394,043 with a standard deviation of KShs. 265,551. The highest annual wage paid to an individual worker is KShs. 1,299,485 from Finance, Insurance & Business Services in 2013 while the least

individual wage is KShs. 66,040 from Agriculture and Forestry Sector in year 2000. The average annual industry wage is KShs. 65,800 million with the highest wage being KShs. 450,156 million from the Community, Social and Personal sector in year 2013 and the lowest annual wage being KShs. 396 million from the Electricity and Water sector in year 2000.

The average Gross Domestic Product (GDP) at constant (2001) prices is KShs. 125,524 million with the highest GDP being KShs. 346,935 million from Agriculture and Forestry sector in year 2013 and the lowest being KShs. 4,423 million from Mining and Quarrying sector in year 2000 with a standard deviation is KShs 91,170.

Further, on average, the proportion of workers covered by the trade unions is 0.525 with a standard deviation of 0.684. The average union membership is 70,478 workers with the highest number of unionised workers being 503,858 workers from Community, Social and Personal Services Sector in year 2013 and the lowest being 3,393 workers from the Finance, Insurance and Business Services Sector in year 2009. The average productivity of an individual worker is 1.4118 with the highest level of productivity being 13.113 in the Electricity and Water sector and the lowest level being 0.27 in the Community, Social and Personal sector in 2002.

4.1.1 Correlation between the independent variables

Spatial autocorrelation between variables in cross-sectional data occurs if the error term of one variable is correlated with the error term of another variable. This can only happen if changes in one variable lead to a change in another variable. The bivariate correlation matrix below has been used to check whether there is multicollinearity among the independent variables. Correlation coefficients of up to 0.5 (positive or negative) are acceptable and it means that the independent variables

may be used in the same model to explain different events. However, correlation coefficient of more than 0.5 shows that there is correlation between the variables and may require dropping one of the correlated variables from the model.

Table 2: Bivariate Correlation Matrix

	Sectoral Productivity	Gross Domestic Product	Proportion of Union Membership	Year
Sectoral Productivity	1.000	-0.147	0.397	0.121
Gross Domestic Product	-0.147	1.000	-0.367	0.210
Proportion of Union Membership	0.397	-0.367	1.000	-0.178
Year	0.121	0.210	-0.178	1.000

The results in Table 2 show that there is no multicollinearity among the independent variables since the correlation coefficients are less than 0.5 (+ve or -ve). Therefore, the four independent variables will be used together in the model to determine their effect on the average annual individual wages.

4.1.2 Test for Stationarity of the Gross Domestic Product

The cross-sectional data used in this study contains data of various variables collected over a period of fourteen years for the nine private sectors in the economy. One of variables used in the study is the Gross Domestic Product, which is a macro-economic variable that changes with time. These changes are not constant, they may be positive or negative, and therefore, the data may be non-stationary. The following two tests; Harris-Tsavalis and Levin-Lin-Chu unit root tests were carried out to test for stationarity of the log of Gross Domestic Product panel data.

Table 3: Test for Stationarity of Log of Gross Domestic Product (GDP), 2000-2010

Variable	Harris-Tsavalis	Levin-Lin-Chu Unit	Conclusion
	Unit Root Test	Root Test	
	Rho statistic	Adjusted t statistic	
Log GDP	0.970 (0.995)	2.033 (0.979)	Fail to reject the null hypothesis. Hence GDP is non-stationary
Log GDP (First Difference)	0.076** (0.000)	-4.731** (0.000)	Reject the null hypothesis. Hence, log GDP is stationary
Log GDP (Second Difference)	-0.314** (0.000)	-4.498** (0.000)	Reject the null hypothesis. Hence, log GDP is stationary
Log GDP (Third Difference)	-0.408** (0.000)	-5.846** (0.000)	Reject the null hypothesis. Hence, log GDP is stationary

***; *: Significant at 1% and 5% respectively.
The figures in parentheses are the p-values*

H₀: GDP has a unit root
H₁: GDP is stationary

4.2 Regression Results of the Model

This section presents the regression results using the following three methods; Generalized Method of Moments (GMM), Fixed Effects (FE) and the Random Effects (RE) methods.

Under the GMM, the model used is of the following form;

$$\ln(\text{wage}) = \beta_0 + \mu_1 \ln(\text{wage})_{-1} + \mu_2 \ln(\text{wage})_{-2} + \beta_1 \text{UM} + \beta_2 \ln \text{GDP} + \beta_3 \ln \text{SctProd} + \beta_4 \text{T} + \omega_{it}$$

While the estimated model under the Fixed Effects and Random Effects methods is of the form;

$$\ln \text{wage} = \beta_0 + \beta_1 \text{UM} + \beta_2 \ln \text{GDP} + \beta_3 \ln \text{SctProd} + \beta_4 \text{T} + \omega_{it}$$

Table 4: Regression Results

Variable	GMM	GMM	Fixed Effects(FE)	Random Effects(RE)	Difference (FE -RE) Hausman Test
	Dependent var=log(sect wages)	Dependent var=log(indiv wages)	Dependent var=log(indv wages)	Dependent var=log(indv wages)	
1	2	3	4	5	6
Log (wages) ₋₁	0.674 (0.402)	0.300 (0.374)	-	-	-
Log (wages) ₋₂	0.159 (0.133)	0.186 (0.117)	-	-	-
Log (GDP) Differenced 3 times	0.476 (0.192)**	0.117 (0.365)	-0.128 (0.452)	-0.126 (0.486)	-0.002
Log (Sectoral Productivity)	0.048 (0.133)***	-0.048 (0.537)	0.039 (0.296)	0.515 (0.179)	-0.128
Proportion of Union Membership	-	2.422 (0.120)	0.608 (0.083)*	0.485 (0.167)	0.123
Log (Union Membership)	0.433 (0.195)**	-	-	-	-
Year	-0.006 (0.031)	0.501 (0.076)*	0.071 (0.000)***	0.069 (0.000)***	0.002
Constant	10.336	-95.645	-130.445	-126.759	-
Wald Chi2(6)	1159.44 (0.000)	1047.65*** (0.000)	-	-	-
Sargan Test Chi2(5)	1.284 (0.937)	1.284 (0.937)	-	-	-
Wald Chi2(4)	-	-	-	128.95*** (0.000)	-7.02
Rho	-	-	0.958	0.909	-

*, **, ***; Significant at 10%, 5% and 1% respectively.

The figures in parentheses are W-C robust standard errors save for sargan test where the values are p-value

4.2.1: Test for Autocorrelation in the Model

Autocorrelation refers to correlation between members of observations ordered in time, like in time series data or in space, like in cross-sectional data (Gujarati, D. and Porter, D. 2009). The presence of autocorrelation means that one or more of the explanatory variables have a linear relationship. Below are the results for autocorrelation test.

Table 5: Test for zero Autocorrelation

Order	z	Prob > z
1	-1.2814	0.2001
2	-.19002	0.8493

H_0 : no autocorrelation

From Table 5, the p-value for the second order serial correlation in the autoregressive model is 0.8493, which is greater than the significant level of 0.05. This shows that there is no autocorrelation in the estimated model.

4.2.2: Test for Over-Identifying Restrictions

A model is over identified if the restrictions in the model are too many to enable one uniquely estimate all parameters included in the model. This means that the number of instrumental variables used in the model is more than endogenous explanatory variables. Thus, to test for validity of the included instrumental variables, the study uses the Sargan test.

Table 6: Sargan Test of Validity of Instrumental Variables

chi2(5)	.0214338
Prob > chi2	1.0000

H₀: over identifying restrictions are valid

Sargan test of over-identifying restrictions shows that the over identifying restrictions are valid in the model since the p-value for second order chi2 is 1.0000 (100%) and is greater than the 0.05 (5%) level of significance. Therefore, this implies that the instrumental variables used in the model are valid.

4.3 Interpretation of Regression Results

From Table 4 above, Column 1 shows the independent variables used in the model which are logarithm of; Previous Wages, Gross Domestic Product, Sectoral Productivity and Union Membership and proportion of union membership

Column 2 presents the regression result when the logarithm of union membership is used as one of the dependent variables. These results show that all the independent variables have the expected positive sign except for year. This therefore implies that these variables have a positive effect on the dependent variable and as such, an increase in the value of these variables will lead to an increase in logarithm of wages and vice versa. Consequently, Time (Years) was found to have a negative effect on the logarithm of wages which means that as the number of years increases, the workers will be earning less wages and vice versa.

Holding all other factors constant, the workers will receive an autonomous value of logarithm of annual industry wages of 10.336. This implies that even in the absence

of the predicting variables included in the model, the annual industry wages will be 1033.6%.

The Gross Domestic Product, Union Membership and Sectoral Productivity were found to be statistically significant in the determination of annual industry wages in the private sector of the Kenyan economy. The Gross Domestic Product has a p-value of 0.013 and is statistically significant in explaining changes in annual industry wages at 5% level of significance. Thus, the positive coefficient of 0.476 shows that, holding other factors constant, an increase in Gross Domestic Product by 1% leads to a 0.475% increase in the annual industry wages of the private sector in Kenya while as a decrease in GDP by 1% leads to a 0.475% decrease in the annual industry wages.

Union membership has a p-value of 0.026 and it is statistically significant in explaining changes in annual industry wages at 5% level of significance. Therefore, the positive coefficient of 0.433 shows that, holding other factors constant, an increase in union membership by 1% leads to a 0.433% increase in the annual industry wages of the Kenyan private sector while as a 1% decrease in union membership leads to a 0.433% decrease in the annual industry wages.

The p-value of sectoral productivity, measured as the gross value added output per worker is equal to 0.0000 and it indicates that this explanatory variable is significant in explaining the changes in annual industry wages at 5% level of significance. The positive coefficient 0.048 indicates that a 1% increase in the productivity of workers in a given sector of the economy will lead to a 0.048% increase in the annual industry wages of that sector while as a 1% decrease in sectoral productivity leads to a 0.048% decrease in annual industry wages, *ceteris paribus*.

However, the study found that past annual industry wages and time were not statistically significant in the model at 5% level of significance. This is not in line with economic theory since past wages are known to have an influence on present wages. This may probably be explained by non-inclusion of all key variables in the model that influence wages such as individual workers' characteristics. On the other hand, as time moves on, workers gain more experience and skills, which earn them promotions from lower job levels to higher ones thus leading to a rise in their wages.

Column 3 presents results using the GMM with average individual wages as the dependent variable and proportion of union membership as one of the independent variables. These results show that all the independent variables except year are statistically insignificant in the model. The year has p-value of 0.026 and it is weakly significant in explaining changes in annual industry wages at 10% level of significance. Therefore, an increase in the period by one year leads to an increase in annual industry wages by 0.5%. On the other hand, the logarithm of sectoral productivity and the constant have negative signs.

Column 4 and 5 presents results of Fixed Effects and Random Effects methods respectively. The results show that all the independent variables are statistically insignificant in the model except year, which is significant at 1% while the logarithm of Gross Domestic Product has the wrong sign under both methods. In addition, the constants have negative signs.

Therefore, the results in column 2 have been used in the following model;

$$\ln wage = 10.336 + 0.433 \ln UM + 0.476 \ln GDP + 0.048 \ln SctProd - 0.006T$$

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study has examined the effect of union membership on the wages of private sector industries in Kenya and the results show that there is a positive and significant effect of union members on wages. This therefore means that the trade unions play an important role in wage formation in the private sector in the country. However, I do not know of previous studies on estimation of union membership effect on industry wages in Kenya with which to compare the results of this paper but the results support earlier work by Manda *et.al* (2005) with regard to trade union membership and earnings in Kenyan manufacturing firms.

This study uses aggregated data on the nine sectors in the economy since union membership data on individual industries was not available. However, if micro data at industry level or individual level is used, the effect of unionisation on wages could be different from the results of this study. Further, annual industry wages do not include non-wage benefits yet the unions may require that part of their bargaining be in form of fringe benefit since one of the objectives of the union is to improve the workers' welfare. Such benefits, if taken into consideration may lead to a higher union-wage impact.

5.2 Recommendations

In the presence of trade unions, the employers and workers avoid conflicts and confrontations since both parties set the wages and resolve their disputes through dialogue and consensus thus guaranteeing industrial peace during the collective bargaining agreement period. There is therefore need for policy makers to strengthen the collective bargaining mechanism in the country with a view of

improving industrial relations and harmony. This will ensure that there is continuous dialogue between the employers and employees thus resulting in improved working conditions and productivity of the workers.

Out of the concluded Collective Bargaining Agreements at the Ministry of Labour, only a few of them include productivity as an item for consideration in the agreement. However, these agreements do not elaborate on how productivity will be measured and included in the wage negotiations process. There is therefore a need for the government to come up with strategies on productivity measurement and improvement both at sectoral and national level.

This will ensure that there is continuous improvement of production and service delivery and consequently increased efficiency and competitiveness of goods and services in the country. Further, there will be an improvement in the productivity of workers since they will produce output more efficiently thus leading to an improvement in their wages. Thus, trade unions should be encouraged to peg wage adjustments on productivity of the industries, among other factors and ensure that workers are also compensated for their productivity.

The trade unions play an important political role especially in situations of political transition since they have the potential to mobilize their members whenever there is mass violation of human or workers' rights. However, political power holders may use the trade unions to achieve their political will or for selfish gains in exchange for promises of improved wages and working conditions. Such promises bear little relation to the existing economic circumstances of the firm whose employees the unions represent. This in return cripples the negotiation process between the employers and the trade unions and may result in conflicts. Thus, the unions should

avoid being highly politicised and place great importance to the activities of the workplaces.

On the other hand, there is need for political power holders to desist from making wage adjustment proposals based on prevailing political circumstances as happened in Kenya in 1997 where the ruling government promised an increase in the teachers' salaries without taking into consideration the factors that affect wages. This led to a conflict between employer and teachers' trade unions as the unions pushed the employer to fulfil the promise. Such conflicts would be avoided if the unions negotiate for wage adjustments based on factors that influence the wages rather than on political promises.

5.3 Suggestion for Further Studies

This research paper focused on the effect of union membership on the wages of private sector industries and found that the union membership plays a role in the determination of the wages. However, the magnitude of this effect was not established. Therefore, there is need for further research to establish this magnitude and to establish the impact and magnitude of unions on other aspects of economic performance such as employment, productivity of workers, and profitability of firms among others. Such studies should focus on the occupations of workers and include total compensation of the workers rather than including wages only.

The level of unemployment in the country is high especially among the youth. There is need for further research to establish the effect of unionisation on employment in order to ensure that policies are formulated with an aim of solving the unemployment problem.

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APPENDICES

Appendix I: Average Negotiated Wages and Unionised Employees data from Registered CBAs, 1985 – 2013

Year	Negotiated wages	Union Membership	Membership Growth (%)	Year	Negotiated wages	Union Membership	Membership Growth (%)
1985	1,075	53,666	-	2000	7,303	71,586	-37.1
1986	1,196	325,052	505.7	2001	8,646	43,031	-39.9
1987	1,304	86,424	-73.4	2002	10,910	76,208	77.1
1988	1,402	232,153	168.6	2003	8,837	50,839	-33.3
1989	1,782	99,613	-57.1	2004	14,886	46,221	-9.1
1990	1,548	94,894	-4.7	2005	10,621	59,455	28.6
1991	1,793	105,611	11.3	2006	14,688	91,413	53.8
1992	2,279	62,339	-41.0	2007	16,782	61,251	-33.0
1993	2,779	78,014	25.1	2008	14,622	82,612	34.9
1994	3,396	121,576	55.8	2009	18,893	83,907	1.6
1995	4,222	58,803	-51.6	2010	21,277	101,282	20.7
1996	4,257	84,272	43.3	2011	24,597	96,356	-4.9
1997	6,015	60,459	-28.3	2012	27,104	76,001	-21.1
1998	6,136	138,147	128.5	2013	31,989	380,103	400.1
1999	6,016	113,758	-17.7				

Source: MoL, Kenya; Registered Collective Bargaining Agreements Records (1985 – 2013)

Appendix II: Description of Data (Expected Results)

Variable	Description	Expected Results
Wages	The wages in any given sector of the economy are influenced by various factors. The effect of such factors may lead to a rise or stagnation of the wages since wage adjustment is elastic upward but highly inelastic downwards	
Time (Years)	As time goes by, it is expected that the wages will be increasing since workers will have acquired more skills and promotions thus justifying an increase in their wages	Positive
Union Membership	An increase in the number of unionised members will lead to an increase in the level of wages since the workers bargaining power will have increase thus enabling the unions to negotiate for higher wages	Positive
Gross Domestic Product (GDP)	The growth in the output of the economy will lead to an increase in the level of wages paid out to the workers who are the main contributors to such growth	Positive
Sectoral Productivity	As the productivity of workers increases, their wages are also expected to increase since the sectors will be getting more returns from the rise in the output produced thus making it possible to give a higher reward to labour as a factor of production	Positive