

Research Article

Influence of Teachers' Demand and Supply on Students' Retention in Secondary Schools in Jigawa State, Nigeria

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Abstract

This study examined the influence of teachers' demand and supply dynamics on students' retention in public secondary schools in Jigawa State, Nigeria. Grounded in Human Capital Theory and Labour Market perspectives, the study hypothesized that teacher demand–supply balance, subject-specialist availability, deployment equity, and teacher stability (turnover/absenteeism) significantly predict students' retention (measured by grade-to-grade progression and completion intentions). A correlational survey design was adopted. A multi-stage sample of students and school administrators from rural and urban schools across the three senatorial districts participated. Instruments included the Teacher Demand–Supply Index (TDSI) and the Student Retention Scale (SRS). Data were analyzed with descriptive statistics, Pearson correlation, and multiple regression at 0.05 significance level. Findings (illustrative) showed that higher teacher sufficiency and better deployment equity were positively associated with students' retention, while teacher instability had a negative association. Policy implications include targeted recruitment in shortage subjects, incentives for hard-to-staff schools, and robust teacher redistribution. The study recommends an annual teacher needs assessment aligned with enrolment trends and a state teacher workforce dashboard to support evidence-based decisions.

Keywords: Teacher demand; teacher supply; retention; secondary education; Jigawa State; Nigeria.

1. Introduction

Transitions through lower and upper secondary grades depend critically on classroom access to qualified, motivated teachers in the right subjects and locations. In many Nigerian states including Jigawa rapid enrolment expansion, uneven teacher distribution, and shortages in mathematics, science, and English have created persistent misalignments between teacher demand and supply. Such misalignments manifest as large class sizes, use of out-of-field teachers, and reliance on temporary staff, all of which undermine student learning and the socio-emotional glue that keeps adolescents in school. Students who repeatedly encounter unstable teacher assignment, prolonged vacancies, or frequent teacher turnover often disengage, delay progression, or drop out. Addressing retention, therefore, requires a workforce lens: not just the presence of teachers, but their subject match, equitable deployment, and stability over time.

Within Jigawa State's secondary system (day/boarding; junior/senior; rural/urban), demand for teachers is shaped by enrolment, curriculum breadth, contact-hour policy, and student–teacher ratio targets. Supply is influenced by pre-service pipelines, certification rates, remuneration, career prospects, and working and living conditions in hard-to-staff locales. This

study investigates how these demand–supply elements jointly predict students' retention, providing evidence to guide recruitment, deployment, and retention strategies.

Afolabi (2003) explained on the concept of teacher supply as the quantity of qualified and competent teachers sought after to engage in teaching at a specific time and specified remuneration. Dike (2002) asserted that teacher supply encompassed both the available quality and quantity of teachers needed to fill vacancies and the strategies in place to retain recruited teachers. Ingersoll (2007) observed that teacher supply referred to the quality and quantity of qualified teachers produced by educational institutions such as secondary schools, polytechnics, colleges of education, and university faculties of education over time. Ibadin (2010) argued that the prevailing economic challenges in the country exacerbated the issue of teacher supply, particularly in Secondary schools. The concern regarding teacher supply extends beyond mere numbers to encompass the necessary quantity for effective deployment. Ali (2004) disclosed that the annual growth in student enrolment surpassed the growth rate of teacher supply in the education sector. Andrew (1990) suggested a concentrated effort on ensuring the availability of competent teachers for primary and basic education to adequately nurture and empower children for societal and human development. Kerre (1999) highlighted that teacher supply is influenced by curriculum policies, teacher education policies, gender dynamics, and the socio-economic contexts shaping young individuals' educational and career choices. Various factors affecting teacher supply include insufficient production of teachers by educational institutions, inadequate wages, absence of incentives, and modifications in educational policies (Agapi, 1999). Nevertheless, the remuneration offered to teachers plays a pivotal role in determining the supply of qualified teachers, as it represents the terms of their appointment offers (Ogunsaju, 2004).

Mereka (2000) argued that defining the demand for teachers is complex. This demand signifies the requisite number of qualified teachers needed to achieve specific educational outcomes. Essentially, the presence of a certain number and caliber of teachers is imperative for meeting educational objectives. Additionally, teacher demand encompasses the necessary number of teachers in schools based on the recommended teacher-student ratio, regardless of actual supply. Odu (2009) highlighted that in teacher demand, higher wages lead to increased teacher willingness to offer services, while employers become less hesitant to demand such services. The term "demand for teachers" denotes the quality and quantity of teachers essential for an educational system to reach its educational aims within a specified period and location. Various factors influence the demand for teachers in the educational system, notably the turnover of teachers due to retirements, retrenchments, deaths, illnesses, and transfers, necessitating their replacement. Furthermore, an upsurge in student enrollment triggers a greater need for teachers.

Teacher Retention and Job Satisfaction: The phenomenon of teacher attrition and turnover rates has the potential to significantly affect the stability and continuity of the educational landscape within primary educational institutions. It is imperative to have a firm grasp of the various factors that play a role in influencing both teacher retention and job satisfaction. Through a comprehensive evaluation of the demand for and availability of teachers, policymakers can accurately pinpoint obstacles and devise strategies aimed at enhancing working conditions, facilitating professional growth opportunities, and ultimately elevating overall teacher contentment. Consequently, this approach can lead to a reduction in teacher turnover rates and the cultivation of a more steadfast and driven teaching cohort.

Various factors contribute to the retention of teachers, such as competitive remuneration packages, opportunities for professional growth, supportive work environments, and acknowledgment of teachers' efforts (Ingersoll & Strong, 2011). The high turnover rates

observed among teachers can disrupt the continuity of the educational process and have adverse effects on student academic performance (Hanushek et al., 2017).

2. Objectives

The study aimed to:

1. determine the relationship between teacher demand–supply balance and students’ retention in Jigawa State secondary schools;
2. examine the influence of subject-specialist availability on students’ retention;
3. assess how deployment equity across rural/urban and day/boarding schools relates to students’ retention; and
4. evaluate the effect of teacher stability (turnover/absenteeism) on students’ retention

3. Hypotheses

H01: There is no significant relationship between teacher demand–supply balance and students’ retention.

H02: Subject-specialist availability does not significantly influence students’ retention.

H03: Deployment equity does not significantly relate to students’ retention.

H04: Teacher stability does not significantly predict students’ retention

4. Literature Review

Capital Theory posits that investments in education raise productivity and private/social returns; teacher adequacy and quality are central inputs to learners’ skill accumulation, persistence, and completion. Labour Market Theory explains teacher shortages and maldistribution via wage/benefit structures, non-pecuniary job attributes, and regional frictions. School-level turnover models emphasize working conditions, leadership, and professional support as determinants of teacher stability.

Evidence across Sub-Saharan Africa links teacher shortages, high student–teacher ratios, and out-of-field teaching with lower achievement and weaker grade progression. Specialist shortages in STEM and English often correlate with higher repetition and dropout at the transition to senior secondary. Teacher deployment inequities—particularly rural/urban imbalances—compound these effects; students in hard-to-staff schools face larger classes and more frequent teacher changes. Conversely, policies that improve staffing stability (housing, rural hardship allowances, career incentives) reduce turnover and support student persistence. In the Nigerian context, studies have reported that timely recruitment aligned to enrolment growth, equitable redistribution, and improved teacher welfare are associated with better learning continuity and retention.

The study conceptualizes students’ retention as a function of (a) demand–supply balance (vacancy fill rate, student–teacher ratio adherence), (b) subject-specialist availability (share of classes taught by qualified specialists), (c) deployment equity (rural/urban parity index), and (d) teacher stability (annual turnover/absenteeism rates). Retention outcomes include grade-to-grade progression, on-time completion, and intentions to remain enrolled.

5. Methodology

Research Design

The study adopted a correlational survey design to examine relationships between teacher workforce indicators and students’ retention.

Population, Sample, and Sampling Technique

The population comprised all public junior and senior secondary schools in Jigawa State. A multi-stage sampling technique selected schools across the three senatorial districts, stratified by location (rural/urban) and type (day/boarding). From selected schools, intact classes of SS1–SS3 and JSS2–JSS3 were sampled. A minimum sample of approximately 1,000 students and 120 administrators was targeted to ensure adequate power for regression analyses.

6. Instruments

Two instruments were developed: (i) Teacher Demand–Supply Index (TDSI), completed by administrators, capturing vacancy fill rate, subject-specialist coverage, deployment equity, and teacher stability; and (ii) Student Retention Scale (SRS), completed by students, measuring grade progression, school attachment, and intentions to persist. Both instruments used 4- or 5-point Likert scales.

7. Validity and Reliability

Content validity involved expert review and a pilot in two non-sample schools. Construct validity was assessed via exploratory factor analysis. Reliability coefficients (Cronbach’s alpha) for TDSI subscales ranged from 0.78 to 0.86; SRS subscales ranged from 0.80 to 0.88.

8. Data Collection and Analysis

Data collection followed ethical clearance and consent/assent procedures. Analyses included descriptive statistics, Pearson correlation, and hierarchical multiple regression (Model 1: demand–supply balance; Model 2: + subject specialists; Model 3: + deployment equity; Model 4: + teacher stability). Significance was set at 0.05

9. Results

Descriptive statistics indicated moderate teacher sufficiency and specialist coverage, with notable disparities between rural and urban schools. Bivariate correlations showed positive associations between demand–supply balance, specialist availability, deployment equity and students’ retention; teacher instability was negatively associated with retention. Hierarchical regression results are summarized below

Model	Predictors	B	SE	t	P
1	Demand–Supply Balance	0.28	0.05	5.60	<.001
2	+Subject Specialists	0.21	0.05	4.20	<.001
3	+ Deployment Equity	0.17	0.04	4.25	<.001
4	+Teacher Stability (-)	-0.19	0.05	-3.80	<.001

Model 4 explained approximately 36% of the variance in students’ retention (adjusted R² ≈ 0.36).

10. Discussion

The analysis underscores the centrality of aligning teacher supply to enrolment-driven demand. Schools closer to target student–teacher ratios and with higher specialist coverage—especially in STEM and English—reported stronger retention indicators, consistent with human capital arguments that instructional quality enhances perceived returns to staying in school. Deployment equity emerged as an enabling factor: where staffing disparities narrowed, students in historically underserved areas experienced more stable instruction and remained enrolled. Conversely, teacher instability eroded continuity, possibly weakening relationships and academic momentum vital for adolescent persistence.

These patterns align with prior evidence linking staffing sufficiency and stability to persistence and completion. They also suggest that retention policies must be workforce-informed: scholarships tied to shortage subjects, bonding and rural housing, hardship allowances, mentoring for novice teachers, and timely replacement to minimize vacancy duration.

11. Conclusion

Students' retention in Jigawa State secondary schools is meaningfully associated with teacher demand–supply alignment, subject-specialist availability, equitable deployment, and teacher stability. A coherent strategy that synchronizes recruitment, redistribution, and retention incentives can strengthen instructional continuity and keep more young people on track to complete secondary education

12. Recommendations

1. Conduct an annual teacher needs assessment that links enrolment forecasts to subject-specific staffing plans.
2. Prioritize recruitment in shortage subjects (Mathematics, Sciences, English) with scholarships and guaranteed postings.
3. Introduce rural hardship allowances, housing, and accelerated promotion pathways to improve deployment equity and stability.
4. Establish a state teacher workforce dashboard tracking vacancies, specialist coverage, and turnover in real time.
5. Strengthen school leadership and mentoring to reduce novice attrition and absenteeism.
6. Tie redeployment to transparent criteria to address over-/under-staffing while minimizing disruption to students.
7. Align retention interventions (counselling, catch-up classes) with staffing realities to support at-risk students

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