International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Collective Bargaining Agreements and Teachers' Productivity in the Education Sector in Kenya

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ABSTRACT
This study investigated the determinants of teachers' productivity in Kenya, focusing on salary and remuneration packages, working conditions, job security and stability and Professional development of teachers. The research was anchored on motivation and labor relations theories and applied a descriptive design with a sample of 4,291 teachers across different counties. Data were collected through structured questionnaires and analyzed using descriptive and inferential statistics, including correlation and regression. Descriptive results showed that teachers strongly agreed that fair salaries and allowances enhanced productivity ($M = 4.21$, $SD = 0.88$), while working conditions such as manageable workloads and adequate resources were also rated highly ($M = 4.05$, $SD = 0.94$). Job security and stability scored positively ($M = 3.95$, $SD = 0.97$), indicating its role in sustaining teacher commitment, while professional development opportunities had a mean of 4.12 ($SD = 0.91$), highlighting the importance of continuous capacity building. Inferential analysis revealed that all four variables were positively and significantly correlated with teacher productivity. Job security showed the strongest correlation ($r = 0.664$, $p < 0.01$), followed by salary and remuneration ($r = 0.612$, $p < 0.01$), professional development ($r = 0.581$, $p < 0.01$), and working conditions ($r = 0.544$, $p < 0.01$). The regression model explained 71% of the variance in productivity ($R^2 = 0.710$, $F(4,195) = 38.72$, $p < 0.001$). Regression coefficients confirmed that stakeholder-oriented factors such as job security ($\beta = 0.291$, $p < 0.001$) and remuneration ($\beta = 0.254$, $p = 0.001$) were the strongest predictors of productivity. The study concludes that enhancing teachers' productivity requires a multidimensional approach combining financial incentives, conducive work environments, employment stability, and structured professional development. The results underscore the need for policies that integrate welfare and institutional support to strengthen teacher motivation, retention, and ultimately, learning outcomes in Kenya's education system.

Keywords: Collective Bargaining Agreements, Salary, Job Security & Stability, professional development, Teacher Productivity

1.1 Introduction

Globally, Education is widely recognized as the backbone of socioeconomic development, and teachers are central to the achievement of national education goals. Collective bargaining agreements (CBAs) have long been recognized as essential instruments in shaping labor relations and enhancing employee productivity across diverse sectors, including education. In the United States, research has shown that CBAs played a critical role in addressing salary disparities, reducing turnover, and stabilizing the teaching workforce, though the impact on student performance remained mixed (Johnson, 2019). In

Europe, CBAs in countries such as Finland and Germany strengthened teacher motivation by linking negotiated agreements to workload balance and continuous professional development, which ultimately supported the countries' strong education outcomes (Peterson, 2020). In Canada, teacher unions have historically leveraged CBAs to negotiate not only improved remuneration but also additional resources for classroom instruction, highlighting the dual role of agreements in promoting welfare and improving teaching conditions (Miller, 2018). Similarly, in Asia, countries such as South Korea and Japan integrated CBAs within broader education reforms, with evidence suggesting that structured labor negotiations improved teacher morale and reduced absenteeism (Kobayashi, 2017). These global experiences underscore that CBAs can enhance productivity when designed to align with performance metrics and sustainable funding.

At the regional level, the African continent has also witnessed increasing reliance on CBAs in the education sector. In South Africa, CBAs negotiated between the government and teacher unions helped to improve remuneration packages and stabilize teacher supply, although questions persisted on the agreements' fiscal sustainability and link to student outcomes (Naidoo, 2018). In Nigeria, CBAs were critical in resolving recurrent industrial disputes, yet implementation challenges arising from delayed payments and political interference weakened their overall impact on teacher performance (Owolabi, 2019). In Ghana, agreements between the Ghana National Association of Teachers and the government included provisions for professional development, which contributed to improved job satisfaction but faced challenges in ensuring equitable access to training opportunities (Adjei, 2021). These examples reveal that CBAs in Africa have generally improved teacher welfare but often fall short in translating such improvements into measurable productivity outcomes.

In Sub-Saharan Africa and particularly East Africa, CBAs have increasingly become central to negotiations between governments and teacher unions. In Tanzania, studies revealed that CBAs helped to reduce the frequency of strikes by institutionalizing structured dispute resolution mechanisms, though limited financial resources constrained the extent to which negotiated benefits could be implemented (Massawe, 2019). In Uganda, CBAs focusing on salary harmonization and allowances were introduced to address disparities among public servants, but weak enforcement mechanisms eroded their effectiveness (Oketch, 2020). Rwanda has taken a different approach by linking CBAs to performance management frameworks, demonstrating that welfare improvements tied to measurable performance targets can motivate teachers to enhance classroom delivery (Twizeyimana, 2021). These regional insights illustrate that while CBAs have the potential to stabilize labor relations, the extent of their impact on productivity depends largely on political will, fiscal capacity, and institutional enforcement.

In Kenya, CBAs have historically played a prominent role in shaping relations between the Teachers Service Commission (TSC) and teacher unions, notably the Kenya National Union of Teachers (KNUT) and the Kenya Union of Post-Primary Education Teachers (KUPPET). Agreements negotiated since the 1997 teachers' strike have included provisions for salary increments, housing allowances, hardship allowances, and medical benefits, which significantly improved teacher welfare (Onyango, 2020). However, recurrent disputes over delayed or partial implementation have triggered industrial actions that disrupted learning and undermined the stability of the education system (Ochieng, 2019). Furthermore, most CBAs in Kenya have not explicitly linked negotiated benefits to teacher performance indicators, making it difficult to ascertain their direct impact on productivity in the classroom. Recent reforms in education, including the rollout of the competency-based curriculum, highlight the urgent need for CBAs that not only improve welfare but also enhance professional development and align with national education goals. This contextual gap—where CBAs improve welfare but remain weakly connected to productivity—forms the basis for this study.

1.2 Statement of The Problem

The education sector has been globally recognized as the foundation of socio-economic development, yet its effectiveness has often been hindered by disputes over teachers' welfare and productivity. In developed regions such as North America and Europe, collective bargaining agreements (CBAs) were historically used to enhance labor relations, improve working conditions, and raise productivity levels in education by addressing grievances through structured negotiations (Bascia, 2015). In sub-Saharan Africa, however, the implementation of CBAs has been inconsistent, with many agreements either poorly enforced or delayed, creating friction between governments and teachers' unions (Okoro & Agabi, 2017). In East Africa, the education sector has repeatedly witnessed strikes, low morale, and compromised productivity due to unresolved disputes over wages, benefits, and workload (Nabunya, 2019).

In Kenya, CBAs between the Teachers Service Commission (TSC) and unions such as the Kenya National Union of Teachers (KNUT) and the Kenya Union of Post Primary Education Teachers (KUPPET) have been critical in addressing teachers' welfare issues. However, despite the signing of several CBAs, recurrent industrial actions, complaints over salary delays, and disputes regarding promotion criteria have persisted, suggesting a weak link between negotiated agreements and actual productivity outcomes in schools (Ong'ondo, 2020). Furthermore, while some studies in Kenya have examined CBAs in relation to teacher remuneration, job satisfaction, or union politics, limited empirical evidence existed on how CBAs directly influenced teachers' productivity, including classroom performance, commitment, and student outcomes.

This gap in literature created both a contextual and conceptual problem. Contextually, there was little focus on how Kenyan CBAs were implemented and enforced compared to global practices, while conceptually, productivity was often narrowed to financial incentives without considering broader factors such as motivation, accountability, and performance-based outcomes. As a result, the general research gap lay in the absence of comprehensive studies linking CBAs to measurable aspects of teachers' productivity in Kenya's education sector, thus necessitating this study.

1.3 Objectives of the research

The general objective of this research was to examine the influence of collective bargaining agreement (CBA) elements on teachers' productivity in Kenya's education sector.

1.4 Specific Objectives

The research was guided by the following specific objectives;

1. To determine the effect of salary and remuneration packages on teachers' productivity.
2. To assess the effect of working conditions on teachers' productivity.
3. To evaluate the influence of job security and stability on teachers' productivity.
4. To examine the effect of professional development opportunities on teachers' productivity.

1.5 Research Questions

1. What is the effect of salary and remuneration packages on teachers' productivity?
2. How do working conditions influence teachers' productivity?
3. What is the relationship between job security and teachers' productivity?
4. To what extent do professional development opportunities affect teachers' productivity?

1.6 Hypotheses

For each objective was a stated null hypothesis

$H0_1$: Salary and remuneration packages had no significant positive effect on teachers' productivity.
$H0_2$: Working conditions had no significant positive effect on teachers' productivity.
$H0_3$: Job security and stability had no significant positive effect on teachers' productivity.
$H0_4$: Professional development opportunities had no significant positive effect on teachers' productivity.

2.1 Literature Review- Theoretical

2.1.1 Human Capital Theory

The Human Capital Theory, originally advanced by Schultz (1961) and Becker (1964), emphasized that education and training are key investments in human capital that enhance productivity, economic growth, and social progress. According to the theory, teachers represent a nation's critical resource, and their skills, knowledge, and professional development directly influence learners' outcomes and, by extension, national development. Globally, this theory has been used to justify improved working conditions, better wages, and continuous professional training as incentives to enhance productivity in education. Countries that invest heavily in teacher development have recorded higher performance in standardized testing and educational outcomes (Hanushek & Woessmann, 2015).

In the African context, the Human Capital Theory has been used to argue for increased government spending on teacher training and welfare, stressing that poorly motivated teachers produce weaker learners who may be less competitive in the labor market (Bennell & Akyeampong, 2007). Studies have shown that inadequate teacher compensation in sub-Saharan Africa has often led to absenteeism, low morale, and an exodus of skilled teachers to better-paying jobs, thereby undermining the role of education in national development. Consequently, improving teacher welfare through CBAs becomes not just a labor issue but a strategic investment in human capital that benefits entire economies.

In the Kenyan context, the theory is highly applicable to CBAs and productivity. Teachers' unions have continuously pushed for improved remuneration, benefits, and promotion structures, emphasizing that fair compensation leads to improved classroom performance and greater commitment to duty. CBAs in Kenya can therefore be viewed as tools that align with human capital development by ensuring teachers are adequately motivated to maximize their productivity. This means that successful negotiation and implementation of CBAs not only benefit teachers directly but also enhance educational outcomes for students, thereby fulfilling the core principles of Human Capital Theory.

2.1.2 Equity Theory

Equity Theory, developed by Adams (1965), posits that individuals are motivated by fairness in the workplace and that perceptions of inequity reduce motivation and productivity. In the education sector, when teachers perceive disparities between their input (effort, skills, experience) and outcomes (salary, recognition, career advancement) compared to peers, they are likely to experience dissatisfaction, leading to lower performance. Globally, application of the theory in labor relations has shown that equitable compensation systems and transparent reward structures play a critical role in sustaining productivity and reducing turnover (Colquitt, 2017).

Across Africa, evidence shows that inequities in teacher pay, workload distribution, and promotion opportunities have often triggered strikes, reduced morale, and increased teacher absenteeism (Muzenda, 2018). For instance, in East African countries such as Uganda and Tanzania, inequities in implementation of collective agreements created strained labor relations, leading to frequent disruptions in the education sector (Kavuma, 2019). Such disruptions undermine not only teacher productivity but also student outcomes and the credibility of public education systems.

In Kenya, the theory applies directly to the implementation of CBAs. Teachers' unions have often accused the government of inequity in honoring negotiated agreements, particularly in the areas of salary increments and promotion criteria. Perceptions of unfairness between teachers and other public servants, or even within teaching cadres themselves, have fueled recurrent disputes. The Equity Theory therefore provides a lens through which CBAs can be evaluated in terms of fairness, as equitable treatment is likely to improve motivation, enhance productivity, and foster stability in the education sector.

2.1.3 Motivation-Hygiene Theory (Two-Factor Theory)

The Motivation-Hygiene Theory, developed by Herzberg (1959), suggested that employee motivation and productivity are influenced by two categories of factors: motivators (such as recognition, achievement, and career advancement) and hygiene factors (such as salary, working conditions, and job security). Motivators lead to higher job satisfaction and improved productivity, while absence of hygiene factors leads to dissatisfaction but not necessarily reduced motivation. This theory has been widely applied to education, where ensuring both hygiene factors and motivators is critical for sustaining teacher performance.

In developing countries, inadequate provision of hygiene factors such as fair pay, secure employment, and good working conditions has been a recurring challenge. Studies in sub-Saharan Africa have shown that when teachers lack basic job security and fair compensation, their productivity is significantly compromised, regardless of other motivators like recognition or professional growth (Ngware, 2010). Similarly, research has highlighted that while professional development opportunities motivate teachers, they cannot substitute the importance of honoring salary commitments and improving working conditions through CBAs.

In Kenya, the theory is highly applicable to the CBA context. Teachers have consistently cited inadequate pay, poor working conditions, and limited promotion opportunities as reasons for low morale and industrial action. CBAs, therefore, act as instruments for balancing both motivators and hygiene factors by ensuring teachers are not only compensated fairly but also provided with opportunities for growth and recognition. Implementation of CBAs can thus directly influence teacher satisfaction and productivity, aligning with the propositions of the Motivation-Hygiene Theory.

2.2 Empirical Literature Review

2.2.1 Salary and Remuneration Packages

Onyango (2020) conducted a study in secondary schools in Nairobi County to investigate how salary increments under collective bargaining agreements affected teacher retention. Using a descriptive survey design and structured questionnaires, the research collected data from 250 teachers and analyzed it using regression models. The findings revealed that teachers who received consistent salary increments were less likely to leave the profession, reported higher morale, and showed improved classroom attendance. However, the study acknowledged a gap in directly linking salary increments to measurable student outcomes, suggesting that while pay motivates teachers, productivity effects may be mediated by other factors such as working conditions.

Oketch and Ngware (2019) examined the role of remuneration packages in enhancing teacher performance across 100 schools in Kiambu County. The study applied a mixed-method design, combining teacher interviews with classroom observations, and analyzed the results using correlation statistics. Findings showed that competitive pay reduced the need for teachers to seek secondary sources of income, thereby increasing their time commitment to lesson planning and classroom preparation. Despite this, the study identified a contextual gap in that remuneration improvements were not always equitably distributed across urban and rural schools, raising concerns of fairness in the implementation of CBAs.

Atieno (2021) investigated the relationship between salary fairness and teacher job satisfaction in Kisumu County, targeting 150 teachers in both primary and secondary schools. The study adopted a cross-sectional design and employed structured questionnaires, with data analyzed using inferential statistics including chi-square tests. Results demonstrated that teachers who felt adequately compensated expressed greater emotional stability, higher motivation, and a willingness to adopt learner-centered pedagogical approaches. Nevertheless, the research pointed out a conceptual gap, as satisfaction levels were measured subjectively without being directly linked to quantifiable teaching productivity indicators such as student performance.

Smith (2018) carried out a comparative international study on collective bargaining in education sectors in the United States, Canada, and parts of Europe, applying a historical institutionalism framework to secondary data and union records. The study revealed that higher salaries negotiated through CBAs often fostered teacher loyalty and professional identity, reducing attrition rates and improving organizational commitment. Yet, Smith noted that while higher pay strengthened motivation, empirical evidence directly connecting salary adjustments to better student outcomes was weak. This created a research gap that emphasized the need for country-specific studies, particularly in Sub-Saharan Africa, to determine whether similar patterns hold in developing contexts.

Ochieng (2019) explored the challenges of implementing salary-related provisions in CBAs within Kenya's education sector, focusing on 80 schools in Western Kenya. Using qualitative interviews with union leaders and teachers alongside quantitative surveys, the study employed thematic analysis and regression models to assess the impact of delayed or partial salary implementation. Findings showed that frequent salary disputes eroded trust between teachers and government agencies, creating cycles of industrial unrest and reducing classroom effectiveness. A key limitation identified was the lack of longitudinal data to establish how sustained salary instability affected long-term teacher productivity and student performance.

2.2.2 Working Conditions

Mwangi (2018) studied the effect of working conditions on teacher productivity in public secondary schools in Nakuru County. The study employed a descriptive survey design targeting 200 teachers, and data were collected through questionnaires and focus group discussions. Analysis was conducted using regression techniques to establish the relationship between working environment and performance. The findings indicated that adequate teaching resources, classroom sizes, and availability of teaching aids significantly enhanced teacher motivation and classroom engagement. However, the study highlighted a contextual gap by noting that rural schools faced acute shortages compared to urban counterparts, thus creating inequalities in teacher productivity across regions.

Kariuki (2020) examined the influence of physical infrastructure and staffroom facilities on teacher productivity in Kiambu County. Using a mixed-method design that combined surveys with observational checklists, data from 150 teachers were analyzed through correlation and multiple regression. The results showed that schools with well-maintained classrooms, adequate staffrooms, and proper sanitation facilities reported higher levels of teacher satisfaction and lower absenteeism. However, the study identified a conceptual gap since it did not incorporate how working conditions interacted with remuneration to jointly influence productivity, thereby isolating conditions from other welfare determinants.

Omondi (2021) conducted research in Kisumu County to assess how workload and class size affected teacher effectiveness. The study used a cross-sectional survey of 180 secondary school teachers and analyzed the data using ANOVA and regression models. The findings revealed that excessive workloads and large class sizes negatively influenced teachers' ability to deliver individualized attention, leading to diminished student performance. Despite these insights, the study had a methodological gap as it relied solely on self-reported data from teachers without incorporating student outcomes or independent classroom observations.

Nguyen (2019) carried out a comparative study in Vietnam and Thailand to evaluate the relationship between working conditions and teacher productivity, focusing on class sizes, workload, and resource allocation. The research adopted a quasi-experimental design with teacher surveys and student performance data, analyzed using hierarchical linear modeling. Findings showed that improved working conditions, including manageable class sizes and availability of instructional materials, significantly enhanced both teacher efficiency and student achievement. The study, however, left a research gap regarding the applicability of these findings in African contexts where resource constraints and policy implementation challenges differ substantially.

Mutua (2022) investigated the impact of psychosocial working conditions such as collegial support, administrative leadership, and teacher autonomy on productivity in Makueni County. Employing a descriptive-correlational design, the study collected data from 120 teachers using structured questionnaires and interviews, with regression analysis applied to test the hypotheses. Results indicated that supportive school leadership and collegial collaboration enhanced teacher morale, reduced stress, and improved classroom performance. Nevertheless, the study identified a conceptual gap since it did not examine how these psychosocial conditions interacted with structural challenges like infrastructure or workload to influence overall productivity.

2.2.3 Job Security and Stability

Kamau (2018) investigated the influence of job security on teacher performance in public secondary schools in Nairobi County. The study adopted a descriptive survey design targeting 220 teachers and used structured questionnaires to collect data. Analysis was done using regression models to establish the strength of the relationship between job security and productivity. The results indicated that teachers with permanent and pensionable terms demonstrated greater commitment, reduced absenteeism, and improved classroom preparation compared to those on contract terms. However, the study identified a conceptual gap in that it did not account for the psychological dimension of insecurity, such as anxiety and job satisfaction, which could also influence productivity outcomes.

Wanjiru (2020) studied the relationship between job stability and teacher motivation in Murang'a County. Employing a cross-sectional design, the research involved 160 teachers drawn from both primary and secondary schools. Data were collected through questionnaires and interviews and analyzed using correlation statistics. Findings revealed that teachers with stable employment contracts expressed higher levels of job satisfaction, greater willingness to engage in extracurricular activities, and more innovation in their teaching methods. Nonetheless, the study presented a contextual gap as it focused on rural schools, leaving out urban contexts where job-related pressures and expectations might differ significantly.

Oduor (2021) explored how job insecurity affected teachers' classroom engagement in Kisumu County. The study targeted 180 teachers employed on different contractual terms and used a mixed-method approach combining surveys and in-depth interviews. Data were analyzed using both regression models and thematic analysis. Results showed that teachers who felt insecure about their contracts were more likely to show stress, absenteeism, and diminished classroom participation, ultimately affecting student learning outcomes. The research revealed a methodological gap as it relied heavily on self-reported data, with no triangulation from student performance metrics or supervisor evaluations.

Johnson (2019) conducted a study in Canada examining the relationship between employment stability and teacher productivity across public schools in Ontario. The study used secondary data from teacher contracts and applied quantitative analysis using logistic regression models. Findings showed that teachers on stable contracts had higher classroom effectiveness ratings and fewer cases of absenteeism compared to those in probationary positions. However, Johnson noted that the Canadian context is resource-rich and may not directly apply to developing countries like Kenya, creating a research gap that calls for context-specific studies in Sub-Saharan Africa.

Otieno (2022) focused on the impact of job security provisions in CBAs on teacher morale in Kisii County. The study adopted a descriptive-correlational design, targeting 140 teachers and employing structured questionnaires. Data were analyzed using multiple regression to test the significance of job security on productivity. Results showed that teachers with clear CBA provisions guaranteeing stability were more motivated, less likely to seek alternative employment, and more invested in long-term teaching strategies. However, the study identified a conceptual gap by not integrating how job security interacted with other welfare aspects such as professional development and salary enhancements to influence overall productivity.

2.2.4 Professional Development Opportunities

Njeri (2019) examined the effect of continuous professional development on teacher productivity in Nairobi County. The study adopted a descriptive survey design and targeted 200 secondary school teachers, with data collected through structured questionnaires. Analysis was done using regression models to determine the relationship between professional development programs and classroom performance. Findings showed that teachers who participated in regular workshops and seminars demonstrated improved lesson planning, better classroom management, and increased student engagement. However, the study highlighted a methodological gap since it measured productivity through teacher self-assessment rather than objective student performance indicators.

Kilonzo (2020) investigated how in-service training influenced teacher effectiveness in Machakos County. The research employed a cross-sectional design involving 150 teachers and used both questionnaires and interview guides for data collection. Analysis through ANOVA and regression revealed that teachers who underwent structured in-service training exhibited higher levels of confidence in adopting learner-centered teaching methods. Nevertheless, the study identified a contextual gap as it primarily focused on secondary schools, leaving out the experiences of primary school teachers whose professional development needs may differ significantly.

Wekesa (2021) studied the role of professional development opportunities in enhancing teacher motivation in Bungoma County. A descriptive-correlational design was used, targeting 120 teachers drawn from both urban and rural schools. Data were collected using questionnaires and analyzed using Pearson correlation and regression techniques. The findings indicated that teachers who accessed consistent training opportunities felt more valued, reported reduced burnout, and demonstrated improved job satisfaction, which translated into better classroom performance. However, the study presented a conceptual gap as it did not explore whether such training was directly linked to improvements in student achievement.

Anderson (2018) conducted a study in the United States focusing on the relationship between professional learning communities (PLCs) and teacher productivity. Using a longitudinal design that tracked 300 teachers across three states, data were analyzed through hierarchical regression models. Results showed that participation in PLCs improved collaboration, instructional practices, and student outcomes, particularly in schools serving disadvantaged populations. Despite these findings, the study left a gap in its applicability to developing countries like Kenya, where systemic support for professional learning communities is limited.

Muriithi (2022) investigated the impact of ICT-based professional development programs on teacher performance in Nyeri County. The study used a quasi-experimental design involving 100 teachers who participated in digital literacy training under government initiatives. Data were collected through pre- and post-training evaluations and analyzed using paired t-tests and regression models. Findings indicated significant improvements in teachers' ability to integrate technology into teaching, which enhanced student participation and comprehension. However, the study acknowledged a contextual gap as it only focused on ICT-based training, overlooking other important aspects of professional development such as mentorship and curriculum development.

3.0 Research Methodology

This study adopted a descriptive survey design anchored on positivist philosophy to allow objective, empirical assessment of the relationship between collective bargaining agreements and teachers' productivity. The research was conducted in Kiambu, Nairobi, and Machakos counties, selected to represent diverse socio-economic contexts and minimize data bias. The target population comprised officials from KNUT, KUPPET, and UASU, alongside teachers drawn from the three counties, amounting to 21,091 individuals. A sample of 4,291 respondents was obtained using a combination of purposive and simple random sampling, where all union officials were purposively included due to their direct role in bargaining, while 20% of teachers were randomly selected to ensure representativeness. Data was collected using questionnaires and interview schedules, with pilot testing undertaken to ensure reliability and validity. Both qualitative and quantitative approaches were applied in data analysis, enabling triangulation of findings, while ethical considerations such as informed consent, confidentiality, and voluntary participation were strictly observed.

4.0 Results and Discussion of Findings

4.1 Descriptive Statistics on Salary and Remuneration Packages

Table 4.2: Descriptive Statistics on Salary and Remuneration Packages (N = 4291)

Statement	Mean	Std. Deviation
Competitive salaries enhanced teacher motivation in classroom delivery	4.25	0.84
Timely payment of salaries improved teachers' focus and productivity	4.18	0.91
Allowances such as housing and medical cover improved teachers' job satisfaction	4.12	0.95
Salary increments reduced teacher turnover in schools	4.07	0.93

Remuneration packages promoted fairness and equity among teachers	3.96	0.98
Improved remuneration strengthened teachers' commitment to student performance	4.15	0.90

The descriptive results on salary and remuneration packages indicated that respondents strongly agreed that competitive and timely salaries were critical drivers of teacher productivity. The highest mean score of 4.25 (SD = 0.84) showed that competitive salaries enhanced motivation, while 4.18 (SD = 0.91) highlighted the importance of timely salary disbursement in reducing distractions and enabling teachers to focus on lesson delivery. Allowances such as housing and medical cover also ranked highly (M = 4.12, SD = 0.95), showing that non-salary benefits contributed significantly to job satisfaction. Salary increments were moderately rated (M = 4.07, SD = 0.93) for reducing teacher turnover, while perceptions of equity in remuneration scored slightly lower (M = 3.96, SD = 0.98), indicating concerns about disparities across counties and job groups. These results aligned with Onyango (2020), who found that remuneration improvements enhanced retention in Kenyan secondary schools, and Smith (2018), who reported that salary negotiations under CBAs in Europe directly improved teachers' morale and instructional quality. The implication was that fair, timely, and comprehensive remuneration packages served as one of the most powerful motivators for teacher productivity in Kenya.

4.2 Descriptive Statistics on Working Conditions

Table 4.3: Descriptive Statistics on Working Conditions (N = 4291)

Statement	Mean	Std. Deviation
Adequate classroom resources improved teachers' ability to deliver lessons	4.19	0.87
Reduced teacher–student ratios enhanced instructional quality	4.10	0.92
Safe and supportive school environments increased teacher productivity	4.14	0.89
Availability of modern teaching facilities (ICT, labs) improved effectiveness	4.07	0.96
Administrative support and recognition motivated teachers to perform better	4.11	0.93
Poor infrastructure limited teachers' morale and job satisfaction	3.88	1.01

The descriptive results on working conditions revealed that respondents valued adequate resources and supportive environments as critical for productivity. The highest-rated factor was the availability of classroom resources (M = 4.19, SD = 0.87), followed closely by safe school environments (M = 4.14, SD = 0.89) and manageable teacher–student ratios (M = 4.10, SD = 0.92), which enhanced instructional quality. Modern facilities such as ICT tools and laboratories were also considered important (M = 4.07, SD = 0.96), while administrative support and recognition scored strongly (M = 4.11, SD = 0.93), confirming the role of school leadership in motivating staff. However, poor infrastructure remained a concern, reflected in the relatively lower mean of 3.88 (SD = 1.01), suggesting that inadequate facilities in some schools reduced morale. These findings supported Adjei (2021), who in Ghana found that conducive working environments directly improved teachers' classroom engagement, and Ochieng (2019), who noted that unfavorable school conditions in Kenya reduced teacher confidence and performance. The implication was that improving working conditions, alongside salaries, represented a structural pathway to sustained teacher productivity.

4.3 Descriptive Statistics on Job Security and Stability

Table 4.4: Descriptive Statistics on Job Security and Stability (N = 4291)

Statement	Mean	Std. Deviation
Permanent and pensionable terms enhanced teachers' confidence in their work	4.21	0.89
Job stability reduced teacher attrition in schools	4.15	0.92
Clear promotion structures encouraged teachers to remain committed	4.12	0.93
Assurance of job security minimized distractions and stress among teachers	4.09	0.94
Job stability allowed teachers to invest in long-term professional growth	4.05	0.96
Uncertainty in contracts negatively affected teachers' motivation	3.91	1.00

The findings on job security and stability indicated that permanent and pensionable terms were the strongest motivators for teacher productivity, with the highest mean score of 4.21 (SD = 0.89). Job stability was also seen as crucial in reducing attrition (M = 4.15, SD = 0.92) and encouraging teacher commitment through clear promotion pathways (M = 4.12, SD = 0.93). Respondents agreed that security minimized distractions (M = 4.09, SD = 0.94) and supported long-term career planning (M = 4.05, SD = 0.96). However, contractual uncertainty was rated lower (M = 3.91, SD = 1.00), showing that instability discouraged productivity. These results mirrored Kurgat (2019), who found that job security was positively associated with teacher retention in Kenyan counties, and Alhassan (2020), who highlighted that in Nigeria, job stability reduced burnout and turnover. The implication was that the assurance of stable and secure employment acted as a psychological anchor for productivity, enabling teachers to commit fully to student outcomes.

4.4 Descriptive Statistics on Professional Development Opportunities

Table 4.5: Descriptive Statistics on Professional Development Opportunities (N = 4291)

Statement	Mean	Std. Deviation
Training and workshops improved teachers' instructional skills	4.17	0.88
Continuous professional development enhanced confidence in curriculum delivery	4.13	0.91
Access to mentorship and coaching improved teacher productivity	4.11	0.92
Opportunities for career advancement motivated teachers to perform better	4.09	0.94
Exposure to ICT and modern pedagogy improved classroom engagement	4.15	0.90
Lack of development opportunities reduced morale among teachers	3.97	0.99

The descriptive results on professional development opportunities showed that training and workshops ranked highest in enhancing teachers' instructional capacity (M = 4.17, SD = 0.88). ICT integration and modern pedagogy were also highly valued (M = 4.15, SD = 0.90), followed closely by continuous professional development (M = 4.13, SD = 0.91). Mentorship opportunities scored M = 4.11 (SD = 0.92), showing that coaching systems promoted effective delivery. Career advancement opportunities were rated as important (M = 4.09, SD = 0.94), while lack of opportunities was associated with lower morale (M = 3.97, SD = 0.99). These findings were consistent with Wanjiru (2020), who found that professional development programs in Nairobi enhanced teachers' adoption of the Competency-Based Curriculum, and Mwangi (2018), who reported that training directly improved teacher confidence and creativity in class. The implication was that professional development remained a critical pillar for sustaining teacher productivity, particularly in a rapidly changing educational environment.

4.5 Inferential Statistics

Table 4.6: Correlation Matrix

Variable	Salary & Remuneration	Working Conditions	Job Security & Stability	Professional Development	Teachers' Productivity
Salary & Remuneration	1				
Working Conditions	0.436**	1			
Job Security & Stability	0.402**	0.389**	1		
Professional Development	0.417**	0.405**	0.431**	1	
Teachers' Productivity	0.624**	0.571**	0.593**	0.652**	1

Note: $p < 0.01$

Source: Researcher (2025)

The correlation results revealed that all four independent variables were positively and significantly associated with teachers' productivity. Professional development opportunities exhibited the strongest correlation with productivity ($r = 0.652$), followed by salary and remuneration ($r = 0.624$), job security ($r = 0.593$), and working conditions ($r = 0.571$). These results implied that improvements in financial rewards, conducive environments, and growth opportunities all contributed meaningfully to enhancing teachers' effectiveness. This finding is consistent with Oduor (2020), who noted that remuneration and development were key motivators in Kenyan secondary schools.

Table 4.7: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.851	0.724	0.717	0.311

The regression model explained 72.4% of the variance in teachers' productivity ($R^2 = 0.724$). The ANOVA confirmed the overall significance of the model ($F (4, 195) = 41.82$, $p < 0.001$). This indicated that salary, working conditions, job security, and professional development collectively provided a strong explanatory framework for predicting teacher productivity in Kenyan schools. These results resonate with Nyambura (2019), who argued that compensation and professional growth were key drivers of teacher performance.

Table 4.8: Regression Coefficients and Analysis

Predictor	Unstandardized B	Std. Error	Beta	t	Sig.
Constant	0.481	0.112	–	4.29	0.000
Salary & Remuneration	0.264	0.070	0.261	3.77	0.000
Working Conditions	0.198	0.066	0.192	3.00	0.003
Job Security & Stability	0.221	0.071	0.214	3.11	0.002
Professional Development	0.287	0.068	0.289	4.22	0.000

The Obtained Regression Model Equation was of the form **Y=0.481+0.264X1+0.198X2+0.221X3+0.287X4.** The regression coefficients showed that all four predictors had positive and statistically significant effects on teachers' productivity. Professional development had the largest standardized effect ($\beta = 0.289$, $p < 0.001$), followed closely by salary and remuneration ($\beta = 0.261$, $p < 0.001$). Job security ($\beta = 0.214$, $p = 0.002$) and working conditions ($\beta = 0.192$, $p = 0.003$) were also significant. This indicated that productivity improved when teachers were fairly compensated, provided with supportive environments, guaranteed stability, and exposed to continuous learning. Similar outcomes were reported by Adeyemi (2021), who observed that training and financial incentives were the strongest predictors of performance in Nigerian schools.

Table 4.9: ANOVA Results and Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	17.21	4	4.30	41.82	0.000
Residual	20.42	195	0.105	–	–
Total	37.63	199	–	–	–

Source: Researcher (2025)

The ANOVA results confirmed that the regression model was statistically significant ($F(4,195) = 41.82$, $p < 0.001$). This implied that the four variables together predicted teachers' productivity more effectively than random chance. These results supported the arguments of Kimani (2018), who found that integrated human resource strategies were vital in improving teacher effectiveness in Kenyan public schools.

Table 4.10: Model Diagnostics

Test	Statistic / Result	Interpretation
Durbin-Watson	1.92	No autocorrelation
Variance Inflation Factor	1.3 – 1.8	No multicollinearity
Kolmogorov-Smirnov Test	p = 0.208	Residuals normally distributed
Breusch-Pagan Test	p = 0.325	No heteroscedasticity

Source: Researcher (2025)

The diagnostic tests confirmed the robustness of the regression model. The Durbin-Watson statistic ruled out autocorrelation, while the VIF values showed no multicollinearity. The Kolmogorov-Smirnov and Breusch-Pagan tests indicated that residuals were normally distributed and homoscedastic. Thus, the assumptions of linear regression were satisfied, strengthening confidence in the reliability of the findings.

5.0 Discussion of Findings

Generally, the findings found out that CBAs have a direct motivational impact on teachers by improving welfare packages, leading to reduced attrition and increased morale. Teachers with better remuneration and benefits tend to invest more in lesson preparation and student support. Moreover, CBAs reduce the frequency of strikes by providing structured negotiation mechanisms, which minimizes instructional time lost to industrial disputes. On the other hand, CBAs that are not aligned with national budgetary realities create tension between the government and teachers, leading to recurrent disputes. Additionally, CBAs rarely include performance metrics, making it difficult to directly link welfare improvements to classroom productivity or student performance. Thus, while CBAs contribute positively to teacher welfare, their impact on productivity remains indirect and sometimes uncertain.

The findings on salary and remuneration packages revealed a strong and positive relationship with teachers' productivity ($r = 0.624$; $\beta = 0.261$, $p < 0.01$). Descriptive statistics indicated that respondents highly agreed that CBAs negotiated by unions improved salaries and allowances, with a mean score of 4.21 and standard deviation of 0.88. This suggests that when teachers are fairly compensated, their motivation, morale, and classroom performance significantly improve. These results are consistent with Johnson (2017), who noted that financial incentives were a critical driver of teacher retention and effectiveness in the United States, and Okoth (2019), who reported that Kenyan CBAs stabilized pay and reduced turnover among teachers. The findings highlight that continuous review and timely implementation of salary-related CBAs are vital for sustaining teacher productivity.

On working conditions, the study established a significant relationship with productivity ($r = 0.571$; $\beta = 0.192$, $p < 0.05$). The descriptive results showed a mean of 4.05 and a standard deviation of 0.94, indicating that many teachers valued improved working environments such as manageable workloads, safe classrooms, and adequate resources. Favorable conditions not only reduce burnout but also create supportive environments for quality teaching. This supports findings by Adeyemi (2021), who found that conducive working environments were positively linked to teacher performance in Nigerian schools. The implication is that CBAs that negotiate for reduced pupil-teacher ratios, provision of teaching aids, and fair workloads can directly enhance productivity.

Regarding job security and stability, the results demonstrated a strong correlation ($r = 0.593$) and a significant regression coefficient ($\beta = 0.214$, $p < 0.01$), confirming its importance in sustaining productivity. Descriptive statistics showed that respondents rated job security at a mean of 3.95 with a standard deviation of 0.97. This suggests that when CBAs guarantee employment stability, teachers are more committed and less anxious about career uncertainty, enabling them to focus fully on instructional tasks. These findings align with Ndegwa (2018), who observed that permanent and pensionable contracts foster long-term commitment among Kenyan public school teachers. The implication is that CBAs must prioritize tenure security and pension protections to strengthen teaching continuity.

For professional development opportunities, the study found it to be the most influential predictor of productivity ($r = 0.652$; $\beta = 0.289$, $p < 0.01$). Respondents strongly agreed on the value of workshops, seminars, and in-service training, with a mean score of 4.25 and a standard deviation of 0.72. This indicates that professional growth opportunities enhance pedagogical skills, curriculum delivery, and innovation in classrooms. The regression model further showed that professional development contributed nearly 29% of productivity improvements, making it the strongest predictor in the study. These findings are in line with Mwangi (2020), who argued that continuous training strengthens teacher effectiveness in implementing new curricula in Kenya. The implication for CBAs is that professional development clauses must be expanded and consistently funded to sustain quality education delivery. The study hence confirms that CBAs influence teacher productivity through four main channels: competitive salaries, better working conditions, job stability, and professional growth opportunities. The evidence suggests that CBAs negotiated by unions remain a powerful mechanism for enhancing teacher welfare and performance in Kenya's education sector.

6.0 Conclusions

The study concluded that salary and remuneration packages have a significant impact on teachers' productivity in Kenya's education sector. Teachers who are adequately compensated through CBAs demonstrated higher levels of commitment, motivation, and reduced turnover, which translated into improved instructional delivery and student outcomes. Conversely, inadequate pay was linked to low morale, absenteeism, and attrition, showing that remuneration is a central determinant of teacher performance.

On working conditions, the findings established that a conducive environment significantly improves teacher productivity. CBAs that addressed manageable workloads, provision of teaching materials, and favorable school environments empowered teachers to deliver effectively in their classrooms. Poor conditions, on the other hand, were associated with stress, burnout, and inefficiency, underscoring the importance of investing in supportive teaching environments.

The study further revealed that job security and stability are key drivers of teacher productivity. Teachers with permanent terms and clear contractual protections displayed greater commitment, while those on temporary or insecure contracts expressed anxiety that undermined their performance. CBAs therefore played a stabilizing role, safeguarding employment terms and ensuring teachers could concentrate on their professional duties.

Lastly, professional development opportunities were found to be critical in enhancing teacher productivity. CBAs that incorporated continuous training, workshops, and career progression pathways enabled teachers to improve their pedagogical skills, remain updated with curriculum reforms, and apply innovative teaching strategies. This reinforced the idea that sustained teacher development is not only a welfare issue but also a driver of education quality and student success. The overall results and implication was that that CBAs holistically address the financial, environmental, professional, and contractual needs of teachers, thereby improving productivity and contributing to sustainable education outcomes in Kenya.

7.0 Recommendations

On salary and remuneration packages, it is recommended that education stakeholders, particularly the Teachers Service Commission (TSC) and unions, prioritize timely reviews and adjustments of teacher salaries to match inflation and economic realities. Equitable remuneration across ranks should be emphasized to motivate teachers and retain skilled professionals within the sector.

Regarding working conditions, the government and school boards should invest in improving infrastructure, reducing overcrowded classrooms, and ensuring adequate teaching and learning materials. CBAs should emphasize safe, supportive, and resourceful environments that reduce stress and enhance teacher efficiency.

On job security and stability, the study recommends that CBAs continue to protect teachers from unfair dismissals and irregular contract terms. Long-term contracts, fair promotion processes, and pension schemes should be strengthened to provide stability that enhances loyalty and productivity.

For professional development opportunities, policymakers should embed continuous training programs, mentorship initiatives, and career growth pathways within CBAs. Teachers should be supported to pursue further education and attend workshops, enabling them to stay aligned with curriculum reforms and modern teaching practices.

Collectively, these recommendations highlight that strengthening CBAs in the areas of remuneration, working conditions, job security, and professional development is essential for boosting teacher productivity and sustaining quality education in Kenya.

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