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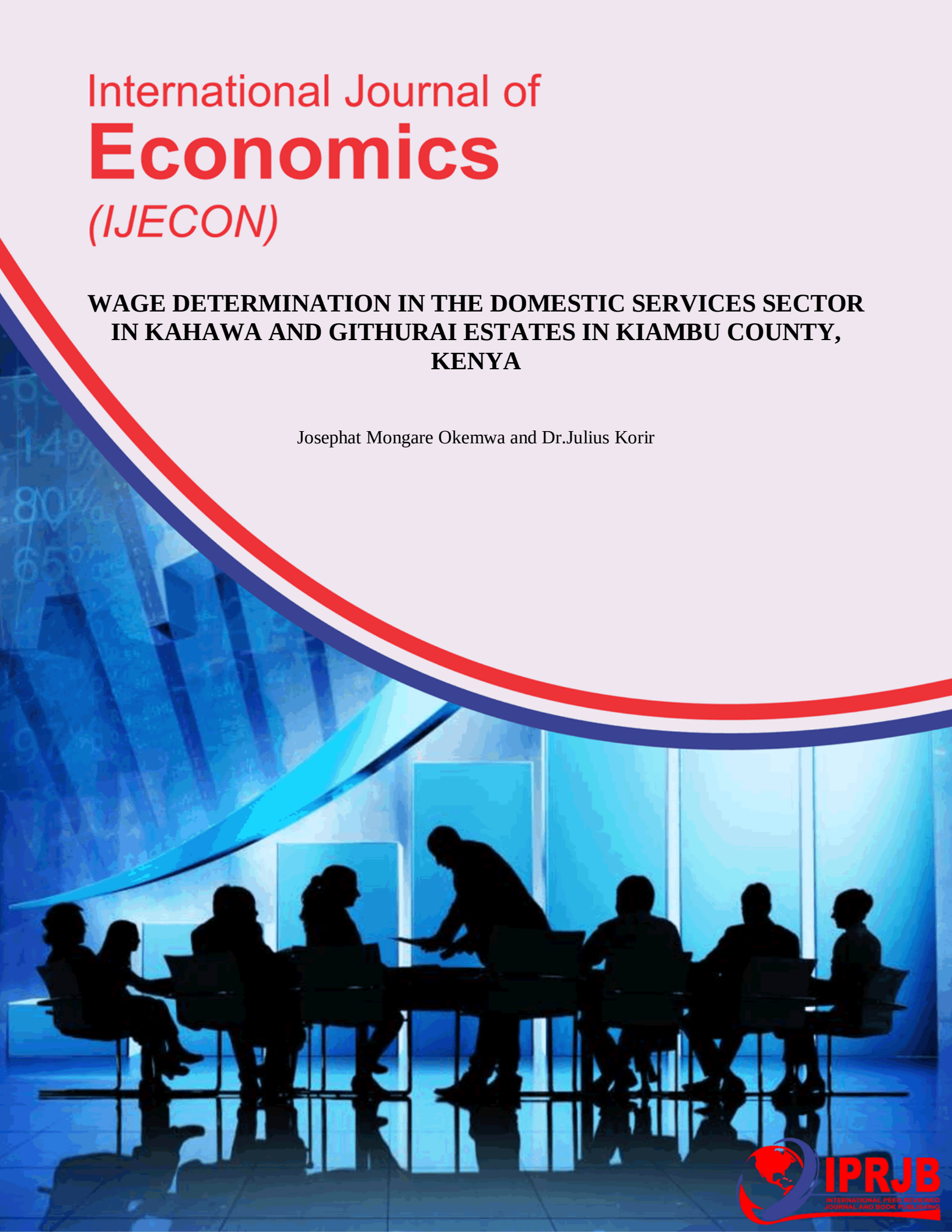

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WAGE DETERMINATION IN THE DOMESTIC SERVICES SECTOR IN KAHAWA AND GITHURAI ESTATES IN KIAMBU COUNTY, KENYA

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Abstract

Purpose: To establish underlying factors that influence wage determination in the domestic service sector in Kahawa and Githurai estates in Kiambu County, Kenya.

Methodology: The study used a descriptive cross-sectional survey design which sought to give the quantitative relationship between the wage and its determinants. Primary data was collected by interviewers using questionnaires from which 367 domestic workers were randomly selected and interrogated. The collected data was coded and quantitatively analysed using robust regression.

Findings: The results of the analysis indicate that education level in years of schooling, work experience in years, type of residence are important factors in wage determination in the domestic services sector. Sex and dwelling of a domestic worker were found not important factors in determining wages.

Unique contribution to theory, practice and policy: The implications of the findings suggest that in an effort to create fairness in the domestic services sector, policies and strategies that are anchored in the social economic characteristics of a domestic worker as well as human capital investment should be considered in determining domestic worker's wages a part from minimum wages which is generally defined and regulated by state law.

Key Words: *Human Capital Investment, Minimum Wages Order, Domestic worker wages and Minimum Wage.*

1.0 INTRODUCTION

Domestic work is one of the ancient occupations throughout the world. It can be traced to the master-servant relationship that characterized the colonial period (KUDHEIHA, 2011). A domestic worker can be defined as a person working within the employer's household and it includes nannies, house girls, gardeners and houseboys. Article 1 of Domestic Workers Convention No. 189 of 2011, defines a domestic worker as a person who is employed for compensation be it in kind or in cash basis, in permanent or temporary terms by the employer or an agent, whether part time or full-time basis to do the household work in any household. Domestic services sector plays an important role in the economy. This is because; domestic services sector is a significant source of employment as well as providing income earning opportunities worldwide. Domestic servicers sector accounted for 3.6 percent of wage employment and a total employment of 1.7 percent worldwide.

International Labour Organization (ILO) indicates that based on a national survey of 117 countries, estimates showed that there were 53 million domestic workers worldwide (ILO, 2010). Globally, domestic service sector has grown significantly. For instance, over the past 15 years from 1995 to 2010, the number of workers employed as domestic workers increased from 33.2 million to 52.6 million representing a substantial growth of 58.4 percent. Latin America and the Caribbean recorded a significant growth of domestic workers from 10.4 million to 19.6 million representing an increase from 5.7 percent to 7.6 percent. Asia and the Pacific registered a significant increase from 13.8 million to 21.5 million domestic workers between 1995 and 2010.

In developing countries, statistics indicate that in 2010, domestic services sector created a total employment of between 4 percent and 10 percent. For instance, the total number of domestic workers in Africa in the year 2010 was 5.2 million compared with a total estimate of 4.2 million domestic workers in 1995 ILO (2010). In 2001, Angola created 7,000 jobs equivalent to 0.5percent of the total employment in urban areas. In Botswana, 7 percent of female as well as 2 percent of the male workforce worked as domestic workers in private households. In South Africa, the official statistics in the year 2007 showed that 943,000 women and 323,000 men were employment as domestic workers (Klaveren, 2009). In Ethiopia, 11.3 percent of all women who were employed in urban areas worked as domestic workers (ILO, 2011).

In Kenya, domestic services sector remains one of the invisible employment sectors yet there are many women and men involved in it. In 2011, it is estimated that 1.8 million people worked as domestic workers in Kenya of which 74.5 percent were employed as house helps, 10.3 percent as gardeners and 6.4 percent as watchmen while 1.9 percent served as drivers and a further 1.9 percent multi-tasked in the aforementioned chores. Domestic services sector in 2009 contributed 5.2 percent of the wage employment compared to 4.8 percent for finance and business services; 0.98 percent for electricity and water; and 0.33 percent for mining and quarrying in the Kenyan economy (KUDHEIHA, 2011).

KUDHEIHA (2011) indicates that in most urban areas in Kenya, at least every household has a domestic worker. Kahawa and Githurai like many urban estates in Kenya, majority of households in the area are working class hence most dwellers in this estate employ domestic workers to attend to home chores so that the employers can attend to their jobs and sources of income. Domestic workers labor in the households' homes for pay by providing a variety of domestic services: they do general cleaning, do shopping, cook, offer gardening, wash clothes, take care of young children and provide security

services. Some domestic workers reside on the premises of their employers but majority of them work on a part time arrangement and often for multiple employers. Also, some domestic workers come from rural areas while some come from urban areas. With the growing population in Kahawa and Githura estates, the demand for services of domestic workers has increased. Although domestic workers are very important, majority of them remain hidden, hence are among the lowest paid workers in any labour market (ILO, 2011). Efforts by government machineries to improve working conditions and pay through legislation of laws have not been helpful not even the set minimum wages. Despite doing the same job that requires almost the same skills, majority of the domestic workers are paid different rates by their employers. While it is of great importance to bring to light the plight of domestic workers, it is also of great concern to establish how the domestic workers are compensated by their employers apart from the minimum wage which is set by the state. This is very important because it highlights the criteria employers use in setting the wages they pay their domestic workers.

Wage Determination

Compensation serves as an important characteristic of employment relationship. Scholars argue that wage determinants are not stagnant but have evolved over a period of time where by compensation systems of wage do not exist in a vacuum but often involve deliberate decisions by appointees of different policy boards acting on directives of authorities and even professional staffs. Compared to other types of sectors, domestic services sector workers have little reservation wages and their private nature of work makes it more cumbersome to unionize and regulate them hence placing them in a weaker position for higher wages (ILO, 2010). Whereas many theories regarding relative pay for domestic services sector have been proposed, empirical studies on wage determination in the domestic service sector is scarce. Gomez-Mejia (2006) indicates that employee's wage compensation is a function of different factors within an organization. It may or may not include work-related behaviour. Armstrong (2012) indicates that human capital is the stock of knowledge, expertise, and employee's skill set accumulated through education, training and work experience.

In Kenya, however, the domestic services sector wage fixing and determination are regulated and guided under the Labour Institutions Act of 2007 Sections 43(1) and (2). The minimum wage determination as currently constituted form an integral approach of wage setting in the domestic service sector and is determined by tripartite mechanism which comprises of worker's representative, government and employers. Central Organization of Trade Union (COTU) represents workers while employers and the government are represented by Federation of Kenya and Ministry of Labour Social Security and Services (MOLSS) respectively. In reference to the Labour Institutions Act2007, Section 44(5) identifies economic and social parameters that should be considered while determining and fixing wages. Among the economic factors include productivity levels, poverty alleviation and employment creation (Republic of Kenya, 2007b). Kenya has held an active minimum wage reviews in the domestic service sector as an approach in determining and fixing wages which have been varying with inflation changes. For instance, between 1990 and 2008, wage was increased by between 6 and 20 percent (Omolo, 2010). The reviews are done annually during the Labour Day Celebrations held on 1st May where orders are made to regulate wages by the cabinet secretary for Labour upon powers conferred on him under section 46 of the Labour Institution Act, 2007(Omolo, 2010).

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The minimum wages in Kenya vary by location and three distinguishing urban areas with different minimum wage levels (under old local administrative) were marked namely; Nairobi, Mombasa and Kisumu; other municipalities including Ruiru and Mavoko; and other towns. Figure1shows the trends of Monthly Minimum Wages for domestic workers(1998- 2015).

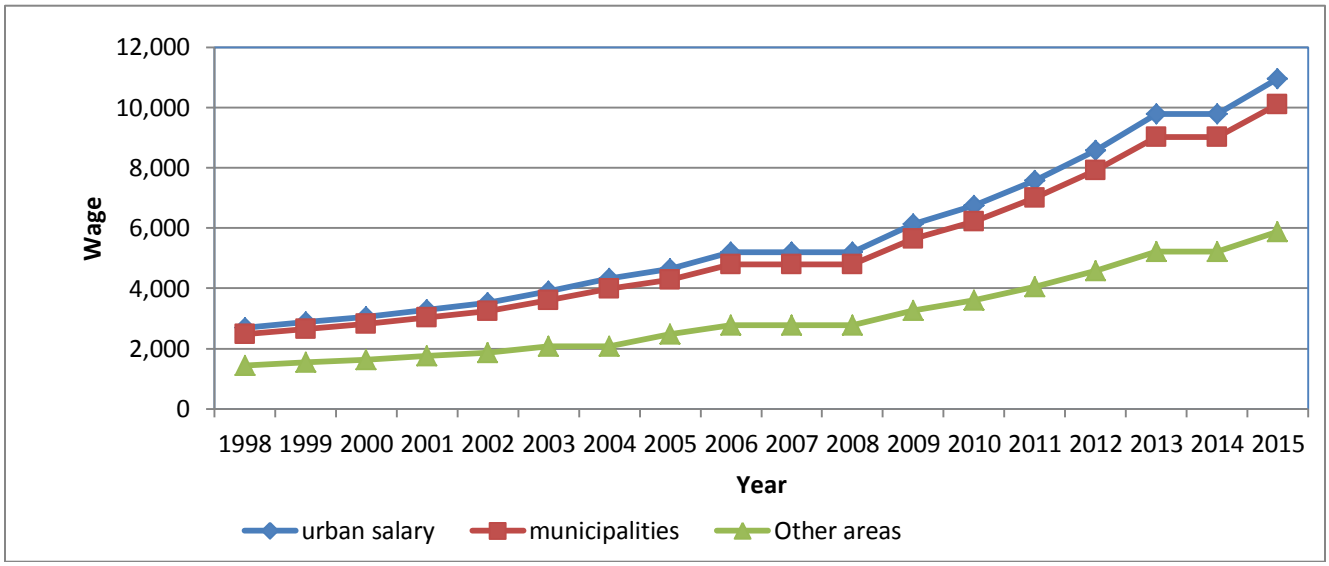

Figure 1: Gazetted Monthly Minimum Wages for domestic workers(1998- 2015).

***Source*: Republic of Kenya, Economic Surveys (1999-2016)**

Figure 1indicates an aggregate trend of wages reviewed and fixed annually by the government institution, whilst some years wages were not reviewed, for instance, in 2007, 2008 and 2014 the government did not review the minimum wages citing depressed economy. In municipalities where Kahawa and Githurai estates lie, the minimum wages for a domestic worker in 1998 was kshs.2, 488 for domestic worker, kshs.2, 583 for cook and kshs.2, 790 for night watchmen but in 2015, the minimum wage in the municipalities was kshs.10, 107 for a domestic worker, kshs.10, 497 for a cook and kshs.11, 330 for night watchmen. However, an in-depth investigation indicates that majority of the domestic workers who were interviewed were paid below the set minimum wages which is (Kshs.10, 954 per month). Further the analysis indicates that about 17 percent of the domestic workers were paid above the set minimum wage especially those who are employed by senior government officers and diplomats. In addition, 50 percent of the domestic workers earned as low as Ksh.3, 500 per month and those who earning between Ksh.7, 000 to Kshs.10, 000 per month worked for the high-class civil servants representing 22 percent (KUDHEIHA, 2011).In view of the above government guidelines on minimum wage fixation in Kenya and studies on employee compensation, little has been done to establish underlying factors that determine wages in the domestic services sector.

Statement of the Problem

Wage compensation and determination is one of the challenges facing the domestic services sector in Kenya. Despite its importance in creating employment and generating income opportunities, domestic workers are among the lowest paid workers in any labour market (ILO, 2011). Kahawa and Githurai like many urban estates in Kenya, majority of the households employ domestic workers and due to the ever-growing population in the area, the demand for domestic workers has increased. Further, despite the efforts by government machineries to regulate minimum wages throughthe Labour Institutions Act of 2007 which forms an integral approach of wage setting criteria aimed at protecting and improving domestic workers pay, majority of domestic workers who are performing almost the same work that requires the same skills in the same location have continued to receive varied rates of wages from their employers which are below the set minimum wage. As such there is a need to investigatethe underlying factors that influence wage determination in the domestic service sectors in Kahawa and Githurai estates in Kiambu County, Kenya to form policies a part from minimum wages which is generally defined and regulated by state law.

2.0 LITERATURE REVIEW

2.1Human Capital Theory

The origin of human capital theory can be traced to the emergence of classical economics in the year 1776 and later, human capital theory was developed scientific theory (Omolo, 2015). After the conceptual demonstration as a theory Schultz (1971) acknowledges human capital as one of the important factors of national economic growth in the modern economies (Dae-bong, 2009). According to Becker's classic work in 1964, the author argues that investment in human capital can be seen to be similar to investment such as production in industries (Omolo2015). Theodore Schultz, developed Becker's work further and setting out how rates of return from education would be calculated in different countries with different income levels as well as attitudes to forgoing earnings to grow human capital (Severine, 2009). The human capital theory articulates that key skills, knowledge and competencies of the labor force that contribute to organization's competitive advantage. Based upon the work of Becker (1964), Mincer (1974), human capital emphasizes that education level of an individual is positively related with the salary of a person. It states that education increases skills of a person and in turn increases his productivity, thus high productivity is then rewarded higher earnings. The theory illustrates a positive relationship between earnings and age in the sense that individuals who are old earn more salaries since they have more experience on their jobs which other scholars refer as job training hence making them more productive and in return thus paid higher earnings. The theory argues that a person's formal education determines his or her earning power.

According to Armstrong (2012), the human capital theories help out to decide on the impact of people on the organization or business. Dae-bong (2009) argues that human capital theorists consider education and earning power are correlated that is the more education one attains, the higher the earnings. Block (1990) in his criticism argues that Human Capital Theory is a poor concept of capital. It is powerless to understand human activity other than as the exchange of commodities and the notion of capital employed is purely a quantitative one. Thus it misses out that capital is an independent social force where the formation of social value comes about through its capital accumulation. Based on this

explanation, human capital is an abstract form of labor which is a commodity and not capital. Commodities such as human capital are therefore part of the life cycle of capitalism as a form of labor and not able to be exchanged independently of it. Another criticism based on assumption that education in fact improves productivity and thus could explain higher wages. The theorists clearly did not take into the account of the transfer of learning. There are differences of wages in different regions. The pay also depends on the kind of industry the employee is in. In some industries, even pay are regulated by unions.

2.2 Empirical Literature

Several studies have established that education positively impacts an individual's future earnings. Siegfried and White (1973) conducted a study to investigate the relationship between salary and factors determining salary. The authors used data from the national survey which was conducted by the American Council of Education between 1972 and 1973. Two types of regression analysis were carried out by the authors namely Fixed Effects (FE) model and pooled Ordinary Least Squares (POLS) and were fitted to the data. The dependent variable was measured as the gross total salary received by the faculties of economics from the employing University throughout the above stated academic period. The variables used were; chair which measured as one if someone had served as the departmental chair and 0 otherwise; citation which was measured as the number of times a publication as been cited online; female which was measured to validate the possibility of discrimination in determining salaries; University which was generated as a categorical variable in accounting for specific departmental factors; publication index which was used in ranking departments and journals so as to evaluate how quality perceptions affect academic salaries and top ten University which measured the ranking of the University and it received a value 1 for receiving a PhD from a top ten University and 0 otherwise thus capturing the quality of education. The results from the POLS showed that the coefficients of total publications per page for authors and number of citations excluding self were statistically significant at one percent. Additionally, the coefficient of number of citations and total publication articles per page for authors was statistically significant at five percent. Also, the result from fixed effect showed that the coefficients for number of citations excluding self-citation was statistically significant at one percent while total publication per page for authors, publication citations and chair was statistically significant at five percent. The authors found out that publication index, citation, total article pages and departmental chair were key determinants of salary levels. Also, self-citations, publications at non-ranked journals, gender, top ten University did not have an effect on salary according to results obtained by both regressions.

Mincer (1974) using cross-sectionaldata from the 1960 United States census derived an earning function. The author fitted the earning function with data using linear and exponential decay functions. The author highlighted in their model that, the natural logarithm of a monthly wages measured in dollars was a function of education level measured by the number of completed years in schooling and work experience which was measured by the number of years a person had worked, social economic characteristics which included which included age of a person measured in years and gender which was measured by one if the person was a male and 0 otherwise. Using ordinary least squares (OLS), the author found out that additional years of schooling yielded an increase of 11.5 percent in annual earnings. The author concluded that higher earnings are linked to an individual's productivity that is found to increase with skills as a result of schooling and experience. The results yielded an estimate range of 5 to 15 percent.

Gaag and Vijverberg (1989) using panel data set from the 1985 Côte d'Ivorieliving Standards Survey.The author used regression analysis and maximum likelihood in analysing their data. Salary was a dependent variable and experience, age, gender, years of schooling as independent variable. The results from ordinary least squares yields were seriously biased while the maximum likelihood estimate tests indicated that the coefficients of the diploma, experience and years of education variables were not significantly different between the private and public sectors. On average, public workers earned more than private since they had a higher education level than private workers thus the authors concluded that workers who had more education earned higher than who had low education.

Nickell and Wadhwani (1990) conducted a study to investigate the effect of insider and outsider factors on wage in an organization. The insider and outsider variables were categorized as independent variable and were to show their effect on salary which was the dependent variable. The author's in their study used data from the United Kingdom micro data from 66 manufacturing companies between 1978-1986, the author found out that both inside and outside forces has an impact in wage earnings of an individual although, inside forces had a positive impact on wage determination. The authors found that organization's position and performance in terms of finance and among other factors dictated the amount of salary an individual would earn. In the United Kingdom, for instance, first degree holders in terms of hourly wages in comparison those with 'A' levels, their average annual returns were found to be between 5 percent to 8 percent for men and for women it was found to be between 10 percent and 13 percent for women.

Boyd and Salamin (2001), in their study using cross section data from a sample of 917 employees from two large Swiss financial institutions using a qualitative approach, the authors found that pay systems are linked with divisional strategic orientation, but in a different form than prior studies. In addition, they identified hierarchical position as an important variable in the tailoring of reward systems. Hierarchy has a significant main effect on pay plan design, and an interactive effect with strategic orientation the authors found out that individual characteristics such as age and gender had direct effect on wage earnings.

Xiao (2001) using 1996 surveyed data of 1023 employees in Shenzhen, China, the study estimated the effects of human capital on employee salary. Using a hierarchical linear model, the analysis estimated employee monthly salary growth over a maximum of six years due to work experience and improved performance. The study found that pre-work formal education was positively associated with salary only at hiring, employees' experience in changing production technology as well as on-the-job training were positively associated with salary increases through improved technical proficiency, thus improving workers' performance and increasing their salary. Xiao concluded that more experienced workers in terms of the period they worked received higher salaries than those with few work experiences.

Smith (2001) in his study estimated the effect of training and education on earnings. Using the 1991 population survey of United States in getting the hourly earnings of 8,954 respondents. Using OLS regression technique, three sets of estimates were made namely; single regression, separate regression for female and male and lastly, separate regression for other twelve occupational groups. The results indicated that education and training had a positive effect on wages while the gender stratified regressions indicated that training was more significant in determining females' wages. In addition, the occupation regressions showed that the amount of training seemed to be more essential in determining hourly wages.

Dolton (2003) in his study using the earnings function, the author estimated the earnings relationship for CEOs of United Kingdom using panel data covering eight academic years from 1993/1994 through to 2001/02. Dolton established that the CEOs' human capital variables (age, education) produced a positive and major effect on their salaries and little evidence from previous experience as a CEO would influence pay. However, it was noted that the significance and impact of these variables on pay varied across the econometric specifications reported. A study by Hirsch (2006) on wage determination on the airline industry in United States of America, using regression sample 1995-2006 Current Population Survey (CPS). In their empirical approach, they used separate wage equations with each sample whose coefficients were determined mostly by the non-airline, log wage differentials for nonunion and union air workers compared to similar group of workers outside the air transport industry was calculated. Using human capital, demographic, and location characteristics (schooling, age and region), the results showed that those workers who had higher training and skills earned high wages. His conclusion was that education and experience had an effect in determining salary.

Bachan (2008) did a study on the determinants of pay of CEOs in UK public sector higher education institutions. He applied three econometric methodologies to a huge and unique dataset for the academic years 1997/98 through to 2005/06. The findings showed a gender differential in pay and this differential remained robust across the specifications reported and across higher education sub-sectors. It was noted that CEOs with industrial work experience and those who have been employed by a higher education body earn more than their counterparts without these attributes. The author concluded that education level and work experience is key determinants of an individual's wages. For instance, the authors found out that worker who had more work experience received higher salaries hence supporting Human Capital theory.

Heckman et al. (2008) in his study sought to estimate the earning functions and internal marginal rates of returns for different schooling levels. Using United States data from 1940-2000 for men. The author implemented a universal nonparametric approach in estimating the rates of returns using schooling and experience. More general method was used to estimate returns that. The results indicated that larger returns were witnessed from graduating from high school than graduating from college.

Van Zyl (2010) conducted a study to investigate the effect of an individual's skills on wages in South Africa, A log linear two step Ordinary Least Squires estimation was used to estimate the magnitude of the relation between employee remuneration gaps and labour productivity. Employee remuneration gap labour productivity indicator coefficients were estimated, taking into consideration employee characteristics, skill levels and business or economic uncertainty, the author found out that Labour unions were of the opinion that remuneration gaps expanded as a result of shortage of high skilled workers in the workplaces. The author concluded that three important aspects were important in wage determination namely employee characteristics and skill levels of workers. Previous research on employee wage compensation mainly focused on productivity-based compensation, skills and job grade but did not emphasize the extent to which each variable contributed to worker's compensation.

Barro and Lee (2010) on his study using panel data set on educational attainment has been updated for 146 countries from 1950 to 2010, the estimated rate-of-return to an additional year of schooling ranges from 5% to 12%, which is close to typical Mincerian return estimates.The author argued that most workers are motivated to attain additional education so that they would get promotions hence high wages. Martocchio (2011) in his study in Asia, the author asserts that skill-based pay reward employees

for the range, depth, and types of skills they are capable of applying productively to their jobs. Employees would earn high rewards by acquiring new vertical skills, horizontal skills, or a greater depth of skill. Thus, skill-based pay rewards the individual for the versatility rather than for actual tasks performed. Martocchio concluded that an individual's skills determine the level of his salary.

Maloa (2011), in his research in South Africa, using regression analysis to analyze secondary data, the author established that job category had the most effect on employee's compensation. The author on his study found out that there was a strong relationship between employee's skill, employee performance, job family, job grade and a employee compensation. These factors were strongly related to employee compensation and were regarded as strong predictors of it. The other predictors such as tenure were considered to be of significance in predicting employee compensation. In addition, the determinants of employee compensation may also depend on the type and size of the organization. In general wage variations are based on observable proxies such as education, experience and occupation.

2.3 Literature Specific to Kenya

Omolo (1999) conducted a study in Kenya on wage determination in the unionized private sector in Kenya. Empirical analysis was carried out using time series secondary data to determine how various factors affect negotiated real wages. Using two stage least squares regression technique, the parameter estimates of statutory minimum real wage, one year lagged negotiated real wage, rate of Interest and its one year lagged effect were found to be statistically different from zero at the 10 percent significance level. Nevertheless, whilst the results were analyzed at 95 Percent confidence level, coefficients of all the variables mentioned above remained statistically significant apart from that of current rate of interest. Other coefficients of the variables in the regression model that is, real GDP growth, union strength, labour productivity, tax rate and the dummy for wage guidelines were found to be insignificant at 90 and 95 percent levels of confidence. The regression results showed that lagged real Wage, statutory minimum real wage, union strength, tax rate and the dummy for wage guidelines were positively related to the negotiated real wage.

Mariara (2003) in her study using the data which was taken from the 1994 Welfare Monitoring Survey to analyze determinants of wages as well as gender gap across Kenyan sector, using Multinomial logit techniques and ordinary least squares (OLS), the results show that increasing returns to education are in general significant for both male and females across sectors. Workers appear to be paid high wages in Nairobi compared to other regions; although the coefficients are not consistently significant the results indicate that education and other demographic factors are important factors in determining wages. Using Neumark decomposition and Oaxaca method, the contribution of education to the wage variations in the private sector was nearly the same based on the two methods, while for public sector diverge marginally between -0.018 and -0.033. In the Oaxaca method, the largest contribution of education on wage earning variations is observed in the private sector using the female wage structure compared to the public sector which is negative irrespective of the structure. However, the full sample indicates that the contribution of education is positive in all cases and larger in the Oaxaca male wage structure.

Wambugu (2003) on his study on earnings and human capital in Kenya using cross-sectional from the Kenya Integrated Household Budget, using OLS in his analysis, the author found out that age and education effects remain significant in wage determination. The implied change in real wages over the survey period across the wage distribution was about 36 percent which is not substantially different from

the derived earnings regression with controls for human capital despite the large number of controls added. Mule *et al*. (2004) conducted a study in Kenya on the impact of education on salary.Using macro data, the study established that private sector employees earned 14 percent higher wages in 2005 and this gradually reduced to 9.44 percent by 2008.The author found out that workers who had higher education levels received higher pay than those with lower education.

Kimenyi *et al* (2006) while analyzing private returns and human capital externalities in Kenya, using data from the Welfare Monitoring Survey of 1994 undertaken by the Central Bureau of Statistics (Ministry of Finance and Planning, Government of Kenya). The author in his analysis using OLS found out that returns were higher among females than males. Further, the results indicated that human capital of others had an effect to wage earnings of workers in urban areas. For instance, education level, working experience, sex and location dummy variables explained about30 percent of the adjustments in log monthly wage earnings for all the workers that is, 22 percent for males and 34 percent for females at the national level while in the rural and urban areas, the variables explained was between 26 and 42 percent of the variation in wage earnings and the coefficients were statistically significant at one percent.

Muturi (2014) conducted a study on salary determinants for Higher Institutions of learning in Kenya. His study was intended to examine the relationship between a set of independent variables that best predicted the dependent variable that is (employee's salary) in higher institutions in Kenya. Using Stepwise Multiple Regression, the author found out that the coefficients of education and work experience was statistically significant at 5 percent which concurred with other scholars that education level, worker's experience, and job category influenced employee's wages**.**

2.4 Overview and Critique of the Empirical Literature

The theoretical literature reviewed shows that scholars use different determinants to determine wages of workers. From the empirical literature review, wage determinants under study can be summarized as follows; individual characteristics: age, gender, education level and work experience. Variables widely used include; age, years of schooling, experience, job categorization, region, gender and location as key wage determinants. Education level and experience were noted to be largely relied on wage determinants.

Despite the important input of Becker's work to modern academic thinking on the management of people, Becker's work had been criticized over the years that its initial research on education and earnings ignored the role of worker experience and the theory largely ignored the role of non-cognitive abilities. Also, the causal effect of education on wages may instead reflect 'one's ability' rather than any productivity-enhancing skills gained through education. It is also observed that few research studies have been done in Kenya in establishing the underlying factors that determine wages as well as the effect of human investment in the domestic services sector apart from minimum wage which is fixed.Although human Capital theory has been greatly conceptualized in a wide array of scholarly research and its combined literature review is under-reported, the study adopted this theory in this research because human capital accumulation follows paradigm of frictionless market economywith the implication that the compensation of workers replicates their marginal productivity, obtained either from birth or their investments throughout their lifetime which can be estimated by Mincer log earnings regression equation that relay the logarithm of individual earnings.

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3.0 Methodology

The model that was estimated is derived according to Acemoglu (2011). Suppose a person with an instantaneous utility function represented by u(c) which satisfies the neoclassical assumptions such that he had a planning horizon of T where $T = \infty$ and discounts the future at the rate $\rho > 0$ and faces a steady flow rate of death equivalent to $\nu \geq 0$ so that individuals have finite expected lives. The argument implied that his objective function at time

t = 0 would be;

$$\text{Max} \int_0^T \exp(-(\rho + \nu)t) u(c(t)) dt. \quad (3.1)$$

Assume that this person was born with some human capital represented by $h(0) \geq 0$ which evolved over time as shown in the differential equation below

$$\dot{h}(t) = G(t, h(t), s(t)) \quad (3.2)$$

In this case, $s(t) \in [0, 1]$ is a fraction of time that this person spends to invest in schooling, and G determines how human capital investment evolves as a function of time, his stock of human capital as well as his schooling decisions.

Suppose that equation 3.1 and 3.2 are such that the person spends an interval S with s(t)=1 which represents full time schooling and s(t) = 0 thereafter. The individual will have a schooling level at the end of final schooling interval represented as

$$h(S) = \eta(S) \quad (3.3)$$

Such that $\eta(\cdot)$ is an increasing, continuously differentiable and concave function. As his human capital accumulates over time as he works, the differential equation becomes

$$\dot{h}(t) = g_h h(t) \quad (3.4)$$

Where $g_h \geq 0$. Suppose that his wages grow exponentially, the equation becomes

$$\dot{w}(t) = g_w w(t), \quad (3.5)$$

With boundary condition $w(0) > 0$. Suppose that equation
$g_w + g_h < r + \nu$ so that the net present discounted value of the person is finite. Then, the optimal schooling decision should be a solution to the following maximization problem.

$$\text{Max} \int_S^\infty \exp(-(r + \nu)t) w(t) h(t) dt. \quad (3.6)$$

By using equation 3.4 and 3.5, this is equivalent to

$$\text{Max}_s \frac{n(S) w(0) \exp(-(r+v-gw)s)}{r+v-gh-gw} \quad (3.7)$$

Since $\eta(S)$ is concave, then the objective function is also strictly concave. Therefore, the solution to this problem is characterized by the first order condition

$$\frac{n0(S*)}{n(S*)} = r + v - gw \quad (3.8)$$

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Which shows a higher interest rates and values of ν which is equivalent to shorter planning horizons which reduces human capital investments, while higher values of g_w increase the value of human capital and thus encouraging further investments.

Integrating both sides of this equation with respect to S, we get

$$\ln \eta (S^x) = \text{Constant} + (r + \nu - g_w) S^x \quad (3.9)$$

Since the wage earnings of workers of age $\tau \geq S^x$ in the labour market that time t is given by

$$W(S, t) = \exp(g_w t) \exp(g_h(t - S)) \eta(S) \quad (3.10)$$

Then taking logs and using equation (3.10), it means that the earnings of the worker was given as

$$\text{LnW}(S^x, t) = \text{constant} + (r + \nu - g_w) S^x + g_w t + g_h(t - S^x) \quad (3.11)$$

Where t−S represents worker's experience. Taking a cross sectional comparison across workers, the time trend term $g_w t$, goes into the constant, so that the Mincerian equation was obtained where log wage earnings directly proportional to schooling and experience represented as

$$\textbf{LnWj= constant} + \gamma_s S_j + \gamma_e \textbf{experience} + \mu i \quad (3.12)$$

Where j represents individual j, Si is schooling level of the individual.

A descriptive cross-sectional survey design was chosen for this inquiry. The design was appropriate because it provided detailed data directly from the field and was easy to carry out accurately with minimal costs. The researcher employed questionnaire to collect data. Open ended questions were used since they were accompanied by a list of all possible alternatives from which respondents were able to select the choice that best described their situation at hand. Also, closed ended questions were used to collect, evaluate and analyse data since it gave room the respondent to give their responses in their own words hence producing more in-depth and comprehensive information. The target population for this research study was gathered from Kahawa and Githurai estates in Ruiru constituency in Kiambu County which is one of the 47 counties in the Republic of Kenya. The sample target comprised domestic workers and also, to check for consistency of data, 10 percent of their employers were randomly asked to provide information regarding their worker's age, salary, education level and work experience. The population statistics of the households includes lower, middle and high class. The study adopted simple random sampling procedure. The respondents were selected through identifying and approaching domestic worker and a domestic employer. Those initially identified helped in identification of other domestic workers, employers and information provided was analysed to answer questions that were to be addressed in this research study. The sample size which was adopted recommended SMART sampling (Mugenda, 2003). This was used because the population size was not known. In this study the below stated formula was applicable:

$$n = \frac{z^2(p)(q)}{d^2}$$

Where: n = sample size (if targeted population is greater than 10,000)

z = linked to 95% confidence interval (1.96), p =expected prevalence (as fraction of 1), q = 1- p (expected non-prevalence) and d =relative desired precision at +-5%. Therefore, the required sample size was:

$$n = \frac{1.96^2(0.5)(0.5)}{0.05^2}$$

$$n = 384 \text{ domestic workers}$$

Sample size desired= 384 which is above the 95% confidence limit; however, the sample size was scaled to 400. The justification for a sample size of 400 respondents is because there are many domestic services sector workers in Kahawa and Githurai and also, to take care of potential non-response since gathering data from a very small sample size would have been subjective and unreliable.

3.1 Research instruments

Questionnaires were used since it was easy to administer and were less costly. The researcher collected primary data using structured questionnaires entailing question items on wage determination in the domestic service sector. The questionnaires were entirely based on the study objectives. According to Kothari (2003), the design of questionnaire was preferred due to its objectivity and precision thus accuracy when it comes to analysis.

3.2 Pilot Study

Validity and reliability of the questionnaire was done by piloting ten respondents. This was to assess the clarity of the questionnaires so that those items found to be misunderstood and redundant be detached or modified to improve the quality of the survey, thus increasing its validity. This was evaluated using Cronbach's alpha which measures internal consistency and the alpha coefficient ranges from 0-1. A higher value shows a more reliable generated scale and according to Cooper and Schindler (2008), 0.7 is accepted reliability coefficient. The instrument did not require any adjustment and was hence used in the entire data collection exercise.

3.3 Data Type, Source and Collection

The researcher relied on primary data. Data was collected using questionnaires. The questionnaires were administered to the domestic workers and employers and collected data was edited, coded the same day to check for consistency, completeness and reliability of data. Collected data was subjected to verification and cleaning. Qualitative data was coded appropriately. Data was then refined and entered into spreadsheet document before being subjected to analysis.

4.0 Results

4.1 Diagnostic Tests and Data Analysis

In order to guarantee that the estimated model was appropriate in ensuring consistent coefficient estimates, the various diagnostic tests were carried out namely; normality, specification test and autocorrelation analysis to test for multicollinearity. The correlation analysis was carried out to establish if the independent variables were strongly correlated. This was done to determine if there was problem of multicollinearity. Multicollinearity causes the coefficient estimates to swing wildly based on which

extra independent variables are in the model and as a result, the coefficients become more sensitive to even small changes in the model. Also, it reduces the precision of the estimate coefficients thus weakens the statistical power of the regression model. It can be detected if there are high R square but low t-stats, when there are high correlation coefficients among the independent variables, high VIFs. A VIFs value of one denotes that there is no correlation between the independent variable, a VIFs between one and five indicated a moderate correlation but it is not severe enough to warrant corrective measures but VIFs greater than five characterizes a critical levels of multicollinearity thus the coefficients were poorly estimated and the p-values are questionable. Multicollinearity can be collected by removing highly correlated independent variables, by linearly combining the independent variables by adding them together and lastly by performing an analysis designed for highly correlated variables such as partial least squares regression or components analysis.

Model specification test was conducted to test if the model was specified appropriately. Model misspecification occurs when a multiple regression model does not properly account for the relationship between the dependent and the explanatory variables. Misspecification occurs when omitting functions of independent variables. Functional form misspecification leads to bias in the remaining parameters to be estimated. To mitigate this problem, the theory behind the functional relationship that is to be modeled through regression should be relied upon since understanding the theory behind the functional relationship will lead to identification of potential predictors to be used in the model. Shapiro-Wilk W test and Skewness/Kurtosis test was used to test for normality. This was done to test if the residuals were not normally distributed. The residuals are normally distributed if corresponding p-value is not more than 5.0 percent and therefore the null hypothesis that the residuals are normally distributed should not be rejected. The Wald test was used because it is easy to calculate and the confidence interval has a closed form.

Robust linear regression estimation was done on the equation 3.13. To address the specific objectives of the study which sought to find out the effect of education and work experience on wages, the effect of sex on wages of the domestic workers, the effect of type of residence and dwelling of a domestic worker on wages; the similar estimation technique was applied on same equation. The results obtained from the sample represented the entire population of the study. Quantitative data was analysed using Tables charts frequencies and percentages from which interpretations were made.

4.1.1 Multicollinerity Test

Table 1: present Test results.

Variable	VIF	1/VIF	
Sex	1.02		0.982133
Education level in years'	1.04		0.960253
Work experience in years	1.02	0.979654	
Type of residence	1.87	0.535010	
Dwelling	1.84	0.544692	
Mean VIF	1.36		

Table 1 shows the Variance inflation factor (VIF) and tolerance statistics (l/VIF) results. As Menard (1995) suggested, a tolerance value of less than 0.1 almost certainly indicates serious collinearity

problems, and for these data the values were greater than 0.1 for all variables, therefore was no serious multicollinearity. If the VIF value is greater than 10 is cause for concern. In this study the values were less than 10 for all variables. Following the results in Table 4.9, the model indicated no problem of multicollinearity.

4.1.2 Model Specification Test

Using link test to test whether the model to be used was correctly specified. Tables 4.10 show the test results.

Table 2: Specification Test

Natural logarithm of wage	Coefficient	Std.Err	T	P>|t|	[95% Conf.	Interval]
_hat	8.352216	5.276741	2.15	0.032	-.7151777	15.98926
_hatsq	-.4178286	.2206662	-1.89	0.059	-.8517692	.016112
_cons	-32.30528	17.07287	-1.89	0.059	-65.87912	1.268565
Number of obs = 367						
F(2, 364) = 98.36						
Prob > F = 0.0000						
R-squared = 0.3508						
Adj R-squared = 0.3473						
Root MSE = 0.40654						

Table 2 indicate a p-value of 0.059 corresponding to "hatsq" implying that it is not significant and hence we failed to reject the null hypothesis and concluded that the model was correctly specified.

4.1.3 Normality Test

Using Shapiro-Wilk W test and Skewness/Kurtosis test was used.

Table 3: Shapiro-Wilk W test for normal data

Variable	Obs	w	V	Z	Prob>z
e	367	0.97293	6.900	4.578	0.00000

Table 4: White's test

Source	Chi2	df	P
Heteroskedasticity	44.17	17	0.0003
Skewness	39.56	5	0.0000
Kurtosis	16.40	1	0.0001
Total	100.13	23	0.0000

The results in Table 3 and 4 indicates that the null hypothesis was rejected at 1 percent, 5 percent and 10 percent levels of significance leading to the conclusion that residuals were not normally distributed. The respective P-value for the test was 0.00. However, since the sample size was large, consisting of 367 observations, the Central Limit Theorem was applied and therefore normality was not an issue.

4.2 Robust Regression

This estimation technique was used to estimate the effect of sex, education level in years and work experience, type of residence and dwelling. Based on the diagnostic tests conducted and the results suppressed the viability of least square estimator especially OLS. This justified the use of robust estimation approach.

4.2.1 Robust Regression Results, Interpretation and Discussion

The general objective of the research study was to establish wage determination in the domestic services sector in Kahawa and Githurai estates in Kiambu County. To achieve the study objectives, robust regression was used to estimate the general model in equation 3.13.Also, the same equation was used to address the specific research objectives which were: to determine the effect of education, work experience, type of residence and dwelling of a domestic worker on wage. Table 5 presents the robust regression results.

Table 5: Robust Regression estimation results

Dependent Variable: log wage

Variable	Coefficient.	Robust standard error	t-ratio	P>|t|	[95% confidence interval]	
Sex	.0602761	.0434483	1.39	0.166	-.0251674	.1457195
Education level in years schooling	.0723871	.0111175	6.51	0.000	.050524	.0942502
Work experience (years)	.0742259	.0144071	5.15	0.000	.0458935	.1025583
Type of residence	.3655564	.0615217	5.94	0.000	.2445704	.4865424
Dwelling	.0843591	.0639687	1.32	0.188	-.0414389	.2101571
Constant	7.614098	.1350054	56.40	0.000	7.348602	7.879593

Source: Own computation

SS df MS Number of obs=367 F-Statistic = 40.94
Prob> F = 0.0000 R-squared = 0.3444
Root MSE = .41023 Adjusted R-squared = 0.3354

The F static that measures the joint determination in Table 4.13 had an estimate value of 40.94 and was statistically significant at one percent level. This meant that the regression model was appropriate in the determination of wage. All the variables used jointly explained variation in wage. The adjusted R implies that the variables jointly explained 0.3354 percent off the changes in wage. The results in Table Table 5 show that the coefficient of education level in years was statistically significant at 5 percent level. The coefficient of education level of 0.0723871 indicated that, holding other things constant,

increasing the level of schooling by one year increased wages by 7.2 percent. Further, the coefficient of work experience was also statistically significant at 5 percent level. The coefficient of work experience of 0.0742259 indicated that, holding other things constant, increasing work experience by one year increased wage by 7.4 percent. In addition, the coefficient of work type of residence was statistically significant at 5 percent level. The coefficient of type of residence of 0.3655564indicating that if a domestic worker hailed from an urban area, their wage would be higher by 36.5 percent compared to the one from the rural area. Sex and dwelling (living with the employer) were found not to be important in determining the wages of the domestic workers.

In addressing the specific objectives, the results indicated that there was a positive relationship between work experience in years, level of education in years of schooling and type of residence of a domestic worker and wages. The coefficient of work experience was relatively large, compared to the coefficient of education variable. Although schooling has been the focus in most researches since it's the most noticeable component in human capital. It has to be borne in mind; however, the R^2 of earnings regressions which control level of education in years of schooling is relatively small, suggesting that schooling differences account for a relatively small fraction of the differences in earning compared to work experience. This is normal for a cross-sectional study. Also, domestic workers who are from urban areas earned much higher wages than those from rural areas since they are exposed to the urban lifestyle and will have a high bargaining power in wage pay.

Different studies show substantial differences in wage earning across school levels in different countries. For instance, in Pakistan labour market, numeracy and literacy skills are more valued than years of schooling and employers would pay higher wage to them even if they do not have formal schooling Gaag and Vijverberg, (1989). The results in Table 4.13 above were found to be consistent with the results of Fleischhauer (2007) who found out that yields of education were between 5.5 percent and 9.3 percent.Also, the results indicated were consistent with the results of (Kimenyi 2003) who found out that that human capital of others had a n effect to wage earnings of workers in urban areas. For instance, education level, working experience and location dummy variables explained about30 percent of the adjustments in log monthly wage earnings for all the workers.

Further, the results concur with Muturi (2014) who found that education level, worker's experience, and job category were positively related to employee's wages. The author found out that the coefficients of education and work experience was statistically significant at 5 percent and that education level, worker's experience, and job category influenced employee's wages and Wambugu (2003) who found out that education effects remain significant in wage determination. In addition, the results in table 4.11 was consistent with the results with Barro and Lee (2010)whose estimates showed that the rate-of-return of an additional year of schooling ranged between 5% to 12%, which is close to typical Mincerian return estimates. The author argued that most workers are motivated to attain additional education so that they would get promotions hence high wages earnings. The findings indicate that in an effort to create fairness in wage determination in the domestic services sector, policies and strategies that are anchored in social economic characteristics and human capital investment that is; the domestic worker's level of education, work experience, type of residence should be considered apart from minimum wage which is generally defined by state raw.

5.0 SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

5.1 Summary

Domestic service sector is one of the crucial sectors in the Kenyan economy since it is a major source of employment and income creation. This study sought to establish wage determination in the domestic service sector in Kahawa and Githurai estates in Kiambu County, Kenya. The specific objectives of the study were to: determine the effect of education, work experience, type of residence (urban or rural), dwelling and sex on wages of domestic workers in Kahawa and Githurai estates. The results showed that work experience, education level, type of residence of a domestic worker were important factors in determining wages while a worker living with the employer and sex were not. On average, those with primary education earned Kshs5148.3051 placing them on a salary range of kshs. 3,000 to 6,000 while that with secondary level on average earned Kshs.7673.6111 placing them on a salary range of kshs. 6,000 to kshs.9, 000.

5.2 Conclusions

The study has established that indeed work experience, education level in years and type of residence of a domestic worker (rural or urban) are important factors that should be considered in determining wages thus giving a different perspective approach in determining wages in the domestic service sector apart from minimum wage fixing which is defined by the state. The study found out that although domestic services sector workers who otherwise perform almost the same work that requires the same skills in the same location area were paid different rates of remuneration. Based on the study results which indicate different education levels and work experiences and type of residence among workers, the study concludes that the domestic worker's level of education, work experience and type of residence are important factors and should be considered in determining wages of domestic workers.

5.3 Recommendations

Based on the research results on wage determination in the domestic services sector, the research study notes that one direct action plan for the government would be;

To improve overall literacy levels, work with the authorities in enforcing and compelling parents to take their children to school to acquire basic education now that there is free primary education. From the research stud, it was found that 118 domestic workers had primary education. In secondary education level, the government should provide attractive alternatives and remove dead ends thus preventing dropouts. This benefit the society to acquire basic life skills as well as education which is key in human capital developmentwith the implication that the compensation of workers replicates their marginal productivity.

Secondly, inadequate skills and work experience is one observation noted from the study. The government should establish enters where dissemination of information about the demand for different types of skills and returns. This would also increase the competitiveness of the workers in terms of wage negotiation power as well as transmitting new knowledge and avenues for workers to make effective choices. For instance, the Brazil's model of skills eagerness has proven highly successful and has been replicated in many other developing and emerging economies (ILO, 2013).

A comprehensive approach to develop the sector through policies and action-oriented programs aimed at factoring domestic workers' skills and education level andothers social factors such as whether a

domestic worker hails from rural or urban areas should be taken into account when determining wages as opposed to wage fixation which is generally defined by state law which has not been honoured by many employers.

5.0 Suggestions for Further Research

Based on the findings of the study, there is need to investigate further and establish other social economic factors that determine wages due to geographical locations. The study has explored the effect of human capital and some social economic factors while there are some other external factors that may influence wage determination. Hence further investigations should be done on these external factors and their influence on wages by including variables not in our model.

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