Journal of Information Systems Engineering and Management
2025, 10(39s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Reward System: Does Base Salary Influence the Performance of Academic Staff in Selected Private Universities in North-Central Nigeria?

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ARTICLE INFO

Received:18 Dec 2024

Revised: 20 Feb 2025

Accepted:28 Feb 2025

ABSTRACT

This study investigates how basic salary influences the performance of academic staff at seven selected private universities in North-Central Nigeria. A quantitative survey was conducted among 408 academic staff from these institutions using both simple random and purposeful sampling approaches. By employing multiple regression analysis grounded in efficiency wage theory and education production models, the research explores the relationship between basic salary and various aspects of academic performance, including research output, teaching effectiveness, community service involvement, and collaboration with industry. The findings indicate that higher basic salaries are positively and significantly related to overall performance and research output, implying that better compensation helps attract, motivate, and retain skilled academic personnel. However, the results also show that while basic salary enhances research output, it does not significantly affect teaching effectiveness, suggesting that financial incentives alone are not enough to improve instructional quality. Furthermore, a negative correlation between basic salary and community service involvement was found, indicating that higher compensation encourages academic staff to focus on activities that provide direct institutional benefits rather than community outreach. Conversely, the study identifies a positive link between basic salary and industry collaboration, suggesting that competitive pay encourages stronger engagement with external partners. On a policy level, the research recommends that universities focus on offering competitive basic salaries to draw in and keep top-notch researchers, thereby promoting innovation and enhancing the institution's reputation.

Keywords: Base salary, research output, teaching effectiveness, community service involvement, and industry collaboration.

1. INTRODUCTION

Worldwide, academic excellence is viewed as foundational for national and societal growth. Within universities, particularly private ones, the caliber of academic staff and their performance are crucial to fostering innovative teaching and producing impactful research. Theoretically, efficiency wage theories in labor economics suggest that offering salaries above market equilibrium can enhance productivity and reduce employee turnover (Stiglitz, 1986; Krueger & Summers, 1988; Weiss, 2017; García & Han, 2022). This concept holds true for private universities in North-Central Nigeria, where competitive

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salaries are believed essential for attracting and retaining high-quality academic professionals, thus improving the performance of lecturers in areas such as teaching, research, and community service.

Tertiary institutions in Nigeria grapple with systemic challenges that jeopardize the quality and resilience of their academic offerings. Private universities in North-Central Nigeria, including those in Benue, Kogi, Nasarawa, Niger, Plateau, and the Federal Capital Territory (FCT), confront a landscape characterized by infrastructural shortcomings, insufficient funding, and heavy competition for quality academic staff. For example, these private universities, making up over 30% of Nigeria's higher education landscape, face significant hurdles, relying largely on tuition fees even as enrollment declines and inflation diminishes faculty salaries (Akinwalere, 2023; Paul et al., 2024). While public universities benefit from federal funding and support via the Tertiary Education Trust Fund (TETFund), private institutions do not have access to similar resources, leading to stagnation in salaries and elevated turnover rates among academic staff. The shortfalls in funding and infrastructure further hamper their ability to offer competitive salaries, aggravating challenges in recruiting and retaining highly qualified lecturers, which in turn affects academic performance and student outcomes (Weiss, 2017; García & Han, 2022).

Research highlights the significance of competitive wages in enhancing learning outcomes, with increased salaries serving as efficiency wages that boost productivity and lower turnover rates (Hanushek et al., 2019). For instance, a 1% rise in wages corresponds to a 1.6% increase in the percentage of teachers hired from selective colleges (Figlio, 1997), and incentivizing experienced educators through selective pay raises is crucial for retaining high-quality personnel (Hendricks, 2016). In North-Central Nigeria, these dynamics are further complicated by broader socio-economic challenges, including infrastructural deficits and limited access to advanced educational technologies. Despite governmental efforts and institutional initiatives to elevate educational standards, compensation structures in private universities have not kept pace with the competitive demands of the academic labor market. Furthermore, there is scarce empirical research connecting basic salary levels to teaching quality and effectiveness in Nigerian higher education. Previous studies indicate that higher salaries may enhance applicant quality, improve recruitment, and reduce turnover by fostering retention (Manski, 1987; Figlio, 1997; Hanushek, Piopiunik, and Wiederhold, 2019). Nevertheless, while research from developed countries suggests these correlations, there exists a significant gap regarding how these dynamics manifest in private universities within developing regions like North-Central Nigeria, which faces unique challenges such as inadequate funding, infrastructural deficiencies, and unstable regulatory environments.

This research aims to address these gaps by examining how basic salary impacts academic staff performance at selected private universities in North-Central Nigeria. Utilizing the framework of efficiency wages and traditional education production models, the study explores how salary structures relate to key performance metrics, including teaching effectiveness, research output, community service participation, and overall productivity among academic staff. The research reviews relevant studies in the second section, then discusses methodology and presents findings in the third and fourth sections. Finally, the fifth section outlines conclusions and offers directions for future research.

2. LITERATURE REVIEW

Base Salary

Extant studies indicate that basic salary is a critical determinant of academic staff performance, influencing key areas such as teaching effectiveness, research productivity, and community service engagement. Research rooted in efficiency wage models and traditional education production frameworks consistently demonstrates that higher compensation attracts and retains more qualified and motivated academic professionals (García & Han, 2022). Efficiency wage models presume that wages above the equilibrium will improve productivity by getting better quality candidates, reducing turnover, and increasing effort, especially in settings with measurement problems. Education

production theories focus on inputs, arguing that teacher compensation investments improve student attainment by developing the workforce. These models collectively illustrate how salary scales influence recruitment, retention, and quality, each a determinant of academic achievement.

Relative salary levels determine the quality of newly hired teachers. In economic recessions, when other employment opportunities are limited, teaching may draw better-qualified candidates. In economic recessions, Florida attracts higher math and reading scores of 0.10 and 0.04 standard deviations, respectively (Nagler *et al.*, 2017). Economic booms, like Texas's shale boom, push talent out of the teaching force, lowering student numbers and performance (Marchand and Weber, 2019). These findings emphasize the extent to which salary competitiveness is a determinant of workforce quality. Cross-country data confirm the relationship between teacher pay and skill levels. Hanushek et al. (2019) surveyed OECD nations and found that higher pay is related to the employment of teachers in the upper quartiles of the college skill distribution. This implies that wage policy directly impacts teachers' academic quality, with educational system-wide implications.

Higher compensation raises teacher quality by raising credentialing and experience. New evidence eliminates previous doubts regarding salary-quality connections (Hanushek and Rivkin, 2007), indicating that high compensation draws higher-qualified teachers and keeps experienced teachers (Hendricks, 2014; Ronfeldt, Loeb, and Wyckoff, 2013; Sorensen and Ladd, 2018). For instance, districts offering superior pay packages have higher proportions of certified teachers and lower deployment of unqualified personnel. Shocks in the labour market that influence relative compensation change the composition of the workforce. A 10% increase in non-teacher pay in England lowered teacher quality by 1.4 points (on a 2.5-point scale), increased new hire rates, and reduced veteran teachers (Britton & Propper, 2016). Selective increases for veteran teachers in Texas, on the other hand, enhanced retention of high-ability teachers, while increases for new teachers kept lower-ability teachers (Hendricks, 2016). These findings emphasize how compensation designs impact workforce stability and ability.

With respect to the second method, the conventional model of schooling production argues that resource allocation has a direct influence on the outcome of students, with teachers being the strongest in-school driver (Hartel, 2013). Empirical evidence establishes that greater spending on schooling is associated with better performance by students, especially if resources are invested in teacher-specific inputs like pay, qualifications, and experience (Jackson, 2018; LaFortune, Rothstein, and Schanzenbach, 2018). This method highlights observable results, such as test scores, graduation rates, and long-term measures such as earnings in adult labor, to measure the effect of teacher compensation on productivity. Policymakers, in making the initial investment in teacher quality, try to achieve maximum correspondence between resource input and academic output.

Research Outputs

Research involves intentionally gathering, verifying, and analyzing information (Galadanci et al., 2016). It aims to generate new knowledge or insights, effectively unlocking existing information (Jørgensen & Hanssen, 2018). Research outputs are defined as textual results arising from original systematic investigations, intended to enhance knowledge and understanding (Igbokwe et al., 2019; Galadanci et al., 2016). A crucial aspect of recognized outputs is peer evaluation, which serves as a mechanism to ensure and improve quality (Aboagye et al., 2021). This peer review process is a key performance indicator in academia, often summarized by the phrase "publish or perish."

Current studies (Maisano et al., 2023; Aboagye et al., 2021) identify several types of research outputs, including original research articles, short reports, case studies, review articles, datasets, and book chapters. An original research article is a piece published in an academic journal, while a short report is a concise summary of original research. Review articles synthesize research within a specific field, case studies offer in-depth examinations of particular individuals, groups, or situations during designated periods, book chapters consist of writings within a book, and datasets represent research generating large volumes of data (Mbachu & Unachukwu, 2022; José & Lorenzo, 2016).

Journal of Information Systems Engineering and Management
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https://www.jisem-journal.com/ Research Article

Ultimately, the focus should be on the quality of research outputs rather than their quantity. The assessment of research outputs can be based on various factors, as noted by Ibrahim and Sheyindemi (2019), including the number of publications in highly indexed journals like SCOPUS, ISI, and Web of Science. Additionally, citations of published papers on platforms like Google Scholar and ResearchGate, along with the work of institutionally affiliated authors, are metrics used to evaluate research outputs.

Teaching Effectiveness

Over the years, teaching has served as the primary performance measure for academic staff. However, it was recently recognized that teaching effectiveness should be the true gauge (Burgess et al., 2022). Referencing Munna and Kalam's (2021) definition, teaching is viewed as the 'transformation of subject matter into accessible forms for learners.' This highlights that effective teaching is what truly matters. Martínez-Garrido and Javier Murillo (2022) define teaching effectiveness as “the actions a teacher takes to foster the personal and academic growth of all students." Therefore, effective teaching is expected to significantly influence students' knowledge and skills in the short and long term. In this study, teaching effectiveness encompasses the academic staff's expertise in a subject, preparation of current lecture notes, class attendance, utilization of suitable teaching methods, classroom management, and ensuring effective learning outcomes.

Community Service Involvement

Academic staff are expected to engage in community services (Dori, 2018). This involvement reflects how they contribute solutions to shared issues within their university and local environment (Eldardiry et al., 2021). By participating in developing co-curricular activities and community-based academic programs, they foster awareness and promote selfless service to the community (Dori, 2018). However, challenges such as cultural differences, lack of rewards, resource constraints, and varying levels of experience can hinder academic staff's participation in community service (Dori, 2018; Gorski & Mehta, 2015). Despite these obstacles, academic staff continue to conduct career talks in schools, mentor youth, and participate in the formation of social groups (Eldardiry et al., 2021; Dori, 2018).

Industry Collaboration Involvement

The involvement of academic staff in industry collaboration includes their engagement with businesses to facilitate the exchange of knowledge and technology (Zhang & Chen, 2023). This encompasses various relationships, partnerships, associations, and connections between academic personnel and relevant industries (Berbegal-Mirabent, Gil-Doménech & Ribeiro-Soriano, 2020). Over time, this interaction has evolved into a symbiotic relationship that benefits industries, academic staff, universities, and society by enhancing industrial practices, academic research, and teaching while improving the overall quality of life in the community (Siew & Ai, 2023). Initiatives such as collaborative research, industrial training, and developmental projects support this interaction (Sukhjinder & Babita, 2022; Afzala et al., 2014). Moreover, many firms have reported improved performance due to the emergence of new ideas through this collaboration (Louise, 2018), leading to the discovery of new synergies and models. In this study, the involvement of academic staff in industry collaboration highlights all forms of synergy between academia and the corporate sector aimed at advancing their shared interests in research, teaching, and the enhancement of industry practices.

Efficiency wage theory posits that offering wages above market equilibrium can boost labor productivity, particularly in scenarios characterized by difficulties in monitoring individual efforts, principal-agent dilemmas, and monopsony conditions (Katz, 1986; Krueger and Summers, 1988; Stiglitz, 1986). In educational settings, these issues are exacerbated due to the collaborative nature of teaching, where students, parents, and teachers collectively influence outcomes, making it challenging to pinpoint each individual's contribution (Gius, 2012). For example, merit pay programs face implementation challenges in education stemming from complex principal-agent relationships (Goldhaber et al., 2008). Furthermore, monopsony among teachers, with school districts acting as predominant employers, stifles competition and depresses wages, reinforcing the argument for using

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e-ISSN: 2468-4376
https://www.jisem-journal.com/

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efficiency wages to attract and retain skilled teachers (Hanushek, 2015; Council of Economic Advisers, 2016). Higher wages can mitigate turnover costs and incentivize productivity, enhancing teacher quality and improving student performance.

Increased salaries elevate the quality of potential teachers by attracting more academically qualified applicants. Figlio (1997) demonstrated that a 1% increase in average teacher compensation correlates with a 1.6% rise in the share of selective college instructors in urban areas, consistent with national and regional data. Similarly, Leigh (2012) observed that a 1% hike in starting salaries corresponded to a 0.6 percentile rank increase in the aptitude of new Australian teacher education graduates, though effects on the median aptitude group were smaller. These findings suggest that pay-for-performance initiatives enhance the applicant pool by attracting individuals with higher test scores, subject knowledge, and college selectivity (Hanushek et al., 2019; Podolsky et al., 2019). Moreover, higher salaries increase interest in teaching careers; Manski (1987) found that a 10% increase in weekly wages boosts the number of college graduates pursuing teaching by 26%. Survey results also indicate that inadequate pay is the leading deterrent for students considering teaching careers (Croft, Guffy, and Vitale, 2018). By maximizing the economic benefits of the profession, increased pay enhances both the quantity and quality of potential teachers.

The relationship between student outcomes and teacher compensation is debated. Hanushek (2003, 2015) argues that evidence supporting the idea that higher pay or spending alone improves outcomes is "very weak," referencing meta-analyses that found only 20% of 118 estimates positively correlated, 7% negatively correlated, and 73% statistically insignificant. Conversely, Glewwee et al. (2014) suggest that positive effects exist, though methodological limitations such as confounding controls and data quality often obscure decisive conclusions. This discrepancy highlights the complexity of isolating salary impacts within broader educational settings. Recent natural experiments and research at state or country levels further elucidate salary effects. Loeb and Page (2000) found a 10% increase in wages decreased high school dropout rates by 3–6% over a decade, attributing this to improved teacher quality. Their research also estimated that every 10% wage increase led to a 1.6% rise in college attendance, based on state-level estimates adjusted for non-teacher salaries. Similarly, Card and Krueger (1992) connected a 10% wage increase to a 0.1 percentage-point rise in the rate of return to schooling for white men born between 1920 and 1949, suggesting long-term economic advantages.

Britton and Propper (2016) utilized England's centralized wage structure to analyze pay disparities' effects. They found that a 10% pay penalty for teachers relative to non-teaching careers correlated with a 2% decline in school performance on high-stakes tests. This natural experiment leveraged exogenous pay differentials, highlighting the essential role of competitive salaries in attracting elite teaching talent and enhancing educational standards. Cross-country evidence also indicates a positive link between teacher compensation and student achievement. OECD reports note that countries with higher pay typically recruit teachers from the upper tiers of the college talent pool (Hanushek, Piopiunik, and Wiederhold, 2019), while international data suggests performance improvements associated with wage differentials (Boarini & Lüdemann, 2009; Dolton & Marcenaro-Gutiérrez, 2011). Although these findings are correlational and lack causal rigor, they strongly suggest the importance of competitive salaries for educational success on a macro scale.

Recent research by García and Han (2022) investigates the relationship between teacher pay and student performance using nationally representative district-level data, comparing standardized exam scores with teachers' average base salaries. Utilizing state fixed effects and multilevel mixed effects models, their analysis reveals that students' math and English scores improve in schools offering higher base salaries compared to those with lower salaries. They also report that increased teacher base salaries help bridge the achievement gap between white and Black students, as well as between white and Hispanic students, by elevating test scores more significantly among minority children.

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e-ISSN: 2468-4376
https://www.jisem-journal.com/

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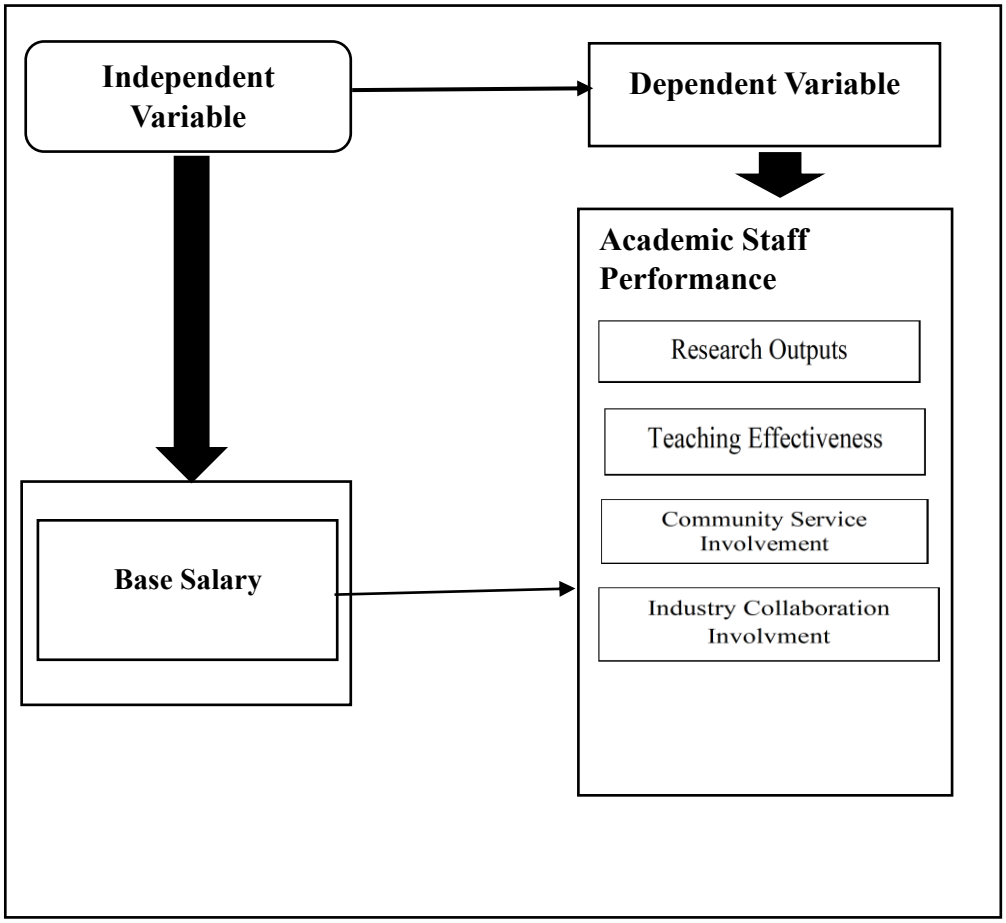
Conceptual Framework



Source: Author's conceptualization 2025

Figure 1: Conceptual framework shows "direct effect of base salary on academic staff performance measured by research output, teaching effectiveness, community service involvement, and industry collaboration involvement. Therefore, the following research hypotheses are established:

H1: Base salary positively influences research output.

H2: Base salary is positively related to teaching effectiveness.

H3: Base salary directly impacts community service involvement.

H4: Base salary is directly associated with industry collaboration involvement

3. METHODOLOGY

A quantitative survey was conducted to gather data to test the importance of the proposed links between basic salary and academic staff performance. The survey questionnaire of 25 items and five fundamental demographic questions, including gender, marital status, age group, educational qualification, and academic status. The items specifically assess the base salary (five items) and the performance of academic staff (five items each for teaching, research, community service involvement, and industry collaboration), which were adapted and modified from prior studies (Jackson, 2018; LaFortune, Rothstein, and Schanzenbach, 2018; Hanushek, Piopiunik, and Wiederhold, 2019; García & Han, 2022). The research employed a five-point rating scale to assess the utilized items, with 1 representing significant disagreement and 5 indicating strong agreement. The research population consists of

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e-ISSN: 2468-4376
https://www.jisem-journal.com/

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academic personnel from seven chosen private tertiary institutions in North-Central Nigeria: University of Mkar, Mkar; Salem University, Lokoja; Landmark University, Omu-Aran; Bingham University, Karu; Edusoko University, Bida; Karl-Kumm University, Vom; and Nile University of Nigeria. The aggregate number of academic personnel in the specified tertiary institutions is 1,496, distributed as follows: University of Mkar - 152; Salem University - 146; Landmark University - 352; Bingham University - 362; Edusoko University - 98; Karl-Kumm University - 68; and Nile University of Nigeria - 318. The sampling methodology employed was a combination of simple random sampling and purposive sampling methods. The technique provides each target with an equal probability of selection. The Cochran (1997) sampling method calculated the sample size at 429. According to the criteria established by Osborne and Costello (2004), which evaluated various sample sizes as follows: 50 (Very Poor), 100 (Poor), 200 (Fair), 300 (Good), 500 (Very Good), and 1000 or more units (Excellent), a sample size of 429 was classified as "Very Good." Out of these, 21 responses were deemed either disproportionate or incomplete and were eliminated; 408 responses were usable, resulting in a response rate of 95.1%. The researchers, aided by compensated enumerators, individually visited the higher education institutions to conduct the questionnaire. Additionally, surveys were administered over a period of two months and three weeks at each site and at various times throughout the day to enhance the reliability of the instruments. All interviewees consented to their voluntary involvement in the study.

3.3 Model and estimation methods

The empirical model is designed to assess the effect of basic wage on the performance of academic staff at selected private universities in North-Central Nigeria. The empirical model is delineated as follows:

$$asp_i = \beta_0 + \beta_1 bs_i + \beta_2 gen_i + \beta_3 ms_i + \beta_4 age_i + \beta_5 edu_i + \beta_6 as_i + v_i \quad (1)$$

Where: *asp* represents the vector of academic staff performance, encompassing teaching effectiveness (*te*), research output (*ro*), community service involvement (*csi*), and industry collaboration involvement (*ici*); *bs* signifies basic salary; *gen* indicates gender status; *ms* denotes marital status; age refers to age group; *edu* stands for educational qualification; and *as* represents academic status; β_0, β_{1-6} are parameters of the variables; i denotes surveyed academic staff; and v is the disturbance term. This study employs descriptive statistics, Kendall-tau correlation coefficients, and multiple regression analysis utilizing STATA version 14.0. The variables pertaining to the respondents' demographic characteristics were analyzed utilizing descriptive statistical methods. The Kendall-tau correlation coefficient was employed to assess the degree of relationship between each predictor and control variable and the outcome variables. Multiple regression analysis was employed to evaluate the influence of basic wage on academic staff performance criteria, including teaching effectiveness, research output, community service involvement, and industrial cooperation involvement.

4. RESULTS AND DISCUSSION OF FINDINGS

4.1 Descriptive statistics, demographic information and correlation analysis

The descriptive analysis of indicators employed to the links between basic salary and academic staff performance in the North-Central Nigerian education sector is summarized in Table 1. The table presents key statistics, including mean, standard deviation, maximum and minimum values, Kurtosis, skewness, and observations for each variable, providing insights into their distribution and variability. The average rating for basic salary is 3.100, with a standard deviation of 0.402, indicating a relatively small variation from the mean. The negative Kurtosis value (-1.376) indicates a relatively flat distribution, while the near-zero skewness (-0.035) suggests a symmetric distribution of responses around the mean. This implies that the perception of basic salary is fairly consistent among respondents. For academic staff performance measures, the overall academic staff performance has an average rating of 3.455 and a standard deviation of 0.731, indicating moderate variability. The ratings range from 1.95 to 4.15, with a negative skewness (-1.361) showing a tilt towards higher scores. The

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e-ISSN: 2468-4376
https://www.jisem-journal.com/

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positive Kurtosis (0.355) suggests a slightly peaked distribution, indicating consistency among respondents. The mean rating for research output is 3.790, with a standard deviation of 1.083, indicating significant variation among respondents. The range from 1.2 to 5 reflects diverse experiences. The negative skewness (-0.945) highlights a tendency towards higher ratings, while the near-zero Kurtosis (0.150) suggests a distribution close to normal. Teaching effectiveness has the highest mean rating of 4.109, with a standard deviation of 1.182, indicating notable variability. The strong negative skewness (-1.868) reflects a bias towards higher ratings, and the positive Kurtosis (2.354) suggests a sharper peak, indicating consensus among many respondents. Community service involvement has a mean of 3.055, with a standard deviation of 0.647, showing moderate variability. The range spans from 1.6 to 4, with a near-zero skewness (-0.269) indicating a symmetric distribution and a negative Kurtosis (-0.220) showing a flatter-than-normal curve. The mean rating for industry collaboration involvement is 2.864, with a standard deviation of 0.753, reflecting moderate variation. The range from 1.8 to 4.2 indicates differing experiences. The positive skewness (0.302) shows a slight tilt towards lower ratings, while the negative Kurtosis (-1.040) reflects a flatter distribution.

Table 1: Descriptive statistics and demographic information

Signs	Variable measurements	Mean	Std Dev.	Max.	Min.	Kurtosis	Skewness	Obs.
bs	Basic salary on a scale of 1-5	3.100	0.402	3.6	2.4	-1.376	-0.035	408
asp	Academic staff performance on a scale of 1-5	3.455	0.731	4.15	1.95	0.355	-1.361	408
ro	Research output on a scale of 1-5	3.790	1.083	5	1.2	0.150	-0.945	408
te	Teaching effectiveness on a scale of 1-5	4.109	1.182	5	1	2.354	-1.868	408
csi	Community service involvement on a scale of 1-5	3.055	0.647	4	1.6	-0.220	-0.269	408
ici	Industry collaboration involvement on a scale of 1-5	2.864	0.753	4.2	1.8	-1.040	0.302	408
gen	Gender, (if male, 1, and 0, if otherwise)	0.757	0.429	1	0	-0.550	-1.205	408
	Marital status							
ms1	Single (if single, 1, and 0, if otherwise)	0.262	0.440	1	0	-0.827	1.085	408
ms2	Married (if married, 1, and 0, if otherwise)	0.637	0.481	1	0	-1.680	-0.573	408

ms3	Others (if others, 1, and 0, if otherwise)	0.100	0.301	1	0	5.140	2.667	408
	Age group							
age1	Below 30 years, (if < 30yrs, 1, and 0, if otherwise)	0.037	0.188	1	0	22.528	4.941	408
age2	31-40yrs, (if 31-40yrs, 1, and 0, if otherwise)	0.140	0.347	1	0	2.364	2.086	408
age3	41-50yrs, (if 41-50yrs, 1, and 0, if otherwise)	0.284	0.452	1	0	-1.084	0.960	408
age4	51-60yrs, (if 51-60yrs, 1, and 0, if otherwise)	0.507	0.501	1	0	-2.009	-0.030	408
age5	61-70yrs, (if 61-70yrs, 1, and 0, if otherwise)	0.032	0.176	1	0	26.759	5.351	408
edu	Education, (if PhD, 1, and 0, if otherwise)	0.824	0.382	1	0	0.907	-1.704	408
	Academic status							
as1	Professor, (if < 30yrs, 1, and 0, if otherwise)	0.176	0.382	1	0	0.907	1.704	408
as2	Associate professor, (if < 30yrs, 1, and 0, if otherwise)	0.287	0.453	1	0	-1.110	0.946	408
as3	Senior lecturer, (if < 30yrs, 1, and 0, if otherwise)	0.252	0.435	1	0	-0.695	1.144	408
as4	Lecturer I, (if < 30yrs, 1, and 0, if otherwise)	0.108	0.311	1	0	4.463	2.538	408
as5	Assistant Lecturer, (if < 30yrs, 1, and 0, if otherwise)	0.176	0.382	1	0	0.907	1.704	408

Note: Min. is minimum; Max. denotes maximum; Std. Dev. means standard deviation; Obs. is observation.

Source: Authors' computation from Field Survey (2024).

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e-ISSN: 2468-4376
https://www.jisem-journal.com/

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The descriptive statistics for demographic and professional characteristics of respondents are presented in the table. The average for gender indicates that 75.7% of respondents are male, with a skewness of -1.205, suggesting a predominance of male respondents. Regarding marital status, the majority are married (63.7%) with a standard deviation of 0.481, while 26.2% are single, and 10.0% fall into other categories, the latter having high skewness (2.667) and Kurtosis (5.140) due to fewer observations. In terms of age distribution, the largest group is 51–60 years (50.7%), followed by 41–50 years (28.4%), while the youngest (below 30 years) and oldest (61–70 years) groups represent only 3.7% and 3.2%, respectively, with extreme Kurtosis values for the youngest (22.528) and oldest (26.759) groups reflecting their rarity. Educational qualifications show a high proportion of PhD holders (82.4%), with low variation (Std. Dev = 0.382) and a negatively skewed distribution (-1.704), indicating a majority of highly trained respondents. In academic status, 28.7% are associate professors, 25.2% senior lecturers, and 17.6% professors or assistant lecturers. Only 10.8% are Lecturer I, with high skewness (2.538) and Kurtosis (4.463) reflecting the smaller representation. Overall, the data highlights that the respondents are predominantly male, married, in the 51–60 age group, with postgraduate qualifications, and most occupy mid- to senior-level academic positions such as associate professors and senior lecturers.

The correlation results provide insights into the level of association between basic salary and academic staff performance measures in Table 2. The results show that basic salary has a strong positive correlation with academic staff performance at 0.583, indicating that higher salaries are associated with better performance. Similarly, basic salary is strongly correlated with research output at 0.648 and moderately correlated with teaching effectiveness at 0.282, suggesting that salary influences academic output and classroom performance. Furthermore, the correlation results between confounding variables and academic staff performance indices highlight several interesting relationships. The low correlation values presented in the table indicate the lack of multicollinearity issues within the data. Variables with correlation coefficients over 0.8 are classified as belonging to the same group of indicators, which will not be estimated concurrently in a model.

Table 2: Correlation matrix

	bs	*asp*	*ro*	*te*	*csi*	*ici*	*gen*	*ms1*	*ms2*	*age2*	*age3*	*age4*	*age5*	*edu*	*as1*	*as2*	*as3*
asp	0.583	1															
ro	0.648	0.894	1														
te	0.282	0.847	0.668	1													
csi	0.426	0.628	0.486	0.349	1												
ici	0.525	0.727	0.567	0.459	0.333	1											
gen	0.053	-0.033	0.147	-0.027	-0.109	-0.201	1										
ms1	0.128	-0.	0.053	-0.154	-0.	-0.118	0.169	1									

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		077			020												
ms2	-0.093	-0.021	-0.100	0.056	-0.076	0.040	-0.118	-0.790	1								
age2	0.072	-0.170	-0.045	0.006	-0.137	-0.488	0.014	0.210	-0.108	1							
age3	-0.201	0.203	0.211	0.332	-0.343	0.258	0.002	-0.178	0.295	-0.254	1						
age4	0.181	0.043	-0.055	-0.273	0.536	0.215	-0.089	0.097	-0.295	-0.409	-0.640	1					
age5	0.226	0.123	0.203	0.075	0.097	-0.015	0.103	-0.108	0.137	-0.073	-0.114	-0.184	1				
edu	0.103	0.353	0.271	0.069	0.342	0.580	-0.067	-0.133	0.025	-0.771	0.292	0.470	0.084	1			
as1	0.217	0.228	0.318	0.162	0.303	-0.087	0.067	0.177	-0.440	-0.187	-0.292	0.289	0.392	0.214	1		
as2	0.281	0.207	-0.009	0.169	0.109	0.456	-0.362	-0.181	0.298	-0.256	0.465	-0.156	-0.115	0.294	-0.294	1	
as3	-0.207	0.407	0.333	0.396	0.096	0.396	0.118	-0.141	0.098	-0.234	0.184	0.076	-0.105	0.269	-0.269	-0.368	1
as4	-0.260	-0.717	-0.511	-0.916	-0.245	-0.400	0.197	0.080	-0.001	-0.140	-0.219	0.343	-0.063	0.161	-0.161	-0.220	-0.202

Note: bs - Basic salary, asp - Academic staff performance, ro - Research output, te - Teaching effectiveness, csi - Community service involvement, ici - Industry collaboration involvement, gen - Gender, ms1 - Single, ms2 - Married, age2 - 31-40yrs, age3 - 41-50yrs, age4 - 51-60yrs, age5 - 61-70yrs, edu - education qualification, as1 - Professor, as2 - Associate professor, as3 - Senior lecturer, and as4 - Lecturer I.

Source: Authors' computation from Field Survey (2024).

4.2 Multiple regression results of basic salary on academic staff performance in selected private university in Northcentral of Nigeria

In this section, the empirical results of the multiple least squares regression analysis presented in Table 3 demonstrate the effects of basic salary on various dimensions of academic staff performance,

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measured by overall academic staff performance, research output, teaching effectiveness, community service involvement, and industry collaboration involvement. Each coefficient provides insight into the strength and direction of these relationships, with the accompanying standard errors offering a measure of precision for the estimates. Basic salary exhibits a highly significant positive relationship with overall academic staff performance, as indicated by the coefficient of 0.706 with a low standard error of 0.043. This result suggests that an increase in basic salary is associated with a substantial improvement in academic staff performance, underscoring the motivational role of competitive remuneration in enhancing productivity across the board. The robustness of this relationship is reflected in the significance level, highlighting the critical role of financial incentives in the overall efficiency and effectiveness of academic staff.

For research output, the coefficient of 1.962 indicates a strong and statistically significant positive effect of basic salary, with a standard error of 0.082. This substantial magnitude suggests that higher salaries enable or incentivize academic staff to focus more on research activities, leading to increased publications and scholarly contributions. This finding aligns with the idea that better compensation may reduce financial stress and provide the necessary resources or time for staff to engage in high-quality research endeavors.

The relationship between basic salary and teaching effectiveness, however, is insignificant, with a negligible coefficient of 0.012 and a standard error of 0.043. This suggests that changes in salary levels do not directly impact teaching effectiveness, possibly due to the intrinsic nature of teaching responsibilities or the existence of other non-monetary factors, such as professional commitment or institutional support, that primarily drive teaching outcomes.

Interestingly, the coefficient for community service involvement is -0.286, and it is statistically significant with a standard error of 0.095, indicating a negative relationship. This result implies that higher salaries may inadvertently reduce academic staff engagement in community services. One plausible explanation could be that well-compensated staff may prioritize personal or professional advancement over community-related activities, particularly if community service is not formally incentivized or integrated into performance evaluations.

Table 3: Multiple least square regression results of basic salary and academic staff performance in selected private university in Northcentral Nigeria

Variables	**Dependent Variable:** Academic Staff Performance				
	Overall Staff Performance	**Research Output**	**Teaching Effectiveness**	**Community Service Involvement**	**Industry Collaboration Involvement**
	1	**2**	**3**	**4**	**5**
Basic Salary	0.706***	1.962***	0.012	-0.286***	1.137***
	(0.043)	(0.082)	(0.043)	(0.095)	(0.049)
Gender: Male	0.138***	0.025	0.500***	0.324***	-0.296***
	(0.022)	(0.041)	(0.034)	(0.046)	(0.030)
Marital Status: Single	-0.055	0.05	-0.165***	0.229***	-0.334***
	(0.042)	(0.078)	(0.042)	(0.073)	(0.048)
Married	0.059	0.172**	0.159***	0.466***	-0.563***

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	(0.044)	(0.083)	(0.043)	(0.076)	(0.054)
Age: 31 – 40 years	0.739***	1.021***	1.190***	1.646***	-0.904***
	(0.051)	(0.094)	(0.047)	(0.110)	(0.050)
41 – 50 years	0.228***	1.393***	0.384***	-0.859***	-0.004
	(0.048)	(0.093)	(0.059)	(0.102)	(0.058)
51 – 60 years	0.220***	0.327***	0.266***	0.404***	-0.117***
	(0.042)	(0.079)	(0.033)	(0.089)	(0.039)
Educational qualification: PhD	0.764***	0.841***	0.531***	0.667***	0.767***
	(0.202)	(0.211)	(0.158)	(0.142)	(0.185)
Academic status: Professor	1.152***	1.445***	1.385***	2.143***	-0.364***
	(0.052)	(0.098)	(0.052)	(0.114)	(0.058)
Associate Professor	0.979***	-0.104	1.163***	2.380***	0.478***
	(0.068)	(0.136)	(0.082)	(0.149)	(0.080)
Senior Lecturer	1.445***	1.378***	1.540***	2.002***	0.859***
	(0.054)	(0.099)	(0.061)	(0.117)	(0.065)
Lecturer I	-0.461***	-0.067	-2.353***	0.797***	-0.222***
	(0.046)	(0.085)	(0.043)	(0.102)	(0.045)
Constant	0.058	-3.706***	2.512***	1.496***	-0.07
	(0.119)	(0.221)	(0.109)	(0.273)	(0.116)
Adj. R-squared	0.953	0.921	0.967	0.715	0.926
Fishers test	110.82***	122.37***	107.68***	143.39***	130.86***
Observations	408	408	408	408	408

Note: Standard errors (robust) are reported in parentheses; *, **, *** signify significance levels of 10%, 5%, and 1%.

Source: Authors' computation from Field Survey (2024).

The coefficient for industry collaboration involvement stands at 1.137, indicating a strong positive significance with a standard error of 0.049. This suggests that higher salaries significantly boost academic staff's participation in collaborative projects with industries. Improved compensation may enable staff to dedicate more time and resources to building and maintaining these industry connections, which often require extra effort and expertise beyond their usual academic duties. Consequently, the regression findings stress that base salary is crucial in influencing overall academic

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performance, particularly impacting research output and industry collaboration involvement. However, its effect on teaching effectiveness appears minimal, and its negative correlation with community service participation needs further exploration to uncover underlying reasons and potential solutions.

Additionally, the regression results shed light on how demographic factors like gender, marital status, age, education, and academic standing affect academic staff performance across various areas, including overall performance, research output, teaching quality, community service involvement, and industry collaboration efforts. Using demographic benchmarks (female gender, other marital statuses, individuals under 30 years, Master's degree holders, and assistant lecturers) as reference points, the results illustrate the performance comparisons between different groups.

Gender has a notable impact on performance, with male respondents displaying higher overall academic performance, evidenced by a coefficient of 0.138. Nevertheless, the effect on research output is minor (0.025) and not statistically significant. Males positively influence teaching effectiveness (0.500) and community service involvement (0.324), but exhibit a negative correlation with industry collaboration involvement (-0.296). This indicates that while male staff may thrive in teaching and community engagement, female staff might excel in fostering industry partnerships.

Marital status also reveals mixed results. In comparison to individuals in different marital statuses, single respondents demonstrate a negative association with teaching effectiveness (-0.165) and industry collaboration involvement (-0.334), yet they positively contribute to community service involvement (0.229). Married respondents show improvements in research output (0.172) and teaching effectiveness (0.159), strongly impacting community service involvement (0.466). Conversely, they have a significant negative effect on industry collaboration (-0.563). These findings underscore how marital responsibilities can influence various facets of academic roles, with single individuals engaging more in external activities and married academics focusing on research and teaching.

Age plays a significant role in performance across all measures. Respondents aged 31–40 exhibit strong positive effects on all performance areas, with the greatest influence on community service involvement (1.646) and teaching effectiveness (1.190). On the other hand, industry collaboration involvement is negatively impacted (-0.904), suggesting younger staff may prioritize academic duties over external industry interactions. Those in the 41–50 age group excel in research output (1.393) and teaching effectiveness (0.384) but demonstrate a negative effect on community service involvement (-0.859). Older staff (51–60 years) show a balanced positive performance across measurement areas, though their effect on industry collaboration is slightly negative (-0.117). These trends imply that middle-aged faculty are highly effective in research and teaching, while older faculty contribute moderately across various dimensions.

Educational qualifications correlate strongly with positive performance across all indices. PhD holders exhibit substantially higher overall academic performance (0.764), research output (0.841), and industry collaboration involvement (0.767) compared to Master's degree holders, emphasizing the role of advanced education in enhancing scholarly productivity and external collaboration.

Academic status significantly influences performance, with professors and senior lecturers outperforming assistant lecturers in all areas. Professors have the most considerable impact on research output (1.445) and community service participation (2.143), while senior lecturers positively affect overall performance (1.445) and teaching effectiveness (1.540). In contrast, Lecturer I shows notable negative effects on teaching effectiveness (-2.353) and overall performance (-0.461), highlighting the challenges encountered by lower-ranked academics. These findings underscore the importance of seniority and experience in boosting academic productivity and community involvement.

Moreover, the statistical significance of the predicted coefficients was validated using Fisher's test at a 5% significance level. This indicates that base salary significantly affects the performance of academic staff at a selected private university in Northcentral Nigeria. Additionally, the models exhibit strong explanatory power, demonstrated by the Adjusted R-square findings. The coefficient of determination

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e-ISSN: 2468-4376
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reveals that base salary explains over 70% of the overall variation in academic staff performance at the selected private university in Northcentral Nigeria.

Discussion of findings

The regression analysis indicates varying effects of basic salary on academic staff performance in private universities located in North-Central Nigeria. According to efficiency wage theory, which suggests that wages above the equilibrium can elevate productivity through better recruitment, reduced turnover, and enhanced effort (Katz, 1986; Krueger and Summers, 1988; Stiglitz, 1986; Weiss, 2017), our findings show a significant positive correlation between basic salary and overall academic staff performance. This implies that competitive pay not only increases motivation but also creates an environment where academic staff are better positioned to provide quality outputs across their various roles.

Importantly, the positive and statistically significant influence of basic salary on research output underscores the crucial role financial incentives play in driving academic productivity. The findings corroborate earlier research indicating that higher compensation enhances the quality of applicants (Figlio, 1997; Leigh, 2012), making it more appealing to attract skilled professionals for demanding research tasks. Consequently, investing more in reward systems appears to elevate a university's research reputation through increased publications and scholarly production, thus enhancing its competitiveness and status as an innovation hub. In contrast, the connection between basic salary and teaching effectiveness is statistically insignificant. This suggests that, while monetary rewards contribute to overall productivity, they do not sufficiently enhance the quality of teaching. This finding aligns with challenges noted in the literature, where teaching and principal-agent issues often blur the direct effects of individual effort (Goldhaber et al., 2008; Guis, 2012). As a result, the lack of a significant finding indicates that non-financial factors such as professional development, advanced teaching resources, and a supportive academic environment are likely crucial for improving teaching performance.

An interesting trend emerged regarding community service participation, revealing a negative and statistically significant relationship with basic salary. This suggests that as academic staff earn more, they may prefer engaging in activities that bring direct organizational rewards, such as research and teaching, rather than participating in community service. This observation aligns with earlier studies that point out that low salaries strongly deter individuals from pursuing careers like teaching (Croft et al., 2018) and indicate that without community service incentives, higher-paid staff may neglect this integral aspect of their responsibilities. Conversely, the significant positive effect of basic salary on industry collaboration participation suggests that improved financial compensation can promote more active engagement with external stakeholders. This aligns with cross-national evidence indicating that higher teacher salaries help attract individuals from the top tier of academic ability (Hanushek et al., 2019) and that competitive pay enables university staff to dedicate more time and effort to building productive industry relationships. These partnerships not only enhance the practical aspect of academic work but also help generate additional revenue streams for the university.

5. CONCLUSION

This study investigates the influence of basic salary on academic staff performance in seven selected private universities in North-Central Nigeria. The analysis reveals that basic salary exerts a multifaceted impact on academic staff performance in private universities in North-Central Nigeria. Using multiple regression analysis, higher compensation is associated with improved overall performance, notably enhancing research productivity and fostering greater engagement with external stakeholders through industry collaborations. In contrast, while increased salaries bolster research output, they do not appear to significantly affect teaching effectiveness, suggesting that monetary incentives alone are insufficient to drive improvements in instructional quality. Moreover, the findings indicate a negative association between higher salaries and community service involvement, implying that well-compensated academic staff may prioritize activities that directly contribute to institutional rewards over community

engagement. These results underscore the critical role of competitive salary structures in enhancing academic productivity and research excellence.

On the policy front, the study suggests that universities should prioritize competitive basic salaries to attract and retain high-caliber researchers, fostering innovation and institutional reputation. Also, these institutions should invest in non-monetary interventions, including training programs, modern teaching tools, and mentorship frameworks, to enhance teaching effectiveness. More so, there is a need for higher institutions to introduce structured rewards (e.g., recognition, promotions) to encourage community engagement alongside core academic duties. In addition, they should leverage salary improvements to strengthen industry collaboration, aligning academic work with practical applications and revenue generation.

The study discusses some common limitations that can help scholars to strengthen the scope for future studies. Focusing on North-Central Nigeria's private universities limits generalizability to public institutions or other regions. Also, the analysis did not fully account for non-financial variables (e.g., institutional policies, personal motivations) that might mediate salary effects. Therefore, further studies need to investigate the role of non-financial factors (e.g., institutional culture, workload distribution) in enhancing teaching quality. Also, they should explore the longitudinal impacts of salary adjustments on academic performance to assess causality. Future studies need to examine qualitative dimensions of community service involvement to design context-specific incentive frameworks.

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